

---

# Telemecanique Sensors

## The essential guide of Detection



Simply easy!



**Telemecanique**  
Sensors

# Telemecanique Sensors

## Simply easy!

Founded over 90 years ago, **Telemecanique Sensors** specializes in sensors and sensor-related technology.

As a **global leader** in the sensors business, we help our customers select the right technology to get the best performance and reliability from their machines.



Focused on 3 core values – **Simplicity, Proximity and Expertise** – we have become experts in factory automation sensors as well as specialists in demanding applications, making our customers' lives **Simply easy!**

## Connect with the experts



Telemecanique Sensors team is available for pre and post sales support. We become an extension of your team and share our expertise with you.

[www.tesensors.com](http://www.tesensors.com)

# Contents

|                                                                                                                                          |          |
|------------------------------------------------------------------------------------------------------------------------------------------|----------|
| <b>Innovation Focus</b> .....                                                                                                            | 2 to 3   |
| A summary of recently released, cutting-edge products                                                                                    |          |
| <b>Sensors Solutions by Application</b> .....                                                                                            | 4 to 11  |
| A guide applying our sensors to Material Handling, Railway, Mobile Lift, Hoisting, Water Pumping, and Escalator / Elevator applications. |          |
| <b>Products</b>                                                                                                                          |          |
| Limit switches, XC .....                                                                                                                 | 12 to 21 |
| Detection by contact of rigid objects                                                                                                    |          |
| Sensors for pressure control, XM, ZM .....                                                                                               | 22 to 27 |
| Detection by contact with fluid                                                                                                          |          |
| Inductive proximity sensors, XS .....                                                                                                    | 28 to 38 |
| Detection without contact of metal objects                                                                                               |          |
| Capacitive proximity sensors, XT .....                                                                                                   | 39       |
| Detection of insulating materials or conductive materials                                                                                |          |
| Photo-electric sensors, XU .....                                                                                                         | 40 to 51 |
| Detection without contact of any object                                                                                                  |          |
| Ultrasonic sensors, XX .....                                                                                                             | 52 to 54 |
| Detection without contact of any object of any material                                                                                  |          |
| Cabling system, XZ .....                                                                                                                 | 55       |
| Pre-wired female connectors                                                                                                              |          |
| Radio frequency identification, XG .....                                                                                                 | 56 to 58 |
| 13.56 MHz RFID detection                                                                                                                 |          |
| Cloud connected sensors, XIOT .....                                                                                                      | 59       |
| <b>Sensors for Safety</b> .....                                                                                                          | 60 to 76 |

# Telemecanique Sensors

## Innovation focus...

### Safety sensors and switches

The new **XUSL4M Range** of safety Light Curtains help protect machine operators while allowing the temporary suspension of safety-related functions for designed automated processes.



- ◀ The new **XCSR Range** of RFID contactless safety switches help secure hazardous areas. A high level of safety in a compact size, highly tamper-proof and easy to install.

### Wireless limit switches

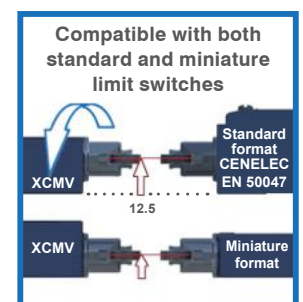


Wireless and battery-less limit switches are now available in miniature format! Enhance machine communication where cabling is difficult, expensive, or unwanted. The **XCMW Range** is also the perfect way to give mobile machines more freedom of movement.

### Mobile equipment limit switches



- ◀ Plugging quality and reliability into your mobile equipment has never been easier with **XCMV Limit switches**. The new line of XC limit switches has been engineered for quality and compatibility featuring a universal, flexible mounting design, compatible with both standard and miniature limit switches.



## Smart RFID system



- ▶ The new **XG Range** of Telemecanique Sensors RFID Readers strengthen the machine's safety via an innovative and easy-to-configure system. This new solution can be easily integrated into a control panel via a standard 22mm hole. It will allow each user the appropriate machine functions based on their assigned profile.

## Cloud Connected Sensors

The new **Cloud Connected Sensor XIOT** is the "**Simply easy!**" way to monitor your industrial assets! The XIOT captures event information at your remote locations and sends data to the internet cloud, which sends an alert directly to your phone or other mobile device.

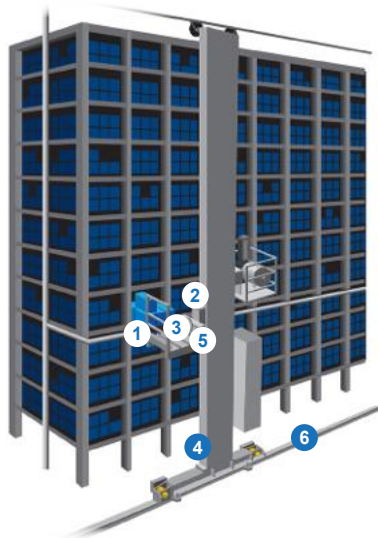


## Ultrasonic sensors



- ▶ The innovative **XX Range** of software-configurable ultrasonic sensors now includes a wide beam sensor ideal for mobile equipment and material handling. This wide beam sensor detects in harsh environments, is highly immune to electromagnetic interference, and can be installed side-by-side for wider areas.

# Sensor Solutions for Material Handling Applications



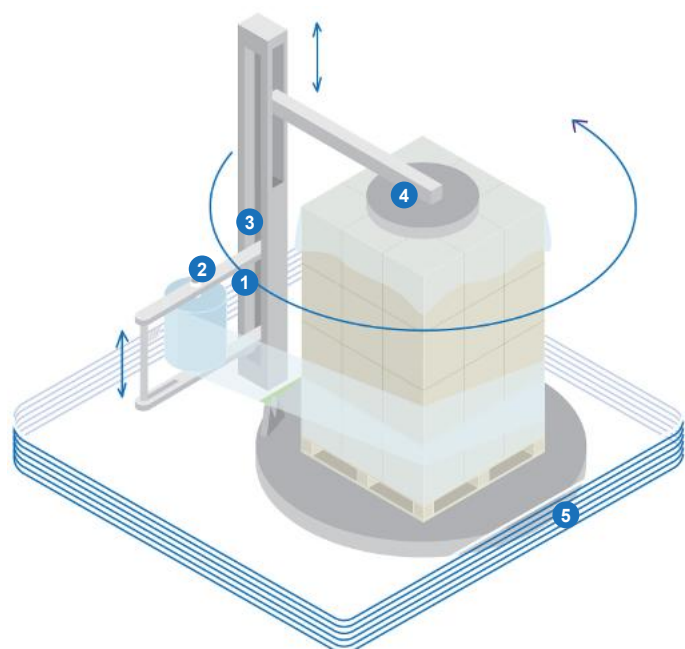
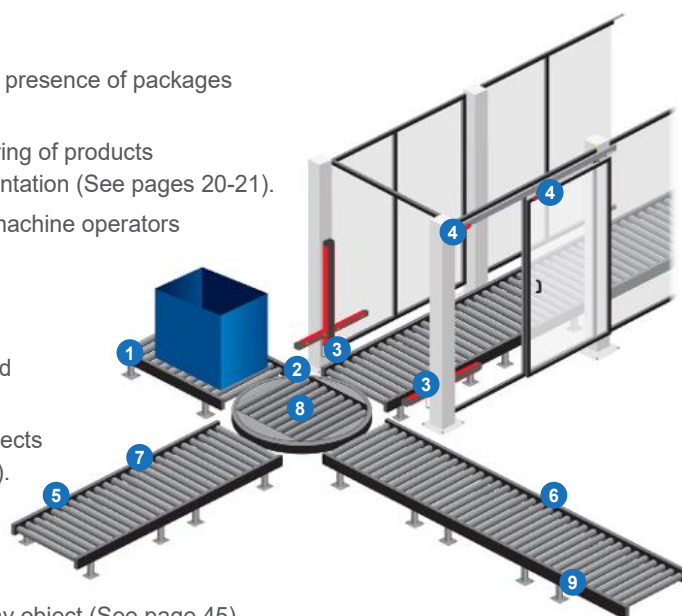
## Automated Storage and Retrieval Systems

- 1 **XS Cylindrical Inductive Sensor** verifies the table position to validate the movement authorization (See pages 29 & 35).
- 2 **XCMW Wireless & Battery-less Limit Switch** detects the compartment where the lift stops (See pages 20-21).
- 3 **XUM Miniature Photoelectric Sensor** verifies the presence of load on the table (See pages 41, 46, & 49).
- 4 **XUK Photoelectric Laser Sensor** measures distance for the translation travel (See pages 44-45).
- 5 **XG RFID System** provides traceability of bins in the warehouse (See page 56).
- 6 **XS Rectangular Inductive Sensor** detects an overtravel (See page 31).



## Conveyors

- 1 **XUM Miniature Photoelectric Sensor** detects the passage and presence of packages with background suppression (See pages 41, 46, & 49).
- 2 **XCMW Wireless & Battery-less Limit Switch** enables transferring of products from conveyor to conveyor without losing the exact direction orientation (See pages 20-21).
- 3 **XUSL4M Safety Light Curtains with Muting** efficiently detect machine operators with uninterrupted automation processes (See page 74).
- 4 **XCSR RFID Safety Sensor** shuts down the machine if the door opens (See page 68).
- 5 **XUB Cylindrical Photoelectric Sensor** detects the passage and presence of packages using a reflector (See pages 40 & 49).
- 6 **XX Ultrasonic Sensor** detects the passage and presence of objects regardless of their color, shape, or orientation (See pages 52-53).
- 7 **XG RFID System** provides traceability of packages in the warehouse (See page 56).
- 8 **XUY Photoelectric Roller Sensor** provides integrated, between-the-rollers detection of the passage and presence of any object (See page 45).
- 9 **XY2 Emergency Stop Cable Pull Switch** provides a readily-accessible, quick emergency stop (See pages 69-70).



## Stretch Wrapper

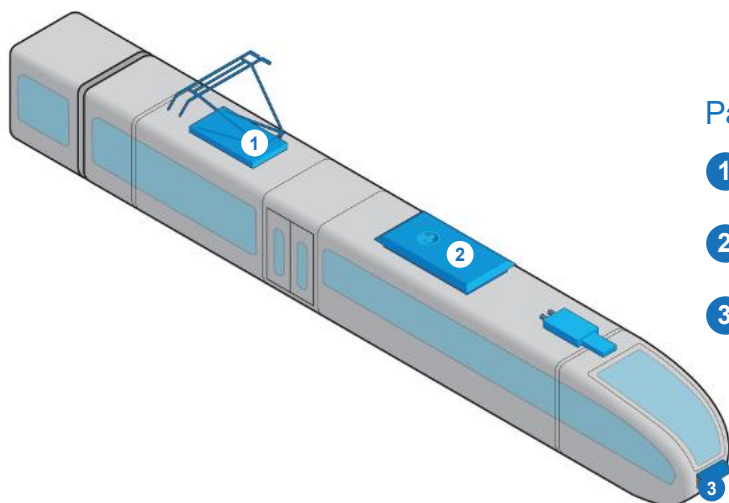
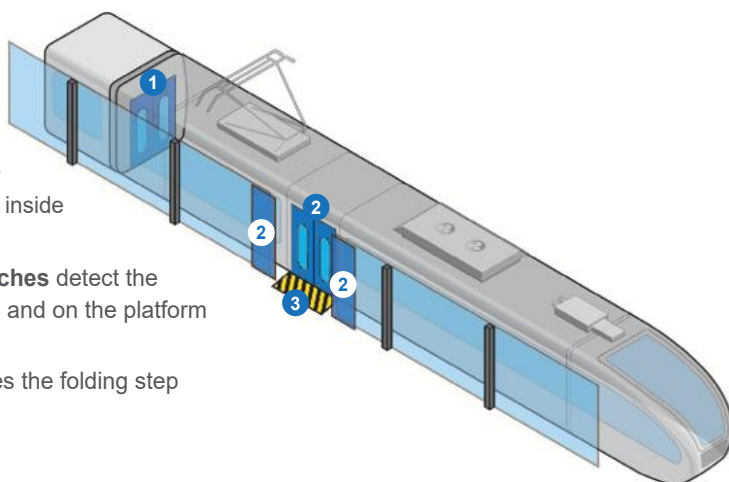
- 1 **XUK Photoelectric Laser Sensor** detects the distance measurement to the pallet (See pages 44-45).
- 2 **XX Ultrasonic Sensor** detects the end of the film reel or film breakage (See pages 52-53).
- 3 **XCMD Miniature Limit Switch** detects the end positions (See pages 12-13).
- 4 **XUX Photoelectric Sensor** detects any package overhang (See pages 41 & 49).
- 5 **XUSL Safety Light Curtains** monitor the access of persons to hazardous machine zones (See pages 71-73).



# Sensor Solutions for Railway Applications

## Automatic Doors

- 1 **XUK9 Photoelectric Sensor** detects passengers for doors inside the train (See page 41).
- 2 **XCMD or XCMN Limit Switches** detect the position of doors on the train and on the platform (See pages 12-13).
- 3 **XCKD Limit Switch** activates the folding step (See page 12).

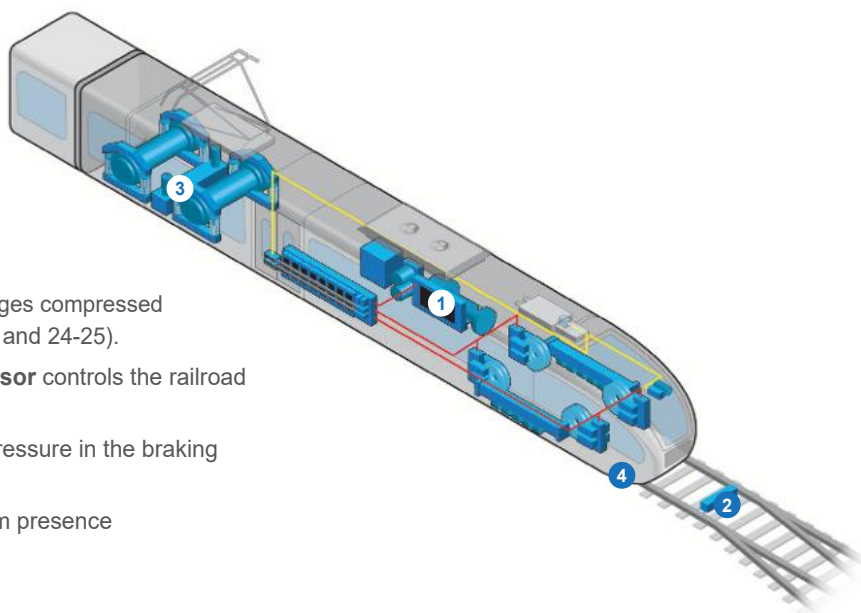


## Pantograph, Air Conditioning & Coupling Systems

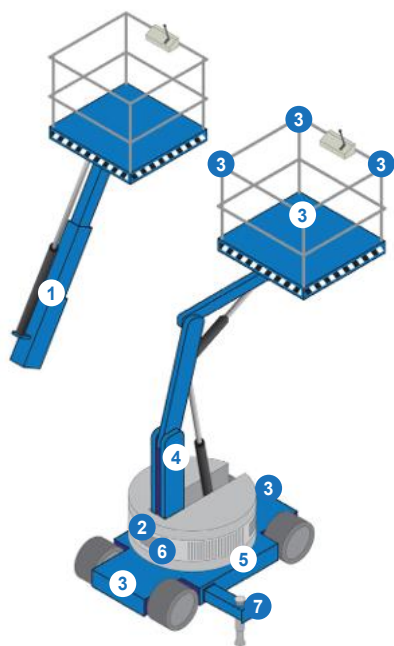
- 1 **XMLC Pressure Sensor** regulates the pressure of the pantograph mechanism (See page 25).
- 2 **XMEP Pressure Sensor** regulates pressure in the air conditioning systems (See page 22).
- 3 **XS618 Inductive Sensor** checks the position of the coupling trap doors (See page 29).

## Air Supply and Braking System

- 1 **XMLA/B or XMEP Pressure Sensor** manages compressed air in the air supply systems (See pages 22 and 24-25).
- 2 **XCMD Limit Switch or XS Inductive Sensor** controls the railroad turnout system (See pages 12-13 & 31).
- 3 **XMLA/B or C Pressure Sensor** checks pressure in the braking systems (See pages 24-25).
- 4 **XX Ultrasonic Sensor** detects the platform presence (See page 52).



# Sensor Solutions for Mobile Lift Applications



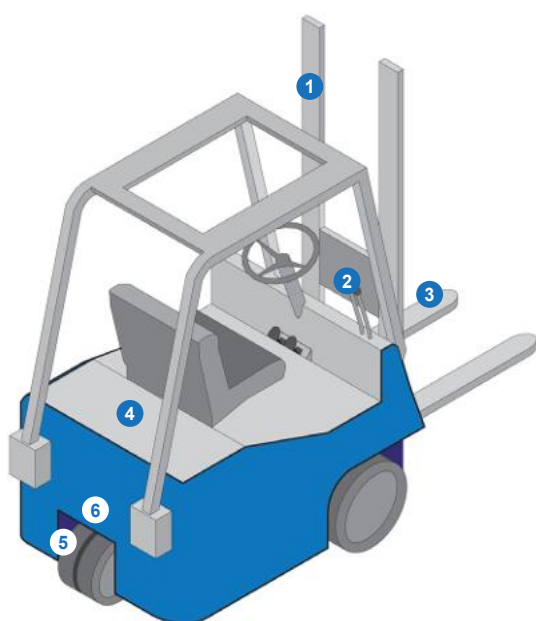
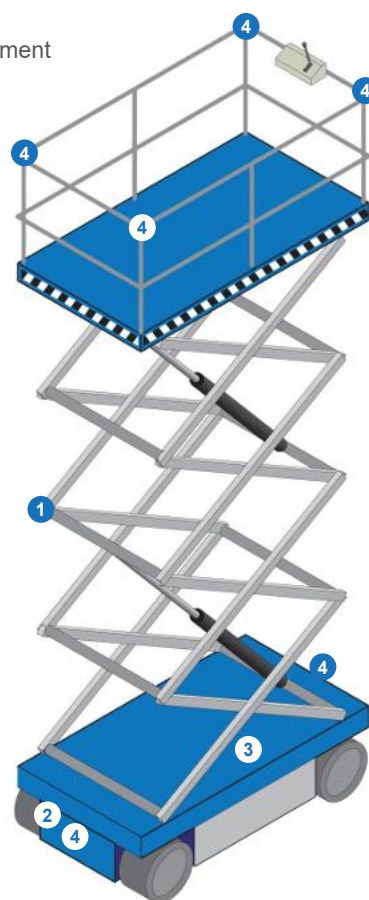
## Boom Lift Platforms

- 1 **XCKP or XCMD Limit Switch** detects the extension or retraction of the telescopic arm (See pages 12-13).
- 2 **XCKP Limit Switch** detects the rest position of the boom (See pages 12-13).
- 3 **XXW54 Wide Beam Ultrasonic Sensors** detect obstacles on or above the ground (See page 53).
- 4 **XCKP or XCMD Limit Switch** detects the boom position (See pages 12-13).
- 5 **XMEP Pressure Transmitter** monitors and regulates hydraulic pressure (See page 22).
- 6 **XS Inductive Sensors** detect the turret rotation (See page 35).
- 7 **XCMD Limit Switch** detects the deployment of stabilizers (See pages 12-13).



## Scissor Lift Platforms

- 1 **XCMD Limit Switch with XCMZ06 Accessory** monitors height (See pages 12-13).
- 2 **XMEP Pressure Sensor** monitors and regulates hydraulic pressure (See page 22).
- 3 **XCMV or XCKP Limit Switch** monitors wheel contact with the ground (See pages 12-13).
- 4 **XXW54 Wide Beam Ultrasonic Sensors** detect obstacles above and on the ground (See page 53).



## Fork Lifts

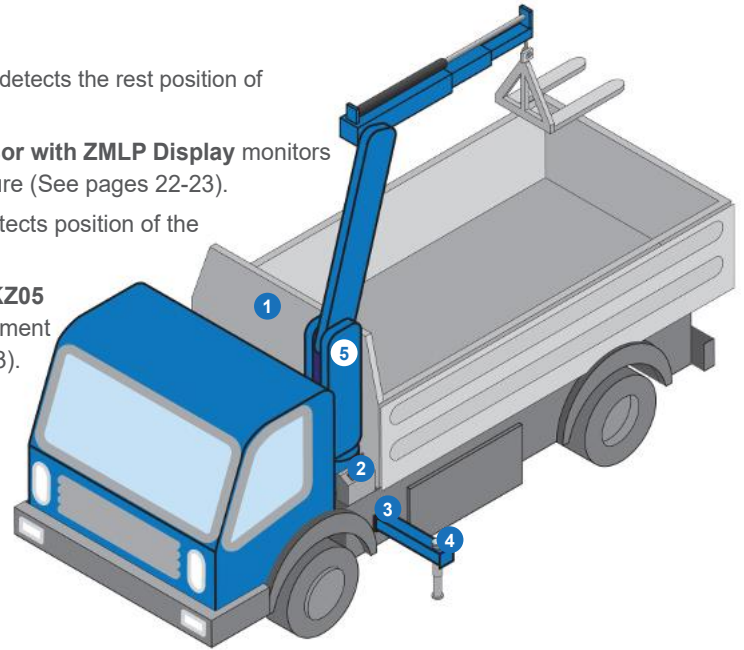
- 1 **XCKP or XCMD Limit Switch** detects fork and travel position (See pages 12-13).
- 2 **XCMV Limit Switch** monitors the position of the operating mechanism (See page 12).
- 3 **XCMD Limit Switch** detects the distance between the two forks (See pages 12-13).
- 4 **XMEP Pressure Sensor** monitors and regulates hydraulic pressure (See page 22).
- 5 **XS Inductive Sensor** detects wheel position (See pages 30 & 35).
- 6 **XXW54 Wide Beam Ultrasonic Sensors** detect obstacles on the ground (See page 53).



# Sensor Solutions for Mobile Lift Applications

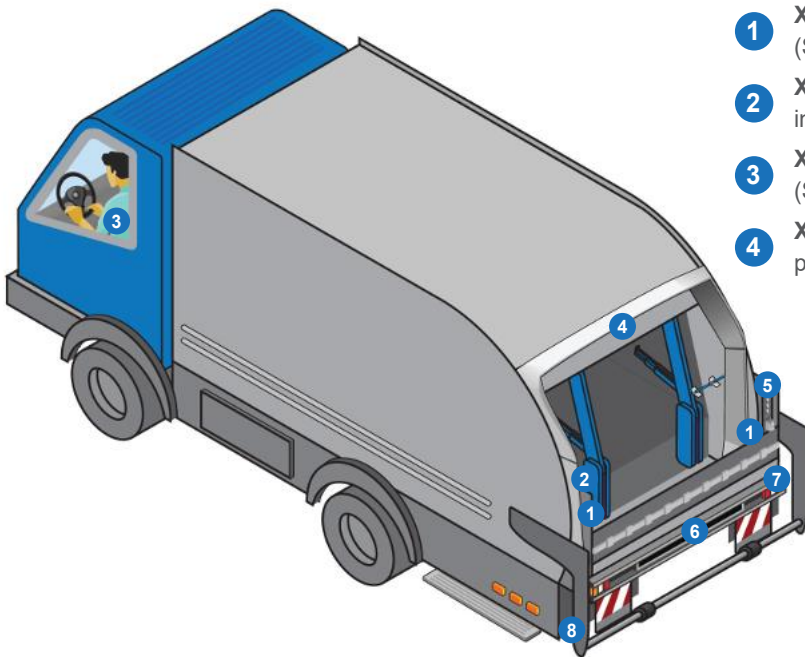
## Truck Loading Cranes

- 1 **XCMV or XCMD Limit Switch** detects the rest position of the arm (See pages 12-13).
- 2 **XMLR Sensor or XMEP Sensor with ZMLP Display** monitors and regulates hydraulic pressure (See pages 22-23).
- 3 **XS SIL2 Inductive Sensor** detects position of the stabilizer (See page 35).
- 4 **XCKD Limit Switch with XCKZ05 Accessory** detects the deployment of stabilizers (See pages 12-13).
- 5 **XS Inductive Sensor** detects the position of the rotary arm (See page 35).

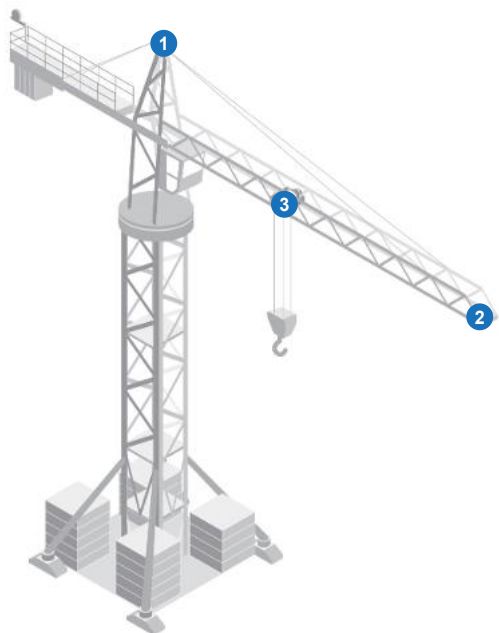


## Garbage Trucks

- 1 **XUSL Light Curtains** enables hand and people protection (See pages 71-73).
- 2 **XU2S Photoelectric Sensor** detects the shovel movement interruption (See page 71).
- 3 **XG RFID Systems** detect the driver's presence (See page 56).
- 4 **XMEP Pressure Transmitter** detects hydraulic pressure while compacting (See page 22).
- 5 **XS Inductive Sensor** detects the loader's end point (See page 35).
- 6 **XG RFID System** identifies the garbage (See page 56).
- 7 **XS Inductive Sensor** detects the presence of the operator (See page 35).
- 8 **XX Ultrasonic Sensor** detects obstacles on the road (See page 52).

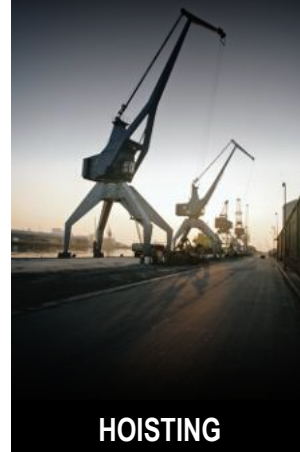


# Sensor Solutions for Hoisting Applications



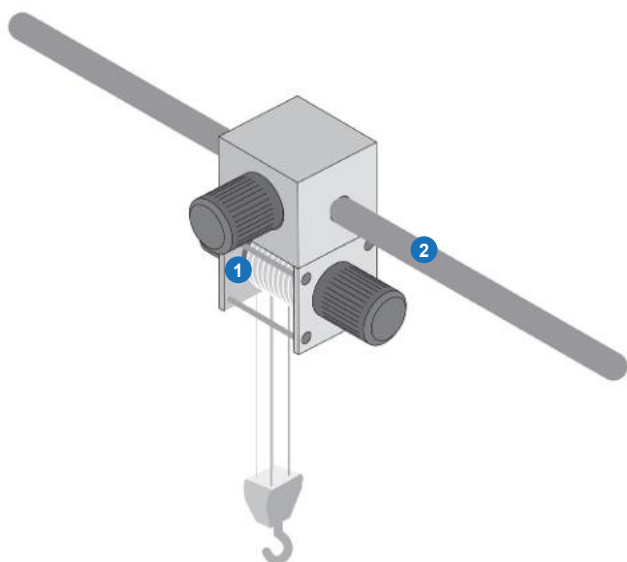
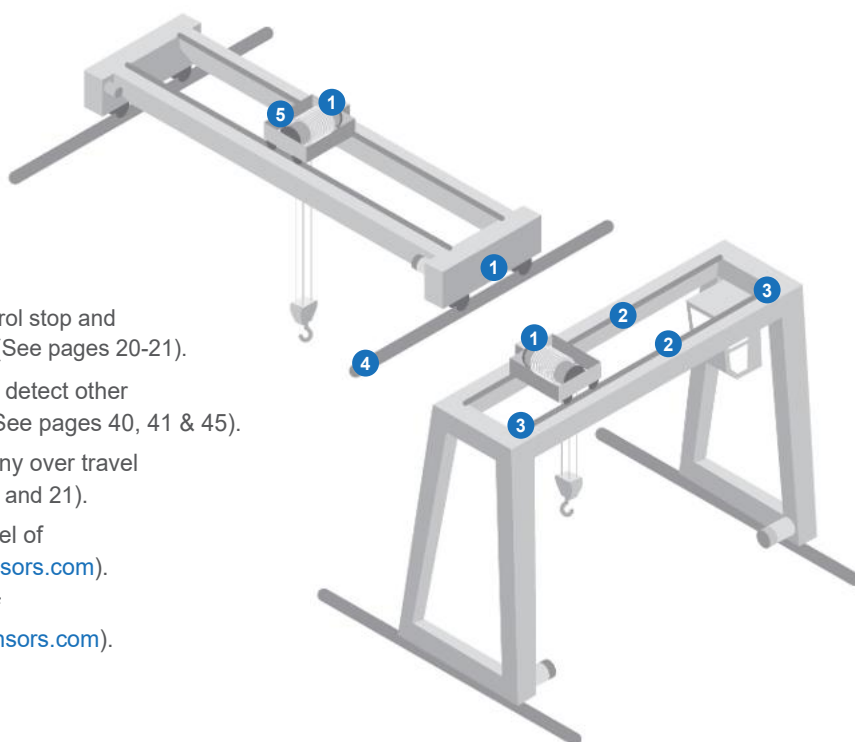
## Tower Cranes

- 1 XCKM / XCR Limit Switch** detects specific position for overload or overtorque control (See pages 16 and 21).
- 2 XF Limit Switch** detects any overtravel of trolley movement (See [www.tesensors.com](http://www.tesensors.com)).
- 3 XCKVR / XCKMR Limit Switches** control stop and slow down of the horizontal movement (See pages 20-21).



## Overhead and Gantry Cranes

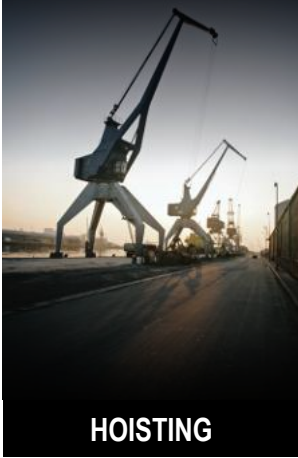
- 1 XCKVR / XCKMR Limit Switches** control stop and slow down of the horizontal movement (See pages 20-21).
- 2 XUX / XUK9T Photoelectric Sensors** detect other cranes; provide anticollision function (See pages 40, 41 & 45).
- 3 XCKM / XCR Limit Switches** detect any over travel of the trolley movement (See pages 16 and 21).
- 4 XF Limit Switch** detects any over travel of translation movement (See [www.tesensors.com](http://www.tesensors.com)).
- 5 XF Limit Switch** detects an over up of the vertical movement (See [www.tesensors.com](http://www.tesensors.com)).



## Block Hoists

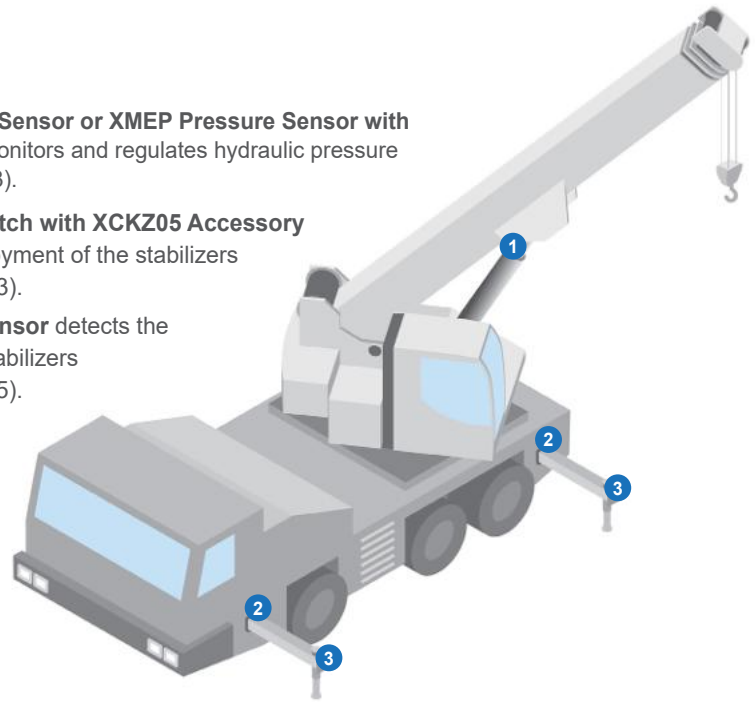
- 1 XCMD Limit Switch** controls stop, up, and down of the vertical movement. Miniature switches are incorporated in the hoist winch. (See pages 12 & 13).
- 2 XCR Limit Switch** controls the stop of the horizontal movement (See page 21).

# Sensor Solutions for Hoisting Applications



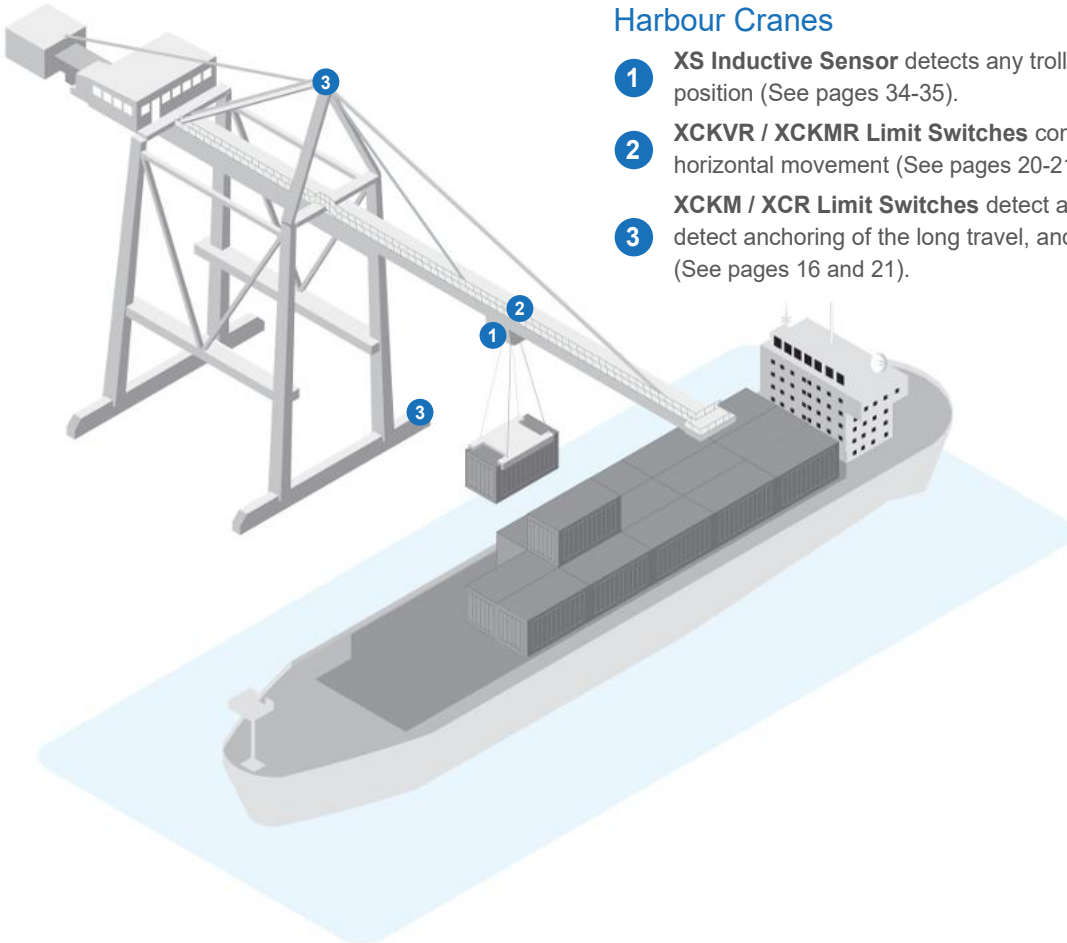
## Mobile Cranes

- 1 **XMLR Pressure Sensor or XMEP Pressure Sensor with ZMLP Display** monitors and regulates hydraulic pressure (See pages 22-23).
- 2 **XCKD Limit Switch with XCKZ05 Accessory** detects the deployment of the stabilizers (See pages 12-13).
- 3 **XS Inductive Sensor** detects the position of the stabilizers (See pages 34-35).

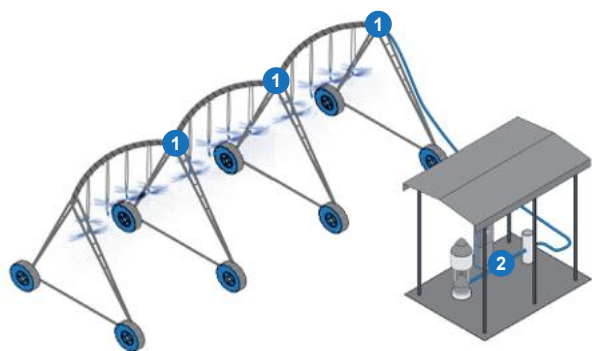


## Harbour Cranes

- 1 **XS Inductive Sensor** detects any trolley position with resynchronization position (See pages 34-35).
- 2 **XCKVR / XCKMR Limit Switches** controls the stop and slowdown of the horizontal movement (See pages 20-21).
- 3 **XCKM / XCR Limit Switches** detect an over travel of trolley movement, detect anchoring of the long travel, and monitor the boom sequence (See pages 16 and 21).

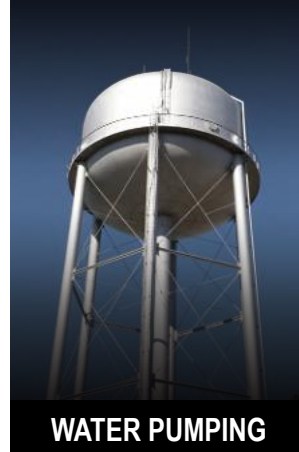


# Sensor Solutions for Water Pumping Applications



## Irrigation Systems

- 1 **XCMD Limit Switch** controls movement (See pages 12-13).
- 2 **XMLP Pressure Sensor** monitors and regulates hydraulic pressure (See page 22).



**WATER PUMPING**

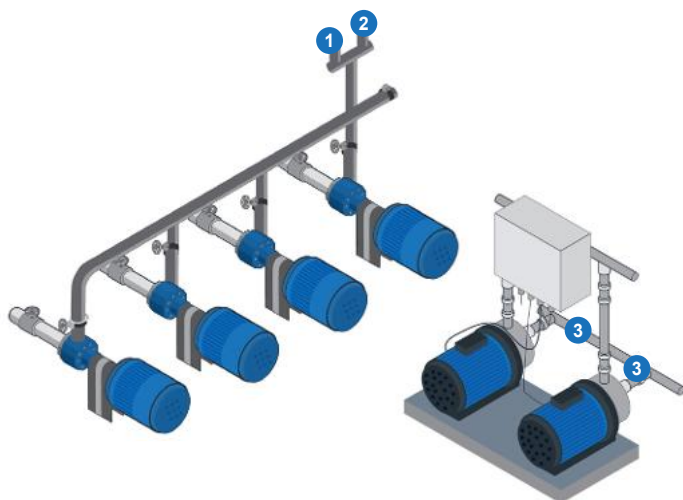
## Fire Trucks

- 1 **XS Inductive Sensor** provides speed monitoring on the chemical mix pump (See pages 28-29).
- 2 **XCMD Limit Switch** controls the valve opening / closing (See pages 12-13).
- 3 **XCMD Limit Switch** checks to see if the hose is in place (See pages 12-13).
- 4 **XMLP Pressure Sensor** measures level in the water tank (See page 22).
- 5 **XMLP Pressure Sensor** measures water pressure for managing the chemical mix (See page 22).
- 6 **XCMD Limit Switch** controls door opening / closing (See pages 12-13).



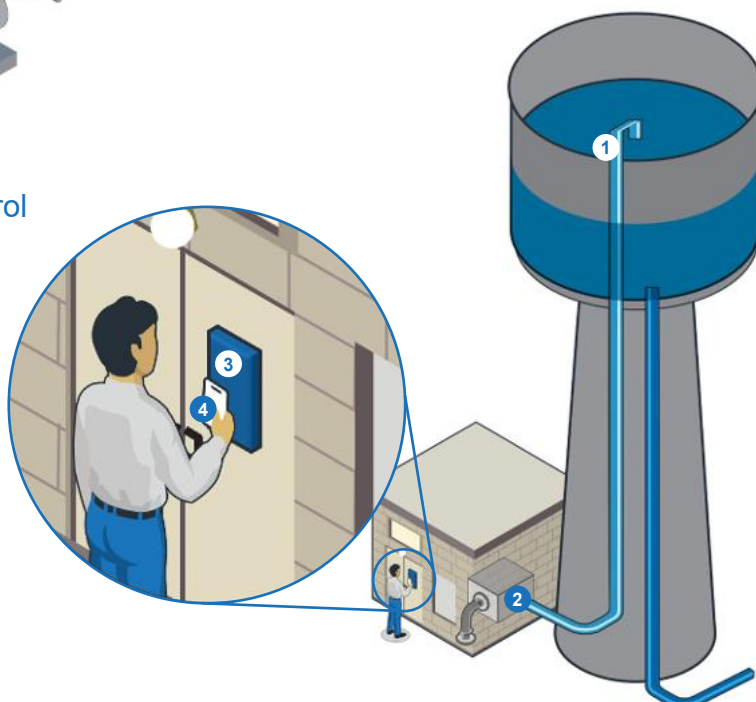
## Lifting and Boosting Stations

- 1 **XMLA or XMX Pressure Sensor** controls threshold fixing (See pages 24-26).
- 2 **XMLR Pressure Switch** regulates pressure (See page 23).
- 3 **XMP Pressure Sensor** monitors pressure threshold with electromechanical switch (See page 27).



## Water Storage Facilities & Access Control

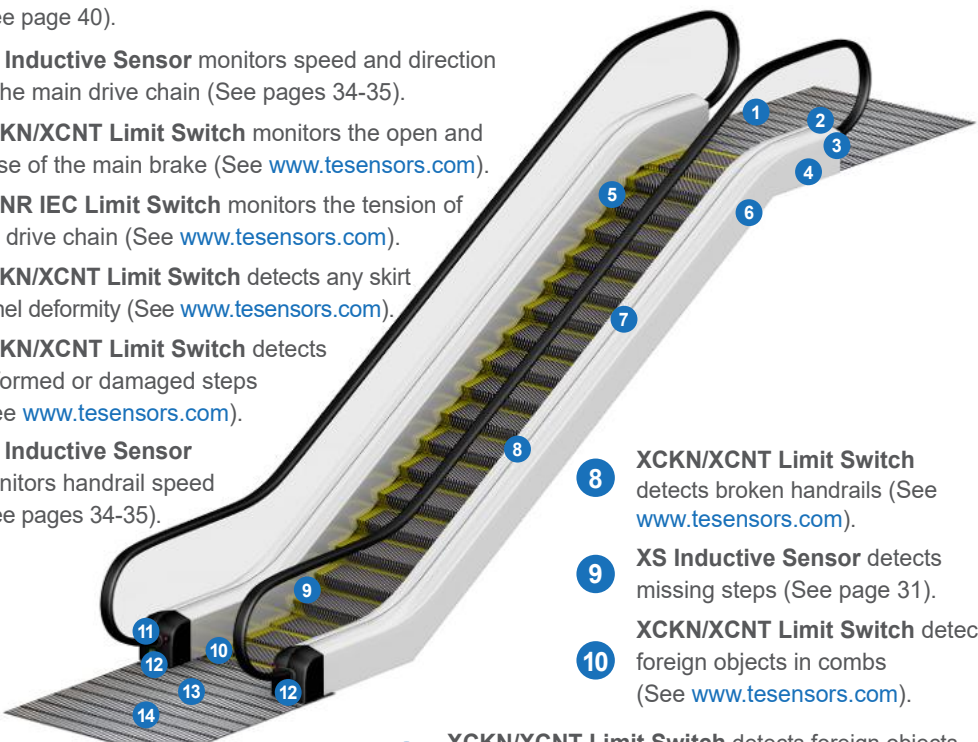
- 1 **XXS30 / XXA30 Ultrasonic Sensor** monitors the water level (See page 53).
- 2 **XMLP Pressure Sensor + ZMLP Display** monitors pressure and provides a remote display (See pages 22-23).
- 3 **XGCS RFID Reader / Smart Antenna** automatically reads electronic badges/tags (See pages 56-57).
- 4 **XGHB Electronic Tag** stores data assigned to the individual tag owner (See page 56).

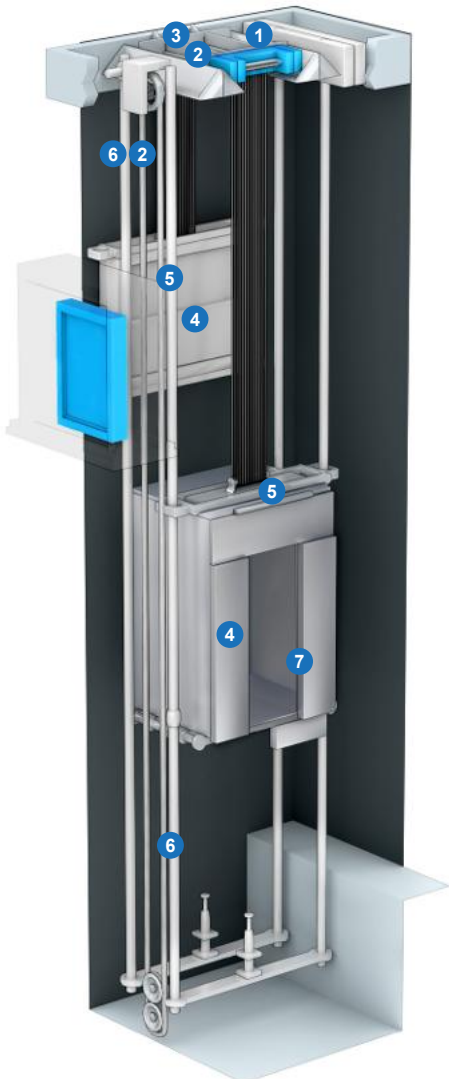




# Sensor Solutions for Escalator / Elevator Applications

## Escalators

- 
- 1 **XU Photoelectric Sensor** detects entrance (See page 40).
  - 2 **XS Inductive Sensor** monitors speed and direction of the main drive chain (See pages 34-35).
  - 3 **XCKN/XCNT Limit Switch** monitors the open and close of the main brake (See [www.tesensors.com](http://www.tesensors.com)).
  - 4 **XCNR IEC Limit Switch** monitors the tension of the drive chain (See [www.tesensors.com](http://www.tesensors.com)).
  - 5 **XCKN/XCNT Limit Switch** detects any skirt panel deformity (See [www.tesensors.com](http://www.tesensors.com)).
  - 6 **XCKN/XCNT Limit Switch** detects deformed or damaged steps (See [www.tesensors.com](http://www.tesensors.com)).
  - 7 **XS Inductive Sensor** monitors handrail speed (See pages 34-35).
  - 8 **XCKN/XCNT Limit Switch** detects broken handrails (See [www.tesensors.com](http://www.tesensors.com)).
  - 9 **XS Inductive Sensor** detects missing steps (See page 31).
  - 10 **XCKN/XCNT Limit Switch** detects foreign objects in combs (See [www.tesensors.com](http://www.tesensors.com)).
  - 11 **XCKN/XCNT Limit Switch** detects foreign objects on handrail (See [www.tesensors.com](http://www.tesensors.com)).
  - 12 **XX Ultrasonic Sensor** detects presence to activate escalator (See pages 52-53).
  - 13 **XCNR IEC Limit Switch** monitors drive chain traction (See [www.tesensors.com](http://www.tesensors.com)).
  - 14 **XS Inductive Sensor** detects the position of the access cover (See pages 30-31).



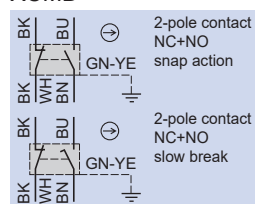
## Elevators

- 1 **XS Inductive Sensor** detects car position and/or motor speed (See pages 34-35).
- 2 **XIOT Cloud Connected Sensor** sends remote alerts when overrun or secure area access is detected (See page 59).
- 3 **XCS Safety Switch** secures access to maintenance area (See page 69).
- 4 **XU Photoelectric Sensor** detects anyone in doorway before closing (See pages 40-41).
- 5 **XCK IEC Limit Switch, XU Photoelectric Sensor, or XS Inductive Sensor** detects car positioning (See pages 20-21, 34-35, & 40-41).
- 6 **XCNR IEC Limit Switch** detects overrun (See [www.tesensors.com](http://www.tesensors.com)).
- 7 **XG Compact RFID Sensor** secures access to restricted levels (See pages 56-57).

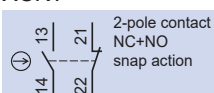
# XC Limit switches

Compact and miniature, complete switches (variable composition, see pages 6-7)

## XCMD



## XCKT



### Miniature XCMD metal, Pre-cabled; fixing by the body or by the head

| Type of operator                                                   | Metal end plunger                                                               | Steel roller plunger                                                                | Thermoplastic roller lever | Steel roller lever | Variable length thermoplastic roller lever | M12 head metal end plunger |             |
|--------------------------------------------------------------------|---------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------------------------|--------------------|--------------------------------------------|----------------------------|-------------|
| Mechanical durability (millions of operating cycles)               | 10                                                                              | 10                                                                                  | 10                         | 10                 | 10                                         | 10                         |             |
| Actuation speed (in m/s)                                           | 0,5                                                                             | 0,5                                                                                 | 1,5                        | 1,5                | 1,5                                        | 0,5                        |             |
| Switches conforming to standard IEC 947-5-1 section 3 ➞            | ➞                                                                               | ➞                                                                                   | ➞                          | ➞                  | ➞                                          | ➞                          |             |
| Product certification                                              | CE, UL, CSA, CCC                                                                |                                                                                     |                            |                    |                                            |                            |             |
| Degree of protection conforming to IEC 60529                       | IP66 and IP67                                                                   |                                                                                     |                            |                    |                                            |                            |             |
| Rated operational characteristics (conforming to EN IEC 60947-5-1) | AC 15 ; B 300 (Ue = 240 V, Ie = 1,5 A) / DC 13 ; R 300 (Ue = 250 V, Ie = 0,1 A) |                                                                                     |                            |                    |                                            |                            |             |
| Fixing centres (mm)                                                | 20                                                                              |                                                                                     |                            |                    |                                            | M12 x 1                    |             |
| Body dimensions (mm) W x D x H                                     | 30 x 16 x 50                                                                    |                                                                                     |                            |                    |                                            |                            |             |
| Connection                                                         | Pre-cabled                                                                      | Pre-cabled, adjustable direction, length = 1 m (other lengths available on request) |                            |                    |                                            |                            |             |
| Complete switch                                                    | 2-pole NC+NO snap action                                                        | XCMD2110L1                                                                          | XCMD2102L1                 | XCMD2115L1         | XCMD2116L1                                 | XCMD2145L1                 | XCMD21F0L1  |
|                                                                    | 2-pole NC+NO break before make, slow break                                      | XCMD2510L1                                                                          | XCMD2502L1                 | XCMD2515L1         | XCMD2516L1                                 | XCMD2545L1                 | XCMD25F0L1  |
|                                                                    | Connector                                                                       | M12                                                                                 |                            |                    |                                            |                            |             |
| Complete switch                                                    | NO+NC snap action (M12 - 5-pins)                                                | XCMD2110C12                                                                         | XCMD2102C12                | XCMD2115C12        | XCMD2116C12                                | XCMD2145C12                | XCMD21F0C12 |
|                                                                    | 1C/O snap action (M12 - 4-pins) (1)                                             | XCMD2110M12                                                                         | XCMD2102M12                | XCMD2115M12        | XCMD2116M12                                | XCMD2145M12                | XCMD21F0M12 |

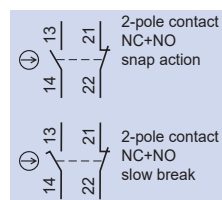
New

### Miniature mobile equipment metal range, Pre-cabled; fixing by the body or by the head

|                 |                |                                                                                     |                 |             |             |
|-----------------|----------------|-------------------------------------------------------------------------------------|-----------------|-------------|-------------|
|                 | Connector      |  | AMP 4P          |             |             |
| Complete switch | NC+NO snap (2) |                                                                                     | XCMD2110AM4     | XCMD2102AM4 | XCMD2115AM4 |
|                 | Connector      |  | Deutsch DT04 4P |             |             |
| Complete switch | NC+NO snap (2) |                                                                                     | XCMV2110D44     | XCMV2102D44 | XCMV2115D44 |
|                 | Connector      |  | M12             |             |             |
| Complete switch | NC+NO snap (2) |                                                                                     | XCMV2110M12     | XCMV2102M12 | XCMV2115M12 |

- Although their design is identical to the Pre-cabled switches, the switches incorporating an M12 4-pin connector cannot be marked ⊕ because they are single-pole C/O.
- Also available in NC + NO slow versions. Replace the first "1" with a "5". Example: XCMD2110AM4 becomes **XCMD2510AM4**.

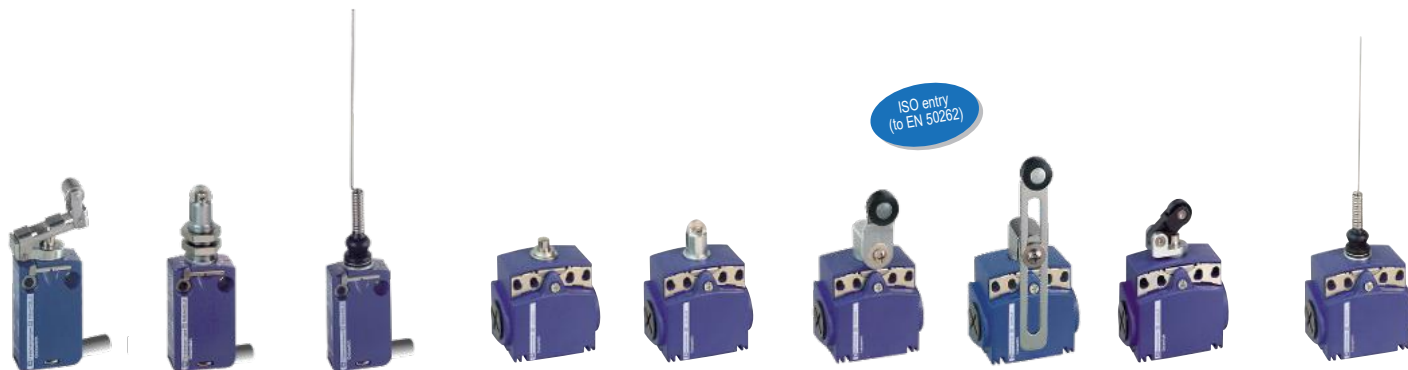
## XCKP/XCKD



### Compact XCKD metal and XCKP plastic conforming to standard EN 50047

| Type of operator                                                   |                                                                                | Metal end plunger | Steel roller plunger | Thermoplastic roller lever plunger, horizontal actuation (6) | M18 head metal end plunger | M18 head steel roller plunger |
|--------------------------------------------------------------------|--------------------------------------------------------------------------------|-------------------|----------------------|--------------------------------------------------------------|----------------------------|-------------------------------|
| Mechanical durability (millions of operating cycles)               |                                                                                | 15                | 10                   | 15                                                           | 10                         | 10                            |
| Actuation speed (in m/s)                                           |                                                                                | 0,5               | 0,5                  | 1                                                            | 0,5                        | 0,5                           |
| Switches conforming to standard IEC 947-5-1 section 3 ➞            |                                                                                | ➞                 | ➞                    | ➞                                                            | ➞                          | ➞                             |
| Product certification                                              | CE, CSA, CCC, EAC                                                              |                   |                      |                                                              |                            |                               |
| Degree of protection conforming to IEC 60529                       | IP66 and IP67                                                                  |                   |                      |                                                              |                            |                               |
| Rated operational characteristics (conforming to EN IEC 60947-5-1) | AC 15 ; A 300 (Ue = 240 V, Ie = 3 A) / DC 13 ; Q 300 (Ue = 250 V, Ie = 0,27 A) |                   |                      |                                                              |                            |                               |
| Pre-cabled entry                                                   | 1 tapped entry for ISO M16 x 1.5 pre-cabled gland (5) or M12 connector         |                   |                      |                                                              |                            |                               |
| Fixing centres (mm)                                                |                                                                                | 20                | 20                   | 20                                                           | M18 x 1                    | M18 x 1                       |
| Body dimensions (mm) W x D x H                                     | 31 x 30 x 65                                                                   |                   |                      |                                                              |                            |                               |
| Metal switches                                                     |                                                                                |                   |                      |                                                              |                            |                               |
| Complete switch                                                    | 2-pole NC+NO snap action                                                       | XCKD2110P16       | XCKD2102P16          | XCKD2121P16                                                  | XCKD21H0P16                | XCKD21H2P16                   |
|                                                                    | 2-pole NC+NO break before make, slow break                                     | XCKD2510P16       | XCKD2502P16          | XCKD2521P16                                                  | –                          | XCKD25H2P16                   |
|                                                                    | 2-pole NC+NO snap action (M12-5-pins)                                          | XCKD2110M12       | XCKD2102M12          | XCKD2121M12                                                  | XCKD21H0M12                | XCKD21H2M12                   |
| Plastic, double insulated switches                                 |                                                                                |                   |                      |                                                              |                            |                               |
| Complete switch                                                    | 2-pole NC+NO snap action                                                       | XCKP2110P16       | XCKP2102P16          | XCKP2121P16                                                  | XCKP21H0P16                | XCKP21H2P16                   |
|                                                                    | 2-pole NC+NO break before make, slow break                                     | XCKP2510P16       | XCKP2502P16          | XCKP2521P16                                                  | –                          | –                             |
|                                                                    | 2-pole NC+NO snap action (M12-4-pins)                                          | XCKP2110M12       | XCKP2102M12          | XCKP2121M12                                                  | –                          | –                             |

(5) For Pg 11 pre-cabled entries, replace P16 by G11. Example: XCKD2110P16 becomes **XCKD2110G11**.  
For other pre-cabled entries, see customised assembly on page 7.



|                                        |                               |                 | Compact XCKT plastic, 2 cable entries                                          |                      |                            |                                            |                                                              |                 |  |
|----------------------------------------|-------------------------------|-----------------|--------------------------------------------------------------------------------|----------------------|----------------------------|--------------------------------------------|--------------------------------------------------------------|-----------------|--|
| Retractable steel roller lever plunger | M12 head steel roller plunger | "Cat's whisker" | Metal end plunger                                                              | Steel roller plunger | Thermoplastic roller lever | Variable length thermoplastic roller lever | Thermoplastic roller lever plunger, horizontal actuation (3) | "Cat's whisker" |  |
| 10                                     | 10                            | 5               | 15                                                                             | 10                   | 10                         | 10                                         | 15                                                           | 5               |  |
| 0,5                                    | 0,1                           | 1               | 0,5                                                                            | 0,5                  | 1,5                        | 1,5                                        | 1                                                            | 1               |  |
| ⊖                                      | ⊕                             | —               | ⊖                                                                              | ⊕                    | ⊖                          | ⊖                                          | ⊖                                                            | —               |  |
|                                        |                               |                 | CE, CSA, CCC, EAC                                                              |                      |                            |                                            |                                                              |                 |  |
|                                        |                               |                 | IP66 and IP67                                                                  |                      |                            |                                            |                                                              |                 |  |
|                                        |                               |                 | AC 15 ; A 300 (Ue = 240 V, Ie = 3 A) / DC 13 ; Q 300 (Ue = 250 V, Ie = 0,27 A) |                      |                            |                                            |                                                              |                 |  |
| 20                                     | M12 x 1                       | 20              | 20 ou 40                                                                       |                      |                            |                                            |                                                              |                 |  |
|                                        |                               |                 | 58 x 30 x 51                                                                   |                      |                            |                                            |                                                              |                 |  |
|                                        |                               |                 | 2 tapped entries for ISO M16 x 1.5 pre-cabled gland (4)                        |                      |                            |                                            |                                                              |                 |  |
| XCMD2124L1                             | XCMD21F2L1                    | XCMD2106L1      | XCKT2110P16                                                                    | XCKT2102P16          | XCKT2118P16                | XCKT2145P16                                | XCKT2121P16                                                  | XCKT2106P16     |  |
| —                                      | XCMD25F2L1                    | —               | —                                                                              | —                    | —                          | —                                          | —                                                            | —               |  |
| XCMD2124C12                            | XCMD21F2C12                   | XCMD2106C12     | —                                                                              | —                    | —                          | —                                          | —                                                            | —               |  |
| XCMD2124M12                            | XCMD21F2M12                   | XCMD2106M12     | —                                                                              | —                    | —                          | —                                          | —                                                            | —               |  |

(3) Actuation in 1 direction

(4) For Pg 11 pre-cabled entries, replace P16 by G11. Example: XCKT2110P16 becomes **XCKT2110G11**.



|  |                            |                                            |                                    |                 | Application - XCPR and XCDR with manual reset                                  |                      |                                                              |                                                            |                            |
|--|----------------------------|--------------------------------------------|------------------------------------|-----------------|--------------------------------------------------------------------------------|----------------------|--------------------------------------------------------------|------------------------------------------------------------|----------------------------|
|  | Thermoplastic roller lever | Variable length Thermoplastic roller lever | Thermoplastic roller lever Ø 50 mm | “Cat’s whisker” | Metal end plunger                                                              | Steel roller plunger | Thermoplastic roller lever plunger, horizontal actuation (6) | Thermoplastic roller lever plunger, vertical actuation (6) | Thermoplastic roller lever |
|  | 10                         | 10                                         | 10                                 | 5               | 1                                                                              | 1                    | 1                                                            | 1                                                          | 1                          |
|  | 1.5                        | 1.5                                        | 1.5                                | 1               | 0.5                                                                            | 0.5                  | 1                                                            | 1                                                          | 1.5                        |
|  | ⊖                          | ⊖                                          | ⊖                                  | –               | ⊖                                                                              | ⊖                    | ⊖                                                            | ⊖                                                          | ⊖                          |
|  |                            |                                            |                                    |                 | CE, CSA, CCC, EAC                                                              |                      |                                                              |                                                            |                            |
|  |                            |                                            |                                    |                 | IP66 and IP67                                                                  |                      |                                                              |                                                            |                            |
|  |                            |                                            |                                    |                 | AC 15 ; A 300 (Ue = 240 V, Ie = 3 A) / DC 13 ; Q 300 (Ue = 250 V, Ie = 0,27 A) |                      |                                                              |                                                            |                            |
|  |                            |                                            |                                    |                 | 1 tapped entry for ISO M20 x 1.5 pre-cabled gland (7)                          |                      |                                                              |                                                            |                            |
|  | 20                         | 20                                         | 20                                 | 20              | 20                                                                             | 20                   | 20                                                           | 20                                                         | 20                         |
|  |                            |                                            |                                    |                 | 31 x 30 x 95                                                                   |                      |                                                              |                                                            |                            |
|  | XCKD2118P16                | XCKD2145P16                                | XCKD2139P16                        | XCKD2106P16     | –                                                                              | –                    | –                                                            | –                                                          | –                          |
|  | XCKD2518P16                | XCKD2545P16                                | XCKD2539P16                        | XCKD2506P16     | –                                                                              | –                    | –                                                            | –                                                          | –                          |
|  | XCKD2118M12                | XCKD2145M12                                | XCKD2139M12                        | XCKD2106M12     | –                                                                              | –                    | –                                                            | –                                                          | –                          |
|  | XCKP2118P16                | XCKP2145P16                                | XCKP2139P16                        | XCKP2106P16     | XCPR2110P20                                                                    | XCPR2102P20          | XCPR2121P20                                                  | XCPR2127P20                                                | XCPR2118P20                |
|  | XCKP2518P16                | XCKP2545P16                                | XCKP2539P16                        | –               | XCPR2510P20                                                                    | XCPR2502P20          | XCPR2521P20                                                  | XCPR2527P20                                                | XCPR2518P20                |
|  | XCKP2118M12                | XCKP2145M12                                | –                                  | XCKP2106M12     | –                                                                              | –                    | –                                                            | –                                                          | –                          |

(6) Actuation in 1 direction.

(7) For Pg 13.5 pre-cabled entries, replace P20 by G13. Example: XCPR2110P20 becomes **XCPR2110G13**.

For other pre-cabled entries, see customised assembly on page 7.

## Customised assembly of miniature and compact

### Heads - common to miniature and compact bodies

### Metal plunger and multi-directional heads

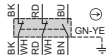
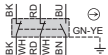
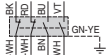
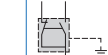
| Description | Metal end plunger                                                                 | Metal end plunger with protective elastomer boot                                  | Steel roller plunger                                                              | Retractable steel roller lever plunger                                              | Thermoplastic roller lever plunger, horizontal actuation                            |
|-------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|             |  |  |  |  |  |
| Reference   | → ZCE10                                                                           | → ZCE11                                                                           | → ZCE02                                                                           | → ZCE24 (2)                                                                         | → ZCE21                                                                             |

## Metal rotary heads and levers

| Metal rotary heads and levers                                  |                                                                                         |                                                                                    |                                                                                    |                                                                                      |                                                                                      |
|----------------------------------------------------------------|-----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| Description                                                    | Rotary head<br>without lever,<br>spring return, for<br>actuation from<br>LH and RH side | Thermoplastic<br>roller lever,<br>track:<br>24/31 mm (ZCMD)<br>29/36 mm (ZCD/P/T)  | Steel<br>roller lever,<br>track:<br>24/31 mm (ZCMD)<br>29/36 mm (ZCD/P/T)          | Thermoplastic<br>roller lever,<br>track:<br>16/39 mm (ZCMD)<br>21/44 mm (ZCD/P/T)    | Steel<br>roller lever,<br>track:<br>16/39 mm (ZCMD)<br>21/44 mm (ZCD/P/T)            |
|                                                                |       |  |  |  |  |
| Reference                                                      | ⇒ ZCE01                                                                                 | ⇒ ZCY15 (2)                                                                        | ⇒ ZCY16 (2)                                                                        | ⇒ ZCY25 (2)                                                                          | ⇒ ZCY26 (2)                                                                          |
| (1) Recommended for use with bodies:: ZCD... / ZCP... / ZCT... |                                                                                         |                                                                                    | (2) Recommended for use with bodies: : ZCMD...                                     |                                                                                      |                                                                                      |

## Bodies

## Miniature

|                         |         |  |                                  |                               |                                 |                                 |  |  |  |  |  |  |  |
|-------------------------|---------|-------------------------------------------------------------------------------------|----------------------------------|-------------------------------|---------------------------------|---------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Type of contact         |         | 2-pole<br>NO+NC<br>Snap action                                                      | 3-pole<br>2NC+1NO<br>Snap action | 2-pole<br>NC+NO<br>Slow break | 3-pole<br>2NC+1NO<br>Slow break | 3-pole<br>2NC+1NO<br>Slow break | 2-pole<br>NO+NC<br>Snap action                                                      | 2-pole<br>NC+NO<br>Snap action<br>Connector 5-pins                                  | 1-pole<br>1C/O<br>Snap action<br>Connector 4-pins                                   | 4-pole<br>2NC+2NO<br>Snap action                                                     |                                                                                       |                                                                                       |                                                                                       |
| Reference of metal body |         | ZCMD21                                                                              | ZCMD39                           | ZCMD25                        | ZCMD37                          | ZCMD4D                          | —                                                                                   | ZCMD21C12                                                                           | ZCMD21M12                                                                           | —                                                                                    |                                                                                       |                                                                                       |                                                                                       |
| Pre-cabled              | L = 1 m | —                                                                                   | —                                | —                             | —                               | —                               | ZCMD21L1 (3)                                                                        | —                                                                                   | —                                                                                   | ZCMD41L1                                                                             |                                                                                       |                                                                                       |                                                                                       |
|                         | L = 2 m | —                                                                                   | —                                | —                             | —                               | —                               | ZCMD21L2 (3)                                                                        | —                                                                                   | —                                                                                   | ZCMD41L2                                                                             |                                                                                       |                                                                                       |                                                                                       |
|                         | L = 5 m | —                                                                                   | —                                | —                             | —                               | —                               | ZCMD21L5 (3)                                                                        | —                                                                                   | —                                                                                   | ZCMD41L5                                                                             |                                                                                       |                                                                                       |                                                                                       |

(3) For contact 2-pole NC+NO slow break, replace 21 by 25. Example: ZCMD21L1 becomes ZCMD25L1

(4) For contact 2NC+NO or 2NC+2NO, replace 21 by 37, 39 or 4D. Example ZCMD21L1 becomes ZCMD4DL1

### Connection of miniature bodies

| Connection of miniature ZC4-D             |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                       |                                                                                       |
|-------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Specific Pre-cabled connection components |  |  |  |  |  | Option : PUR pre-wired M12 connector, L = 2 m (1)                                     |                                                                                       |
|                                           | for ZCMD21                                                                          | for ZCMD39                                                                          | for ZCMD25                                                                          | for ZCMD37                                                                          | for ZCMD4D                                                                          | 5-pin                                                                                 | 4-pin                                                                                 |
| L = 1 m                                   | ZCMC21L1                                                                            | ZCMC39L1                                                                            | ZCMC25L1                                                                            | ZCMC37L1                                                                            | ZCMC4DL1                                                                            |  |  |
| L = 2 m                                   | ZCMC21L2                                                                            | ZCMC39L2                                                                            | ZCMC25L2                                                                            | ZCMC37L2                                                                            | ZCMC4DL2                                                                            |                                                                                       |                                                                                       |
| L = 5 m                                   | ZCMC21L5                                                                            | ZCMC39L5                                                                            | ZCMC25L5                                                                            | ZCMC37L5                                                                            | ZCMC4DL5                                                                            | XZCP1164L2                                                                            | XZCP1141L2                                                                            |

⊕ Positive opening operation.

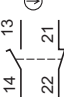
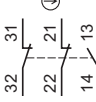
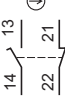
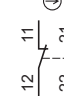
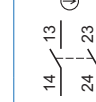
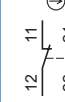
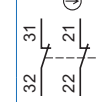
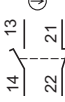
(1) For PVC cable see page 47

|                                                                                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
|----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Thermoplastic roller lever plunger, vertical actuation                           | M12 head metal end plunger                                                        | M18 head metal end plunger                                                        | M12 head steel roller plunger                                                     | M18 head steel roller plunger                                                     | Spring rod                                                                          | Spring rod with plastic end                                                         | "Cat's whisker"                                                                     |
|  |  |  |  |  |  |  |  |
| ⊕ ZCE27                                                                          | ⊕ ZCEF0 (2)                                                                       | ⊕ ZCEH0 (1)                                                                       | ⊖ ZCEF2 (2)                                                                       | ⊕ ZCEH2 (1)                                                                       | ZCE08                                                                               | ZCE07                                                                               | ZCE06                                                                               |

|                                                                                   |                                                                                    |                                                                                    |                                                                                    |                                                                                    |                                                                                      |                                                                                      |                                                                                      |
|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| Thermoplastic roller lever, track: 20/36 mm (ZCMD) 24/40 mm (ZCD/P/T)             | Steel roller lever, track: 20/36 mm (ZCMD) 24/40 mm (ZCD/P/T)                      | Ceramic roller lever                                                               | Variable length thermoplastic roller lever                                         | Round, glass fibre rod lever Ø 3 mm L = 125 mm                                     | Metal spring-rod lever                                                               | Thermoplastic roller lever Ø 50 mm                                                   | Adjustable thermoplastic roller lever Ø 50 mm                                        |
|  |  |  |  |  |  |  |  |
| ⊕ ZCY18 (1)                                                                       | ⊕ ZCY19 (1)                                                                        | ⊖ ZCY22                                                                            | ⊖ ZCY45                                                                            | ZCY55                                                                              | ZCY91                                                                                | ⊖ ZCY39                                                                              | ⊕ ZCY49                                                                              |

## Compact

|                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                       |          |
|-------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|----------|
|                   |  |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |          |
| Type of contact   |  |  |  |  |  |  |  |  |          |
|                   | 2-pole NC+NO Snap action                                                            | 3-pole 2NC+1NO Snap action                                                          | 2-pole NC+NO Slow break                                                             | 2-pole NC+NC Slow break                                                             | 2-pole NO+NO Slow break                                                             | 2-pole NC+NC Snap action                                                            | 3-pole 2NC+1NO Slow break                                                           | 2-pole NC+NO - Snap action                                                            |          |
| Ref. metal body   | ZCD21                                                                               | ZCD39                                                                               | ZCD25                                                                               | ZCD27                                                                               | ZCD28                                                                               | ZCD29                                                                               | ZCD37                                                                               | ZCD21M12                                                                              | —        |
| Ref. plastic body | ZCP21                                                                               | ZCP39                                                                               | ZCP25                                                                               | ZCP27                                                                               | ZCP28                                                                               | ZCP29                                                                               | ZCP37                                                                               | —                                                                                     | ZCP21M12 |

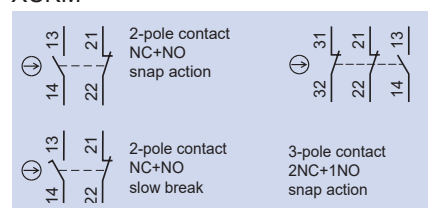
## Connection of compact bodies

|                                        |                                                                                       |                         |                       |                         |                          |                              |                                                                                       |                                                                                       |       |
|----------------------------------------|---------------------------------------------------------------------------------------|-------------------------|-----------------------|-------------------------|--------------------------|------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|-------|
| Interchangeable outlet for cable gland |    |                         |                       |                         |                          |                              | Option : PUR prolongateur M12, L = 2 m (1)                                            |                                                                                       |       |
|                                        |  |                         |                       |                         |                          |                              |                                                                                       | 5-pin                                                                                 | 4-pin |
| Description                            | For ISO M16 cable gland                                                               | For ISO M20 cable gland | For Pg 11 cable gland | For Pg 13.5 cable gland | For 1/2" NPT cable gland | For PF 1/2 (G12) cable gland |  |  |       |
| Metal                                  | ZCDEP16                                                                               | ZCDEP20                 | ZCDEG11               | ZCDEG13                 | ZCDEN12                  | ZCDEF12                      | XZCP1164L2                                                                            | XZCP1141L2                                                                            |       |
| Plastic                                | ZCPEP16                                                                               | ZCPEP20                 | ZCPEG11               | ZCPEG13                 | ZCPEN12                  | ZCPEF12                      | (1) For PVC cable see page 47                                                         |                                                                                       |       |

# XC Limit switches

## Classic - XCKM, XCKL, complete switches

### XCKM



ISO entry  
(to EN 50262)



### Type XCKM metal, 3 cable entries, XCKL metal, 1 cable entry

| Type of operator                                                   | Metal end plunger                                                              | Steel roller plunger                                                                  | Roller lever plunger, horizontal actuation in 1 direction | Thermoplastic roller lever | “Cat’s whisker” |
|--------------------------------------------------------------------|--------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|-----------------------------------------------------------|----------------------------|-----------------|
| Mechanical durability (millions of operating cycles)               | 20                                                                             | 20                                                                                    | 20                                                        | 15                         | 10              |
| Actuation speed (in m/s)                                           | 0,5                                                                            | 0,5                                                                                   | 1,5                                                       | 1,5                        | 0,5             |
| Product certification                                              | CE, UL, CSA, CCC, EAC, C-TICK, BV                                              |                                                                                       |                                                           |                            |                 |
| Degree of protection conforming to IEC 60529                       | IP66                                                                           |                                                                                       |                                                           |                            |                 |
| Rated operational characteristics (conforming to EN IEC 60947-5-1) | AC 15 ; A 300 (Ue = 240 V, Ie = 3 A) / DC 13 ; Q 300 (Ue = 250 V, Ie = 0,27 A) |                                                                                       |                                                           |                            |                 |
| Cable entry (1)                                                    | XCKM                                                                           | 3 tapped entries for ISO M20 x 1.5 cable gland (2 entries fitted with blanking plugs) |                                                           |                            |                 |
|                                                                    | XCKL                                                                           | 1 cable entry with cable gland                                                        |                                                           |                            |                 |
| Fixing centres (mm)                                                | 41                                                                             |                                                                                       |                                                           |                            |                 |
| Body dimensions (mm) W x D x H                                     | XCKM / XCKL                                                                    | 64 x 30 x 64 / 52 x 30 x 72                                                           |                                                           |                            |                 |

| Complete switch                             | XCKM         |              |              |              |            |
|---------------------------------------------|--------------|--------------|--------------|--------------|------------|
| 2-pole NC+NO snap action                    | ⇒ XCKM110H29 | ⇒ XCKM102H29 | ⇒ XCKM121H29 | ⇒ XCKM115H29 | XCKM106H29 |
| 2-pole NC+NO, break before make, slow break | ⇒ XCKM510H29 | ⇒ XCKM502H29 | ⇒ XCKM521H29 | ⇒ XCKM515H29 | —          |
| Complete switch                             | XCKL         |              |              |              |            |
| 2-pole NC+NO snap action                    | ⇒ XCKL110    | ⇒ XCKL102    | ⇒ XCKL121    | ⇒ XCKL115    | XCKL106    |

1) For Pg 11 pre-cabled entries delete the reference suffix H29. Example : XCKM110H29 becomes **XCKM110**

## Classic - XCKM, XCKL, Customised assembly - Body/contact sub-assemblies



### Type XCKM metal, 3 pre-cabled entries

#### Type of contact

|                                               | 2-pole<br>NC+NO<br>snap action | 2-pole<br>NC+NO<br>slow break | 3-pole<br>2NC+1NO<br>snap action | 3-pole<br>2NC+1NO<br>slow break |
|-----------------------------------------------|--------------------------------|-------------------------------|----------------------------------|---------------------------------|
| Reference of body with contact block          | ⇒ ZCKM1H29                     | ⇒ ZCKM5H29                    | ⇒ ZCKMD39H29                     | ⇒ ZCKMD37H29                    |
| XCKL reference of body with contact block (2) | ⇒ ZCKL1                        | ⇒ ZCKL5                       | —                                | —                               |
| Reference of contact block only               | ⇒ XE2SP2151                    | ⇒ XE2NP2151                   | ⇒ XE3SP2141                      | ⇒ XE3NP2141                     |

(2) For cable entry 1/2" NPT, add H7. Example: XCKL1 becomes **XCKL1H7**. ⇒ Positive opening operation.

## Operating heads, complete or for customer assembly



Complete switch

=



Body/contact assembly

+



Head

+



Lever

### Rotary or multi-directional heads

metal head with  
thermoplastic  
roller lever

metal head with  
steel roller lever

with variable len-  
gth thermoplastic  
roller lever (2)

with Ø 6 mm  
thermoplastic rod  
L = 200 mm (3)

with thermoplastic  
roller lever (3)  
for actuation from  
left AND right  
or  
left OR right

with "Cat's  
whisker"

with spring rod



Reference

⊕ ZCKD15

⊕ ZCKD16

ZCKD41

ZCKD59

⊕ ZCKD31

ZCKD06

ZCKD08

### Plunger heads

with metal  
end plunger

with metal end  
plunger and  
protective boot

with steel  
roller plunger

with steel roller  
plunger and  
protective boot

with thermoplastic  
roller lever plunger,  
horizontal actuation  
in 1 direction

with steel  
roller lever plunger,  
horizontal actuation  
in 1 direction



Reference

⊕ ZCKD10

⊕ ZCKD109

⊕ ZCKD02

⊕ ZCKD029

⊕ ZCKD21

⊕ ZCKD23

### Rotary heads and separate levers

spring return,  
for actuation from  
left AND right  
or  
left OR right

lever with  
thermoplastic  
roller (2)

lever with  
steel roller (2)

variable length  
lever with  
thermoplastic  
roller (2)

variable length  
lever with  
steel roller (2)

rod, Ø 6 mm  
thermoplastic  
L = 200 mm (3)



Reference

⊕ ZCKD05

⊕ ZCKY31

⊕ ZCKY33

ZCKY41

ZCKY43

ZCKY59

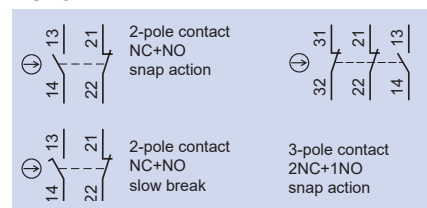
(2) Adjustable throughout 360° in 5° steps, or in 90° steps by reversing the notched washer.

(3) Adjustable throughout 360° in 5° steps, or in 45° steps by reversing the lever mounting.

# XC Limit switches

## Industrial - XCKJ, complete switches

### XCKJ



ISO entry  
(to EN 50262)



### Type XCKJ metal, fixed body, conforming to standard EN 50041

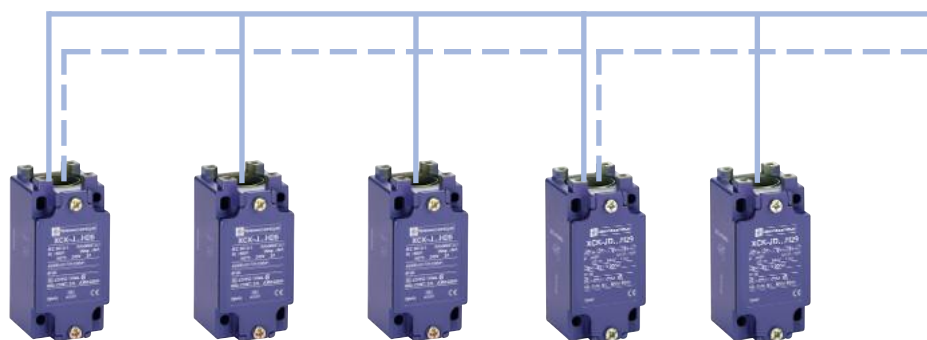
| Type of operator                                                   | Metal end plunger                                                               | Steel roller plunger | Thermoplastic roller lever | Steel roller lever | Variable length thermoplastic roller lever | Polyamide Ø 6 mm rod lever L = 200 mm |
|--------------------------------------------------------------------|---------------------------------------------------------------------------------|----------------------|----------------------------|--------------------|--------------------------------------------|---------------------------------------|
| Mechanical durability (millions of operating cycles)               | 30                                                                              | 25                   | 30                         | 30                 | 30                                         | 30                                    |
| Actuation speed (in m/s)                                           | 0,5                                                                             | 1                    | 1,5                        | 1,5                | 1,5                                        | 1,5                                   |
| Product certification                                              | CE, UL, CSA, CCC, EAC, C-TICK, BV                                               |                      |                            |                    |                                            |                                       |
| Degree of protection conforming to IEC 60529                       | IP 66                                                                           |                      |                            |                    |                                            |                                       |
| Rated operational characteristics (conforming to EN IEC 60947-5-1) | AC 15 ; A 300 (Ue = 240 V, Ie = 3 A) / DC 13 ; Q 300 (Ue = 250 V, Ie = 0,27 A). |                      |                            |                    |                                            |                                       |
| Cable entry (1)                                                    | 1 tapped entry for ISO M20 x 1.5 cable gland                                    |                      |                            |                    |                                            |                                       |
| Fixing centres (mm)                                                | 30 x 60                                                                         |                      |                            |                    |                                            |                                       |
| Body dimensions (mm) W x D x H                                     | 40 x 44 x 77                                                                    |                      |                            |                    |                                            |                                       |

| Complete switch | M20      | 2-pole NC+NO snap action                   | ⊕ XCKJ161H29 | ⊕ XCKJ167H29 | ⊕ XCKJ10511H29 | ⊕ XCKJ10513H29 | XCKJ10541H29 | XCKJ10559H29 |
|-----------------|----------|--------------------------------------------|--------------|--------------|----------------|----------------|--------------|--------------|
|                 |          | 2-pole NC+NO break before make, slow break | ⊕ XCKJ561H29 | ⊕ XCKJ567H29 | ⊕ XCKJ50511H29 | ⊕ XCKJ50513H29 | XCKJ50541H29 | XCKJ50559H29 |
|                 | 1/2" NPT | 2-pole NC+NO snap action                   | ⊕ XCKJ161H7  | ⊕ XCKJ167H7  | ⊕ XCKJ10511H7  | ⊕ XCKJ10513H7  | XCKJ10541H7  | XCKJ10559H7  |
|                 | M12 5P   | 2-pole NC+NO snap action                   | ⊕ XCKJ161D   | ⊕ XCKJ167D   | ⊕ XCKJ10511D   | ⊕ XCKJ10513D   | XCKJ10541D   | XCKJ10559D   |

(1) For Pg 13.5 pre-cabled entry delete the reference suffix H29. Example: XCKJ161H29 becomes **XCKJ161**. ⊕ Positive opening operation.

## Industrial - XCKJ,

## Customised assembly - Body/contact sub-assemblies



### Type XCKJ metal, 1 cable entry

#### Type of contact

|                                      |              | 2-pole NC+NO snap action                     | 2-pole NC+NO slow break | 2 C/O snap action Simultaneous | 3-pole 2NC+1NO snap action | 3-pole 2NC+1NO slow break |
|--------------------------------------|--------------|----------------------------------------------|-------------------------|--------------------------------|----------------------------|---------------------------|
| Cable entry (1)                      |              | 1 tapped entry for ISO M20 x 1.5 cable gland |                         |                                |                            |                           |
| Reference of body with contact block | M20          | ⊕ ZCKJ1H29                                   | ⊕ ZCKJ5H29              | ZCKJ2H29                       | ⊕ ZCKJD39H29               | ⊕ ZCKJD37H29              |
|                                      | Pg13         | ⊕ ZCKJ1                                      | ⊕ ZCKJ5                 | ZCKJ2                          | —                          | —                         |
|                                      | 1/2" NPT     | ⊕ ZCKJ1H7                                    | ⊕ ZCKJ5H7               | ZCKJ2H7                        | —                          | —                         |
|                                      | M12 (5-pins) | ⊕ ZCKJ1D                                     | ⊕ ZCKJ5D                | —                              | —                          | —                         |
| Reference of contact block only      |              | ⊕ XE2SP2151                                  | ⊕ XE2NP2151             | —                              | ⊕ XE3SP2141                | ⊕ XE3NP2141               |

## Operating heads, complete or for customer assembly



Complete switch

=



Body/contact assembly

+



Head

+



Lever

### Plunger or multi-directional heads

with reinforced  
steel roller  
end plunger

with metal  
end plunger

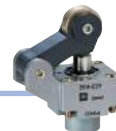
with thermoplastic  
roller lever plunger,  
1 direct. of actuation

with steel  
roller lever plunger,  
1 direct. of actuation

with steel roller  
end plunger

with steel  
ball bearing  
end plunger

End steel roller  
plunger with  
protective boot



Reference    ⊕ ZCKE67    ⊕ ZCKE61    ⊕ ZCKE21    ⊕ ZCKE23    ⊕ ZCKE62    ⊕ ZCKE66    ⊕ ZCKE629

with metal  
side plunger

Side steel roller  
plunger,  
horizontal

Side steel roller  
plunger,  
vertical

with spring rod

with "Cat's whisker"



Reference    ⊕ ZCKE63    ⊕ ZCKE64    ZCKE65    ZCKE08    ZCKE06

### Separate rotary heads and levers

spring return  
for actuation  
from  
left AND right  
or  
left OR right

lever with  
thermoplastic  
roller (2)

lever with  
steel roller (2)

variable length  
lever with  
thermoplastic  
roller (2)

variable length  
lever with  
steel roller (2)

rod, Ø 6 mm  
thermoplastic  
L = 200 mm (2)

square rod lever,  
steel, U 3 mm  
L = 125 mm (2)

round rod lever,  
steel, Ø 3 mm  
L = 125 mm (2)

spring lever  
with  
thermoplastic  
end (3)

spring-metal  
rod lever



Reference    ⊕ ZCKE05    ⊕ ZCKY11    ⊕ ZCKY13    ZCKY41    ZCKY43    ZCKY59    ZCKY51    ZCKY53    ZCKY81    ZCKY91

stay put  
for actuation from  
left AND right

forked arm lever  
with thermoplastic  
rollers, 1 track (2)

forked arm lever  
with thermoplastic  
rollers, 2 track (2)



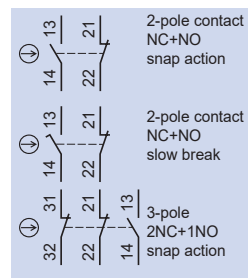
Reference    ZCKE09    ZCKY71    ZCKY61

(2) Adjustable throughout 360° in 5° steps, or in 45° steps by reversing the lever mounting.  
(3) Adjustable throughout 360° in 5° steps, or in 90° steps by reversing the notched washer.

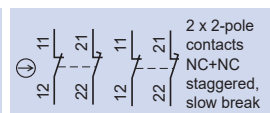
# XC Limit switches

## Classic - XCKS, complete switches

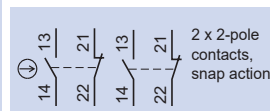
### XCKS



### XCKMR



### XCR



ISO entry  
(to EN 50262)



Type XCKS plastic, double insulated, conforming to standard EN 50041

| Type of operator                                                   | Metal end plunger                                                              | Steel roller plunger | Thermoplastic roller lever | Variable length thermoplastic roller lever | Rubber roller lever Ø 50 mm | Polyamide Ø 6 mm rod lever L = 200 mm |
|--------------------------------------------------------------------|--------------------------------------------------------------------------------|----------------------|----------------------------|--------------------------------------------|-----------------------------|---------------------------------------|
| Mechanical durability (millions of operating cycles)               | 25                                                                             | 15                   | 20                         | 20                                         | 20                          | 20                                    |
| Actuation speed (in m/s)                                           | 0,5                                                                            | 0,5                  | 1,5                        | 1,5                                        | 1                           | 1                                     |
| Product certification                                              | CE, UL, CSA, CCC, EAC                                                          |                      |                            |                                            |                             |                                       |
| Degree of protection conforming to IEC 60529                       | IP65 / IP67                                                                    |                      |                            |                                            |                             |                                       |
| Rated operational characteristics (conforming to EN IEC 60947-5-1) | AC 15 ; A 300 (Ue = 240 V, Ie = 3 A) / DC 13 ; Q 300 (Ue = 250 V, Ie = 0,27 A) |                      |                            |                                            |                             |                                       |
| Cable entry                                                        | 1 tapped entry for ISO M20 x 1.5 pre-cabled gland (1)                          |                      |                            |                                            |                             |                                       |
| Fixing centres (mm)                                                | 30 x 60                                                                        |                      |                            |                                            |                             |                                       |
| Body dimensions (mm) W x D x H                                     | XCKS : 40 x 37 x 78 / ZCKS: 40 x 36 x 73                                       |                      |                            |                                            |                             |                                       |

|                                 |                                                  |              |              |              |              |              |              |
|---------------------------------|--------------------------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Complete switch                 | 2-pole NC+NO snap action                         | ⇒ XCKS101H29 | ⇒ XCKS102H29 | ⇒ XCKS131H29 | ⇒ XCKS141H29 | XCKS139H29   | XCKS159H29   |
|                                 | 2-pole NC+NO break before make, slow break       | ⇒ XCKS501H29 | ⇒ XCKS502H29 | ⇒ XCKS531H29 | ⇒ XCKS541H29 | XCKS539H29   | XCKS559H29   |
|                                 | 2-pole NC+NO snap action                         | ⇒ ZCKS1H29   | ⇒ ZCKS1H29   | ⇒ ZCKS1H29   | ⇒ ZCKS1H29   | ⇒ ZCKS1H29   | ⇒ ZCKS1H29   |
|                                 | 2-pole NC+NO break before make, slow break       | ⇒ ZCKS5H29   | ⇒ ZCKS5H29   | ⇒ ZCKS5H29   | ⇒ ZCKS5H29   | ⇒ ZCKS5H29   | ⇒ ZCKS5H29   |
| Corps                           | 3-pole 2NC+1NO snap action                       | ⇒ ZCKSD39H29 | ⇒ ZCKSD39H29 | ⇒ ZCKSD39H29 | ⇒ ZCKSD39H29 | ⇒ ZCKSD39H29 | ⇒ ZCKSD39H29 |
|                                 | Associated head (including operator)             | ⇒ ZCKD01     | ⇒ ZCKD02     | ⇒ ZCKD31     | ⇒ ZCKD41     | ZCKD39       | ZCKD59       |
| Operating lever for rotary head |                                                  | –            | –            | ⇒ ZCKY31     | ⇒ ZCKY41     | ZCKY39       | ZCKY59       |
| Complete switch                 | Snap-action 2-pole 2X (1 NC + 1 NO) contact      | –            | –            | –            | –            | –            | –            |
|                                 | Both contacts act in each direction of actuation | –            | –            | –            | –            | –            | –            |
|                                 | 1 contact operates in each direction             | –            | –            | –            | –            | –            | –            |
| Complete switch                 | 2 C/O staggered snap action contacts             | –            | –            | –            | –            | –            | –            |
|                                 | 2 x 2 pole NC+NC staggered, slow break contacts  | –            | –            | –            | –            | –            | –            |

⇒ Positive opening operation.

ZCKS have different designs

(1) For Pg 13.5 Cable entry delete the reference suffix H29. Example: XCKS131H29 becomes **XCKS131**.

## Wireless & battery-less - XCMW



### XCMW (Miniature format)

| Type of operator                         | Metal end plunger                                                                                    | Metal roller plunger | Plastic roller plunger | Metal roller lever | Variable length plastic roller lever |
|------------------------------------------|------------------------------------------------------------------------------------------------------|----------------------|------------------------|--------------------|--------------------------------------|
| References of plastic body               | XCMW110                                                                                              | XCMW102              | XCMW115                | XCMW116            | XCMW145                              |
| Communication protocol                   | Zigbee (Green Power) to 2.4 Ghz (IEEE 802.15.4)                                                      |                      |                        |                    |                                      |
| Sensing distance                         | 100 m free field / 300 m with relay antenna ZBRA1 / 25 m with receiver in metallic enclosure         |                      |                        |                    |                                      |
| Product certification                    | EN/IEC 60947-5-1, EC directive 2004/108/EC, R&TTE directive 1999/5/EC, EAC, conformity to CE marking |                      |                        |                    |                                      |
| Radio agreement                          | FCC, IC                                                                                              |                      |                        |                    |                                      |
| Max switching operation / hour           | 3600/h                                                                                               |                      |                        |                    |                                      |
| Max force for set actuation              | 5 daN 0,5 N.m                                                                                        |                      |                        |                    |                                      |
| Fixing dimensions                        | 30 x 70 mm                                                                                           |                      |                        |                    |                                      |
| Ambiant temperature operating // storage | -25°C + 55°C // -40°C + 70°C                                                                         |                      |                        |                    |                                      |
| IP degree of protection IEC              | IP66, IP67 according to IEN/IEC 60529                                                                |                      |                        |                    |                                      |

XCKMR and XCR, complete switches



Types XCKMR and XCR "Application - hoisting, materials handling, conveying"

|  |                                                                                |                                                              |                            |                                                                                                             |                                               |                                         |                                    |
|--|--------------------------------------------------------------------------------|--------------------------------------------------------------|----------------------------|-------------------------------------------------------------------------------------------------------------|-----------------------------------------------|-----------------------------------------|------------------------------------|
|  | Square rod levers<br>U 6 mm, "crossed"                                         | Square rod levers<br>U 6 mm, "crossed"                       | Square rod lever<br>U 6 mm | Large roller rod lever<br>Ø 50 mm                                                                           | Square rod levers<br>U 6 mm, "crossed" or "T" | Conveyor belt shift monitoring switches |                                    |
|  |                                                                                |                                                              |                            |                                                                                                             |                                               | Galvanised steel<br>operating lever     | Stainless steel<br>operating lever |
|  | 2                                                                              | 1                                                            | 10                         | 10                                                                                                          | 10                                            | 0,3                                     | 0,3                                |
|  | 1,5                                                                            | 1,5                                                          | 1,5                        | 1,5                                                                                                         | 1,5                                           | 1,5                                     | 1,5                                |
|  | CE, CSA, CCC, EAC                                                              |                                                              |                            |                                                                                                             |                                               |                                         |                                    |
|  | IP66                                                                           | IP65                                                         | IP54                       |                                                                                                             |                                               | IP66                                    |                                    |
|  | AC 15 ; A 300 (Ue = 240 V, Ie = 3 A) / DC 13 ; Q 300 (Ue = 250 V, Ie = 0,27 A) |                                                              |                            |                                                                                                             |                                               |                                         |                                    |
|  | 3 x ISO M20 x 1.5 entries                                                      | 1x ISO M20x1.5 entry &<br>2 holes for ISO M20<br>cable gland |                            | 1 tapped entry for n° 13 pre-cabled gland (for ISO M20 x 1.5, adaptor DE9RA1620 must be ordered separately) |                                               |                                         |                                    |
|  | 61,5                                                                           |                                                              |                            | 85 x 75                                                                                                     |                                               |                                         | 105 x 70                           |
|  | 118 x 59 x 77                                                                  | 116 x 66 x 77                                                |                            | 85 x 75 x 95                                                                                                |                                               |                                         | 85 x 87 x 146                      |

|  |                  |                     |             |          |             |         |             |
|--|------------------|---------------------|-------------|----------|-------------|---------|-------------|
|  | -                | -                   | -           | -        | -           | -       | -           |
|  | -                | -                   | -           | -        | -           | -       | -           |
|  | -                | -                   | -           | -        | -           | -       | -           |
|  | -                | -                   | -           | -        | -           | -       | -           |
|  | -                | -                   | -           | -        | -           | -       | -           |
|  | -                | -                   | -           | -        | -           | -       | -           |
|  | -                | -                   | -           | -        | -           | -       | -           |
|  | -                | -                   | -           | -        | -           | -       | -           |
|  | -                | -                   | ⇒ XCRA11(2) | ⇒ XCRA15 | ⇒ XCRE18(2) | -       | -           |
|  | -                | -                   | ⇒ XCRB11(2) | -        | ⇒ XCRF17(3) | -       | -           |
|  | -                | -                   |             |          |             | XCRT115 | XCRT315 (4) |
|  | XCKMR54D1H29 (2) | XCKVR54D1H29 (2)(5) | -           | -        | -           | -       | -           |

(2) Steel rods,  $L = 200 \text{ mm}$

(3) Steel "T" rods,  $L = 200$  mm,  $W = 300$  mm.

(4) Polyester enclosure<sup>2</sup>

(5) Plastic enclosure



## Receivers for wireless limit switches

| Reference                                | XZBWR2STT24                                     | ZBRRC                                                                                                             | ZBRRD                                                                                                    | ZBRN1/2                                   |
|------------------------------------------|-------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|-------------------------------------------|
| Number of emitters                       | 2                                               | 32                                                                                                                | 32                                                                                                       | 60                                        |
| Number and Output type                   | 2 x PNP<br>+2 for diagnostic                    | 4 x PNP                                                                                                           | 2 x relay RT                                                                                             | 60 modbus TCP<br>protocol and serial line |
| Supply voltage supply                    | 24VDC (-15...+ 15%)                             |                                                                                                                   | 24...240V AC/DC (-10...+ 10%)                                                                            |                                           |
| Nominal current and voltage of output    | 0.2A / 24V DC                                   |                                                                                                                   | 0.3A / 48V DC<br>3A / 120V AC according to IEC 90947-5-1<br>3A / 250V AC according toUL 508 & CSA C22.14 |                                           |
| Product and radio certification          | EN/IEC 60947-5-1<br>conformity to CE<br>marking | EN/IEC 60947-5-1, UL508, CSA C22.2 n° 14, CCC, EAC<br>FCC, RSS, C-stick, ANATEL, SRRC<br>conformity to CE marking |                                                                                                          |                                           |
| Ambiant temperature operating // storage | -25°C +55°C // -40°C + 70°C                     |                                                                                                                   |                                                                                                          |                                           |

### Packages with transmitter and receiver

| Package                               | Reference |
|---------------------------------------|-----------|
| XCMW102 transmitter and ZBRD receiver | XCMWD02   |
| XCMW115 transmitter and ZBRD receiver | XCMWD15   |

# XM Sensors for pressure control

## Electronic sensors XMLP Low pressure

For industrial applications  
(hydraulic circuits,  
water pumping)



| Pressure range (bar) (1)     |                | -1...0                                                   | 0...0,5      | 0...1        | 0...2,5      | 0...4        | 0...6        | -1...+1      | -1...+5      |
|------------------------------|----------------|----------------------------------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Fluids controlled            |                | Hydraulic oils, air, fresh water                         |              |              |              |              |              |              |              |
| Ambient air temperature      |                | - 30...+ 85°C                                            |              |              |              |              |              |              |              |
| Degree of protection         |                | IP65 (EN175301-803-A), IP65, IP67, IP69K (M12 connector) |              |              |              |              |              |              |              |
| Product certification        |                | CE, cULus conforming to UL 61010-1, NSF61                |              |              |              |              |              |              |              |
| Voltage limits (V)           |                | 7...33 Vdc for 4...20 mA, 12...33 Vdc for 0...10 V       |              |              |              |              |              |              |              |
| Dimensions (mm) H x W x D    |                | 26 x 34,3 (M12), 26 x 55 (EN175301-803-A)                |              |              |              |              |              |              |              |
| Fluid connection (2)         |                | G1/4A (male)                                             |              |              |              |              |              |              |              |
| Electrical connection (3)    |                | M12 4-pin, EN175301-803-A                                |              |              |              |              |              |              |              |
| Output type (4)              |                | 4...20 mA 2-wires technique, 0...10V 3-wires technique   |              |              |              |              |              |              |              |
| Analogue output<br>4...20 mA | M12 4-pins     | XMLPM00GD21F                                             | XMLP500MD21F | XMLP001GD21F | XMLP2D5GD21F | XMLP004GD21F | XMLP006GD21F | XMLPM01GD21F | XMLPM05GD21F |
|                              | EN175301-803-A | XMLPM00GC21F                                             | XMLP500MC21F | XMLP001GC21F | XMLP2D5GC21F | XMLP004GC21F | XMLP006GC21F | XMLPM01GC21F | –            |
| Analogue output<br>0...10 V  | M12 4-pins     | XMLPM00GD71F                                             | –            | –            | –            | XMLP004GD71F | –            | –            | –            |

1) Also available with psi range (2) Also available with 1/4"-18NPT male or 7/16-20UNF female (3) Also available with 3-pins packard connector (4) Also available with 0.5...4.5 V ratiometric output Available in bulk packs for selling in lots of 25 pcs. Add Q suffix to the reference, ex: XMLP001GD21F becomes **XMLP001GD21FQ**

## Electronic sensors XMLP High pressure

For industrial applications  
(hydraulic circuits,  
HVAC)



| Pressure range (bar) (1)         |                | -1...+9                                                                         | 0...10       | 0...16       | 0...25       | 0...60       | 0...100      | 0...250      | 0...400      |
|----------------------------------|----------------|---------------------------------------------------------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Fluids controlled                |                | Hydraulic oils, air, fresh water, gas, refrigeration fluids from - 30...+ 135°C |              |              |              |              |              |              |              |
| Ambient air temperature          |                | - 30...+ 85°C                                                                   |              |              |              |              |              |              |              |
| Degree of protection (IEC 60529) |                | IP65 (EN175301-803-A), IP65, IP67 and IP69K (connector M12)                     |              |              |              |              |              |              |              |
| Product certification            |                | CE, cULus conforming to UL61010-1, NSF61                                        |              |              |              |              |              |              |              |
| Voltage limits (V)               |                | 7...33 V DC for 4...20 mA, 12...33 V DC for 0...10 V                            |              |              |              |              |              |              |              |
| Dimensions (mm) Ø x L            |                | 26 x 38 (M12), 26 x 60,5 (EN175301-803-A)                                       |              |              |              |              |              |              |              |
| Fluid connection (2)             |                | G 1/4 A (male)                                                                  |              |              |              |              |              |              |              |
| Electrical connection (3)        |                | connector M12 4-pins, EN 175301-803-A                                           |              |              |              |              |              |              |              |
| Output type (4)                  |                | 4...20 mA, technique 2-wires, 0...10V, technique 3-wires                        |              |              |              |              |              |              |              |
| Analogue output<br>4...20 mA     | M12 4-pins     | XMLPM09BD21F                                                                    | XMLP010BD21F | XMLP016BD21F | XMLP025BD21F | XMLP060BD21F | XMLP100BD21F | XMLP250BD21F | XMLP400BD21F |
|                                  | EN175301-803-A | XMLPM09BC21F                                                                    | XMLP010BC21F | XMLP016BC21F | XMLP025BC21F | XMLP060BC21F | XMLP100BC21F | XMLP250BC21F | XMLP400BC21F |
| Analogue output<br>0...10 V      | M12 4-pins     | XMLPM09BD71F                                                                    | XMLP010BD71F | XMLP016BD71F | XMLP025BD71F | –            | –            | XMLP250BD71F | XMLP400BD71F |
|                                  | EN175301-803-A | –                                                                               | XMLP010BC71F | XMLP016BC71F | –            | –            | –            | XMLP250BC71F | XMLP400BC71F |

(1) Also available with psi range (2) Also available with 1/4"-18NPT male or 7/16-20UNF female (3) Also available with 3-pins packard connector (4) Also available with 0.5...4.5 V ratiometric output. Available in bulk packs for selling in lots of 25 pcs. Add Q suffix to the reference, ex: XMLP001GD21F becomes **XMLP001GD21FQ**

## Electronic sensors XMEP

For mobile lift applications



| Pressure range (bar) (1)    |                 | 0...60                                  | 0...100      | 0...250      | 0...400      | 0...600      |
|-----------------------------|-----------------|-----------------------------------------|--------------|--------------|--------------|--------------|
| Fluids controlled           |                 | Hydraulic oils, air, fresh water        |              |              |              |              |
| Operating temperature range |                 | - 40...+ 100°C                          |              |              |              |              |
| Degree of protection        |                 | Up to IP69K                             |              |              |              |              |
| Product certification       |                 | E2 certified                            |              |              |              |              |
| Voltage limits (V)          |                 | Electromagnetic protection up to 100V/m |              |              |              |              |
| Dimensions (mm) H x W       |                 | From 26mm x 38mm                        |              |              |              |              |
| Fluid entry                 |                 | G1/4A (male)                            |              |              |              |              |
| Connectors (3)              |                 |                                         |              |              |              |              |
| M12                         | Analogue output |                                         |              |              |              |              |
|                             | 0,5-4,5V        | XMEP060BD11F                            | XMEP100BD11F | XMEP250BD11F | XMEP400BD11F | XMEP600BD11F |
|                             | 4-20mA          | XMEP060BD21F                            | XMEP100BD21F | XMEP250BD21F | XMEP400BD21F | XMEP600BD21F |
| Deutsch DT04-3P             | 0-10V           | XMEP060BD71F                            | XMEP100BD71F | XMEP250BD71F | XMEP400BD71F | XMEP600BD71F |
|                             | 0,5-4,5V        | XMEP060BT11F                            | XMEP100BT11F | XMEP250BT11F | XMEP400BT11F | XMEP600BT11F |
|                             | 4-20mA          | XMEP060BT21F                            | XMEP100BT21F | XMEP250BT21F | XMEP400BT21F | XMEP600BT21F |
| AMP Superseal 1,5 3-Pin     | 0-10V           | XMEP060BT71F                            | XMEP100BT71F | XMEP250BT71F | XMEP400BT71F | XMEP600BT71F |
|                             | 0,5-4,5V        | XMEP060BV11F                            | XMEP100BV11F | XMEP250BV11F | XMEP400BV11F | XMEP600BV11F |
|                             | 4-20mA          | XMEP060BV21F                            | XMEP100BV21F | XMEP250BV21F | XMEP400BV21F | XMEP600BV21F |
|                             | 0-10V           | XMEP060BV71F                            | XMEP100BV71F | XMEP250BV71F | XMEP400BV71F | XMEP600BV71F |

For more fluid entry, output, and size options, visit [www.tesensors.com](http://www.tesensors.com)

## Electronic sensors XMLK

Electrical connection by EN 175301-803-A connector, M12 connector

For pumping applications



| Pressure range (bar) (1)         |           | 0...6                                                    | 0...10       | 0...16       | 0...25       | 0...6           | 0...10       | 0...16       | 0...25       |
|----------------------------------|-----------|----------------------------------------------------------|--------------|--------------|--------------|-----------------|--------------|--------------|--------------|
| Fluids controlled                |           | air, fresh water                                         |              |              |              |                 |              |              |              |
| Ambient air temperature          |           | 0...+ 80°C                                               |              |              |              |                 |              |              |              |
| Degree of protection (IEC 60529) |           | IP65                                                     |              |              |              |                 |              |              |              |
| Product certification            |           | CE, UL, CSA                                              |              |              |              |                 |              |              |              |
| Voltage limits (V)               |           | 8...33 V DC for 4...20 mA, 16,2...33V DC for 0...10 V    |              |              |              |                 |              |              |              |
| Dimensions (mm) Ø x L            |           | 36 x 67,5 (not including connector)                      |              |              |              |                 |              |              |              |
| Fluid connection (2)             |           | G 1/4" A (male)                                          |              |              |              |                 |              |              |              |
| Electrical connection (3)        |           | EN 175301-803-A                                          |              |              |              | M12 3-pins male |              |              |              |
| Output type (4)                  |           | 4...20 mA, 2-wires technique, 0...10V, 3-wires technique |              |              |              |                 |              |              |              |
| Analogue output                  | 4...20 mA | XMLK006B2C21                                             | XMLK010B2C21 | XMLK016B2C21 | –            | XMLK006B2D21    | XMLK010B2D21 | XMLK016B2D21 | XMLK025B2D21 |
|                                  | 0...10 V  | XMLK006B2C71                                             | XMLK010B2C71 | XMLK016B2C71 | XMLK025B2C71 | XMLK006B2D71    | XMLK010B2D71 | XMLK016B2D71 | XMLK025B2D71 |

(1) Also available with psi range. (2) Also available with 1/4"-18NPT male fluid entry. (3) Also available with 3-pins packard connector. (4) Other types of output; 0...5 V, 0...10 V, etc. Available in bulk packs for selling in lots. Add TQ suffix to the reference. ex: XMLK006B2C21 becomes **XMLK006B2C21TQ**.

## Electronic sensors XMLR

Electronic + Display



| Adjustable pressure range (bar) (1)            | -1...0                                                    | 0...1        | 0...2,5      | 0...10       | 0...16       | 0...25       | 0...40       | 0...250      | 0...400      |              |
|------------------------------------------------|-----------------------------------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Fluids controlled                              | Hydraulic oils, air, fresh water, refrigerant fluids, gas |              |              |              |              |              |              |              |              |              |
| Ambient air temperature                        | - 20... + 80°C                                            |              |              |              |              |              |              |              |              |              |
| Degree of protection (conforming to IEC 60529) | IP65, IP67 conforming to EN/IEC 60529                     |              |              |              |              |              |              |              |              |              |
| Product certification                          | CE, cULus conforming to UL 61010-1, NSF61                 |              |              |              |              |              |              |              |              |              |
| Voltage limits (V)                             | 17...33 Vdc                                               |              |              |              |              |              |              |              |              |              |
| Dimensions (mm) H x W x D                      | 93 x 41 x 42                                              |              |              |              |              |              |              | 88 x 41 x 42 |              |              |
| Fluid connection (2)                           | G1/4A (female)                                            |              |              |              |              |              |              |              |              |              |
| Electrical connection                          | M12 connector 4-pins or 5-pins                            |              |              |              |              |              |              |              |              |              |
| Configurable with 4-digit display              |                                                           |              |              |              |              |              |              |              |              |              |
| Analogue output                                | 4...20 mA                                                 | XMLRM01G0T25 | XMLR001G0T25 | —            | XMLR010G0T25 | XMLR016G0T25 | XMLR025G0T25 | —            | XMLR250M0T25 | XMLR400M0T25 |
|                                                | 0...10 V                                                  | XMLRM01G0T75 | —            | —            | XMLR010G0T75 | —            | —            | —            | —            | —            |
| Analogue output + commutation                  | 4...20 mA                                                 | XMLRM01G1P25 | XMLR001G1P25 | XMLR2D5G1P25 | XMLR010G1P25 | XMLR016G1P25 | XMLR025G1P25 | XMLR040G1P25 | XMLR250M1P25 | XMLR400M1P25 |
| PNP - NO/NC programmable                       | 0...10 V                                                  | XMLRM01G1P75 | XMLR001G1P75 | XMLR2D5G1P75 | XMLR010G1P75 | XMLR016G1P75 | XMLR025G1P75 | XMLR040G1P75 | XMLR250M1P75 | XMLR400M1P75 |
| 2 switching outputs PNP - NO/NC prog.          |                                                           | XMLRM01G2P05 | XMLR001G2P05 | XMLR2D5G2P05 | XMLR010G2P05 | XMLR016G2P05 | XMLR025G2P05 | XMLR040G2P05 | XMLR250M2P05 | XMLR400M2P05 |
| Analogue+2 switching outputs                   | 4...20 mA                                                 | XMLRM01G2P25 | —            | —            | XMLR010G2P25 | —            | —            | XMLR040G2P25 | XMLR250M2P25 | XMLR400M2P25 |
| Possible differential (bar)                    | Min.                                                      | 0.03         |              | 0.08         | 0.3          | 0.48         | 0.8          | 1.2          | 7.5          | 12           |
| (pressure switches)                            | Max.                                                      | 0.95         |              | 2.38         | 9.5          | 15           | 23.8         | 38           | 238          | 380          |
| Maximum permissible accidental pressure        |                                                           | 3            | 7.5          | 12           | 40           | 62           | 100          | 150          | 750          | 1200         |

(1) For other pressure ranges consult our web site.

(2) Also available with 1/4"-18NPT female fluid entry.



## Switch with display ZMLP

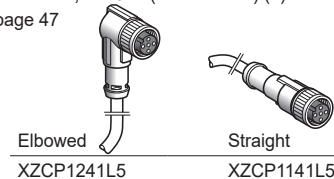
(Only usable with 4-20mA analogue output pressure transmitter)

| Type of switching mode | Hysteresis                                          | Windows    |
|------------------------|-----------------------------------------------------|------------|
| Displayed value range  | -14,5 to 6000 with 27 selectable value ranges       |            |
| Degree of protection   | IP65, IP67 and IP69K                                |            |
| Product certification  | CE cULus                                            |            |
| Supply voltage         | 24 VDC (17 ... 33 VDC)                              |            |
| Electrical connection  | Input: M12 female, 4-pins. Output: M12 male, 4-pins |            |
| Analogue output        | Switching output                                    |            |
| 4...20 mA              | PNP                                                 | ZMLPA1P2SH |
| 4...20 mA              | NPN                                                 | ZMLPA1N2SH |
| –                      | 2 PNP                                               | ZMLPA2P0SH |
| –                      | 2 PNP                                               | ZMLPA2N0SH |

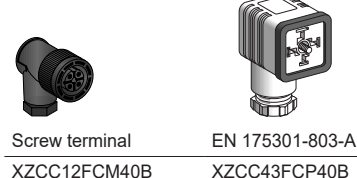
### Suitable female plug-in connectors

PUR Pre-wired connectors, L = 5 m (without LED) (1)

(1) For PVC cable see page 47



### Other connectors

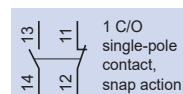


Other versions: please consult our Customer Care Centre.

# XM Sensors for pressure control

## Electromechanical pressure and vacuum switches

### XMLA and XMLB



| Size (bar)                                                         | -1                                                                                                                    | 2.5 |
|--------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|-----|
| Environmental characteristics                                      | Ambient air temperature (°C) : -25...+70 Degree of protection (conforming to IEC 60529) : IP66                        |     |
| Rated operational characteristics (conforming to EN/IEC 60947-5-1) | AC-15 ; B300 (Ue = 240V, Ie = 1,5A - Ue = 120V, Ie = 3A) / DC-13 ; R300 (Ue = 250V, Ie = 0,1A)                        |     |
| Product certification                                              | CE, UL, CSA, CCC, BV, LROS, EAC                                                                                       |     |
| Fluid connection                                                   | G 1/4" (female) (other connections possible, please consult us)                                                       |     |
| Electrical connection                                              | Screw terminals (1), tapped entry for ISO M20 x 1.5 cable gland - <a href="#">For n° 13 (DIN Pg 13.5) cable gland</a> |     |

|                   |                                             |                                          |
|-------------------|---------------------------------------------|------------------------------------------|
| Fluids controlled | Hydraulic oils, fresh water, air up to 70°C | Hydraulic oils, fresh water, air to 70°C |
|-------------------|---------------------------------------------|------------------------------------------|

#### Type XMLA - fixed differential, single threshold detection

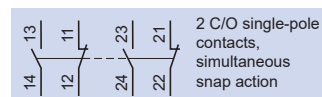
|                                                            |                  |                 |
|------------------------------------------------------------|------------------|-----------------|
| Setting range (bar) of upper limit (PH): pressure switches | - 0,28...- 1 (4) | 0,15...2,5      |
| Dimensions (mm) H x W x D                                  | 113 x 35 x 75    | 158 x 55 x 77,5 |
| With setting scale 1 C/O single-pole, snap action contact  | XMLAM01V2S12     | XMLA002A2S12    |
| Natural differential (bar) at low setting                  | 0,24 (2)         | 0,13            |
| subtract from PH to give PB at high setting                | 0,24 (2)         | 0,13            |

#### Type XMLB - adjustable differential, regulation between 2 thresholds

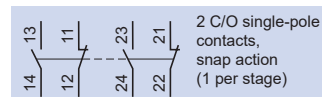
|                                                            |                  |              |
|------------------------------------------------------------|------------------|--------------|
| Setting range (bar) of upper limit (PH): pressure switches | - 0,14...- 1 (4) | 0,3...2,5    |
| With setting scale 1 C/O single-pole, snap action contact  | XMLBM02V2S12     | XMLB002A2S12 |
| Possible differential (bar) Min. at low setting            | 0,13 (3)         | 0,16         |
| subtract from PH to give PB Min. at high setting           | 0,13 (3)         | 0,21         |
| Max. at high setting                                       | 0,8 (3)          | 1,75         |

### XMLC and XMLD

#### XMLC



#### XMLD



|                   |                                             |                                              |
|-------------------|---------------------------------------------|----------------------------------------------|
| Fluids controlled | Hydraulic oils, fresh water, air up to 70°C | Hydraulic oils, fresh water, air up to 160°C |
|-------------------|---------------------------------------------|----------------------------------------------|

#### Type XMLC - adjustable differential, regulation between 2 thresholds

|                                                            |                |               |
|------------------------------------------------------------|----------------|---------------|
| Setting range (bar) of upper limit (PH): pressure switches | 0,14...- 1 (4) | 0,3...2,5     |
| Dimensions (mm) H x W x D                                  | 113 x 46 x 85  | 158 x 55 x 90 |
| With setting scale 2 C/O single-pole, snap action contacts | -              | XMLC002B2S12  |
| Possible differential (bar) Min. at low setting            | -              | 0,13          |
| subtract from PH to give PB Min. at high setting           | -              | 0,17          |
| Max. at high setting                                       | -              | 2             |

#### Type XMLD - fixed differential, dual stage, for detection at each threshold

|                                                                             |                                     |                  |   |
|-----------------------------------------------------------------------------|-------------------------------------|------------------|---|
| Setting range (bar)                                                         | 2nd stage switching point (PB2)     | - 0,12...- 1 (4) | - |
|                                                                             | 1st stage switching point (PB1)     | - 0,10...- 0,98  | - |
|                                                                             | Spread between 2 stages (PB2 - PB1) | - 0,02...- 0,88  | - |
| Without setting scale 2 C/O single-pole, snap action contacts (1 per stage) |                                     | XMLDM02V1S12     | - |
| Natural differential (bar) at low setting                                   |                                     | 0,1 (2)          | - |
| Subtract PH 1/2 to give PB 1/2 at high setting                              |                                     | 0,1 (2)          | - |



| 4 | 10 | 20 | 35 | 70 | 160 | 300 | 500 |
|---|----|----|----|----|-----|-----|-----|
|---|----|----|----|----|-----|-----|-----|

conforming to IEC 947-5-1 Annexe A, En 60 947-5-1

tapped entry, replace the last number of the reference (2) by 1 (example: XMLA010A2S12 becomes XMLA010A2S11)

|                                                |                            |
|------------------------------------------------|----------------------------|
| Hydraulic oils, fresh water,<br>air up to 70°C | Hydraulic oils up to 160°C |
|------------------------------------------------|----------------------------|

| 0,4...4       | 0,6...10      | 1...20        | 1,5...35      | 5...70        | 10...160      | 20...300      | 30...500      |
|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| 113 x 35 x 75 | 113 x 35 x 75 | 113 x 35 x 75 | 113 x 35 x 75 | 113 x 35 x 75 | 113 x 35 x 75 | 113 x 35 x 75 | 113 x 35 x 75 |
| XMLA004A2S12  | XMLA010A2S12  | XMLA020A2S12  | XMLA035A2S12  | XMLA070D2S12  | XMLA160D2S12  | XMLA300D2S12  | XMLA500D2S12  |
| 0,35          | 0,5           | 0,4           | 1.25          | 3             | 5,5           | 16,5          | 20            |
| 0,35          | 0,5           | 1             | 1.25          | 7.5           | 18            | 35            | 45            |

| 0,25...4     | 0,7...10     | 1,3...20     | — | — | 10...160     | 22...300     | 30...500     |
|--------------|--------------|--------------|---|---|--------------|--------------|--------------|
| XMLB004A2S12 | XMLB010A2S12 | XMLB020A2S12 | — | — | XMLB160D2S12 | XMLB300D2S12 | XMLB500D2S12 |
| 0,02         | 0,57         | 1            | — | — | 9,3          | 19,4         | 23           |
| 0,25         | 0,85         | 1,6          | — | — | 20,8         | 37           | 52,6         |
| 2,4          | 7,5          | 11           | — | — | 100          | 200          | 300          |

(1) For electrical connection DIN 43650A (IP65), replace the suffix "S12" in the reference by "C11". Example XMLB010A2S12 becomes **XMLB010A2C11**

(2) For vacuum switch: natural differential to be added to PB to give PH.

(3) For vacuum switch: possible differential to be added to PB to give PH.

(4) Setting range (bar) of lower limit (PB): vacuum switch.



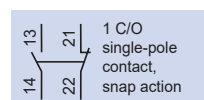
|                                                 |                            |
|-------------------------------------------------|----------------------------|
| Hydraulic oils, fresh water,<br>air up to 160°C | Hydraulic oils up to 160°C |
|-------------------------------------------------|----------------------------|

| 0,3...4       | 0,7...10      | 1,3...20      | 3,5...35      | 7...70        | 12...160      | 22...300      | 30...500      |
|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| 113 x 46 x 85 | 113 x 46 x 85 | 113 x 46 x 85 | 113 x 46 x 85 | 113 x 46 x 85 | 113 x 46 x 85 | 113 x 46 x 85 | 113 x 46 x 85 |
| XMLC004B2S12  | XMLC010B2S12  | XMLC020B2S12  | XMLC035B2S12  | —             | XMLC160D2S12  | XMLC300D2S12  | —             |
| 0,15          | 0,45          | 0,7           | 1             | —             | 9             | 16            | —             |
| 0,17          | 0,7           | 1             | 1,5           | —             | 21            | 35            | —             |
| 2,5           | 8             | 11            | 22            | —             | 110           | 240           | —             |

| — | — | — | 4,4...35     | — | — | — | 41...500     |
|---|---|---|--------------|---|---|---|--------------|
| — | — | — | 1,9...32,5   | — | — | — | 25...484     |
| — | — | — | 2,5...20,4   | — | — | — | 16...244     |
| — | — | — | XMLD035B1S12 | — | — | — | XMLD500D1S12 |
| — | — | — | 1,5          | — | — | — | 21           |
| — | — | — | 2,6          | — | — | — | 65           |

# XM Sensors for pressure control

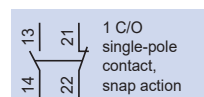
## Electromechanical pressure switches XM, XMA



| Setting range of upper limit (PH) (bar)                            | 1...6                                                                                                | 1,3...12 | 3,5...25      |
|--------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|----------|---------------|
| Fluids controlled                                                  | Air, water (fresh water, sea water) from 0...+70°C                                                   |          |               |
| Ambient air temperature                                            | -25...+70°C                                                                                          |          |               |
| Degree of protection (conforming to IEC 60529)                     | IP54                                                                                                 |          |               |
| Rated operational characteristics (conforming to EN/IEC 60947-5-1) | AC-15 ; B300 (Ue = 240 V, Ie = 1,5 A - Ue = 120 V, Ie = 3 A) / DC-13 ; R300 (Ue = 250 V, Ie = 0,1 A) |          |               |
| Product certification                                              | CE, UL, CSA, CCC, EAC                                                                                |          |               |
| Dimensions (mm) H x W x D                                          | 106 x 57 x 98                                                                                        |          | 126 x 57 x 98 |
| Fluid connection                                                   | 1/4" BSP female                                                                                      |          |               |
| Electrical connection                                              | Screw terminals, 2 tapped entries for n° 13 (DIN Pg 13.5) cable gland                                |          |               |

### Type XMX-with internal setting screw

|                                                   |                      |             |             |             |
|---------------------------------------------------|----------------------|-------------|-------------|-------------|
| Without setting scale, screw terminal connections |                      |             |             |             |
| 1 C/O single-pole, snap action contact            |                      | XMMA06L2135 | XMMA12L2135 | XMMA25L2135 |
| Possible differential (bar)                       | Min. at low setting  | 0,8         | 1           | 3,4         |
| subtract from PH to give PB                       | Min. at high setting | 1,2         | 1,7         | 4,5         |
|                                                   | Max. at high setting | 4,2         | 8,4         | 20          |

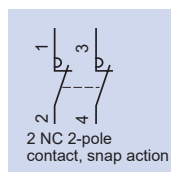


| Setting range of upper limit (PH) (bar)                            | 1...6                                                                                                | 1,3...12 | 3,5...25      |
|--------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|----------|---------------|
| Fluids controlled                                                  | Air, water (fresh water, sea water) from 0...+70°C                                                   |          |               |
| Ambient air temperature                                            | -25...+70°C                                                                                          |          |               |
| Degree of protection (conforming to IEC 60529)                     | IP54                                                                                                 |          |               |
| Rated operational characteristics (conforming to EN/IEC 60947-5-1) | AC-15 ; B300 (Ue = 240 V, Ie = 1,5 A - Ue = 120 V, Ie = 3 A) / DC-13 ; R300 (Ue = 250 V, Ie = 0,1 A) |          |               |
| Product certification                                              | CE, UL, CSA, CCC, EAC                                                                                |          |               |
| Dimensions (mm) H x W x D                                          | 113 x 57 x 98                                                                                        |          | 133 x 57 x 98 |
| Fluid connection                                                   | 1/4" BSP female                                                                                      |          |               |
| Electrical connection                                              | Screw terminals, tapped entry for n° 13 (DIN Pg 13.5) cable gland                                    |          |               |

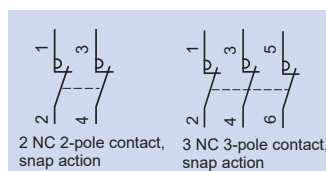
### Type XMA with external setting screw (transparent cover)

|                                                   |                      |             |             |             |
|---------------------------------------------------|----------------------|-------------|-------------|-------------|
| Without setting scale, screw terminal connections |                      |             |             |             |
| 1 C/O single-pole, snap action contact            |                      | XMAV06L2135 | XMAV12L2135 | XMAV25L2135 |
| Possible differential (bar)                       | Min. at low setting  | 0,8         | 1           | 3,4         |
| subtract from PH to give PB                       | Min. at high setting | 1,2         | 1,7         | 4,5         |
|                                                   | Max. at high setting | 4,2         | 8,4         | 20          |

## Electromechanical pressure switches for power circuits, adjustable differential for regulation between 2 thresholds



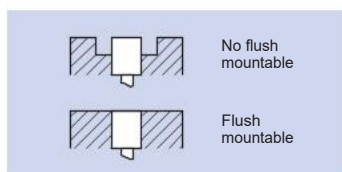
| Degree of protection                                               |                                 |                         | IP 20                                         |                     |                           | IP65                                                                  |                     |  |
|--------------------------------------------------------------------|---------------------------------|-------------------------|-----------------------------------------------|---------------------|---------------------------|-----------------------------------------------------------------------|---------------------|--|
| Size (bar)                                                         |                                 |                         | 4,6                                           | 7                   | 10,5                      | 4,6                                                                   | 7                   |  |
| Setting range of upper limit (PH) (bar)                            |                                 |                         | 1,4...4,6                                     | 2,8...7             | 5,6...10,5                | 1,4...4,6                                                             | 2,8...7             |  |
| Fluids controlled                                                  |                                 |                         | Water (fresh water, sea water) from 0...+55°C |                     |                           |                                                                       |                     |  |
| Electrical connection                                              |                                 |                         | Screw terminals, 2 cable entries with grommet |                     |                           | Screw terminals, 2 tapped entries for n° 13 (DIN Pg 13.5) cable gland |                     |  |
| Product certification                                              |                                 |                         | CE, EAC                                       |                     |                           |                                                                       |                     |  |
| Ambient air temperature                                            |                                 |                         | For operation : 0...+50°C.                    |                     | For storage: - 30...+80°C |                                                                       |                     |  |
| Rated operational characteristics (conforming to EN/IEC 60947-5-1) |                                 |                         | Ie = 10 A, Ue = 250 V AC                      |                     |                           |                                                                       |                     |  |
| Power rating<br>of controlled<br>motors                            | 110 V                           | AC 2-pole, single-phase | 0,75 kW (1 HP)                                |                     |                           | 0,75 kW (1 HP)                                                        |                     |  |
|                                                                    |                                 | AC 2-pole, 3-phase      | 1,1 kW (1,5 HP)                               |                     |                           | 1,1 kW (1,5 HP)                                                       |                     |  |
|                                                                    | 230 / 400 V                     | AC 2-pole, single-phase | 1,5 kW (2 HP)                                 |                     |                           | 1,5 kW (2 HP)                                                         |                     |  |
|                                                                    |                                 | AC 2-pole, 3-phase      | 2,2 kW (3 HP)                                 |                     |                           | 2,2 kW (3 HP)                                                         |                     |  |
| Dimensions (mm) H x W x D                                          |                                 |                         | 96/105 x 72 x 102                             | 94 x 72 x 102       |                           | 115 x 72 x 106                                                        | 115 x 72 x 106      |  |
| Connection                                                         | G 1/4 (BSP female)              |                         | FSG2                                          | FYG22               | FYG32                     | –                                                                     | FYG22NE             |  |
| hydraulique                                                        | R 1/4 (BSP male)                |                         | FSG9                                          | FYG29               | –                         | –                                                                     | –                   |  |
|                                                                    | G 3/8 (BSP female) rotating nut |                         | –                                             | –                   | –                         | FSG2NEG                                                               | –                   |  |
| Possible differential (bar)<br>subtract from PH                    | At low setting                  |                         | 1 min. - 2,1 max.                             | 1,2 min. - 2,3 max. | 1,9 min. - 3 max.         | 1 min. - 2,1 max.                                                     | 1,2 min. - 2,3 max. |  |
|                                                                    | At middle setting               |                         | 1,1 min. - 2,2 max.                           | 1,4 min. - 2,5 max. | 2,1 min. - 3,2 max.       | 1,1 min. - 2,2 max.                                                   | 1,4 min. - 2,5 max. |  |
| to give PB                                                         | At high setting                 |                         | 1,2 min. - 2,3 max.                           | 1,6 min. - 2,7 max. | 2,3 min. - 3,4 max.       | 1,2 min. - 2,3 max.                                                   | 1,6 min. - 2,7 max. |  |



| Size (bar)                              |                                  |                      | 6                                                                     | 12                 |                      | 25                 |
|-----------------------------------------|----------------------------------|----------------------|-----------------------------------------------------------------------|--------------------|----------------------|--------------------|
| Setting range of upper limit (PH) (bar) |                                  |                      | 1...6                                                                 | 1,3...12           |                      | 3,5...25           |
| Fluids controlled                       |                                  |                      | Air, water (fresh water, sea water) from 0...+70°C                    |                    |                      |                    |
| Ambient air temperature                 |                                  |                      | For fonctionnement : -25...+70°C. For stockage : -40...+70°C          |                    |                      |                    |
| Decompression valve / ONOff knob        |                                  |                      | without                                                               | without            | with                 | without            |
| Fluid connection                        |                                  |                      | G 1/4 (BSP female)                                                    | G 1/4 (BSP female) | 4xG 1/4 (BSP female) | G 1/4 (BSP female) |
| Electrical connection                   |                                  |                      | Screw terminals, 2 tapped entries for n° 13 (DIN Pg 13.5) cable gland |                    |                      |                    |
| Degree of protection                    |                                  |                      | IP 54                                                                 | IP 54              |                      | IP 54              |
| Product certification                   |                                  |                      | CE, EAC                                                               |                    |                      |                    |
| Rated insulation voltage                |                                  |                      | Ui = 500 V                                                            |                    |                      |                    |
| Electrical<br>durability                | Power                            | 1,5 kW               | 400 V AC 3-phase : 1 000 000 operating cycles                         |                    |                      |                    |
|                                         |                                  |                      | 230 VAC 3-phase : 600 000 operating cycles                            |                    |                      |                    |
|                                         |                                  | 2,2 kW               | 400 V AC 3-phase : 700 000 operating cycles                           |                    |                      |                    |
|                                         |                                  | 3 kW                 | 400 V AC 3-phase : 500 000 operating cycles                           |                    |                      |                    |
| Dimensions (mm) H x W x D               |                                  |                      | 106 x 57 x 97,5                                                       | 106 x 57 x 97,5    | 138 x 57 x 97,5      | 126 x 57 x 97,5    |
| Type                                    | 2 NC 2-pole, snap action contact |                      | XMPA06B2131                                                           | XMPA12B2131        | –                    | XMPA25B2131        |
| of contacts                             | 3 NC 3-pole, snap action contact |                      | XMPA06C2131                                                           | XMPA12C2131        | XMPE12C2431          | –                  |
| Possible differential (bar)             |                                  | Min. at low setting  | 0,8                                                                   | 1                  | 1                    | 3,4                |
| subtract from PH                        |                                  | Min. at high setting | 1,2                                                                   | 1,7                | 1,7                  | 4,5                |
| to give PB                              |                                  | Max. at high setting | 4,2                                                                   | 8,4                | 8,4                  | 20                 |

# XS Inductive proximity sensors

## Cylindrical metal



|                                                                       | Flush standard and increased range |         |                                                   |           |
|-----------------------------------------------------------------------|------------------------------------|---------|---------------------------------------------------|-----------|
|                                                                       | M8                                 |         | M12                                               |           |
| Nominal sensing distance $S_n$                                        | 1,5 mm                             | 2,5 mm  | 2 mm                                              | 4 mm      |
| Usable sensing distance $S$ (mm) flush mountable / No flush mountable | 0 ... 1,2                          | 0 ... 2 | 0...1,6                                           | 0 ... 3,2 |
| Temperature range (°C)                                                | - 25 ... + 70                      |         |                                                   |           |
| Product certification                                                 | CE, UL, CSA, CCC, C-TICK, E2 (2)   |         |                                                   |           |
| Degree of protection (conforming to IEC 60529)                        | IP67                               |         | Pre-cabled: IP 69K conforming to DIN 40050, IP 68 |           |

### Sensors for DC applications

| Output function                                                            |                  |                    | NO          |       | A                 |       | A           |       | A                   |       | A |  |
|----------------------------------------------------------------------------|------------------|--------------------|-------------|-------|-------------------|-------|-------------|-------|---------------------|-------|---|--|
|                                                                            |                  |                    | NC          |       | B                 |       | B           |       | B                   |       | B |  |
| Dimensions (mm) Ø x L Cable / Connector                                    |                  |                    |             |       | M8 x 33 / M8 x 42 |       |             |       | M12 x 35 / M12 x 50 |       |   |  |
| 3-wires                                                                    | PNP              | Cable (2 m)        | XS508B1P    | A L2  | XS108B3P          | A L2  | XS512B1P    | A L2  | XS112B3P            | A L2  |   |  |
|                                                                            |                  | Connector M8 / M12 | XS508B1P    | A M8  | XS108B3P          | A M8  | XS512B1P    | A M12 | XS112B3P            | A M12 |   |  |
|                                                                            | NPN              | Cable (2m)         | XS508B1N    | A L2  | XS108B3N          | A L2  | XS512B1N    | A L2  | XS112B3N            | A L2  |   |  |
|                                                                            |                  | Connector M8 / M12 | XS508B1N    | A M8  | XS108B3N          | A M8  | XS512B1N    | A M12 | XS112B3N            | A M12 |   |  |
| 2-wires                                                                    | No polarised (1) | Cable (2 m)        | XS508BSC    | A L2  | XS608B3C          | A L2  | XS512BSD    | A L2  | XS612B3D            | A L2  |   |  |
|                                                                            |                  | Connector M12      | –           |       | –                 |       | XS512BSD    | A M12 | XS612B3D            | A M12 |   |  |
| Supply voltage limits, min./max. (V) including ripple                      |                  |                    | 10...36     |       | 10...36           |       | 10...36     |       | 10...36             |       |   |  |
| Switching capacity, max. (mA) 3-wires / 2-wires                            |                  |                    | 200 / 100   |       | 200 / 100         |       | 200 / 100   |       | 200 / 100           |       |   |  |
| Overload and short-circuit protection (★) / LED output state indicator (⊗) |                  |                    | ★ / ⊗       |       | ★ / ⊗             |       | ★ / ⊗       |       | ★ / ⊗               |       |   |  |
| Residual current, open state (mA)                                          |                  |                    | ≤ 0,5       |       | ≤ 0,5             |       | ≤ 0,5       |       | ≤ 0,5               |       |   |  |
| Voltage drop, closed state (V) at I nominal 3-wires / 2-wires              |                  |                    | ≤ 2 / ≤ 4   |       | ≤ 2 / ≤ 4         |       | ≤ 2 / ≤ 4   |       | ≤ 2 / ≤ 4           |       |   |  |
| Switching frequency (Hz) 3-wires / 2-wires                                 |                  |                    | 5000 / 4000 |       | 2500 / 3000       |       | 5000 / 4000 |       | 2500 / 2000         |       |   |  |
| Dimensions (mm) Ø x L Pre-cabled / Connector                               |                  |                    |             |       | M8 x 51 / M8 x 62 |       |             |       | M12 x 53 / M12 x 62 |       |   |  |
| 3-wires                                                                    | PNP              | Cable (2 m)        | XS508BLP    | A L2  | XS608B1P          | A L2  | XS512BLP    | A L2  | XS612B1P            | A L2  |   |  |
|                                                                            |                  | Connector M12      | XS508BLP    | A M12 | XS608B1P          | A M12 | XS512BLP    | A M12 | XS612B1P            | A M12 |   |  |
|                                                                            | NPN              | Cable (2 m)        | XS508BLN    | A L2  | XS608B1N          | A L2  | XS512BLN    | A L2  | XS612B1N            | A L2  |   |  |
|                                                                            |                  | Connector M12      | XS508BLN    | A M12 | XS608B1N          | A M12 | XS512BLN    | A M12 | XS612B1N            | A M12 |   |  |
| 2-wires                                                                    | No polarised     | Cable (2 m)        | XS508B1D    | A L2  | XS608B1D          | A L2  | XS512B1D    | A L2  | XS612B1D            | A L2  |   |  |
|                                                                            |                  | Connector M12      | XS508B1D    | A M12 | XS608B1D          | A M12 | XS512B1D    | A M12 | XS612B1D            | A M12 |   |  |
| Supply voltage limits, min./max. (V) including ripple                      |                  |                    | 10...58     |       | 10...58           |       | 10...58     |       | 10...58             |       |   |  |
| Switching capacity, max. (mA) 3-wires / 2-wires                            |                  |                    | 200 / 100   |       | 200 / 100         |       | 200 / 100   |       | 200 / 100           |       |   |  |
| Overload and short-circuit protection (★) / LED output state indicator (⊗) |                  |                    | ★ / ⊗       |       | ★ / ⊗             |       | ★ / ⊗       |       | ★ / ⊗               |       |   |  |
| Residual current, open state (mA) 2-wires                                  |                  |                    | ≤ 0,5       |       | ≤ 0,5             |       | ≤ 0,5       |       | ≤ 0,5               |       |   |  |
| Voltage drop, closed state (V) at I nominal 3-wires / 2-wires              |                  |                    | ≤ 2 / ≤ 4   |       | ≤ 2 / ≤ 4         |       | ≤ 2 / ≤ 4   |       | ≤ 2 / ≤ 4           |       |   |  |
| Switching frequency (Hz) 3-wires / 2-wires                                 |                  |                    | 5000 / 4000 |       | 2500 / 3000       |       | 5000 / 4000 |       | 2500 / 2000         |       |   |  |

### Multi-current/multi-voltage sensors for AC/DC applications

|                                                       |                       |   |   |                     |                 |
|-------------------------------------------------------|-----------------------|---|---|---------------------|-----------------|
| Dimensions (mm) Ø x L Cable / Connector               |                       | — | — | M12 x 53 / M12 x 62 |                 |
| 2-wires                                               | Cable (2 m)           | — | — | XS512B1M AL2        | XS612B1M AL2    |
|                                                       | Connector 1/2"-20 UNF | — | — | XS512B1M AU20       | XS612B1M AU20   |
| Supply voltage limits, min./max. (V) including ripple |                       | — | — | 20...264            | 20...264        |
| Switching capacity, max (mA)                          |                       | — | — | 200                 | 200             |
| LED output state indicator (⊗)                        |                       | — | — | ⊗                   | ⊗               |
| Residual current, open state (mA)                     |                       | — | — | ≤ 0,8               | ≤ 0,8           |
| Voltage drop, closed state (V) at I nominal           |                       | — | — | ≤ 5,5               | ≤ 5,5           |
| Switching frequency (Hz)                              |                       | — | — | 25 AC / 1000 DC     | 25 AC / 1000 DC |

(1) polarised for M8 short

(2) E2 depending on the version, more details on [tesensors.com](http://tesensors.com)

### Accessories

#### Fixing for cylindrical sensors

Fixing clamp with indexing pin for cylindrical sensors



|     |         |
|-----|---------|
| M8  | XSZB108 |
| M12 | XSZB112 |
| M18 | XSZB118 |
| M30 | XSZB130 |

#### Suitable female plug-in connectors

| M8           | Straight     | Elbowed      |
|--------------|--------------|--------------|
| Metal ring   | XZCC8FDM30S  | XZCC8FCM30S  |
| M12 (4-pins) |              |              |
| Metal ring   | XZCC12FDM40B | XZCC12FCM40B |
| Plastic ring | XZCC12FDP40B | XZCC12FCP40B |



| M18                    |         |       |        | No flush increased range                                                 |                 |                |                   |
|------------------------|---------|-------|--------|--------------------------------------------------------------------------|-----------------|----------------|-------------------|
| M18                    |         | M30   |        | M8                                                                       | M12             | M18            | M30               |
| 5 mm                   | 8 mm    | 10 mm | 15 mm  | 4 mm                                                                     | 7/8 mm          | 12/15 mm       | 22/30 mm          |
| 0...4                  | 0...6,4 | 0...8 | 0...12 | 0 ... 3,2                                                                | 0...5.6/0...6.4 | 0...9.6/0...12 | 0...17.6 / 0...24 |
| - 25...+ 70            |         |       |        | - 25...+ 70                                                              |                 |                |                   |
| (with connector: IP67) |         |       |        | CE, UL , CSA , CCC, C-TICK, E2 (2)                                       |                 |                |                   |
|                        |         |       |        | Pre-cabled: IP 69K conforming to DIN 40050, IP 68 (with connector: IP67) |                 |                |                   |

| A                   |              | A                   |              | A                 |              | A                   |              | A                   |  | A                   |  |
|---------------------|--------------|---------------------|--------------|-------------------|--------------|---------------------|--------------|---------------------|--|---------------------|--|
| B                   |              | B                   |              | B                 |              | B                   |              | B                   |  | B                   |  |
| M18 x 39 / M18 x 50 |              | M30 x 43 / M30 x 55 |              |                   |              | M12 x 37 / M12 x 51 |              | M18 x 41 / M18 x 51 |  |                     |  |
| XS518B1PAL2         | XS118B3PAL2  | XS530B1PAL2         | XS130B3PAL2  | -                 |              | XS212B4PAL2         | XS218B4PAL2  |                     |  |                     |  |
| XS518B1PAM12        | XS118B3PAM12 | XS530B1PAM12        | XS130B3PAM12 | -                 |              | XS212B4PAM12        | XS218B4PAM12 |                     |  |                     |  |
| XS518B1NAL2         | XS118B3NAL2  | XS530B1NAL2         | XS130B3NAL2  | -                 |              | XS212B4NAL2         | XS218B4PAL2  |                     |  |                     |  |
| XS518B1NAM12        | XS118B3NAM12 | XS530B1NAM12        | XS130B3NAM12 | -                 |              | XS212B4NAM12        | XS218B4PAM12 |                     |  |                     |  |
| XS518BSDAL2         | XS618B3DAL2  | XS530BSDAL2         | XS630B3DAL2  | -                 |              |                     |              |                     |  |                     |  |
| XS518BSDAM12        | XS618B3DAM12 | XS530BSDAM12        | XS630B3DAM12 | -                 |              |                     |              |                     |  |                     |  |
| 10...36             | 10...36      | 10...36             | 10...36      | -                 |              | 10...36             | 10...36      |                     |  |                     |  |
| 200 / 100           | 200 / 100    | 200 / 100           | 200 / 100    | -                 |              | 200                 | 200          |                     |  |                     |  |
| ★ / ☉               | ★ / ☉        | ★ / ☉               | ★ / ☉        | -                 |              | ★ / ☉               | ★ / ☉        |                     |  |                     |  |
| ≤ 0,5               | ≤ 0,5        | ≤ 0,5               | ≤ 0,5        | -                 |              | ≤ 0,5               | ≤ 0,5        |                     |  |                     |  |
| ≤ 2 / ≤ 4           | ≤ 2 / ≤ 4    | ≤ 2 / ≤ 4           | ≤ 2 / ≤ 4    | -                 |              | ≤ 2                 | ≤ 2          |                     |  |                     |  |
| 2000 / 3000         | 1000 / 1000  | 1000 / 2000         | 500 / 500    | -                 |              | 2500                | 1000         |                     |  |                     |  |
| M18 x 62 / M18 x 74 |              | M30 x 62            |              | M8 x 51 / M8 x 61 |              | M12 x 55 / M12 x 65 |              | M18 x 62 / M18 x 74 |  | M30 x 66 / M30 x 74 |  |
| XS518BLPAL2         | XS618B1PAL2  | XS530BLPAL2         | XS630B1PAL2  | XS608B4PAL2       | XS612B4PAL2  | XS618B4PAL2         | XS630B5PAL2  |                     |  |                     |  |
| XS518BLPAM12        | XS618B1PAM12 | XS530BLPAM12        | XS630B1PAM12 | XS608B4PAM12 (3)  | XS612B4PAM12 | XS618B4PAM12        | XS630B5PAM12 |                     |  |                     |  |
| XS518BLNAL2         | XS618B1NAL2  | XS530BLNAL2         | XS630B1NAL2  | XS608B4NAL2       | XS612B4NAL2  | XS618B4NAL2         | XS630B5NAL2  |                     |  |                     |  |
| XS518BLNAM12        | XS618B1NAM12 | XS530BLNAM12        | XS630B1NAM12 | XS608B4NAM12 (3)  | XS612B4NAM12 | XS618B4NAM12        | XS630B5NAM12 |                     |  |                     |  |
| XS518B1DAL2         | XS618B1DAL2  | XS530B1DAL2         | XS630B1DAL2  | -                 | -            | -                   | -            |                     |  |                     |  |
| XS518B1DAM12        | XS618B1DAM12 | XS530B1DAM12        | XS630B1DAM12 | -                 | -            | -                   | -            |                     |  |                     |  |
| 10...58             | 10...58      | 10...58             | 10...58      | 10...58           | 10...58      | 10...58             | 10...58      |                     |  |                     |  |
| 200 / 100           | 200 / 100    | 200 / 100           | 200 / 100    | 200 / -           | 200 / -      | 200 / -             | 200 / -      |                     |  |                     |  |
| ★ / ☉               | ★ / ☉        | ★ / ☉               | ★ / ☉        | ★ / ☉             | ★ / ☉        | ★ / ☉               | ★ / ☉        |                     |  |                     |  |
| ≤ 0,5               | ≤ 0,5        | ≤ 0,5               | ≤ 0,5        | -                 | -            | -                   | -            |                     |  |                     |  |
| ≤ 2 / ≤ 4           | ≤ 2 / ≤ 4    | ≤ 2 / ≤ 4           | ≤ 2 / ≤ 4    | ≤ 2 / -           | ≤ 2 / -      | ≤ 2 / -             | ≤ 2 / -      |                     |  |                     |  |
| 2000 / 3000         | 1000 / 1000  | 1000 / 2000         | 500 / 500    | 2500 / -          | 2500 / -     | 1000 / -            | 500 / -      |                     |  |                     |  |

|                     |                 |                     |                 |   |   |                     |                 |                     |  |
|---------------------|-----------------|---------------------|-----------------|---|---|---------------------|-----------------|---------------------|--|
| M18 x 62 / M18 x 73 |                 | M30 x 62 / M30 x 73 |                 | - | - | M18 x 60 / M18 x 72 |                 | M30 x 63 / M30 x 74 |  |
| XS518B1MAL2         | XS618B1MAL2     | XS530B1MAL2         | XS630B1MAL2     | - | - | XS618B4MAL2         | XS630B4MAL2     |                     |  |
| XS518B1MAU20        | XS618B1MAU20    | XS530B1MAU20        | XS630B1MAU20    | - | - | XS618B4MAU20        | XS630B4MAU20    |                     |  |
| 20...264            | 20...264        | 20...264            | 20...264        | - | - | 20...264            | 20...264        |                     |  |
| 300 AC / 200 DC     | 300 AC / 200 DC | 300 AC / 200 DC     | 300 AC / 200 DC | - | - | 300 AC / 200 DC     | 300 AC / 200 DC |                     |  |
| ☉                   | ☉               | ☉                   | ☉               | - | - | ☉                   | ☉               |                     |  |
| ≤ 0,8               | ≤ 0,8           | ≤ 0,8               | ≤ 0,8           | - | - | ≤ 0,8               | ≤ 0,8           |                     |  |
| ≤ 5,5               | ≤ 5,5           | ≤ 5,5               | ≤ 5,5           | - | - | ≤ 5,5               | ≤ 5,5           |                     |  |
| 25 AC / 1000 DC     | 25 AC / 1000 DC | 25 AC / 500 DC      | 25 AC / 500 DC  | - | - | 25 AC / 1000 DC     | 25 AC / 300 DC  |                     |  |

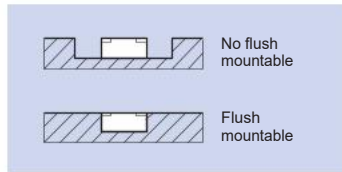
(3) Also available with M8 connector. Substitute "M12" for "M8" at the end of the reference.

| PUR pre-wired connectors (1)                                                                   |                                                                                                | M8 (3-pins) |             | 1/2"        |      | M12 (4-pins) |             |      |             |             |             |
|------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|-------------|-------------|-------------|------|--------------|-------------|------|-------------|-------------|-------------|
| <br>Straight | <br>Elbowed |             | Straight    | Elbowed     |      | Straight     | Elbowed     |      |             |             |             |
|                                                                                                |                                                                                                | 2 m         | XZCP0566L2  | XZCP0666L2  | 2 m  | XZCP1865L2   | XZCP1965L2  | 2 m  | XZCP1141L2  | XZCP1241L2  | XZCP1340L2  |
|                                                                                                |                                                                                                | 5 m         | XZCP0566L5  | XZCP0666L5  | 5 m  | XZCP1865L5   | XZCP1965L5  | 5 m  | XZCP1141L5  | XZCP1241L5  | XZCP1340L5  |
|                                                                                                |                                                                                                | 10 m        | XZCP0566L10 | XZCP0666L10 | 10 m | XZCP1865L10  | XZCP1965L10 | 10 m | XZCP1141L10 | XZCP1241L10 | XZCP1340L10 |

(1) For PVC cable see page 47

# XS Inductive proximity sensors

## Rectangulars plastic



|                                                                | ☐ 8 x 22 x 8                              | ☐ 15 x 32 x 8       | ☐ 26 x 26 x 13  | ☐ 40 x 40 x 15  | ☐ 80 x 80 x 26  |  |
|----------------------------------------------------------------|-------------------------------------------|---------------------|-----------------|-----------------|-----------------|--|
| Nominal sensing distance Sn                                    | 2.5 mm                                    | 5 mm                | 10 mm           | 15 mm           | 40 mm           |  |
| Operating zone (mm)                                            | 0...2                                     | 0...4               | 0...8           | 0...12          | 0...32          |  |
| Fine adjustment zone (mm) flush mountable / No flush mountable | –                                         | –                   | –               | –               | –               |  |
| Suitability for flush mounting(metal environment)              | flush mountable                           | flush mountable     | flush mountable | flush mountable | flush mountable |  |
| Temperature range (°C)                                         | - 25...+ 70                               | - 25...+ 70         | - 25...+ 70     | - 25...+ 70     | - 25...+ 70     |  |
| Product certification                                          | CE                                        | CE, UL, CSA, C-TICK |                 |                 |                 |  |
| Degree of protection (conforming to IEC 60529)                 | pre-cabled : IP68 (with connector : IP67) |                     |                 |                 |                 |  |

### Sensors for DC applications

| Connection                                                           |              |             |                       | Pre-cabled PvR (2 m) |                    |                 |                 |                  |
|----------------------------------------------------------------------|--------------|-------------|-----------------------|----------------------|--------------------|-----------------|-----------------|------------------|
| 2-wires (No polarised)                                               |              | NO or NC    | programmable          | –                    | –                  | –               | –               | –                |
| 2-wires                                                              | No polarised | NO function |                       | XS7J1A1DAL2          | XS7F1A1DAL2        | XS7E1A1DAL2 (3) | XS7C1A1DAL2 (3) | XS7D1A1DAL2 (3)  |
|                                                                      |              | NC function |                       | XS7J1A1DBL2          | –                  | XS7E1A1DBL2 (3) | XS7C1A1DBL2 (3) | XS7D1A1DBL2 (3)  |
| 4-wires                                                              | PNP          | NO + NC     | complementary outputs | –                    | –                  | –               | –               | –                |
|                                                                      | NPN          | NO + NC     | complementary outputs | –                    | –                  | –               | –               | –                |
| 3-wires                                                              | PNP          | NO function |                       | XS7J1A1PAL2          | XS7F1A1PAL2        | XS7E1A1PAL2 (3) | XS7C1A1PAL2 (3) | XS7D1A1PAL2 (3)  |
|                                                                      |              | NC function |                       | XS7J1A1PBL2          | XS7F1A1PBL2        | XS7E1A1PBL2 (3) | XS7C1A1PBL2 (3) | XS7D1A1PBL2 (3)  |
|                                                                      | NPN          | NO function |                       | XS7J1A1NAL2          | XS7F1A1NAL2        | XS7E1A1NAL2 (3) | XS7C1A1NAL2 (3) | XS7D1A1NAL2 (3)  |
|                                                                      |              | NC function |                       | –                    | –                  | XS7E1A1NBL2 (3) | XS7C1A1NBL2 (3) | XS7D1A1NBL2 (3)  |
| Connection                                                           |              |             |                       | M8                   |                    |                 |                 | M12              |
| 2-wires                                                              | No polarised | NO function |                       | XS7J1A1DAL01M8 (1)   | XS7F1A1DAL01M8 (1) | XS7E1A1DAM8 (3) | XS7C1A1DAM8 (3) | XS7D1A1DAM12 (3) |
|                                                                      |              | NC function |                       | –                    | XS7F1A1DBL01M8 (1) | XS7E1A1DBM8 (3) | XS7C1A1DBM8 (3) | XS7D1A1DBM12 (3) |
| 3-wires                                                              | PNP          | NO function |                       | XS7J1A1PAL01M8 (1)   | XS7F1A1PAL01M8 (1) | XS7E1A1PAM8 (3) | XS7C1A1PAM8 (3) | XS7D1A1PAM12 (3) |
|                                                                      |              | NC function |                       | XS7J1A1PBL01M8 (1)   | XS7F1A1PBL01M8 (1) | XS7E1A1PBM8 (3) | XS7C1A1PBM8 (3) | XS7D1A1PBM12 (3) |
|                                                                      | NPN          | NO function |                       | –                    | XS7F1A1NAL01M8 (1) | XS7E1A1NAM8 (3) | XS7C1A1NAM8 (3) | XS7D1A1NAM12 (3) |
|                                                                      |              | NC function |                       | –                    | –                  | XS7E1A1NBM8 (3) | XS7C1A1NBM8 (3) | –                |
| Supply voltage limits, min./max. (V) including ripple                |              |             |                       | 10...36              | 10...36            | 10...36         | 10...36         | 10...36          |
| Switching capacity, max (mA)                                         |              |             |                       | 100                  | 100                | 100             | 100             | 100              |
| Short-circuit protect. (★) / Output state LED (⊗) / Power on LED (⊗) |              |             |                       | ★ / ⊗ / –            | ★ / ⊗ / –          | ★ / ⊗ / –       | ★ / ⊗ / –       | ★ / ⊗ / –        |
| Voltage drop, closed state (V) at I nominal cable / Connector        |              |             |                       | ≤ 4 / ≤ 2            | ≤ 4 / ≤ 2          | ≤ 2             | ≤ 2             | ≤ 2              |
| Switching frequency (Hz) cable / Connector                           |              |             |                       | 4000 / 2000          | 5000 / 2000        | 1000            | 1000            | 100              |

### Multi-current/multi-voltage sensors for AC/DC applications

| Connection                                                           |       |                       |                       |   |   |   |   |
|----------------------------------------------------------------------|-------|-----------------------|-----------------------|---|---|---|---|
| 2-wires                                                              | AC/DC | NO function           | –                     | – | – | – | – |
|                                                                      |       | NC function           | –                     | – | – | – | – |
|                                                                      | AC    | NO or NC programmable | –                     | – | – | – | – |
|                                                                      |       | AC/DC                 | NO or NC programmable | – | – | – | – |
| Connection                                                           |       |                       |                       |   |   |   |   |
| 2-wires                                                              | AC/DC | NO function           | –                     | – | – | – | – |
|                                                                      |       | NC function           | –                     | – | – | – | – |
| Supply voltage limits, min./max. (V) including ripple                |       |                       | –                     | – | – | – | – |
| Switching capacity, max (mA)                                         |       |                       | –                     | – | – | – | – |
| Short-circuit protect. (★) / Output state LED (⊗) / Power on LED (⊗) |       |                       | –                     | – | – | – | – |
| Residual current, open state (mA)                                    |       |                       | –                     | – | – | – | – |
| Voltage drop, closed state (V) at I nominal                          |       |                       | –                     | – | – | – | – |
| Switching frequency (Hz)                                             |       |                       | –                     | – | – | – | – |

(1) M8 connector on flying lead L = 0,15m

### Accessories

#### Suitable female plug-in connectors

| M8           | Straight     |  | Elbowed      |
|--------------|--------------|--|--------------|
| Metal ring   | XZCC8FDM30S  |  | XZCC8FCM30S  |
| M12 (4-pins) |              |  |              |
| Metal ring   | XZCC12FDM40B |  | XZCC12FCM40B |
| Plastic ring | XZCC12FDP40B |  | XZCC12FCP40B |



|  | Ø 40 x 40 x 70                                            |                    | Ø 40 x 40 x 117 |                    | Ø 26 x 26 x 13                                       | Ø 40 x 40 x 15  | Ø 80 x 80 x 26    |
|--|-----------------------------------------------------------|--------------------|-----------------|--------------------|------------------------------------------------------|-----------------|-------------------|
|  | 20 mm                                                     | 40 mm              | 20 mm           | 40 mm              | 15 mm                                                | 25 mm           | 60 mm             |
|  | 0...16                                                    | 0...32             | 0...16          | 0...32             | 0...8 / 0...12                                       | 0...12 / 0...20 | 0...32 / 0...48   |
|  |                                                           |                    |                 |                    | 5...10 / 5...15                                      | 8...15 / 8...25 | 20...40 / 20...60 |
|  | flush mountable                                           | No flush mountable | flush mountable | No flush mountable | flush mountable or No flush mountable via teach mode |                 |                   |
|  | - 25...+ 70                                               |                    |                 |                    | - 25...+ 70                                          |                 |                   |
|  | CE, UL, CSA, CCC, C-TICK, E2, for PNP versions: TUV Sil 2 |                    |                 |                    | CE, UL, CSA, CCC, C-TICK                             |                 |                   |
|  | IP67 and IP69K                                            |                    |                 |                    | pre-cabled : IP68 (with connector : IP67)            |                 |                   |

| M12                                                       |              | Screw terminals (2) |              | Pre-cabled (2m) |                 |                  |
|-----------------------------------------------------------|--------------|---------------------|--------------|-----------------|-----------------|------------------|
| -                                                         | -            | XS8C4A1DPP20        | XS8C4A4DPP20 | -               | -               | -                |
| XS8C2A1DAM12                                              | XS8C2A4DAM12 | -                   | -            | -               | -               | -                |
| XS8C2A1DBM12                                              | XS8C2A4DBM12 | -                   | -            | -               | -               | -                |
| XS8C2A1PCM12                                              | XS8C2A4PCM12 | XS8C4A1PCP20        | XS8C4A4PCP20 | -               | -               | -                |
| XS8C2A1NCM12                                              | XS8C2A4NCM12 | XS8C4A1NCP20        | XS8C4A4NCP20 | -               | -               | -                |
| -                                                         | -            | -                   | -            | XS8E1A1PAL2 (3) | XS8C1A1PAL2 (3) | XS8D1A1PAL2 (3)  |
| -                                                         | -            | -                   | -            | XS8E1A1PBL2 (3) | XS8C1A1PBL2 (3) | XS8D1A1PBL2 (3)  |
| -                                                         | -            | -                   | -            | XS8E1A1NAL2 (3) | XS8C1A1NAL2 (3) | XS8D1A1NAL2 (3)  |
| -                                                         | -            | -                   | -            | XS8E1A1NBL2 (3) | XS8C1A1NBL2 (3) | XS8D1A1NBL2 (3)  |
|                                                           |              |                     |              | M8              |                 | M12              |
| -                                                         | -            | -                   | -            | -               | -               | -                |
| -                                                         | -            | -                   | -            | -               | -               | -                |
| -                                                         | -            | -                   | -            | XS8E1A1PAM8 (3) | XS8C1A1PAM8 (3) | XS8D1A1PAM12 (3) |
| -                                                         | -            | -                   | -            | XS8E1A1PBM8 (3) | XS8C1A1PBM8 (3) | XS8D1A1PBM12 (3) |
| -                                                         | -            | -                   | -            | XS8E1A1NAM8 (3) | XS8C1A1NAM8 (3) | XS8D1A1NAM12 (3) |
| -                                                         | -            | -                   | -            | -               | XS8C1A1NBM8 (3) | XS8D1A1NBM12 (3) |
| 12...48                                                   |              |                     |              | 10...36         | 10...36         | 10...36          |
| 4-wires version = 200 - 2-wires version = 1.5...100       |              |                     |              | 100             | 200             | 200              |
| 4-wires version = ★ / ⊗ / ⊗ - 2-wires version = ★ / ⊗ / - |              |                     |              | ★ / ⊗ / ⊗       | ★ / ⊗ / ⊗       | ★ / ⊗ / ⊗        |
| 4-wires version = ≤ 2 - 2-wires version = ≤ 4             |              |                     |              | ≤ 2             | ≤ 2             | ≤ 2              |
| flush mountable : 300 - No flush version : 200            |              |                     |              | 2000            | 1000            | 150              |

| 1/2" - 20 UNF connector   |              | Screw terminals (2) |              | Pre-cabled (2m)         |                     |                  |
|---------------------------|--------------|---------------------|--------------|-------------------------|---------------------|------------------|
| XS8C2A1MAU20              | XS8C2A4MAU20 | -                   | -            | XS8E1A1MAL2             | XS8C1A1MAL2         | XS8D1A1MAL2      |
| -                         | -            | -                   | -            | XS8E1A1MBL2             | XS8C1A1MBL2         | XS8D1A1MBL2      |
| -                         | -            | -                   | -            | -                       | -                   | -                |
| -                         | -            | XS8C4A1MPP20        | XS8C4A4MPP20 | -                       | -                   | -                |
|                           |              |                     |              | 1/2" - 20 UNF connector |                     |                  |
| -                         | -            | -                   | -            | XS8E1A1MAL01U20 (3)     | XS8C1A1MAL01U20 (3) | XS8D1A1MAU20 (3) |
| -                         | -            | -                   | -            | XS8E1A1MBL01U20 (3)     | XS8C1A1MBL01U20 (3) | XS8D1A1MBU20 (3) |
| 20...264                  |              |                     |              | 20...264                | 20...264            | 20...264         |
| AC/DC version = 300 / 200 |              |                     |              | 200 AC ou DC            | 300 AC / 200 DC     | 300 AC / 200 DC  |
| - / ⊗ / -                 |              |                     |              | - / ⊗ / ⊗               | - / ⊗ / ⊗           | - / ⊗ / ⊗        |
| AC/DC version = ≤ 1.5     |              |                     |              | ≤ 1.5                   | ≤ 1.5               | ≤ 1.5            |
| ≤ 5.5                     |              |                     |              | ≤ 5.5                   | ≤ 5.5               | ≤ 5.5            |
| 25 AC / 50 DC             |              |                     |              | 2000                    | 1000                | 150              |

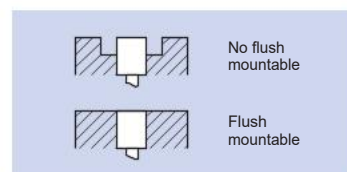
(2) Sensors supplied without cable gland. Suitable cable gland: M20. Also available in 13P, 1/2" NPT output and M12, 7/8" connectors. (3) ECOLAB certified

| PUR pre-wired connectors (1)                                                                   |                                                                                                | M8 (3-pins) |             | 1/2"        |      | M12 (4-pins) |             |      |             |             |                 |
|------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|-------------|-------------|-------------|------|--------------|-------------|------|-------------|-------------|-----------------|
| <br>Straight | <br>Elbowed |             | Straight    | Elbowed     |      | Straight     | Elbowed     |      | Straight    | Elbowed     | Elbowed PNP LED |
|                                                                                                |                                                                                                | 2 m         | XZCP0566L2  | XZCP0666L2  | 2 m  | XZCP1865L2   | XZCP1965L2  | 2 m  | XZCP1141L2  | XZCP1241L2  | XZCP1340L2      |
|                                                                                                |                                                                                                | 5 m         | XZCP0566L5  | XZCP0666L5  | 5 m  | XZCP1865L5   | XZCP1965L5  | 5 m  | XZCP1141L5  | XZCP1241L5  | XZCP1340L5      |
|                                                                                                |                                                                                                | 10 m        | XZCP0566L10 | XZCP0666L10 | 10 m | XZCP1865L10  | XZCP1965L10 | 10 m | XZCP1141L10 | XZCP1241L10 | XZCP1340L10     |

(1) For PVC cable see page 47

# XS Inductive proximity sensors

## Cylindrical Plastic



|                                                   | M8                               | M12                                       | M18     | M30    |
|---------------------------------------------------|----------------------------------|-------------------------------------------|---------|--------|
| Nominal sensing distance $S_n$                    | 2,5 mm                           | 4 mm                                      | 8 mm    | 15 mm  |
| Operating zone (mm)                               | 0...2                            | 0...3,2                                   | 0...6,4 | 0...12 |
| Suitability for flush mounting(metal environment) | Non flush mountable              |                                           |         |        |
| Temperature range (°C)                            | - 25...+ 70                      |                                           |         |        |
| Product certification                             | CE, UL, CSA, CCC, C-TICK, ECOLAB |                                           |         |        |
| Degree of protection (conforming to IEC 60529)    | IP67                             | pre-cabled : IP68 (with connector : IP67) |         |        |

## Sensors for DC applications

| Connection                                                  |     |             | Pre-cabled PvR (2 m) |              |              |              |
|-------------------------------------------------------------|-----|-------------|----------------------|--------------|--------------|--------------|
| Dimensions (mm) Ø x L                                       |     |             | M8 x 33              | M12 x 33     | M18 x 33,5   | M30 x 40,5   |
| 3-wires                                                     | PNP | NO function | XS4P08PA340          | XS4P12PA340  | XS4P18PA340  | XS4P30PA340  |
|                                                             |     | NC function | –                    | XS4P12PB340  | –            | XS4P30PB340  |
|                                                             | NPN | NO function | –                    | XS4P12NA340  | XS4P18NA340  | XS4P30NA340  |
|                                                             |     | NC function | XS4P08NB340          | –            | –            | –            |
| Connection                                                  |     |             | M8                   | M12          |              |              |
| Dimensions (mm) Ø x L                                       |     |             | M8 x 42              | M12 x 48     | M18 x 48     | M30 x 50     |
| 3-wires                                                     | PNP | NO function | XS4P08PA340S         | XS4P12PA340D | XS4P18PA340D | XS4P30PA340D |
|                                                             |     | NC function | –                    | XS4P12PB340D | XS4P18PB340D | XS4P30PB340D |
|                                                             | NPN | NO function | –                    | XS4P12NA340D | XS4P18NA340D | –            |
|                                                             |     | NC function | –                    | –            | XS4P18NB340D | –            |
| Supply voltage limits, min./max. (V) including ripple       |     |             | 10...38              | 10...38      | 10...38      | 10...38      |
| Switching capacity, max (mA)                                |     |             | 200                  | 200          | 200          | 200          |
| Short-circuit protect. (★) / LED output state indicator (⊗) |     |             | ★ / ⊗                | ★ / ⊗        | ★ / ⊗        | ★ / ⊗        |
| Voltage drop, closed state (V) at I nominal                 |     |             | ≤ 2                  | ≤ 2          | ≤ 2          | ≤ 2          |
| Switching frequency (Hz)                                    |     |             | 5000                 | 5000         | 2000         | 1000         |

## Multi-current/multi-voltage sensors for AC/DC applications

| Connection                                            |       |             | Pre-cabled PvR (2 m) |                 |                 |                 |
|-------------------------------------------------------|-------|-------------|----------------------|-----------------|-----------------|-----------------|
| Dimensions (mm) Ø x L                                 |       |             | M8 x 50              | M12 x 50        | M18 x 60        | M30 x 60        |
| 2-wires                                               | AC/DC | NO function | XS4P08MA230          | XS4P12MA230     | XS4P18MA230     | XS4P30MA230     |
| not short-circuit protected (1)___                    |       | NC function | XS4P08MB230          | XS4P12MB230     | XS4P18MB230     | XS4P30MB230     |
| Connection                                            |       |             | 1/2"                 |                 |                 |                 |
| Dimensions (mm) Ø x L                                 |       |             | M8 x 61              | M12 x 61        | M18 x 70        | M30 x 70        |
| 2-wires                                               | AC/DC | NO function | XS4P08MA230K         | XS4P12MA230K    | XS4P18MA230K    | XS4P30MA230K    |
| not short-circuit protected (1)                       |       | NC function | XS4P08MB230K         | XS4P12MB230K    | XS4P18MB230K    | XS4P30MB230K    |
| Supply voltage limits, min./max. (V) including ripple |       |             | 20...264             | 20...264        | 20...264        | 20...264        |
| Switching capacity, max (mA)                          |       |             | 100                  | 200             | 300 AC / 200 DC | 300 AC / 200 DC |
| LED output state indicator (⊗)                        |       |             | ⊗                    | ⊗               | ⊗               | ⊗               |
| Residual current, open state (mA)                     |       |             | ≤ 0,6                | ≤ 0,6           | ≤ 0,6           | ≤ 0,6           |
| Voltage drop, closed state (V) at I nominal           |       |             | ≤ 5,5                | ≤ 5,5           | ≤ 5,5           | ≤ 5,5           |
| Switching frequency (Hz)                              |       |             | 25 AC / 3000 DC      | 25 AC / 3000 DC | 25 AC / 2000 DC | 25 AC / 1000 DC |

(1) For these sensors without short-circuit protection, it is essential to connect a 0.4 A quick-blow fuse in series with the load.

## Accessories

### Fixing for cylindrical sensors

Fixing clamp with indexing pin for cylindrical sensors



|     |         |
|-----|---------|
| M8  | XSZB108 |
| M12 | XSZB112 |
| M18 | XSZB118 |
| M30 | XSZB130 |

### Suitable female plug-in connectors

| M8           | Straight     | Elbowed      |
|--------------|--------------|--------------|
| Metal ring   | XZCC8FDM30S  | XZCC8FCM30S  |
| M12 (4-pins) |              |              |
| Metal ring   | XZCC12FDM40B | XZCC12FCM40B |
| Plastic ring | XZCC12FDP40B | XZCC12FCP40B |



## Miniature cylindrical metal (assembly)



|                                                   | Ø 4                      | M5      | Ø 6,5   |        |
|---------------------------------------------------|--------------------------|---------|---------|--------|
| Nominal sensing distance $S_n$                    | 1 mm                     | 1 mm    | 1,5 mm  | 2,5 mm |
| Operating zone (mm)                               | 0...0,8                  | 0...0,8 | 0...1,2 | 0...2  |
| Suitability for flush mounting(metal environment) | flush mountable          |         |         |        |
| Temperature range (°C)                            | - 25...+ 70              |         |         |        |
| Product certification                             | CE, UL, CSA, CCC, C-TICK |         |         |        |
| Degree of protection (conforming to IEC 60529)    | IP67                     |         |         |        |

### Sensors for DC applications

| Dimensions (mm) Ø x L                                         |             |             | Ø 4 x 29             | M5 x 29          | Ø 6,5 x 33  |             |
|---------------------------------------------------------------|-------------|-------------|----------------------|------------------|-------------|-------------|
| Connection                                                    |             |             | Pre-cabled PvR (2 m) |                  |             |             |
| 3-wires                                                       | PNP         | NO function | XS1L04PA310          | XS1N05PA310      | XS506B1PAL2 | XS106B3PAL2 |
|                                                               |             | NC function | –                    | –                | XS506B1PBL2 | XS106B3PBL2 |
|                                                               | NPN         | NO function | XS1L04NA310          | XS1N05NA310      | XS506B1NAL2 | XS106B3NAL2 |
|                                                               |             | NC function | –                    | –                | XS506B1NBL2 | XS106B3NBL2 |
| 2-wires (polarised)                                           | NO function |             | –                    | –                | XS506BSCAL2 | XS606B3CAL2 |
|                                                               | NC function |             | –                    | –                | XS506BSCBL2 | XS606B3CBL2 |
| Dimensions (mm) Ø x L                                         |             |             | Ø 4 x 41             | M5 x 41          | Ø 6,5 x 42  |             |
| Connection                                                    |             |             | M8                   |                  |             |             |
| 3-wires                                                       | PNP         | NO function | XS1L04PA310S         | XS1N05PA311S (1) | XS506B1PAM8 | XS106B3PAM8 |
|                                                               |             | NC function | –                    | –                | XS506B1PBM8 | XS106B3PBM8 |
|                                                               | NPN         | NO function | –                    | XS1N05NA311S (1) | XS506B1NAM8 | XS106B3NAM8 |
|                                                               |             | NC function | –                    | –                | XS506B1NBM8 | XS106B3NBM8 |
| Connection                                                    |             |             | M12                  |                  |             |             |
| Supply voltage limits, min./max. (V) including ripple         |             |             | 5...30               | 5...30           | 10...36     |             |
| Switching capacity, max. (mA) 3-wires / 2-wires               |             |             | 100 / –              | 100 / –          | 200 / 100   |             |
| Short-circuit protect. (★) / LED output state indicator (⊗)   |             |             | ★ / ⊗                | ★ / ⊗            | ★ / ⊗       |             |
| Voltage drop, closed state (V) at I nominal 3-wires / 2-wires |             |             | ≤ 2 / –              | ≤ 2 / –          | ≤ 2 / ≤ 4   |             |
| Switching frequency (Hz) 3-wires / 2-wires                    |             |             | 5000 / –             | 5000 / –         | 5000 / 4000 | 2500 / 3000 |

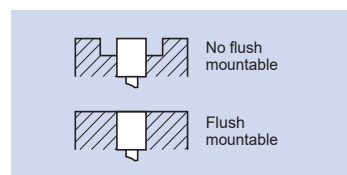
(1) Stainless steel sensors,  $S_n = 0,8$  mm

| PUR pre-wired connectors (1)                                                                   |                                                                                                | M8 (3-pins) |             | 1/2"        |      | M12 (4-pins) |             |      |             |             |                 |
|------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|-------------|-------------|-------------|------|--------------|-------------|------|-------------|-------------|-----------------|
| <br>Straight | <br>Elbowed |             | Straight    | Elbowed     |      | Straight     | Elbowed     |      | Straight    | Elbowed     | Elbowed PNP LED |
|                                                                                                |                                                                                                | 2 m         | XZCP0566L2  | XZCP0666L2  | 2 m  | XZCP1865L2   | XZCP1965L2  | 2 m  | XZCP1141L2  | XZCP1241L2  | XZCP1340L2      |
|                                                                                                |                                                                                                | 5 m         | XZCP0566L5  | XZCP0666L5  | 5 m  | XZCP1865L5   | XZCP1965L5  | 5 m  | XZCP1141L5  | XZCP1241L5  | XZCP1340L5      |
|                                                                                                |                                                                                                | 10 m        | XZCP0566L10 | XZCP0666L10 | 10 m | XZCP1865L10  | XZCP1965L10 | 10 m | XZCP1141L10 | XZCP1241L10 | XZCP1340L10     |

(1) For PVC cable see page 47

# XS Inductive proximity sensors

Multi-voltage with short-circuit protection



|                                                   |                             | M 12                                                     | M 18                | M 30                |
|---------------------------------------------------|-----------------------------|----------------------------------------------------------|---------------------|---------------------|
| Nominal sensing distance $S_n$                    | flush                       | 2 mm                                                     | 5 mm                | 10 mm               |
|                                                   | No flush or increased flush | 4 mm                                                     | 8 mm                | 15 mm               |
| Operating zone (mm)                               | flush                       | 0...1,6                                                  | 0...4               | 0...8               |
|                                                   | No flush or increased flush | 0...3,2                                                  | 0...6,4             | 0...12              |
| Suitability for flush mounting(metal environment) |                             | Flush mountable ou No flush mountable depending on model |                     |                     |
| Case M (metal) P (plastic)                        |                             | M                                                        |                     |                     |
| Temperature range (°C)                            |                             | - 25...+ 70                                              |                     |                     |
| Degree of protection (conforming to IEC 60529)    |                             | IP68 (with connector : IP67)                             |                     |                     |
| Product certification                             |                             | CE, UL, CSA, CCC, C-TICK                                 |                     |                     |
| Dimensions (mm) Ø x L Cable (Connector)           |                             | M12 x 55 (M12 x 66)                                      | M18 x 60 (M18 x 72) | M30 x 60 (M30 x 72) |

## Sensors for DC applications

| Connection                                                    |                                                       |         |                    |   |   |   |
|---------------------------------------------------------------|-------------------------------------------------------|---------|--------------------|---|---|---|
| 4-wires                                                       | PNP                                                   | NO + NC | Flush              | – | – | – |
|                                                               |                                                       |         | increased flush    |   |   |   |
|                                                               |                                                       |         | No flush           | – | – | – |
|                                                               | NPN                                                   | NO + NC | Flush              | – | – | – |
|                                                               |                                                       |         | No flush           | – | – | – |
|                                                               | PNP+NPN<br>programmable                               | NO/NC   | Flush (metal)      | – | – | – |
|                                                               |                                                       |         | No flush (metal)   | – | – | – |
|                                                               |                                                       |         | No flush (plastic) | – | – | – |
|                                                               | Connection                                            |         |                    |   |   |   |
| 4-wires                                                       | PNP                                                   | NO + NC | Flush              | – | – | – |
|                                                               |                                                       |         | increased flush    |   |   |   |
|                                                               |                                                       |         | No flush           | – | – | – |
|                                                               | NPN                                                   | NO + NC | Flush              | – | – | – |
|                                                               |                                                       |         | No flush           | – | – | – |
|                                                               | PNP+NPN<br>programmable                               | NO/NC   | Flush (metal)      | – | – | – |
|                                                               |                                                       |         | No flush (metal)   | – | – | – |
|                                                               |                                                       |         | No flush (plastic) | – | – | – |
|                                                               | Supply voltage limits, min./max. (V) including ripple |         |                    |   | – | – |
| Switching capacity, max (mA)                                  |                                                       |         |                    | – | – | – |
| Short-circuit protection (★) / LED output state indicator (⊗) |                                                       |         |                    | – | – | – |
| Voltage drop, closed state (V) at I nominal                   |                                                       |         |                    | – | – | – |
| Switching frequency (Hz)                                      |                                                       |         |                    | – | – | – |

## Multi-current/multi-voltage sensors for AC/DC applications

| Connection                                        |             |          | Pre-cabled PvR (2 m) |                        |                    |
|---------------------------------------------------|-------------|----------|----------------------|------------------------|--------------------|
| 2-wires AC/DC                                     | NO function | Flush    | XS1M12MA250          | XS1M18MA250            | XS1M30MA250        |
|                                                   |             | No flush | XS2M12MA250          | XS2M18MA250            | XS2M30MA250        |
|                                                   | NC function | Flush    | XS1M12MB250          | XS1M18MB250            | XS1M30MB250        |
|                                                   |             | No flush | XS2M12MB250          | XS2M18MB250            | XS2M30MB250        |
| Connection                                        |             |          | 1/2"-20UNF           |                        |                    |
| 2-wires AC/DC                                     | NO function | Flush    | XS1M12MA250K         | XS1M18MA250K           | XS1M30MA250K       |
|                                                   |             | No flush | XS2M12MA250K         | XS2M18MA250K           | XS2M30MA250K       |
|                                                   | NC function | Flush    | XS1M12MB250K         | XS1M18MB250K           | XS1M30MB250K       |
|                                                   |             | No flush | –                    | XS2M18MB250K           | XS2M30MB250K       |
| Supply voltage limits, mini/maxi (V) 50-60 Hz     |             |          | 20...264             |                        |                    |
| Switching capacity, max (mA)                      |             |          | 5...200              | 5...200 AC, 5...300 DC |                    |
| LED output state indicator (⊗) / Power on LED (⊗) |             |          | ⊗ / ⊗                |                        |                    |
| Residual current, open state (mA)                 |             |          | ≤ 1,5                |                        |                    |
| Voltage drop, closed state (V) at I nominal       |             |          | ≤ 5,5                |                        |                    |
| Switching frequency (Hz)                          |             |          | 25 AC, 4000 DC       | 25 AC, 2000 DC         | 25 AC, 2000 DC (1) |

(1) 25 AC, 1000 DC for non flush Ø 30 mm.

PNP or NPN  
NO + NC Complementary outputs

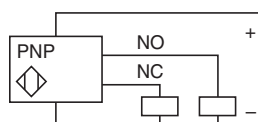
PNP + NPN outputs,  
NO or NC programmable



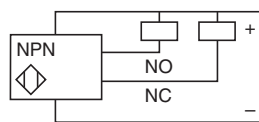
|  | M 8                                                                                      | M 12                         | M 18                  | M 30                  | M 12                                                     | M 18                | M 30                |
|--|------------------------------------------------------------------------------------------|------------------------------|-----------------------|-----------------------|----------------------------------------------------------|---------------------|---------------------|
|  | 1,5 mm                                                                                   | 2 mm                         | 5 mm                  | 10 mm                 | 2 mm                                                     | 5 mm                | 10 mm               |
|  | 2,5 mm                                                                                   | 4 mm                         | 8 mm                  | 15 mm                 | 4 mm                                                     | 8 mm                | 15 mm               |
|  | 0...1,2                                                                                  | 0...1,6                      | 0...4                 | 0...8                 | 0...1,6                                                  | 0...4               | 0...8               |
|  | 0...2                                                                                    | 0...3,2                      | 0...6,4               | 0...12                | 0...3,2                                                  | 0...6,4             | 0...12              |
|  | flush mountable or no flush mountable depending on model                                 |                              |                       |                       | flush mountable or no flush mountable depending on model |                     |                     |
|  | M                                                                                        |                              |                       |                       | M ou P depending on model                                |                     |                     |
|  | - 25...+ 70                                                                              |                              |                       |                       | - 25...+ 70                                              |                     |                     |
|  | IP67                                                                                     | IP68 (with connector : IP67) |                       |                       | IP68 (with connector : IP67)                             |                     |                     |
|  | CE, UL, CSA, CCC, C-TICK, E2 - for versions PNP : TÜV SIL2 (SIL2 only for M12, M18, M30) |                              |                       |                       | CE, UL, CSA, CCC, C-TICK                                 |                     |                     |
|  | M8 x 50 (M8 x 61)                                                                        | M12 x 33 (M12 x 48)          | M18 x 36.5 (M18 x 49) | M30 x 40.5 (M30 x 53) | M12 x 50 (M12 x 61)                                      | M18 x 60 (M18 x 72) | M30 x 60 (M30 x 72) |

|  | Pre-cabled PvR (2 m) |                        |              |              | Pre-cabled PvR (2 m) |              |              |
|--|----------------------|------------------------|--------------|--------------|----------------------|--------------|--------------|
|  | XS1M08PC410          | XS1N12PC410            | XS1N18PC410  | XS1N30PC410  | –                    | –            | –            |
|  | –                    | XS112B3PCL2            | XS118B3PCL2  | XS130B3PCL2  |                      |              |              |
|  | XS2M08PC410          | –                      | –            | –            | –                    | –            | –            |
|  | XS1M08NC410          | XS1N12NC410            | –            | XS1N30NC410  | –                    | –            | –            |
|  | –                    | XS2N12NC410            | –            | –            | –                    |              |              |
|  | –                    | –                      | –            | –            | XS1M12KP340          | XS1M18KP340  | XS1M30KP340  |
|  | –                    | –                      | –            | –            | XS2M12KP340          | XS2M18KP340  | XS2M30KP340  |
|  | –                    | –                      | –            | –            | XS4P12KP340          | XS4P18KP340  | XS4P30KP340  |
|  | M12                  |                        |              |              | M12                  |              |              |
|  | XS1M08PC410D         | XS1N12PC410D           | XS1N18PC410D | XS1N30PC410D | –                    | –            | –            |
|  | –                    | XS112B3PCM12           | XS118B3PCM12 | XS130B3PCM12 |                      |              |              |
|  | XS2M08PC410D         | –                      | –            | –            | –                    | –            | –            |
|  | –                    | –                      | –            | XS1N30NC410D | –                    | –            | –            |
|  | –                    | –                      | XS2N18NC410D | –            | –                    | –            | –            |
|  | –                    | –                      | –            | –            | XS1M12KP340D         | XS1M18KP340D | XS1M30KP340D |
|  | –                    | –                      | –            | –            | XS2M12KP340D         | XS2M18KP340D | XS2M30KP340D |
|  | –                    | –                      | –            | –            | XS4P12KP340D         | XS4P18KP340D | XS4P30KP340D |
|  | 10...36              | 9...36 for PNP version |              |              | 10...36              |              |              |
|  | 200                  |                        |              |              | 200                  |              |              |
|  | ★ / ☉                |                        |              |              | ★ / –                |              |              |
|  | ≤ 2                  |                        |              |              | ≤ 2,6                |              |              |
|  | 5000                 | 5000                   | 2000         | 1000         | 5000                 | 2000         | 1000         |

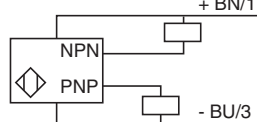
PNP



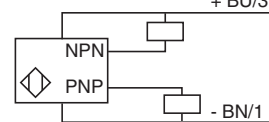
NPN



NO



NC



## Accessories

### Fixing clamps

With indexing pin for cylindrical sensors



|     |         |
|-----|---------|
| M8  | XSZB108 |
| M12 | XSZB112 |
| M18 | XSZB118 |
| M30 | XSZB130 |

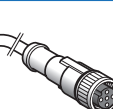
### Suitable female plug-in connectors, including PUR pre-wired versions (1)

length 5 m  
without LED

pre-wired  
Elbowed



pre-wired  
Straight



screw terminal



|             |            |
|-------------|------------|
| M8 (ou S)   | XZCP0666L5 |
| M12 (ou D)  | XZCP1241L5 |
| 1/2" (ou K) | XZCP1965L5 |

|            |
|------------|
| XZCP0566L5 |
| XZCP1141L5 |
| XZCP1865L5 |

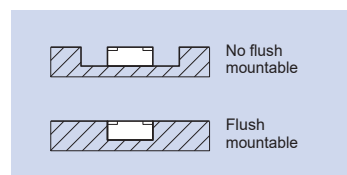
|              |
|--------------|
| XZCC8FCM30S  |
| XZCC12FCM40B |
| XZCC20FCM30B |

(1) For PVC cable see page 47

# XS Inductive proximity sensors - Application

## Rotation control

Fixed sensing distance  
(for ferrous or no ferrous materials)



|                                                      | 26 x 26 x 13             | 40 x 40 x 15 | M30                      |  |
|------------------------------------------------------|--------------------------|--------------|--------------------------|--|
| Nominal sensing distance $S_n$                       | 10 mm                    | 15 mm        | 10 mm                    |  |
| Operating zone (mm)                                  | 0...8                    | 0...12       | 0...8                    |  |
| Suitability for flush mounting(metal environment)    | flush mountable          |              |                          |  |
| Case M (metal) P (plastic)                           | P                        | P            | M                        |  |
| Temperature range (°C)                               | - 25...+ 60              |              |                          |  |
| Degree of protection (conforming to IEC 60529)       | IP67                     |              |                          |  |
| Product certification                                | CE, UL, CSA, CCC, C-TICK |              |                          |  |
| Dimensions (mm) Ø x L or W x H x D Cable (Connector) | 26 x 26 x 13             | 40 x 40 x 15 | M30 x 81                 |  |
| Maximum speed of passing object (impulses / min)     | 48000                    | 48000        | 6000...48000 (1)         |  |
| Adjustable frequency range (impulses / min)          | 6...6000                 | 6...6000     | 6...150 / 120...3000 (1) |  |

## Sensors for DC applications

| Connection                                                                     |                  |             |                         | Pre-cabled PvR (2 m) |                     |           |
|--------------------------------------------------------------------------------|------------------|-------------|-------------------------|----------------------|---------------------|-----------|
| 4 wires                                                                        | PNP/NPN NO/NC    |             | programmable            | —                    | —                   | —         |
| 3-wires                                                                        | PNP              | NC function | slow version            | —                    | —                   | XSAV11373 |
|                                                                                |                  |             | fast version            | —                    | —                   | XSAV12373 |
|                                                                                | Output 0...10 V  |             | plastic                 | —                    | —                   | —         |
|                                                                                | Output 4...20 mA |             | metal flush mountable   | —                    | —                   | —         |
|                                                                                |                  |             | plastic flush mountable | —                    | —                   | —         |
| plastic no flush mountable                                                     |                  |             | —                       | —                    | —                   |           |
| Connection par connector                                                       |                  |             |                         | M8 ou M12            |                     |           |
| 4 wire                                                                         | PNP/NPN NO/NC    |             | programmable            | —                    | —                   | —         |
| 3-wires                                                                        | PNP              | NC function |                         | XS9E11RPBL01M12 (3)  | XS9C11RPBL01M12 (3) | —         |
|                                                                                |                  |             | Output 0...10 V         | —                    | —                   | —         |
|                                                                                |                  |             | Output 4...20 mA        | —                    | —                   | —         |
| Supply voltage limits, min./max. (V) including ripple                          |                  |             |                         | 10...36              | 10...36             | 10...58   |
| Switching capacity, max (mA)                                                   |                  |             |                         | 100                  | 200                 | 200       |
| Short-circuit protect. (★) / LED output state indicator (⊗) / Power on LED (⊗) |                  |             |                         | ★ / ⊗ / ⊗            | ★ / ⊗ / ⊗           | ★ / ⊗ / — |
| Linearity error                                                                |                  |             |                         | —                    | —                   | —         |
| Voltage drop, closed state (V) at I nominal                                    |                  |             |                         | ≤ 2                  | ≤ 2                 | ≤ 2       |
| Switching frequency (Hz)                                                       |                  |             |                         | —                    | —                   | —         |
| Operating frequency (Hz)                                                       |                  |             |                         | —                    | —                   | —         |

## Multi-current/multi-voltage sensors for AC/DC applications

| Connection                                        |             |              |  | Pre-cabled PvR (2 m) |                     |                 |
|---------------------------------------------------|-------------|--------------|--|----------------------|---------------------|-----------------|
| 2-wires                                           | AC/DC       | NC function  |  | XS9E11RMBL01U20 (5)  | XS9C11RMBL01U20 (5) | –               |
| not short-circuit protected (2)                   | NC function | slow version |  | –                    | –                   | XSAV11801       |
|                                                   |             | fast version |  | –                    | –                   | XSAV12801       |
| Supply voltage limits, mini/maxi (V) 50–60 Hz     |             |              |  | 20...264             | 20...264            | 20...264        |
| Switching capacity, max (mA)                      |             |              |  | 100                  | 300 AC / 200 DC     | 300 AC / 200 DC |
| LED output state indicator (⊗) / Power on LED (⊗) |             |              |  | ⊗ / ⊗                | ⊗ / ⊗               | ⊗ / –           |
| Residual current, open state (mA)                 |             |              |  | ≤ 1,5                | ≤ 1,5               | ≤ 1,5           |
| Voltage drop, closed state (V) at I nominal       |             |              |  | ≤ 5,5                | ≤ 5,5               | ≤ 5,7           |
| Switching frequency (Hz)                          |             |              |  | –                    | –                   | –               |

## Accessories

### Fixings

Fixing clamp with indexing pin  
for cylindrical sensors



|     |         |
|-----|---------|
| M12 | XSZB112 |
| M18 | XSZB118 |
| M30 | XSZB130 |

## Analogue (Position control)



|  | 8 x 32 x 8                                 | 26 x 26 x 13    | 40 x 40 x 15    | 80 x 80 x 26    | M12                        | M18                        | M30                        |
|--|--------------------------------------------|-----------------|-----------------|-----------------|----------------------------|----------------------------|----------------------------|
|  | 5 mm                                       | 10 mm           | 15 mm           | 40 mm           | M: 2 mm / P: 4 mm          | M: 5 mm / P: 8 mm          | M: 10 mm / P: 15 mm        |
|  | 1...4                                      | 1...10          | 2...15          | 5...40          | M : 0,2...2 / P : 0,4...4  | M : 0,5...5 / P : 0,8...8  | M : 1...10 / P : 1,5...15  |
|  | flush mountable                            | flush mountable | flush mountable | flush mountable | flush / No flush mountable | flush / No flush mountable | flush / No flush mountable |
|  | P                                          | P               | P               | P               | M ou P                     | M ou P                     | M ou P                     |
|  | - 25...+ 60                                | - 25...+ 70     | - 25...+ 70     | - 25...+ 70     | - 25...+ 70                | - 25...+ 70                | - 25...+ 70                |
|  | Pre - cabled : IP68 (with connector: IP67) |                 |                 |                 | IP67                       |                            |                            |
|  | CE, UL, CSA, CCC, C-TICK                   |                 |                 |                 |                            |                            |                            |
|  | 15 x 32 x 8                                | 26 x 26 x 13    | 40 x 40 x 15    | 80 x 80 x 26    | Ø 12 x 50                  | Ø 18 x 50                  | Ø 30 x 52.5                |
|  | —                                          | —               | —               | —               | —                          | —                          | —                          |
|  | —                                          | —               | —               | —               | —                          | —                          | —                          |

|                                                           |                        |                        |                  |                                                   |             |             |
|-----------------------------------------------------------|------------------------|------------------------|------------------|---------------------------------------------------|-------------|-------------|
| -                                                         | -                      | -                      | -                | -                                                 | -           | -           |
| -                                                         | -                      | -                      | -                | -                                                 | -           | -           |
| -                                                         | -                      | -                      | -                | -                                                 | -           | -           |
| XS9F111A1L2                                               | XS9E111A1L2 (6)        | XS9C111A1L2 (6)        | XS9D111A1L2 (6)  | XS4P12AB110                                       | XS4P18AB110 | XS4P30AB110 |
| -                                                         | -                      | -                      | -                | XS1M12AB120                                       | XS1M18AB120 | XS1M30AB120 |
| XS9F111A2L2                                               | XS9E111A2L2 (6)        | XS9C111A2L2 (6)        | XS9D111A2L2 (6)  | -                                                 | -           | -           |
| -                                                         | -                      | -                      | -                | XS4P12AB120                                       | XS4P18AB120 | XS4P30AB120 |
| M8 ou M12                                                 |                        |                        |                  |                                                   |             |             |
| -                                                         | -                      | -                      | -                | -                                                 | -           | -           |
| -                                                         | -                      | -                      | -                | -                                                 | -           | -           |
| XS9F111A1L01M8 (4)(6)                                     | XS9E111A1L01M12 (4)(6) | -                      | XS9D111A1M12 (6) | -                                                 | -           | -           |
| -                                                         | XS9E111A2L01M12 (4)(6) | XS9C111A2L01M12 (4)(6) | XS9D111A2M12 (6) | -                                                 | -           | -           |
| 15...36                                                   | 15...36                | 15...36                | 15...36          | 10...36 for XS..AB110 / 15...58 for XS..AB120 (6) |             |             |
| -                                                         | -                      | -                      | -                | -                                                 | -           | -           |
| -                                                         | -                      | -                      | -                | -                                                 | -           | -           |
| ± 1 V for 0...10 V version / ± 2 mA for 4...20 mA version |                        |                        |                  |                                                   |             |             |
| -                                                         | -                      | -                      | -                | -                                                 | -           | -           |
| -                                                         | -                      | -                      | -                | -                                                 | -           | -           |
| 2000                                                      | 1000                   | 1000                   | 100              | 1500                                              | 500         | 300         |

(1) 6...150 and 6000 impulses/min for XSAV11373 and XSAV11801 (slow version); 120...3000 and 48000 impulses/min for XSAV12373 and XSAV12801 (fast version).

(2) For these sensors without short-circuit protection, it is essential to connect a 0.4 A quick-blow fuse in series with the load.

(3) Flying lead (L = 0.15 m) with end mounted remote control incorporating M12 connector.

(4) Flying lead (L = 0.15 m) with end connector.

(5) Flying lead (L = 0.15 m) with end mounted remote control incorporating 1/2"-20 UNF connector.

(6) ECOLAB certified.

| PUR pre-wired connectors (1)                                                                                                                                    |      | M8 (3-pins) |             | 1/2" |             | M12 (4-pins) |      |             |             |                 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-------------|-------------|------|-------------|--------------|------|-------------|-------------|-----------------|
| <br><div>Straight      Elbowed</div> <div>(1) For PVC cable see page 47</div> |      | Straight    | Elbowed     |      | Straight    | Elbowed      |      | Straight    | Elbowed     | Elbowed PNP LED |
|                                                                                                                                                                 | 2 m  | XZCP0566L2  | XZCP0666L2  | 2 m  | XZCP1865L2  | XZCP1965L2   | 2 m  | XZCP1141L2  | XZCP1241L2  | XZCP1340L2      |
|                                                                                                                                                                 | 5 m  | XZCP0566L5  | XZCP0666L5  | 5 m  | XZCP1865L5  | XZCP1965L5   | 5 m  | XZCP1141L5  | XZCP1241L5  | XZCP1340L5      |
|                                                                                                                                                                 | 10 m | XZCP0566L10 | XZCP0666L10 | 10 m | XZCP1865L10 | XZCP1965L10  | 10 m | XZCP1141L10 | XZCP1241L10 | XZCP1340L10     |

### Suitable female plug-in connectors

| M8           |              | Elbowed      |  |
|--------------|--------------|--------------|--|
| Steel ring   | XZCC8FDM30S  | XZCC8FCM30S  |  |
| M12 (4-pins) |              | Elbowed      |  |
| Steel ring   | XZCC12FDM40B | XZCC12FCM40B |  |
| Plastic ring | XZCC12FDP40B | XZCC12FCP40B |  |

# XS Inductive proximity sensors - Application

## Food and beverage processing



| Type                                               | M12                                                                         | M18       | Ø 18 plain | M30        |
|----------------------------------------------------|-----------------------------------------------------------------------------|-----------|------------|------------|
| Nominal sensing distance $S_n$                     | 7 mm                                                                        | 12 mm     | 12 mm      | 22 mm      |
| Operating zone (mm)                                | 0 ... 5,6                                                                   | 0 ... 9,6 | 0 ... 9,6  | 0 ... 17,6 |
| Suitability for flush mounting (metal environment) | No-flush mountable                                                          |           |            |            |
| Case M (metal) (1)                                 | M stainless steel 316 L                                                     |           |            |            |
| Product certification                              | CE, UL, CSA, CCC, C-TICK                                                    |           |            |            |
| Temperature range (°C)                             | - 25...+ 85°C                                                               |           |            |            |
| Degree of protection (conforming to IEC 60529)     | pre-cabled : IP68 (with connector : IP67) and IP69K conforming to DIN 40050 |           |            |            |

### Sensors for DC applications (solid-state output: transistor)

|                                                               |     |             |                                    |              |              |              |
|---------------------------------------------------------------|-----|-------------|------------------------------------|--------------|--------------|--------------|
| Connection                                                    |     |             | Pre-cabled, No poisonous PVC (2 m) |              |              |              |
| Dimensions (mm)                                               |     |             | M12 x 55                           | M18 x 60     | Ø 18 x 60    | M30 x 62     |
| 3-wires                                                       | PNP | NO function | XS212SAPAL2                        | XS218SAPAL2  | XS2L2SAPAL2  | XS230SAPAL2  |
|                                                               | NPN | NO function | XS212SANAL2                        | XS218SANAL2  | XS2L2SANAL2  | XS230SANAL2  |
| Connection                                                    |     |             | par connector M12                  |              |              |              |
| Dimensions (mm)                                               |     |             | M12 x 61                           | M18 x 70     | Ø 18 x 70    | M30 x 70     |
| 3-wires                                                       | PNP | NO function | XS212SAPAM12                       | XS218SAPAM12 | XS2L2SAPAM12 | XS230SAPAM12 |
|                                                               | NPN | NO function | XS212SANAM12                       | XS218SANAM12 | XS2L2SANAM12 | XS230SANAM12 |
| Supply voltage limits, min./max. (V) including ripple         |     |             | 10...36                            |              |              |              |
| Switching capacity, max (mA)                                  |     |             | ≤ 200                              |              |              |              |
| Switching frequency (Hz)                                      |     |             | 2500                               | 1000         | 1000         | 500          |
| Short-circuit protection (★) / LED output state indicator (⊗) |     |             | ★ / ⊗                              | ★ / ⊗        | ★ / ⊗        | ★ / ⊗        |
| Voltage drop, closed state (V) at I nominal                   |     |             | ≤ 2                                |              |              |              |

### Multi-current/multi-voltage sensors for AC/DC applications

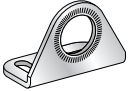
|                                               |       |             |                                |                 |   |                 |
|-----------------------------------------------|-------|-------------|--------------------------------|-----------------|---|-----------------|
| Connection                                    |       |             | Pre-cabled, No poisonous (2 m) |                 |   |                 |
| Dimensions (mm)                               |       |             | —                              | M18 x 60        | — | M30 x 62        |
| 2-wires (2)                                   | AC/DC | NO function | —                              | XS218SAMAL2     | — | XS230SAMAL2     |
| Connection                                    |       |             | 1/2"-20 UNF connector          |                 |   |                 |
| Dimensions (mm)                               |       |             | —                              | M18 x 72        | — | M30 x 74        |
| 2-wires (2)                                   | AC/DC | NO function | —                              | XS218SAMAU20    | — | XS230SAMAU20    |
| Supply voltage limits, min./max. (V) 50-60 HZ |       |             | —                              | 20 ... 264      | — | 20 ... 264      |
| Switching capacity, max (mA)                  |       |             | —                              | 300 AC / 200 DC | — | 300 AC / 200 DC |
| Switching frequency (Hz)                      |       |             | —                              | 25 AC / 1000 DC | — | 25 AC / 300 DC  |
| LED output state indicator (⊗)                |       |             | —                              | ⊗               | — | ⊗               |
| Voltage drop, closed state (V) at I nominal   |       |             | —                              | ≤ 5,5           | — | ≤ 5,5           |
| Residual current, open state (mA)             |       |             | —                              | ≤ 0,8           | — | ≤ 0,8           |



(1) Plastic range available. M12, M18, M30 :  
To order, replace the second letter S in the reference by A  
(example: XS212SAPAL2 becomes **XS212AAPAL2**).

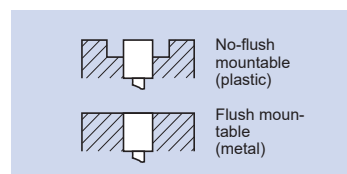
(2) For these sensors without short-circuit protection, it is essential to connect a 0.4 A quick-blow fuse in series with the load.

### Accessories

| Fixing clamps                                                                       |            | M12 pre-wired connector                      |  | M12 jumper cable                            |  |
|-------------------------------------------------------------------------------------|------------|----------------------------------------------|--|---------------------------------------------|--|
| Stainless steel                                                                     |            | female, 4-pin, stainless steel clamping ring |  | male, 3-pins, stainless steel clamping ring |  |
|  | for sensor | Straight connector                           |  | Straight connector                          |  |
|                                                                                     | Ø 12       | 5 m                                          |  | 5 m                                         |  |
|                                                                                     | Ø 18       | XZCPA1141L5                                  |  | XZCRA151140A5                               |  |
|                                                                                     | Ø 30       | XZCPA1241L5                                  |  |                                             |  |
|                                                                                     |            | Elbowed connector                            |  | 1/2" pre-wired connector                    |  |
|                                                                                     |            | 5 m                                          |  | Straight                                    |  |
|                                                                                     |            | XZCPA1241L5                                  |  | 5 m                                         |  |
|                                                                                     |            |                                              |  | Elbowed                                     |  |
|                                                                                     |            |                                              |  | 5 m                                         |  |
|                                                                                     |            |                                              |  | XZCP1865L5                                  |  |
|                                                                                     |            |                                              |  | XZCP1965L5                                  |  |

# XT Capacitive proximity sensors

Detection of insulating materials or  
conductive materials



| Suitability for flush mtg.                     |                    | M12                  | M18      | M30      | Ø 32 / 34 |          |
|------------------------------------------------|--------------------|----------------------|----------|----------|-----------|----------|
| Nominal sensing distance Sn                    | flush mountable    | 2 mm                 | 5 mm     | 10 mm    | 15 mm     |          |
|                                                | No flush mountable | —                    | 8 mm     | 15 mm    | 20 mm     |          |
| Operating zone Sa (mm) (2)                     | flush mountable    | 0...1,44             | 0...3,6  | 0...7,2  | 0...11    |          |
|                                                | No flush mountable | —                    | 0...5,8  | 0...11   | 0...15    |          |
| Case M (metal) P (plastic)                     | flush mountable    | M                    | M        | M        | M         |          |
|                                                | No flush mountable | —                    | P        | P        | P         |          |
| Product certification                          |                    | CE, UKCA, cULus, EAC |          |          |           |          |
| Temperature range (°C)                         |                    | - 25...+ 70          |          |          |           |          |
| Degree of protection (conforming to IEC 60529) |                    | IP67                 |          |          |           |          |
| Dimensions (mm)<br>Ø x L or H x W x D          | Metal              | Cable                | M12 x 63 | M18 x 70 | M30 x 64  | M32 x 80 |
|                                                |                    | Connector            | M12 x 75 | M18 x 85 | M30 x 81  | —        |
|                                                | Plastic            | Cable                | —        | M18 x 78 | M30 x 75  | —        |
|                                                |                    | Connector            | —        | M18 x 92 | M30 x 92  | —        |

## Sensors for DC applications

| Connection                                                    |     |                |                    | Pre-cabled PVC (2 m) |              |              |             |
|---------------------------------------------------------------|-----|----------------|--------------------|----------------------|--------------|--------------|-------------|
| 3-wires                                                       | PNP | NO function    | Flush mountable    | XT512B1PAL2          | XT518B1PAL2  | XT530B1PAL2  | –           |
|                                                               |     |                | No flush mountable | –                    | XT218A1PAL2  | XT230A1PAL2  | XT234A1PAL2 |
|                                                               |     | Function NO+NC | Flush mountable    | XT512B1PBL2          | XT518B1PCL2  | XT530B1PCL2  | –           |
|                                                               | NPN | NO function    | Flush mountable    | –                    | XT518B1NAL2  | XT530B1NAL2  | –           |
|                                                               |     |                | No flush mountable | –                    | XT218A1NAL2  | XT230A1NAL2  | –           |
|                                                               |     | Function NO+NC | Flush mountable    | –                    | –            | –            | –           |
| Connection                                                    |     |                |                    | M12                  |              |              |             |
| 3-wires                                                       | PNP | Function NO+NC | Flush mountable    | XT512B1PAM12         | XT518B1PCM12 | XT530B1PCM12 | –           |
|                                                               |     |                | No flush mountable | –                    | XT218A1PCM12 | XT230A1PCM12 | –           |
| Supply voltage limits, min./max. (V) including ripple         |     |                |                    | 10...30              |              |              |             |
| Switching capacity, max (mA)                                  |     |                |                    | 200                  |              |              |             |
| Short-circuit protection (★) / LED output state indicator (⊗) |     |                |                    | ★ / ⊗                |              |              |             |
| Voltage drop, closed state (V) at I nominal                   |     |                |                    | ≤ 2                  |              |              |             |
| Switching frequency (Hz)                                      |     |                |                    | 50                   | 30           | 25           | 25          |

## Multi-current/multi-voltage sensors for AC applications

| Connection                                        |                       |                    | Pre-cabled PVC (2 m) |             |                |             |
|---------------------------------------------------|-----------------------|--------------------|----------------------|-------------|----------------|-------------|
| 2-wires AC (1)                                    | NO function           | Flush mountable    | –                    | XT518B1FAL2 | XT530B1FAL2    | XT132B1FAL2 |
|                                                   |                       | No flush mountable | –                    | XT218A1FAL2 | XT230A1FAL2    | XT232A1FAL2 |
|                                                   | NC function           | Flush mountable    | –                    | XT518B1FBL2 | XT530B1FBL2    | –           |
|                                                   |                       | No flush mountable | –                    | –           | XT230A1FBL2    | XT232A1FBL2 |
| Connection                                        |                       |                    | Screw terminals      |             |                |             |
| 2-wires AC (1)                                    | NO or NC programmable | Flush mountable    | –                    | –           | XT230A2MDB (4) | –           |
| Supply voltage limits, min./max.(V) 50-60 Hz      |                       |                    | –                    | 20...264    | 20...264       | 20...264    |
| Switching capacity, max (mA)                      |                       |                    | –                    | 300         |                |             |
| LED output state indicator (⊗) / Power on LED (⊗) |                       |                    | ⊗ / –                |             |                |             |
| Voltage drop, closed state (V) at I nominal       |                       |                    | –                    | ≤ 5,5       | ≤ 5,5          | ≤ 9         |
| Switching frequency (Hz)                          |                       |                    | –                    | 15          | 10             | 10          |

(1) For these sensors without short-circuit protection, it is essential to connect a 0.4 A quick-blow fuse in series with the load.

(2) The operating distance depends on the object material.

(3) Only for detecting insulating materials.

(4) 24...240 VAC or 24 VDC supply (No flush mountable)

## Accessories

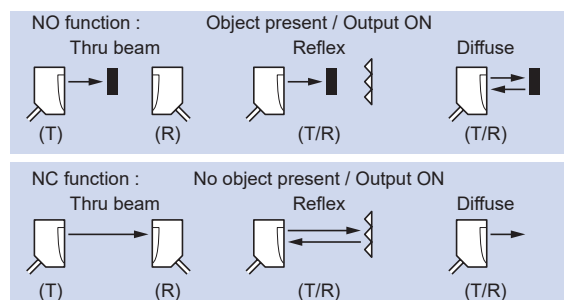
Suitable female plug-in connectors, including PUR pre-wired versions (1)

| long. 5 m<br>without DEL | pre-wired<br>Elbowed | pre-wired<br>Straight | screw terminal |
|--------------------------|----------------------|-----------------------|----------------|
|                          |                      |                       |                |
| M12                      | XZCP1241L5           | XZCP1141L5            | XZCC12FCM40B   |

(1) For PVC cable see page 47

# XU Photo-electric sensors

## General Purpose



|                       |                      |                                                                                   |   | M18 Metal (1)<br>cable                                                                          |       | M12 connector | M18 Plastic<br>cable |             | M12 connector |              |        |
|-----------------------|----------------------|-----------------------------------------------------------------------------------|---|-------------------------------------------------------------------------------------------------|-------|---------------|----------------------|-------------|---------------|--------------|--------|
| Output function       | NO                   |  |   | A                                                                                               | A     |               | A                    | A           |               |              |        |
|                       | NC                   |  |   | B                                                                                               | B     |               | B                    | B           |               |              |        |
| Diffuse               | Sensing distance     |                                                                                   |   | 0,6 m (2) (3)                                                                                   |       |               | 0,6 m (2) (3)        |             |               |              |        |
| Output type           | DC3 NO               | PNP                                                                               |   | XUB5BP                                                                                          | ANL2  | XUB5BP        | ANM12                | XUB5AP      | A NL2         | XUB5AP       | ANM12  |
|                       |                      | NPN                                                                               |   | XUB5BN                                                                                          | ANL2  | XUB5BN        | ANM12                | XUB5AN      | ANL2          | XUB5AN       | ANM12  |
|                       | AC/DC 1C/O relay     |                                                                                   |   | –                                                                                               |       | –             |                      | –           |               | –            |        |
| Reflex Polarised      | Sensing distance (4) |                                                                                   |   | 2 m                                                                                             |       |               | 2 m                  |             |               |              |        |
| Output type           | DC3 NO               | PNP                                                                               |   | XUB9BP                                                                                          | ANL2  | XUB9BP        | ANM12                | XUB9AP      | ANL2          | XUB9AP       | ANM12  |
|                       |                      | NPN                                                                               |   | XUB9BN                                                                                          | ANL2  | XUB9BN        | ANM12                | XUB9AN      | ANL2          | XUB9AN       | ANM12  |
|                       | AC/DC 1C/O relay     |                                                                                   |   | –                                                                                               |       | –             |                      | –           |               | –            |        |
| Reflex                | Sensing distance (4) |                                                                                   |   | 4 m                                                                                             |       |               | 4 m                  |             |               |              |        |
| Output type           | DC3 NO               | PNP                                                                               |   | XUB1BP                                                                                          | ANL2  | XUB1BP        | ANM12                | XUB1AP      | ANL2          | XUB1AP       | ANM12  |
|                       |                      | NPN                                                                               |   | XUB1BN                                                                                          | ANL2  | XUB1BN        | ANM12                | XUB1AN      | ANL2          | XUB1AN       | ANM12  |
|                       | AC/DC 1C/O relay     |                                                                                   |   | –                                                                                               |       | –             |                      | –           |               | –            |        |
| Thru beam             | Sensing distance     |                                                                                   |   | 15 m                                                                                            |       |               | 15 m                 |             |               |              |        |
| Output type           | DC3 NO               | PNP                                                                               |   | XUB2BP                                                                                          | ANL2R | XUB2BP        | ANM12R               | XUB2AP      | ANL2R         | XUB2AP       | ANM12R |
|                       |                      | NPN                                                                               |   | XUB2BN                                                                                          | ANL2R | XUB2BN        | ANM12R               | XUB2AN      | ANL2R         | XUB2AN       | ANM12R |
|                       | AC/DC 1C/O relay     |                                                                                   |   | –                                                                                               |       | –             |                      | –           |               | –            |        |
| Thru beam Transmitter | DC                   |                                                                                   |   | XUB2BKSNL2T                                                                                     |       | XUB2BKSNM12T  |                      | XUB2AKSNL2T |               | XUB2AKSNM12T |        |
|                       | AC/DC                |                                                                                   |   | –                                                                                               |       | –             |                      | –           |               | –            |        |
| Multimode             | Sensing distance     |                                                                                   |   | Background suppression: : 0,12 m - Diffuse: 0,3 m<br>Reflex polarised: : 3 m - Thru beam : 20 m |       |               |                      |             |               |              |        |
| Output type           | DC3 NO/NC            | PNP                                                                               |   | XUB0BPSNL2                                                                                      |       | XUB0BPSNM12   |                      | XUB0APSNL2  |               | XUB0APSNM12  |        |
|                       |                      | NPN                                                                               |   | XUB0BNSNL2                                                                                      |       | XUB0BNSNM12   |                      | XUB0ANSNL2  |               | XUB0ANSNM12  |        |
|                       |                      | PNP/NPN                                                                           |   | –                                                                                               |       | –             |                      | –           |               | –            |        |
| AC/DC 1C/O relay      |                      |                                                                                   | – |                                                                                                 | –     |               | –                    |             | –             |              |        |
| Thru beam Transmitter | DC                   |                                                                                   |   | XUB0BKSNL2T                                                                                     |       | XUB0BKSNM12T  |                      | XUB0AKSNL2T |               | XUB0AKSNM12T |        |
|                       | AC/DC                |                                                                                   |   | –                                                                                               |       | –             |                      | –           |               | –            |        |

(1) Brass metal, available also in stainless steel, see page food/beverage processing series

(2) For a sensing distance 0,1 m without sensitivity adjustment, change digit 5 by 4 into the reference (ex: XUB5BPANL2 becomes **XUB4BPANL2**)

| Fixing                 |  |  | M18 x1                                               |
|------------------------|--|--|------------------------------------------------------|
| Dimensions             |  |  | pre-cabled / connectors<br>M18 x 64 mm / M18 x 78 mm |
| Product certifications |  |  | CE, UL, CSA, C-TICK                                  |

### DC common characteristics

| Supply voltage limits, min./max. (V) including ripple | 10...36                                                                                           | 10...36 |
|-------------------------------------------------------|---------------------------------------------------------------------------------------------------|---------|
| Switching frequency (Hz)                              | 500                                                                                               | 500     |
| Common characteristics for DC versions                | Switching capacity, max (mA) : 100 / Overload and short-circuit protection (★) / LED output state |         |

### AC/DC common characteristics

| Supply voltage limits, min./max. (V) including ripple | — | — |
|-------------------------------------------------------|---|---|
| Switching frequency (Hz)                              | — | — |
| LED output state indicator (⊗) / power on LED (⊗)     | — | — |

## Accessories

### Reflectors

| Reflectors (mm) |         |  |
|-----------------|---------|--|
| Ø 21            | XUZC21  |  |
| 24 x 21         | XUZC24  |  |
| Ø 39            | XUZC39  |  |
| Ø 80            | XUZC80  |  |
| 50 x 50         | XUZC50  |  |
| 100 x 100       | XUZC100 |  |

XUZC24

XUZC80

XUZC50

### 3D fixings with ball joint



Bracket with ball joint for sensors and reflector XUZC50

| for     |          |
|---------|----------|
| XUB...  | XUZB2003 |
| XUM0... | XUZM2003 |
| XUK...  | XUZK2003 |
| XUX...  | XUZX2003 |

Protective housing with ball joint



| for    |          |
|--------|----------|
| XUK... | XUZK2004 |
| XUX... | XUZX2004 |

M12 rod for ball joint



XUZ2001

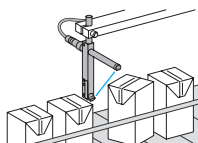
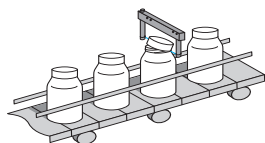


| Miniature Cable                                                                               |                                   | Compact 50 x 50 mm                                                                             |               | Compact 92 x 71 mm                                                                             |               |
|-----------------------------------------------------------------------------------------------|-----------------------------------|------------------------------------------------------------------------------------------------|---------------|------------------------------------------------------------------------------------------------|---------------|
| M8 connector                                                                                  |                                   | M12 connector                                                                                  |               | Screw terminal                                                                                 |               |
| NO or NC                                                                                      |                                   | A<br>B                                                                                         |               | A<br>B                                                                                         |               |
| 1.9 m (3)                                                                                     |                                   | 1 m (3)                                                                                        |               | 2.1 m (3)                                                                                      |               |
| XUM5APXBL2                                                                                    | XUM5APXBM8                        | XUK5AP ANL2                                                                                    | XUK5AP ANM12  | XUX5AP ANT16                                                                                   | XUX5AP ANM12  |
| XUM5ANXBL2                                                                                    | XUM5ANXBM8                        | XUK5AN ANL2                                                                                    | XUK5AN ANM12  | XUX5AN ANT16                                                                                   | XUX5AN ANM12  |
| –                                                                                             | –                                 | XUK5ARCNL2                                                                                     | –             | XUX5ARCNT16                                                                                    | –             |
| 8 m (3)                                                                                       |                                   | 5 m                                                                                            |               | 11 m (3)                                                                                       |               |
| XUM9APXBL2                                                                                    | XUM9APXBM8                        | XUK9AP ANL2                                                                                    | XUK9AP ANM12  | XUX9AP ANT16                                                                                   | XUX9AP ANM12  |
| XUM9ANXBL2                                                                                    | XUM9ANXBM8                        | XUK9AN ANL2                                                                                    | XUK9AN ANM12  | XUX9AN ANT16                                                                                   | XUX9AN ANM12  |
| –                                                                                             | –                                 | XUK9ARCNL2                                                                                     | –             | XUX9ARCNT16                                                                                    | –             |
| –                                                                                             |                                   | 7 m                                                                                            |               | 14 m (3)                                                                                       |               |
| –                                                                                             | –                                 | XUK1AP ANL2                                                                                    | XUK1AP ANM12  | XUX1AP ANT16                                                                                   | XUX1AP ANM12  |
| –                                                                                             | –                                 | XUK1AN ANL2                                                                                    | XUK1AN ANM12  | XUX1AN ANT16                                                                                   | XUX1AN ANM12  |
| –                                                                                             | –                                 | XUK1ARCNL2                                                                                     | –             | XUX1ARCNT16                                                                                    | –             |
| 30 m (3)(5)                                                                                   |                                   | 30 m                                                                                           |               | 40 m (3)                                                                                       |               |
| XUM2APXBL2                                                                                    | XUM2APXBM8                        | XUK2AP ANL2R                                                                                   | XUK2AP ANM12R | XUX2AP ANT16R                                                                                  | XUX2AP ANM12R |
| XUM2ANXBL2                                                                                    | XUM2ANXBM8                        | XUK2AN ANL2R                                                                                   | XUK2AN ANM12R | XUX2AN ANT16R                                                                                  | XUX2AN ANM12R |
| –                                                                                             | –                                 | XUK2ARCNL2R                                                                                    | –             | XUX2ARCNT16R                                                                                   | –             |
| Transmitters are already included                                                             | Transmitters are already included | XUK2AKSNL2T                                                                                    | XUK2AKSNM12T  | –                                                                                              | –             |
| –                                                                                             | –                                 | XUK2ARCNL2T                                                                                    | –             | –                                                                                              | –             |
| Background suppression: : 0,1 m - Diffuse: 0,4 m<br>Reflex Polarised : 3 m - Thru beam : 10 m |                                   | Background suppression: : 0,28 m - Diffuse: 0,8 m<br>Reflex Polarised : 4 m - Thru beam : 30 m |               | Background suppression: : 1,3 m - Diffuse: 2 m<br>Reflex Polarised : 11 m - Thru beam : 40 m   |               |
| XUM0APSAL2                                                                                    | XUM0APSAM8                        | –                                                                                              | –             | XUX0AKSAT16T                                                                                   | XUX0AKSAM12T  |
| XUM0ANSAL2                                                                                    | XUM0ANSAM8                        | –                                                                                              | –             | XUX0ARCTT16T                                                                                   | –             |
| –                                                                                             | –                                 | XUK0AKSAL2                                                                                     | XUK0AKSAM12   | XUX0AKSAT16                                                                                    | XUX0AKSAM12   |
| –                                                                                             | –                                 | XUK0ARCTL2                                                                                     | –             | XUX0ARCTT16                                                                                    | –             |
| XUM0AKSAL2T                                                                                   | XUM0AKSAM8T                       | XUK0AKSAL2T                                                                                    | XUK0AKSAM12T  | XUX0AKSAT16T                                                                                   | XUX0AKSAM12T  |
| –                                                                                             | –                                 | XUK0ARCTL2T                                                                                    | –             | XUX0ARCTT16T                                                                                   | –             |
| (3) with sensitivity adjustment<br>(4) with reflector XUZC50 to be ordered separately         |                                   | (5) Some references are available with Transmitter and Receiver together (ex: XUM2APSBL2)      |               |                                                                                                |               |
| Direct fixing centres 25.5, M3 screws<br>10,8 x 31,5 x 19,5<br>CE, UL, CSA, UKCA              |                                   | Direct fixing centres 40 x 40, M4 screws<br>18 x 50 x 50<br>CE, UL, CSA, CCC, C-TICK           |               | Direct fixing centres 30/38 to 40/50/74, M5 screws<br>30 x 92 x 71<br>CE, UL, CSA, CCC, C-TICK |               |
| 10...30                                                                                       |                                   | 10...30                                                                                        |               | 10...36                                                                                        |               |
| 1000                                                                                          |                                   | 500                                                                                            |               | 500                                                                                            |               |
| LED output state indicator (⊗) : Yes / power on LED (⊗) : yes                                 |                                   |                                                                                                |               |                                                                                                |               |
| –                                                                                             |                                   | 20...264                                                                                       |               | 20...264                                                                                       |               |
| –                                                                                             |                                   | 20                                                                                             |               | 20                                                                                             |               |
| –                                                                                             |                                   | ⊗ / ⊗                                                                                          |               | ⊗ / ⊗                                                                                          |               |

| Simple fixings                                                                                                                      |                               |                   | Suitable female plug-in connectors, including PUR pre-wired versions (1) |                   |                    |                |
|-------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-------------------|--------------------------------------------------------------------------|-------------------|--------------------|----------------|
| Fixing support for M12 rod<br><br><br><br>XUZ2003 | Single bracket                |                   |                                                                          |                   |                    |                |
|                                                                                                                                     | for                           |                   |                                                                          |                   |                    |                |
|                                                                                                                                     | standard                      | with ball joint   |                                                                          |                   |                    |                |
|                                                                                                                                     | XUB... XUZA118 (stnls. steel) | XUZA218 (plastic) |                                                                          |                   |                    |                |
|                                                                                                                                     | XUM... XUZA50                 | –                 |                                                                          |                   |                    |                |
|                                                                                                                                     |                               |                   | length. 5 m without LED                                                  | pre-wired Elbowed | pre-wired Straight | Screw terminal |
|                                                                                                                                     |                               |                   | M8                                                                       | XZCP1041L5        | XZCP0941L5         | XZCC8FCM40S    |
|                                                                                                                                     |                               |                   | M12                                                                      | XZCP1241L5        | XZCP1141L5         | XZCC12FCM40B   |
|                                                                                                                                     |                               |                   | (1) For PVC cable see page 47                                            |                   |                    |                |

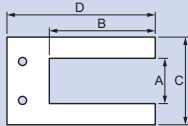
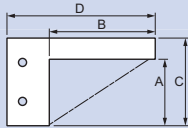
# XU Photo-electric sensors

## Optical forks without setting and frames



| System                                                                  |    | Thru-beam with modular red LED light source |   |
|-------------------------------------------------------------------------|----|---------------------------------------------|---|
| Output function                                                         | NO |                                             | A |
|                                                                         | NC |                                             | B |
| Sensing distance                                                        |    | 30...150 mm                                 |   |
| Minimum size of objet detected                                          |    | 0,8 mm                                      |   |
| Case M (metal)                                                          |    | M                                           |   |
| Temperature range (°C) / Degree of protection (conforming to IEC 60529) |    | - 10...+ 60 / IP65 and IP67                 |   |
| Product certification                                                   |    | CE, cULus                                   |   |

## Sensors for DC applications (solid-state output: transistor)

| Connection                                                                                                                                                               |                        |         |             | M8 connector 3-pins |                |                |     |     | Pre-cabled L = 2 m. |               |    |    |    |      |      |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|---------|-------------|---------------------|----------------|----------------|-----|-----|---------------------|---------------|----|----|----|------|------|
| Dimensions (mm)                                                                                                                                                          |                        |         |             |                     | A              | B              | C   | D   |                     | A             | B  | C  | D  |      |      |
| <br> | Transmitter / Receiver | 3-wires | NO function | PNP                 | XUVR0605P ANM8 | 50             | 60  | 74  | 77,5                | XUVR0303PANL2 | 30 | 40 | 54 | 57,5 |      |
|                                                                                                                                                                          |                        |         |             | NPN                 | XUVR0605N ANM8 |                |     |     |                     |               |    |    |    |      |      |
|                                                                                                                                                                          |                        |         |             | NO function         | PNP            | XUVR0608P ANM8 | 80  | 60  | 104                 |               |    |    |    |      | 77,5 |
|                                                                                                                                                                          |                        |         |             | NPN                 | XUVR0608N ANM8 |                |     |     |                     |               |    |    |    |      |      |
|                                                                                                                                                                          |                        |         |             | NO function         | PNP            | XUVR1212P ANM8 | 120 | 120 | 144                 |               |    |    |    |      | 142  |
|                                                                                                                                                                          |                        |         |             | NPN                 | XUVR1212N ANM8 |                |     |     |                     |               |    |    |    |      |      |
|                                                                                                                                                                          |                        |         |             | NO function         | PNP            | XUVR1218P ANM8 | 180 | 120 | 204                 |               |    |    |    |      | 142  |
|                                                                                                                                                                          |                        |         |             | NPN                 | XUVR1218N ANM8 |                |     |     |                     |               |    |    |    |      |      |
|                                                                                                                                                                          |                        |         |             | NO function         | PNP            | XUVA0505P ANM8 | 44  | 44  | 71                  |               |    |    |    |      | 71   |
|                                                                                                                                                                          |                        |         |             | NPN                 | XUVA0505N ANM8 |                |     |     |                     |               |    |    |    |      |      |
| Supply voltage limits, min./max. (V) including ripple                                                                                                                    |                        |         |             | 10...30             |                |                |     |     |                     |               |    |    |    |      |      |
| Switching capacity, max (mA) / Switching frequency (Hz)                                                                                                                  |                        |         |             | 100/4kHz            |                |                |     |     |                     |               |    |    |    |      |      |
| Short-circuit protect. (★) / LED output state indicator (⊗)                                                                                                              |                        |         |             | ★ / ⊗               |                |                |     |     |                     |               |    |    |    |      |      |



| System                                                      |         | Thru-beam with infrared emission                                                     |            |              |              |              |
|-------------------------------------------------------------|---------|--------------------------------------------------------------------------------------|------------|--------------|--------------|--------------|
| Passageway dimensions                                       |         | 30 x 30 mm                                                                           | 60 x 60 mm | 200 x 120 mm | 200 x 180 mm | 200 x 250 mm |
| Connection                                                  |         | M8 (4-pins)                                                                          |            | M12 (4-pins) |              |              |
| Minimum size of object to be detected                       | Ø 2 mm  | XUVF30M8                                                                             | XUVF60M8   | –            | –            | –            |
|                                                             | Ø 4 mm  | –                                                                                    | –          | XUVF120M12   | XUVF180M12   | XUVF250M12   |
|                                                             | Ø 10 mm | –                                                                                    | –          | XUYFRS120S   | XUYFRS180S   | XUYFRS250S   |
| Type et Output function                                     |         | 4-wires, PNP and NPN Output function ON or OFF on passage of object, programmable    |            |              |              |              |
| Function type                                               |         | Dynamic (XUVF30M8, XUVF60M8), Dynamic or static (XUVF120M12, XUVF180M12, XUVF250M12) |            |              |              |              |
| Supply voltage limits, min./max. (V) including ripple       |         | 18...30                                                                              |            |              |              |              |
| Switching capacity, max (mA) / Switching frequency (Hz)     |         | ≤ 100 / 500 Hz                                                                       |            |              |              |              |
| Short-circuit protect. (★) / LED output state indicator (⊗) |         | ★ / ⊗                                                                                |            |              |              |              |

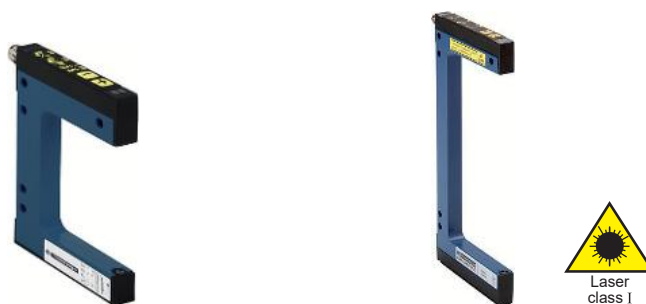
## Accessories

Suitable female PUR pre-wired plug-in connectors (1)

|                                                                                    |                 | M8 (3-pins)                       |                 | M8 (4-pins)                              |                 | M12 (4-pins)           |                 |     |            |            |
|------------------------------------------------------------------------------------|-----------------|-----------------------------------|-----------------|------------------------------------------|-----------------|------------------------|-----------------|-----|------------|------------|
|  | StraightElbowed | For optical forks without setting |                 | For optical forks and frame with setting |                 | For frame with setting |                 |     |            |            |
|                                                                                    |                 |                                   | StraightElbowed |                                          | StraightElbowed |                        | StraightElbowed |     |            |            |
|                                                                                    |                 | 2 m                               | XZCP0566L2      | XZCP0666L2                               | 2 m             | XZCP0941L2             | XZCP1041L2      | 2 m | XZCP1141L2 | XZCP1241L2 |
|                                                                                    |                 | 5 m                               | XZCP0566L5      | XZCP0666L5                               | 5 m             | XZCP0941L5             | XZCP1041L5      | 5 m | XZCP1141L5 | XZCP1241L5 |

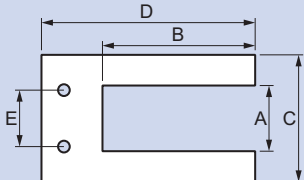
(1) For PVC cable see page 47

## Forks with teach mode <sup>(1)</sup>



| System, with teach mode                                                 | Thru beam            | Thru beam laser |
|-------------------------------------------------------------------------|----------------------|-----------------|
| Sensing distance                                                        | 2...120 mm           | 2...120 mm      |
| Fixings (mm)                                                            | (see column E below) |                 |
| Minimum size of objet detected                                          | 0,2 mm               | 0,05 mm         |
| Case M (metal) / Setting-up assistance LEDs ☉                           | M / ☉                |                 |
| Temperature range (°C) / Degree of protection (conforming to IEC 60529) | -25...+60 / IP65     |                 |
| Product certification                                                   | CE, cULus            |                 |

## Sensors for DC applications (solid-state output: transistor)

|                                                             |                                                                                               |     |    |     |     |     |                 |     |    |     |     |     |  |  |  |
|-------------------------------------------------------------|-----------------------------------------------------------------------------------------------|-----|----|-----|-----|-----|-----------------|-----|----|-----|-----|-----|--|--|--|
| Connection                                                  | M8 connector - 4-pins                                                                         |     |    |     |     |     |                 |     |    |     |     |     |  |  |  |
| Output type                                                 | 3-wires PNP/NPN programmable NO / NC                                                          |     |    |     |     |     |                 |     |    |     |     |     |  |  |  |
| Dimensions (mm)                                             |                                                                                               |     |    |     |     |     |                 |     |    |     |     |     |  |  |  |
| Transmitter / Receiver                                      | <div></div> |     |    |     |     |     |                 |     |    |     |     |     |  |  |  |
|                                                             |                                                                                               | A   | B  | C   | D   | E   |                 | A   | B  | C   | D   | E   |  |  |  |
|                                                             | XUYFANEP40002                                                                                 | 2   | 42 | 32  | 57  | 14  | XUYFALNEP40002  | 2   | 42 | 41  | 57  | 14  |  |  |  |
|                                                             | XUYFANEP60002                                                                                 | 2   | 59 |     | 77  |     | XUYFALNEP60002  | 2   | 59 |     | 77  |     |  |  |  |
|                                                             | XUYFANEP100002                                                                                | 2   | 95 |     | 110 |     | XUYFALNEP100002 | 2   | 95 |     | 110 |     |  |  |  |
|                                                             | XUYFANEP40005                                                                                 | 5   | 42 | 35  | 57  | 14  | XUYFALNEP40005  | 5   | 42 | 44  | 57  | 14  |  |  |  |
|                                                             | XUYFANEP60005                                                                                 | 5   | 59 |     | 77  |     | XUYFALNEP60005  | 5   | 59 |     | 77  |     |  |  |  |
|                                                             | XUYFANEP100005                                                                                | 5   | 95 |     | 110 |     | XUYFALNEP100005 | 5   | 95 |     | 110 |     |  |  |  |
|                                                             | XUYFANEP40015                                                                                 | 15  | 42 | 45  | 57  | 27  | XUYFALNEP40015  | 15  | 42 | 54  | 57  | 27  |  |  |  |
|                                                             | XUYFANEP60015                                                                                 | 15  | 59 |     | 77  |     | XUYFALNEP60015  | 15  | 59 |     | 77  |     |  |  |  |
|                                                             | XUYFANEP100015                                                                                | 15  | 95 |     | 110 |     | XUYFALNEP100015 | 15  | 95 |     | 110 |     |  |  |  |
|                                                             | XUYFANEP40030                                                                                 | 30  | 42 | 60  | 57  | 42  | XUYFALNEP40030  | 30  | 42 | 69  | 57  | 42  |  |  |  |
|                                                             | XUYFANEP60030                                                                                 | 30  | 59 |     | 77  |     | XUYFALNEP60030  | 30  | 59 |     | 77  |     |  |  |  |
|                                                             | XUYFANEP100030                                                                                | 30  | 95 |     | 110 |     | XUYFALNEP100030 | 30  | 95 |     | 110 |     |  |  |  |
|                                                             | XUYFANEP40050                                                                                 | 50  | 42 | 80  | 57  | 40  | XUYFALNEP40050  | 50  | 42 | 89  | 57  | 40  |  |  |  |
|                                                             | XUYFANEP60050                                                                                 | 50  | 59 |     | 77  |     | XUYFALNEP60050  | 50  | 59 |     | 77  |     |  |  |  |
|                                                             | XUYFANEP100050                                                                                | 50  | 95 |     | 110 |     | XUYFALNEP100050 | 50  | 95 |     | 110 |     |  |  |  |
|                                                             | XUYFANEP40080                                                                                 | 80  | 42 | 110 | 57  | 70  | XUYFALNEP40080  | 80  | 42 | 119 | 57  | 70  |  |  |  |
|                                                             | XUYFANEP60080                                                                                 | 80  | 59 |     | 77  |     | XUYFALNEP60080  | 80  | 59 |     | 77  |     |  |  |  |
|                                                             | XUYFANEP100080                                                                                | 80  | 95 |     | 110 |     | XUYFALNEP100080 | 80  | 95 |     | 110 |     |  |  |  |
|                                                             | XUYFANEP40120                                                                                 | 120 | 42 | 150 | 57  | 110 | XUYFALNEP40120  | 120 | 42 | 159 | 57  | 110 |  |  |  |
|                                                             | XUYFANEP60120                                                                                 | 120 | 59 |     | 77  |     | XUYFALNEP60120  | 120 | 59 |     | 77  |     |  |  |  |
|                                                             | XUYFANEP100120                                                                                | 120 | 95 |     | 110 |     | XUYFALNEP100120 | 120 | 95 |     | 110 |     |  |  |  |
| Supply voltage limits, min./max. (V) including ripple       | 10...30                                                                                       |     |    |     |     |     | 10...30         |     |    |     |     |     |  |  |  |
| Switching capacity, max (mA) / Switching frequency (Hz)     | 100/10kHz                                                                                     |     |    |     |     |     | 100/10kHz       |     |    |     |     |     |  |  |  |
| Short-circuit protect. (★) / LED output state indicator (☉) | ★ / ☉                                                                                         |     |    |     |     |     | ★ / ☉           |     |    |     |     |     |  |  |  |

(1) To order a fork without teach mode, delete A of the reference. Ex: XUYFANEP40002 becomes **XUYFNEP40002**



| System                                                                  | Thru beam Ultrason         | Thru beam                   |
|-------------------------------------------------------------------------|----------------------------|-----------------------------|
|                                                                         | Special transparent labels | For all other opaque labels |
| Sensing distance 3 mm version                                           | XUVU06M3PSNM8              | XUVE04M3PSNM8               |
| Switching frequency (Hz)                                                | 1500                       | 10 000                      |
| Sensitivity adjustment                                                  | Numeric potentiometer (1)  | Numeric potentiometer (1)   |
| Connection                                                              | M8 (4-pins)                |                             |
| Case M (metal) / Setting-up assistance LEDs ☉                           | M / ☉                      |                             |
| Temperature range (°C) / Degree of protection (conforming to IEC 60529) | +5...+55 / IP65            | -20...+60 / IP65            |
| Product certification                                                   | CE                         | CE, cULus                   |

(1) remote adjustment available.

# XU Photo-electric sensors - Application

## Assembly series



| Application                                               | Accurate detection or very long sensing distance |             | Robustness and compactness         |                  |
|-----------------------------------------------------------|--------------------------------------------------|-------------|------------------------------------|------------------|
| System                                                    | Thru beam                                        | Diffuse     | Reflex                             | Diffuse contrast |
| Sensing distance                                          | 100 m (1)                                        | 0,07 m      | 10...1000 mm (2)                   | 40...150 mm      |
| Fixings (mm)                                              | M18 x 1                                          | M8 x 1      | Directe, 2 trous M3, entraxe 24 mm |                  |
| Sensitivity adjustment                                    | Teach mode                                       | –           | Teach mode                         |                  |
| Case M (metal) P (plastic) / Setting-up assistance LEDs ☉ | P / ☉                                            | M / –       | P                                  |                  |
| Temperature range (°C)                                    | - 10...+ 45°C                                    | - 25...+ 55 | - 20...+ 60°C                      |                  |
| Degree of protection (conforming to IEC 60529)            | IP67                                             | IP67        | IP67                               |                  |
| Product certification                                     | CE, UL, CSA                                      | CE, cULus   | CE, cULus                          |                  |
| Dimensions (mm) Ø x L or H x W x D                        | Ø 18 x 64                                        | Ø8 x 40     | 20 x 35,8 x 12                     |                  |

### Sensors for DC applications (solid-state output: transistor)

| Connection                                                  | Connector   |                      | M 12        | M 8 - 4-pins |              |               |
|-------------------------------------------------------------|-------------|----------------------|-------------|--------------|--------------|---------------|
| Transmitter / Receiver                                      | 3-wires PNP | programmable NO / NC | XUBLAPCNM12 | –            | XUYBCO929LSP | XUYPCCO929LSP |
|                                                             | 3-wires NPN | programmable NO / NC | XUBLANCNM12 | –            | –            | –             |
| Supply voltage limits, min./max. (V) including ripple       |             |                      | 10...30     | 10...30      | 10...30      | 10...30       |
| Switching capacity, max (mA) / Switching frequency (Hz)     |             |                      | 100 / 1500  | 100 / 700    | 100 / 1000   | 100 / 1000    |
| Short-circuit protect. (★) / LED output state indicator (☉) |             |                      | ★ / ☉       | ★ / ☉        | ★ / ☉        | ★ / ☉         |

(1) or min. size of object: 0.2 mm

(2) With specific reflector XUY1111, format 50 x 50 mm. To be ordered separately.



| Application                                                             | Miniature series sensors   |               | compact 50x50mm               |            |                         |            |
|-------------------------------------------------------------------------|----------------------------|---------------|-------------------------------|------------|-------------------------|------------|
| System                                                                  | Polarised reflex           | Thru beam     | Polarised reflex              | Thru beam  | Back ground suppression | Diffuse    |
| Sensing distance                                                        | 1...1.5 m (4)              | 4 m           | 12 m (7)                      | 25 m       | 0.8 m                   | 1.2 m      |
| Sensitivity adjustment                                                  | potentiometer              | potentiometer | Teach mode                    | Teach mode | potentiometer           | Teach mode |
| P (plastic) / Setting-up assistance LEDs ☉                              | P / ☉                      |               |                               |            |                         |            |
| Temperature range (°C) / Degree of protection (conforming to IEC 60529) | 0...+ 50°C / IP65 and IP67 |               | -20...+ 60°C / IP67 and IP69K |            |                         |            |
| Product certification                                                   | CE, cULus                  |               | CE, Ecolab                    |            |                         |            |
| Dimensions (mm) H x W x D                                               | 40 x 10 x 13.5             |               | 50 x 50 X 23                  |            |                         |            |

### Sensors for DC applications (solid-state output: transistor)

| Connection                                                  | M8 connector (5) - 4-pins |                      | M12 connector - 4-pins |              |                  |                  |
|-------------------------------------------------------------|---------------------------|----------------------|------------------------|--------------|------------------|------------------|
|                                                             | PNP                       | NO function          | XUYBCO989SP            | XUYRCO989SP  | –                | –                |
|                                                             | NPN                       | NO function          | XUYBCO989SN            | XUYRCO989SN  | –                | –                |
|                                                             | PNP/NPN                   | Programmable NO / NC |                        |              | XUK9LAPSM12 (6)  | XUK2LAPSM12R (6) |
| Émetteur                                                    | –                         |                      | XUYECO989              | –            | XUK2LAKSM12T (6) | –                |
| Supply voltage limits, min./max. (V) including ripple       | 10...30                   |                      | 12...30                |              |                  |                  |
| Switching capacity, max (mA) / Switching frequency (Hz)     | 100 / 500                 |                      | 100 / ≤ 2000           | 100 / ≤ 3500 | 100 / ≤ 1000     | 100 / ≤ 600      |
| Short-circuit protect. (★) / LED output state indicator (☉) | ★ / ☉                     |                      |                        |              |                  |                  |

(4) 50 x 50 reflector included.

(5) For 2 m pre-cabled version, delete CO from the reference. (Example: XUYBCO989SP becomes **XUYB989SP** or XUYRCO989SP becomes **XUYR989SP**).

(6) Fixing bracket: XUZA51S to be ordered separately

(7) With reflector XUZC50HP to be ordered separately

## Materials handling series - Conveying Analogue output

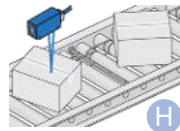
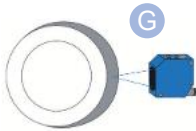


| Application                                                             |                |                |               |                     |
|-------------------------------------------------------------------------|----------------|----------------|---------------|---------------------|
| System                                                                  | Diffuse        | Reflex         | Diffuse       | Thru beam           |
| Sensing distance                                                        | 0,1...5 m      | 0.3...70 m (1) | 0,05...0,40 m | 50 m                |
| Sensitivity adjustment                                                  | Teach mode     |                | Potentiometer |                     |
| Case M (metal), P (plastic) / Setting-up assistance LEDs ☉              | P / ☉          |                | M / ☉         |                     |
| Temperature range (°C) / Degree of protection (conforming to IEC 60529) | - 40...+ 50    | - 10...+ 50    | - 25...+ 55   |                     |
| Degree of protection (conforming to IEC 60529)                          | IP67 and IP69K |                | IP67          |                     |
| Product certification                                                   | CE, cULus      |                | CE, UL, CSA   | CE, UL, CSA, C-TICK |
| Dimensions (mm) Ø x L or H x W x D                                      | 50 x 50 x 23   |                | M18 x 95      |                     |

### Sensors for DC applications

| Connection                                                  | M12 - 5-pins                  | M12 - 8-pins     | M12 - 4-pins |                 |
|-------------------------------------------------------------|-------------------------------|------------------|--------------|-----------------|
| Transmitter / Receiver                                      | analogue 4-20 mA + 1 PNP/NPN  | XUK8TAE2MM12 (4) |              | XU2M18AP20D (2) |
|                                                             | analogue 0 - 10 V + 1 PNP/NPN | XUK8TAE1MM12 (4) |              | -               |
|                                                             | analogue 4-20mA + 2 PNP/NPN   | -                | XUK9TAH2MM12 | -               |
|                                                             | analogue 4-20mA               | -                | XU5M18AB20D  | -               |
| Supply voltage limits, min./max. (V) including ripple       | 18...30                       |                  | 10...30      |                 |
| Switching capacity, max (mA) / Switching frequency (Hz)     | 100 / 500                     | 100 / 100        | 20 / 20      | 100 / 30        |
| Short-circuit protect. (★) / LED output state indicator (☉) | ★ / ☉                         | ★ / ☉            | ★ / ☉        | ★ / ☉           |

(1) with reflector XUC250 to be ordered separately. (2) on white and grey object 0,2 ... 6m, on black object 0,2 ... 2,5m (3) 2 PNP outputs. (4) ECOLAB certified.



| Application                                     |                                              |              | H                                                               |
|-------------------------------------------------|----------------------------------------------|--------------|-----------------------------------------------------------------|
| System                                          | Diffuse, Analogue output<br>0-10 V   4-20 mA |              | Diffuse                                                         |
| Sensing distance                                | 40...60 mm                                   | 80...300 mm  | 0...100 mm                                                      |
| Minimum size of object                          | 1 mm                                         | 1,5 X 3,5 mm | 85 mm                                                           |
| Sensitivity adjustment                          | potentiometer                                |              | No                                                              |
| Case P (plastic) / Setting-up assistance LEDs ☉ | P / ☉                                        |              | Aluminium tube / ☉                                              |
| Temperature range (°C)                          | 0...+ 45°                                    |              | - 10...+ 55                                                     |
| Product certification                           | CE, cULus                                    |              | CE, cCSAus                                                      |
| Dimensions (mm) H x l x L                       | 50 x 17 x 50                                 |              | Tube Ø 12 , variable length from 200 to 900 mm (example 474 mm) |

### Sensors for DC applications (solid-state output: transistor)

| Connection                                                  | par connector M12               | par connector M12                 | Remote M12 connector |
|-------------------------------------------------------------|---------------------------------|-----------------------------------|----------------------|
| Transmitter / Receiver 0...10 V                             | XUYPCO925L1ANSP                 | XUYPCO925L3ANSP                   | XUY474NB4H03M12      |
| Supply voltage limits, min./max. (V) including ripple       | 18...28                         |                                   | 18...30              |
| Switching capacity, max                                     | 3 mA / Analogue output 0...10 V | 3 mA / Analogue output 04...20 mA | 100 mA               |
| Switching frequency (Hz)                                    | 40                              |                                   | 1000                 |
| Short-circuit protect. (★) / LED output state indicator (☉) | ★ / ☉                           |                                   | ★ / ☉                |

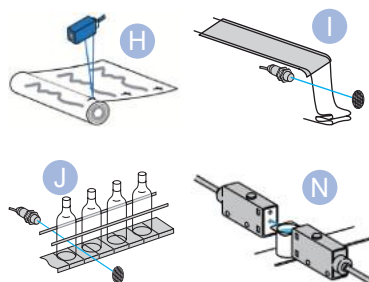
### Accessories

| Suitable female PUR pre-wired plug-in connectors (1) |              |            |             |              |             | Female connectors     | Fixing for XUE |
|------------------------------------------------------|--------------|------------|-------------|--------------|-------------|-----------------------|----------------|
| M8 Straight                                          | M12 Straight | M8 Elbowed | M12 Elbowed | 5-pins M12   | 8-pins M12  | M12 (5-pins)          |                |
| 2 m XZCP0941L2                                       | XZCP1141L2   | XZCP1041L2 | XZCP1241L2  | XZCPV11V12L2 | XZCP29P12L2 | Straight XZCC12FCM50B | For compact    |
| 5 m XZCP0941L5                                       | XZCP1141L5   | XZCP1041L5 | XZCP1241L5  | XZCPV11V12L5 | XZCP29P12L5 | Elbowed XZCC12FDM50B  | XUZA618        |

(1) For PVC cable see page 47

# XU Photo-electric sensors - Application

## Packaging series



| Application                                                             |                              |                           |
|-------------------------------------------------------------------------|------------------------------|---------------------------|
| H Contrast sensors                                                      |                              |                           |
| System                                                                  | Diffuse (with Teach mode)    | Diffuse (with Teach mode) |
| Sensing distance                                                        | 19 mm                        | 9 mm (2)                  |
| Fixings (mm)                                                            | direct: fixing centres 40x40 | direct : 21 x 28 vis M5   |
| Sensitivity adjustment                                                  | Teach button                 |                           |
| Case M (metal) P (plastic) / Setting-up assistance LEDs ☉               | P / ☉                        | M / ☉                     |
| Temperature range (°C) / Degree of protection (conforming to IEC 60529) | - 10...+ 55 / IP65           | - 10...+ 55 / IP67        |
| Product certification                                                   | CE, cULus                    | CE                        |
| Dimensions (mm) Ø x L or H x W x D                                      | 50 x 50 x 15                 | 96 x 64 x 31              |

### Sensors for DC applications (solid-state output: transistor)

| Connection                                              |                   |                      | M12 connector |             |
|---------------------------------------------------------|-------------------|----------------------|---------------|-------------|
| Transmitter / Receiver                                  | 3-wires PNP       | NO function          | XUKR1PSMM12   | –           |
|                                                         | 3-wires NPN       | NO function          | XUKR1NSMM12   | –           |
|                                                         | 3-wires PNP / NPN | programmable NO / NC | –             | XURK1KSMM12 |
| Supply voltage limits, min./max. (V) including ripple   |                   |                      | 10...30       | 10...30     |
| Switching capacity, max (mA) / Switching frequency (Hz) |                   |                      | 100 / 5000    | 200 / 10000 |

(1) Nominal sensing distance 50 m. Use between 10 and 20 cm, depending on application.

(2) 7 mm with XURZ02; 18 mm with XURZ01.

| Application                                                             |                    |                             | Luminescence sensors                                  |                              | Detection of transparent materials |   |
|-------------------------------------------------------------------------|--------------------|-----------------------------|-------------------------------------------------------|------------------------------|------------------------------------|---|
|                                                                         |                    |                             | I                                                     | J                            | I                                  | J |
| System                                                                  | Diffuse (manual)   | Reflex (potentiometer)      | Reflex (with teach mode) (50 x 50 reflector included) |                              |                                    |   |
| Sensing distance                                                        | 0,02...0,08 m      | 0.1...2 m                   | 0...1,4 m (4)                                         | 1,5 m                        |                                    |   |
| Fixings (mm)                                                            | M18x1              | M3 holes, fixing centers 24 | M18 x 1 (5)                                           | direct: fixing ctrs. 40 x 40 |                                    |   |
| Sensitivity adjustment                                                  | potentiometer      | potentiometer               | Teach button                                          |                              |                                    |   |
| Case M (metal) P (plastic) / Setting-up assistance LEDs ☉               | M / ☉              | P / ☉                       | P / ☉                                                 |                              |                                    |   |
| Temperature range (°C) / Degree of protection (conforming to IEC 60529) | - 25...+ 55 / IP67 | - 25...+ 55 / IP67          | 0...+ 55 / IP67                                       | - 25...+ 55 / IP65           |                                    |   |
| Product certification                                                   | CE, CSA, UL        | CE, cURus                   | CE, UL, CSA, C-TICK                                   |                              |                                    |   |
| Dimensions (mm) Ø x L ou H x l x L                                      | Ø18 x 95           | 33 x 20 x 11                | Ø18 x 64                                              | 50 x 50 x 18                 |                                    |   |

### Sensors for DC applications (solid-state output: transistor)

| Connection                                              |                   |                      | Pre-cabled PVC (2 m) |                |                    |               |
|---------------------------------------------------------|-------------------|----------------------|----------------------|----------------|--------------------|---------------|
| Transmitter / Receiver                                  | 3-wires PNP       | programmable NO / NC | –                    | XUMTAPCNL2     | XUBTAPSNL2 (5)(6)  | –             |
|                                                         | 3-wires NPN       | programmable NO / NC | –                    | XUMTANCNL2     | XUBTANSNL2 (5)(6)  | –             |
|                                                         | 3-wires PNP / NPN | programmable NO / NC | –                    | –              | –                  | XUKT1KSML2    |
| Connection                                              |                   |                      | M12 connector        | M8 connector   | M12 connector      | M12 connector |
| Transmitter / Receiver                                  | 3-wires PNP       | NO function          | XU5M18U1D            | –              | –                  | –             |
|                                                         | 3-wires PNP       | programmable NO / NC | –                    | XUMTAPCNM8 (3) | XUBTAPSNM12 (5)(6) | –             |
|                                                         | 3-wires NPN       | programmable NO / NC | –                    | XUMTANCNM8     | XUBTANSNM12 (5)(6) | –             |
|                                                         | 3-wires PNP / NPN | programmable NO / NC | –                    | –              | –                  | XUKT1KSMM12   |
| Supply voltage limits, min./max. (V) including ripple   |                   |                      | 10...30              | 10...30        | 10...32            | 10...30       |
| Switching capacity, max (mA) / Switching frequency (Hz) |                   |                      | 100 / 1000           | 100 / 1000     | 100 / 1000         | 100 / 1500    |

(3) also available with M12 remote connector with 0.3 m cable : replace M8 by L03M12.

(4) 0...0.8 m for versions with 90° head, to order replace the 8e digit N by W. Example XUBTAPSNL2 becomes **XUBTAPSWL2**

(5) Also available in stainless steel for food and beverage processing applications. To order, replace the letter A by S in the ref. Example: XUBTAPSNL2 becomes **XUBTSPSNL2**.

(6) ECOLAB certified.

## Food/beverage processing series



Stainless steel version for resistance to harsh agents

| System                                                                     | Multimode (3)       | Polarised reflex<br>50x50 mm reflector<br>included (2) | Diffuse (2)         | Thru beam (2)       |
|----------------------------------------------------------------------------|---------------------|--------------------------------------------------------|---------------------|---------------------|
| Sensing distance                                                           | (4)                 | 3 / 2 m                                                | 0,15 / 0,10 m       | 20 / 15 m           |
| Fixings (mm)                                                               | M18 x 1             | M18 x 1                                                | M18 x 1             | M18 x 1             |
| Case M (metal)                                                             | M (stainless steel) | M (stainless steel)                                    | M (stainless steel) | M (stainless steel) |
| Temperature range (°C) / Degree of protection<br>(conforming to IEC 60529) |                     | - 25...+ 55 / IP67                                     | - 25...+ 55 / IP67  | - 25...+ 55 / IP67  |
| Product certification                                                      | CE, UL, CSA, C-TICK |                                                        |                     |                     |
| Dimensions (mm) Ø x L                                                      | Ø 18 x 64           | Ø18 x 62                                               | Ø18 x 62            | Ø18 x 64            |

### Sensors for DC applications (solid-state output: transistor)

| Connection                                              |                  |                      | Pre-cabled PvR (2 m) |              |              |              |
|---------------------------------------------------------|------------------|----------------------|----------------------|--------------|--------------|--------------|
| Transmitter / Receiver                                  | 3-wires PNP      | programmable NO / NC | XUB0SPSNL2           | XU9N18PP341  | XU5N18PP341  | XU2N18PP341  |
|                                                         | 3-wires NPN      | programmable NO / NC | XUB0SNSNL2           | XU9N18NP341  | XU5N18NP341  | XU2N18NP341  |
| Connection                                              |                  |                      | par connector M12    |              |              |              |
| Transmitter / Receiver                                  | 3-wires PNP      | programmable NO / NC | XUB0SPSNM12          | XU9N18PP341D | XU5N18PP341D | XU2N18PP341D |
|                                                         | 3-wires NPN      | programmable NO / NC | XUB0SNSNM12          | XU9N18NP341D | XU5N18NP341D | XU2N18NP341D |
| Thru-beam transmitter accessory                         | pre-cabled (2 m) |                      | XUB0SKSNL2T          | —            | —            | —            |
|                                                         | connector        |                      | XUB0SKSNM12T         | —            | —            | —            |
| Supply voltage limits, min./max. (V) including ripple   |                  |                      | 10...36              | 10...30      | 10...30      | —            |
| Switching capacity, max (mA) / Switching frequency (Hz) |                  |                      | 100 / 250            | 100 / 500    | 100 / 500    | —            |

(2) Also available with 90° head. To order, add the letter W after the numbers 341 in the reference. Example: XU9N18PP341 becomes **XU9N18PP341W** or **XU9N18PP341WD**.

(3) Also available with 90° head, to order replace the 8e digit N by W. Example XUB0SPSNL2 becomes **XUB0SPSWL2**

(4) Background suppression: 0.12 m - Diffuse: 0.3 m - Reflex polarised: 3 m - Thru beam: 20 m

### Accessories

| Suitable female plug-in connectors, including PUR pre-wired versions (1) |                |                 |                | Lenses for colour mark                                                                |                                                                                       |
|--------------------------------------------------------------------------|----------------|-----------------|----------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| L = 5 m, without LED                                                     | Wired, Elbowed | Wired, Straight | Screw terminal | Lens for 18 mm sensing distance                                                       | Lens for 7 mm sensing distance                                                        |
| M8 (ou S) 4-pins                                                         | XZCP0666L5     | XZCP0566L5      | XZCC8FCM30S    |  |  |
| M12 (ou D) 4-pins                                                        | XZCP1241L5     | XZCP1141L5      | XZCC12FCM40B   |                                                                                       |                                                                                       |
| M12 8-pins                                                               | –              | XSZMCR03 (3 m)  | –              | XURZ01                                                                                | XURZ02                                                                                |

(1) For PVC cable see page 47

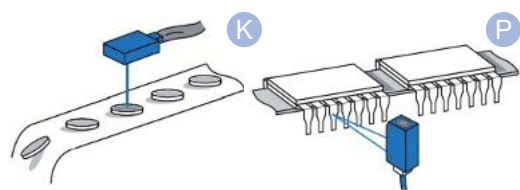
### Accessories

| Pre-wired connectors |                        | Ecolab reflector 50x50 (2) |          | Stainless steel fixing bracket |                          |
|----------------------|------------------------|----------------------------|----------|--------------------------------|--------------------------|
| L = 5 m              | Elbowed<br>XZCPA1241L5 | Straight<br>XZCPA1141L5    | XUZC50CR | XUZA118<br>(for M18)           | XUZA51S<br>(for compact) |

(2) Sensing distance for XUK9S: 3m with XUZC50CR or 6m with **XUZC50**.

# XU Photo-electric sensors

## with background suppression

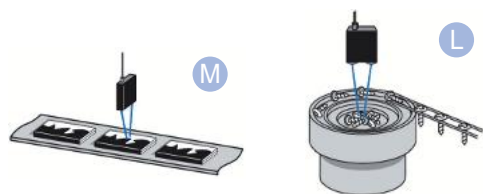


| Application                                                             | K                               | P                                        | K                  |
|-------------------------------------------------------------------------|---------------------------------|------------------------------------------|--------------------|
| System                                                                  | Background suppression          | Diffuse with Background suppression      | Sensing distance 2 |
| Sensing distance                                                        | 1,5...80 mm                     | 10...60 mm                               | 30...110 mm        |
| Minimum size of object                                                  | –                               | 0,3 mm                                   | 0,7 mm             |
| Fixing (mm)                                                             | 2 x Ø 3 holes / fvg. ctrs. 14.5 | direct: 2 M3 holes, fixing centres 24 mm |                    |
| Sensitivity adjustment                                                  | potentiometer                   | Teach mode                               |                    |
| Case P (plastic) / Setting-up assistance LEDs ☉                         | P / ☉                           | P                                        |                    |
| Temperature range (°C) / Degree of protection (conforming to IEC 60529) | 0...+50 / IP65 & IP67           | - 20...+ 60°C / IP67                     |                    |
| Product certification                                                   | CE, cULus                       | CE, cULus                                |                    |
| Dimensions (mm) H x W x D                                               | 20 x 32 x 13                    | 20 x 35,8 x 12                           |                    |

### Sensors for DC applications (solid-state output: transistor)

| Connection                                                  | M8 connector (1) - 4-pins | M8 connector- 4-pins | M8 connector- 4-pins |
|-------------------------------------------------------------|---------------------------|----------------------|----------------------|
| Transmitter / Receiver                                      | XUYPSCO989SP              | –                    | –                    |
| PNP                                                         | –                         | XUYPSCO929L1SP       | XUYPSCO929L2SP       |
| NO function                                                 | –                         |                      |                      |
| PNP                                                         | –                         |                      |                      |
| Programmable NO / NC                                        | –                         |                      |                      |
| Supply voltage limits, min./max. (V) including ripple       | 10...30                   | 10...30              | 10...30              |
| Switching capacity, max (mA) / Switching frequency (Hz)     | 100 / 500                 | 100 / 1000           | 100 / 1000           |
| Short-circuit protect. (★) / LED output state indicator (☉) | ★ / ☉                     | ★ / ☉                | ★ / ☉                |

(1) For 2 m pre-cabled connection delete CO from the reference. Example: XUYPS 989SP becomes **XUYPS989SP**.



| Application                                                             | M                               | L                                |
|-------------------------------------------------------------------------|---------------------------------|----------------------------------|
| System                                                                  | Background suppression          | Background suppression, 2 chnls. |
| Sensing distance                                                        | 50...300 mm                     | 50...600 mm                      |
| Minimum size of object                                                  | 0,5 mm                          | –                                |
| Fixings (mm)                                                            | direct: 2 M4 holes, ctrs. 54 mm | 2 x Ø 4 holes, fixing ctrs. 54   |
| Sensitivity adjustment                                                  | potentiometer                   | potentiometer                    |
| Case P (plastic) / Setting-up assistance LEDs ☉                         | P / ☉                           | P / ☉                            |
| Temperature range (°C) / Degree of protection (conforming to IEC 60529) | 0...+ 50°C / IP65               | 0...+60 / IP40                   |
| Product certification                                                   | CE, cULus                       |                                  |
| Dimensions (mm) H x W x D                                               | 60 x 60 x 18                    | 60 x 60 x 18                     |

### Sensors for DC applications (solid-state output: transistor) Sensors with overload and short-circuit protection

| Connection                                              | M8 connector  |              |
|---------------------------------------------------------|---------------|--------------|
| Transmitter / Receiver                                  | XUYPS1LCO965S | XUYPS2CO945S |
| 3-wires PNP / NPN                                       |               |              |
| programmable NO / NC                                    |               |              |
| Supply voltage limits, min./max. (V) including ripple   | 10...30       | 10...30      |
| Switching capacity, max (mA) / Switching frequency (Hz) | 100 / 5000    | 100 / 370    |

### Accessories

#### PUR Pre-wired connectors (1)

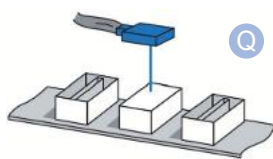
|     | M8 (4-pins) | M12 (4-pins) | 7/8" (5-pins) |
|-----|-------------|--------------|---------------|
|     | Straight    | Straight     | Straight      |
|     | Elbowed     | Elbowed      |               |
| 2 m | XZCP0941L2  | XZCP1141L2   | XZCP1764L2    |
| 5 m | XZCP0941L5  | XZCP1141L5   | XZCP1764L5    |



Straight

Elbowed

(1) For PVC cable see page



Q

objects on conveyors

Q



## Application

| System                                                                  | Diffuse with adjustable background suppression |                                          |                                     |                                                 |
|-------------------------------------------------------------------------|------------------------------------------------|------------------------------------------|-------------------------------------|-------------------------------------------------|
| Max. / usable sensing distance                                          | 20...300 mm                                    | 0...1 m                                  | 0...5 m                             | 2 m                                             |
| Fixing (mm)                                                             | Fixing : M3 holes, fixing centers 24 mm        | Direct fixing centres 40 x 40, M4 screws | 2 x Ø 4.3 holes / fixing centres 30 | Direct: fixing ctrs. 30/38 to 40/50/74 M5 screw |
| Sensitivity adjustment                                                  | potentiometer                                  | –                                        | Teach mode                          | –                                               |
| Case P (plastic) / Setting-up assistance LEDs ☉                         | P / ☉                                          | P / ☉                                    | P / ☉                               | P / ☉                                           |
| Temperature range (°C) / Degree of protection (conforming to IEC 60529) | - 25...+ 55 / IP67                             | - 25...+ 55 / IP65                       | - 40...+ 60 / IP67 & IP69K          | - 25...+ 55 / IP67                              |
| Product certification                                                   | CE, cURus                                      | CE, UL, CSA                              | CE, cULus                           | CE, UL, CSA                                     |
| Dimensions (mm) H x W x D                                               | 33 x 20 x 11                                   | 50 x 50 x 18                             | 50 x 50 x 23                        | 92 x 30,5 x 71                                  |

## Sensors for DC applications (solid-state output: transistor). Sensors with overload and short-circuit protection

| Connection                                              |                   |                      | Pre-cabled   | Pre-cabled PVC (2 m) | Screw terminals  |             |
|---------------------------------------------------------|-------------------|----------------------|--------------|----------------------|------------------|-------------|
| Transmitter / Receiver                                  | 3-wires PNP / NPN | programmable NO / NC | –            | XUK8AKSNL2           | –                | XUX8AKSAT16 |
|                                                         | PNP               | programmable NO / NC | XUM8APXBL2   | –                    | –                | –           |
|                                                         | NPN               | programmable NO / NC | XUM8ANXBL2   | –                    | –                | –           |
| Connection                                              |                   |                      | M8 connector | M12 connector        |                  |             |
| Transmitter / Receiver                                  | 3-wires PNP / NPN | programmable NO / NC | –            | XUK8AKSNM12          | XUK8TAKSMM12 (1) | XUX8AKSAM12 |
|                                                         | PNP               | programmable NO / NC | XUM8APXBM8   | –                    | –                | –           |
|                                                         | NPN               | programmable NO / NC | XUM8ANXBM8   | –                    | –                | –           |
| Supply voltage limits, min./max. (V) including ripple   |                   |                      |              | 10...36              | 18...30          | 10...36     |
| Switching capacity, max (mA) / Switching frequency (Hz) |                   |                      |              | 100 / 250            | 100 / 500        | 100 / 150   |

(1) also existing with 2 independant outputs: XUK8TAKDMM12 (M12 - 5-pins).



| System                                                                  | Diffuse with adjustable background suppression |                                          |                                                 |
|-------------------------------------------------------------------------|------------------------------------------------|------------------------------------------|-------------------------------------------------|
| Sensing distance                                                        | 70...120 mm                                    | 10...750 mm                              | 2 m                                             |
| Fixing (mm)                                                             | M18 x 1                                        | Direct fixing centres 40 x 40, M4 screws | Direct: fixing ctrs. 30/38 to 40/50/74 M5 screw |
| Sensitivity adjustment                                                  | potentiometer                                  | Teach mode                               | –                                               |
| Case M (metal) P (plastic) / Setting-up assistance LEDs ☉               | M / ☉                                          | P / ☉                                    | P / ☉                                           |
| Temperature range (°C) / Degree of protection (conforming to IEC 60529) | - 25...+ 55°C / IP67                           | - 25...+ 55°C / IP65                     | - 25...+ 55 / IP67                              |
| Product certification                                                   | CE, UL, CSA                                    | CE, UL, CSA                              | CE, UL, CSA                                     |
| Dimensions (mm) Ø x L or H x W x D                                      | M18 x 82                                       | 50 x 18 x 50                             | 92 x 30,5 x 71                                  |

## Multi-current/multi-voltage sensors for AC/DC applications

| Connection                                                  |       |                      | Cable L = 2m | Cable      | Screw terminals |
|-------------------------------------------------------------|-------|----------------------|--------------|------------|-----------------|
| Transmitter / Receiver                                      | AC/DC | NO function          | XU8M18MA230  | –          | –               |
|                                                             |       | Programmable NO / NC | –            | XUK8ARCTL2 | XUX8ARCTT16     |
| Supply voltage limits, min./max. (V) including ripple       |       |                      | 20...264     | 20...264   | 20...264        |
| Switching capacity, max (mA) / Switching frequency (Hz)     |       |                      | 200 / 25     | 3000 / 20  | 3000 / 20       |
| Short-circuit protect. (★) / LED output state indicator (☉) |       |                      | (1) / ☉      | –          | –               |

(1) Sensor not short-circuit protected. Therefore, it is essential to connect a 0.4 A quick-blow fuse in series with the load.

# XU Photo-electric sensors, fibre optic

## Amplifier



|                                                                         | +/- potentiometer                                | Teach                  | Teach + Timer             |
|-------------------------------------------------------------------------|--------------------------------------------------|------------------------|---------------------------|
| Max. / usable sensing distance                                          | Depending on fibre used, plastic only            |                        |                           |
| Fixing (mm)                                                             | DIN rail or direct: fixing centres 25, M3 screws |                        |                           |
| Sensitivity adjustment                                                  | +/- numeric potentiometer                        | using teach mode       | +/- numeric potentiometer |
| Case P (plastic) / Setting-up assistance LEDs ☉                         | P / ☉                                            | P / ☉                  | P / ☉                     |
| Temperature range (°C) / Degree of protection (conforming to IEC 60529) | 0...+60 / IP65                                   | - 10...+ 55 / IP65 (1) | 0...+60 / IP65            |
| Product certification                                                   | CE, cULus                                        | CE, cULus, cURus       | CE, cULus                 |
| Dimensions (mm) L x H x W                                               | 60 x 30 x 13                                     | 65 x 40 x 10           | 60 x 30 x 13              |

### Sensors for DC applications (solid-state output: transistor)

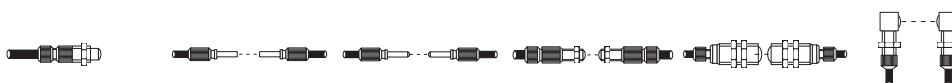
|                                                             |                                      |                                                |                                                |
|-------------------------------------------------------------|--------------------------------------|------------------------------------------------|------------------------------------------------|
| Connection                                                  | Pre-cabled PVC (2 m)                 |                                                |                                                |
| References                                                  | 3-wires PNP programmable NO / NC     | XUDA1PSML2                                     | –                                              |
| Amplifier                                                   | 3-wires NPN programmable NO / NC     | XUDA1NSML2                                     | –                                              |
| Connection par connector                                    | M8 connector - 4-pins                |                                                |                                                |
| References                                                  | 3-wires PNP programmable NO / NC     | XUDA1PSMM8                                     | –                                              |
| Amplifier                                                   | 3-wires NPN programmable NO / NC     | XUDA1NSMM8                                     | –                                              |
|                                                             | 3-wires PNP/NPN programmable NO / NC | XUYAFVCO966S (Glass)<br>XUYAFPCO966S (Plastic) | XUYAFVCO946S (Glass)<br>XUYAFPCO946S (Plastic) |
| Supply voltage limits, min./max. (V) including ripple       | 10...30                              | 10,8...26,4                                    | 10...30                                        |
| Switching capacity, max (mA) / Switching frequency (Hz)     | 100 / 1000                           | 100 / 1000                                     | 100 / 1000 time delayable                      |
| Short-circuit protect. (★) / LED output state indicator (☉) | ★ / ☉                                | ★ / ☉                                          | ★ / ☉                                          |

(1) IP65 with fibre Ø 1 / IP64 with fibre Ø 0,5

### Ecofibre system, assemble your own plastic fibres



| Fibre Ø 1 mm | Length = 10 m | Length = 20 m |
|--------------|---------------|---------------|
| References   | XUFZ910       | XUFZ920       |



| End fittings          | 70                        | 200                    | 800                    | 1200                      | 4000                      | 1200                                  |
|-----------------------|---------------------------|------------------------|------------------------|---------------------------|---------------------------|---------------------------------------|
| Sensing distance (mm) | 70                        | 200                    | 800                    | 1200                      | 4000                      | 1200                                  |
| Type                  | with threaded end fitting | with plain end fitting | with plain end fitting | with threaded end fitting | with threaded end fitting | 90° mirror, with threaded end fitting |
| Thread                | M8 x 1, L = 10 mm         | Ø 3, L = 9 mm          | Ø 3, L = 9 mm          | M6 x 1, L = 10 mm         | M12 x 1, L = 25 mm        | M6 x 1, L = 3 to 10 mm                |
| Lens                  | Yes                       | No                     | Yes                    | Yes                       | Yes                       | Yes                                   |
| References            | XUYA110                   | XUYA210                | XUYA211                | XUYA212                   | XUYA213                   | XUYA220                               |

### Accessories

| For fibres plastic System Thru beam                                                                                                                                                                        | For all system plastic fibre optics                                                                                                                                                                                                            | Plug-in PUR pre-wired female connectors (1)                                                                                                            |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Lenses</b><br><br>For increasing sensing distance (pair) XUFZ01<br>With 90° mirror (pair) XUFZ02<br><b>Fixing clamp with lens (set of 2)</b><br><br>Front screw fixing for fibre optics XUF-Z920 XUFZ04 | <b>Fibre trimmer</b><br><br>For trimming fibres to length (included with all fibre optics) XUFZ11<br><b>Protective metal tubing</b><br><br>Length 1 m, for fibres with threaded end fittings<br>For M4 thread XUFZ210<br>For M6 thread XUFZ310 | <b>Cable length 5 m, without LED</b><br>pre-wired, elbowed<br><br>XZCP1041L5<br>pre-wired, straight<br><br>XZCP0941L5<br>(1) For PVC cable see page 47 |

## Plastic fibre optic light guides (length 2 m)



|                        | M4 / M2,6 (1)    | M4/L = 90 mm | M3 / M2,6 (1)  | Long range fibres with integrated lens<br>M8 / L = 20 mm | Long range fibres<br>M4 / M2,6 (1) | Flexible fibres<br>M4 / M2,6 (1) |
|------------------------|------------------|--------------|----------------|----------------------------------------------------------|------------------------------------|----------------------------------|
| <b>System</b>          | <b>Thru beam</b> |              |                |                                                          |                                    |                                  |
| Sensing distance (mm)  | 200 ou 1500 (2)  | 180          | 50 ou 1000 (2) | 2500                                                     | 300 ou 2000 (2)                    | 100 ou 750 (2)                   |
| Fibre cross-section    |                  |              |                |                                                          |                                    |                                  |
| Fibre Ø (mm)           | Ø 1              | Ø 1          | Ø 0,5          | Ø 1                                                      | Ø 1,5                              | Ø 1                              |
| Sheath Ø (mm)          | Ø 2,2            | Ø 2,2        | Ø 1            | Ø 2,2                                                    | Ø 2,2                              | Ø 2,2                            |
| Temperature range (°C) | - 25...+ 60      | - 25...+ 60  | - 25...+ 60    | - 25...+ 60                                              | - 25...+ 60                        | - 25...+ 60                      |
| References             | XUFN12301        | XUFN12311    | XUFN35301      | XUFN2L01L2                                               | XUFN2P01L2                         | XUFN2S01L2                       |
| Fixings                | M4 x 0,7         | M4 x 0,7     | M3 x 0,5       | M8 x 1,25                                                | M2,6 x 0,45 / M4 x 0,7             | M2,6 x 0,45 / M4 x 0,7           |

(1) Can be used with 90° mirror XUFZ02 (see preceding page).

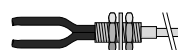
(2) With lens accessory XUFZ01 (see preceding page).



M6



M4 / M6



M6/L = 90 mm



M4 / M2,6

|                        |                |                      |             |                  |
|------------------------|----------------|----------------------|-------------|------------------|
| <b>System</b>          | <b>Diffuse</b> |                      |             |                  |
| Sensing distance (mm)  | 70             | 60                   | 60          | 15               |
| Fibre cross-section    |                |                      |             |                  |
| Fibre Ø (mm)           | Ø 1            | Ø1+16 Ø 0,265        | Ø 1         | Ø 0,5 + 4 Ø 0,23 |
| Sheath Ø (mm)          | Ø 2,2 x 2      | Ø 2,2 x 2            | Ø 2,2 x 2   | Ø 1 x 2          |
| Temperature range (°C) | - 25...+ 60    | - 25...+ 60          | - 25...+ 60 | - 25...+ 60      |
| References             | XUFN05321      | XUFN05323            | XUFN05331   | XUFN02323        |
| Fixings                | M6 x 0,75      | M6 x 0,75 / M4 x 0,7 | M6 x 0,75   | M4 x 0,7         |



M4/L = 90 mm



M4 / M2,6



Long range fibres  
M6 / L = 15 mm

|                        |                |             |             |
|------------------------|----------------|-------------|-------------|
| <b>System</b>          | <b>Diffuse</b> |             |             |
| Sensing distance (mm)  | 18             | 18          | 95          |
| Fibre cross-section    |                |             |             |
| Fibre Ø (mm)           | Ø 0,5          | Ø 0,5       | Ø 1,5       |
| Sheath Ø (mm)          | Ø 1 x 2        | Ø 1 x 2     | Ø 2,2 x 2   |
| Temperature range (°C) | - 25...+ 60    | - 25...+ 60 | - 25...+ 60 |
| References             | XUFN01331      | XUFN01321   | XUFN5P01L2  |
| Fixings                | M4 x 0,7       | M4 x 0,7    | M6 x 0,75   |

## Glass fibre optic light guides (length 0.6 m)



M4



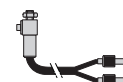
M4 / Ø 2,5 x 89



M4



M4 / Ø 2,5 x 89



M4

| System                 |                     | Thru beam                                                                                               |             | Diffuse                                                                             |            |             |
|------------------------|---------------------|---------------------------------------------------------------------------------------------------------|-------------|-------------------------------------------------------------------------------------|------------|-------------|
| Sensing distance (mm)  |                     | 200                                                                                                     |             | 80                                                                                  |            |             |
| Fibre cross-section    |                     |                      |             |  |            |             |
| End fitting            |                     | Straight                                                                                                | Adaptable   | Straight                                                                            | Adaptable  | 90°         |
| Fibre Ø (mm)           |                     | 1                                                                                                       |             | 1                                                                                   |            |             |
| Sheath Ø (mm)          |                     | 2,2                                                                                                     |             | 2,2                                                                                 |            |             |
| Temperature range (°C) |                     | PVC sheath : - 25...+ 60°C / Metal wound : - 25...+ 120°C / Flexible (stainless steel) : - 25...+ 200°C |             |                                                                                     |            |             |
| References             | PVC sheath          | XUYFVERSD61                                                                                             | –           | XUYFVPSD61                                                                          | XUYFVPSC61 | XUYFVPSL61  |
|                        | Metal wound         | XUYFVERMD61                                                                                             | XUYFVERMC61 | XUYFVPMD61                                                                          | XUYFVPMC61 | XUYFVPMML61 |
|                        | Flexible stnl.steel | XUYFVERTD61                                                                                             | –           | XUYFVPTD61                                                                          | XUYFVPTC61 | XUYFVPTL61  |

# XX Ultrasonic sensors

## Detection of any material



|                                                |                                       | M12                                                       | M18                                                                             | M18 software-configurable                 |
|------------------------------------------------|---------------------------------------|-----------------------------------------------------------|---------------------------------------------------------------------------------|-------------------------------------------|
| Nominal sensing distance Sn                    | Mode proximity or reflex              | 5 ou 10 cm depending on model                             | 15 ou 50 cm depending on model                                                  | –                                         |
|                                                | Mode Thru beam                        | 20 cm                                                     | 61 ou 100 cm depending on model                                                 | –                                         |
|                                                | Window or proximity or reflex or pump | –                                                         | –                                                                               | 1m                                        |
| Operating zone for proximity mode              |                                       | 0,64...5,1 cm (XX512A1...)<br>0,64...10,2 cm (XX512A2...) | 1,9...15,2 cm (XX518A1...)<br>5,1...50,8 cm (XX518A3...)                        | 0,105...1m                                |
| Sensitivity adjustment                         |                                       | Fixed                                                     | Adjustable using remote control for XX518 A3. Fixe for XX518A1, XXT18, XXR18    | adjustable usign teach button or software |
| Case M (metal), P (plastic)                    |                                       | P                                                         | P                                                                               | P or M                                    |
| Product certification                          |                                       | CE, UL                                                    |                                                                                 | CE, UL, ECOLAB, E2                        |
| Temperature range (°C)                         |                                       | - 20...+ 65                                               | 0...+ 50 (XX518A1...) /<br>- 20...+ 65 (XX518A3...) /<br>0... 60 (XXT18, XXR18) | -25...+70                                 |
| Degree of protection (conforming to IEC 60529) |                                       | IP67                                                      |                                                                                 |                                           |
| Dimensions (mm) Ø x L                          |                                       | M12 x 50                                                  | M18 x 65                                                                        | M18 x 52                                  |

### “Discrete” output for DC applications (24 V)

| Connection |         |                         | M8 connector        | M12 connector        | M12 connector   |
|------------|---------|-------------------------|---------------------|----------------------|-----------------|
| 3-wires    | PNP     | NO function<br>NO or NC | XX512A2PAM8 (10 cm) | XX518A3PAM12 (50 cm) | XX 18 1PM12 (4) |
|            | NPN     | NO function             | XX512A2NAM8 (10 cm) | XX518A3NAM12 (50 cm) | –               |
| 4-wires    | PNP/NPN | NO function             | XX512A1KAM8 (5 cm)  | XX518A1KAM12 (15 cm) | –               |

### Application - monitoring levels

|                                                       |                 |         |                          |         |
|-------------------------------------------------------|-----------------|---------|--------------------------|---------|
| 2 emptying levels                                     | PNP NO function | –       | XX218A3PHM12 (50 cm) (2) | –       |
| 2 filling levels                                      | PNP NO function | –       | XX218A3PFM12 (50 cm) (2) | –       |
| Supply voltage limits, min./max. (V) including ripple |                 | 10...28 |                          | 10...30 |
| Switching capacity, max (mA)                          |                 | <100    |                          |         |
| Short-circuit protection (★)                          |                 | ★       |                          |         |
| LED output state indicator (⊗)                        |                 | ⊗       |                          |         |
| Voltage drop, closed state (V) at I nominal           |                 | <1      |                          | <2      |
| Switching frequency (Hz)                              |                 | 125     | 40/80 (XX518A1...)       | 11      |
| Transmission frequency (kHz)                          |                 | 500     |                          | 200     |

(1) Reflex mode only for sensor with adjustable sensitivity. (2) 1 NO (3) Brass metal versions and SS316L are also available

(4) XX|A|18|P|1PM12 XXS = straight version XX 30 P = plastic  
XXA = angled version XX 30 S = stainless steel  
XX 30 B = brass

### “Analogue” output for DC applications (24 V)

| Connection                                            |          |                  | M12 connector |                      |                                      |
|-------------------------------------------------------|----------|------------------|---------------|----------------------|--------------------------------------|
| 4-wires                                               | Analogue | 0...10 V output  | —             | XX918A3F1M12 (50 cm) | XX 18 1VM12 (4)                      |
|                                                       |          | 4...20 mA output | —             | XX918A3C2M12 (50 cm) | XX 18 1AM12 (4)                      |
| Supply voltage limits, min./max. (V) including ripple |          |                  | —             | 10...28              | 10...30 (4...20mA) 14...30 (0...10V) |
| Short-circuit protection (★)                          |          |                  | —             | ★                    | ★                                    |
| LED output state indicator (⊗)                        |          |                  | —             | ⊗                    | ⊗                                    |
| Transmission frequency (kHz)                          |          |                  | —             | 300                  | 200                                  |

### Thru beam mode with “Discrete” output for DC applications (24 V)

| Connection |                            |  | M8 connector | M12 connector                               | M12 connector |
|------------|----------------------------|--|--------------|---------------------------------------------|---------------|
| 4-wires    | Receiver (NO/PNP + NO NPN) |  | XXR12A8KAM8  | XXR18A3KAM12 (0,61 m)<br>XXR18A4KAM12 (1 m) | –             |
|            | Receiver (NC/PNP + NC NPN) |  | XXR12A8KBM8  | XXR18A3KBM12 (0,61 m)<br>XXR18A4KBM12 (1 m) | –             |
|            | Transmitter                |  | XXT12A8M8    | XXT18A3M12 (0,61 m)<br>XXT18A4M12 (1 m)     | –             |

## Accessories

See page 45 for programming and connectors, and page 46 for fixing

## Detection of any material



|                                                |                                      | M30<br>software-configurable     |                            |            |                        | D54<br>Wide beam |
|------------------------------------------------|--------------------------------------|----------------------------------|----------------------------|------------|------------------------|------------------|
| Nominal sensing distance Sn                    | Mode proximity or reflex (1)         | –                                | –                          | –          | 8m                     | 3m (2)           |
|                                                | Window or proxiity or reflex or pump | 1m                               | 2m                         | 4m         |                        |                  |
| Operating zone for proximity mode              |                                      | 0,155...1m (M)<br>0,105...1m (P) | 0,155...2m                 | 0,420...4m | 0,3...8 m              | 0,425...4m       |
| Sensitivity adjustment                         |                                      | using teach button or software   |                            |            | Integrated push button | Software         |
| Case M (metal), P (plastic)                    |                                      | M or P                           |                            |            | P                      | P                |
| Product certification                          |                                      | CE, cULus, ECOLAB                |                            |            | CE, cULus, ECOLAB, E2  | CE, cULus, E2    |
| Temperature range (°C)                         |                                      | -25...+70                        |                            |            | -25...+70              | -40...+70        |
| Degree of protection (conforming to IEC 60529) |                                      | IP67                             |                            |            | IP65 and IP67          | IP67 and IP69K   |
| Dimensions (mm) Ø x L                          |                                      | M30 x 88.25                      | M30 x 52 (1m plastic only) |            | M30 x 106              | 54 x 79 x 32.5   |

“Discrete” output for DC applications (24 V)

| Connection                                            |         |                       | M12 connector   |                 |                 |              |   |
|-------------------------------------------------------|---------|-----------------------|-----------------|-----------------|-----------------|--------------|---|
| 4-wires                                               | PNP     | NO or NC programmable | XX 30 1PM12 (3) | XX 30 2PM12 (3) | XXS30 4PM12 (3) | –            | – |
|                                                       | 2 x PNP | NO or NC programmable | –               | –               | –               | XXS30P8PPM12 | – |
|                                                       | 2 x NPN | NO or NC programmable | –               | –               | –               | XXS30P8NNM12 | – |
| Supply voltage limits, min./max. (V) including ripple |         |                       | 10...30         |                 |                 | 10...30      |   |
| Switching capacity, max (mA)                          |         |                       | <100            |                 |                 |              |   |
| Short-circuit protection (★)                          |         |                       | ★               |                 |                 |              |   |
| LED output state indicator (⊗)                        |         |                       | ⊗               |                 |                 |              |   |
| Voltage drop, closed state (V) at I nominal           |         |                       | <2              |                 |                 |              |   |
| Switching frequency (Hz)                              |         |                       | 11              | 5.5             | 2.7             | 2            |   |
| Transmission frequency (kHz)                          |         |                       | 120             |                 | 80              | 75           |   |

(1) Reflex mode only for sensor with adjustable sensitivity. (2) 3m by default as factory setting

### Proximity mode with “Analogue” output for DC applications (24 V)

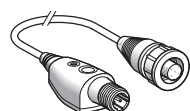
|                                                       |          |                    |                    |                   |                 |              |                |
|-------------------------------------------------------|----------|--------------------|--------------------|-------------------|-----------------|--------------|----------------|
| Connection                                            |          |                    |                    |                   |                 |              |                |
| 4-wires                                               | Analogue | Output 0...10 V    | XX 30 1VM12 (3)    | XX 30 2VM12 (3)   | XXS30 4VM12 (3) | XXS30P8VPM12 | –              |
|                                                       |          | Output 0.5...4.5 V | –                  | –                 | –               | –            | XXW54P3HP01DM6 |
|                                                       |          | Output 4...20 mA   | XX 30 1AM12 (3)    | XX 30 2AM12 (3)   | XXS30 4AM12 (3) | XXS30P8APM12 | XXW54P3AP01DM6 |
| Supply voltage limits, min./max. (V) including ripple |          |                    | 10...30 (4...20mA) | 14...30 (0...10V) |                 | 9...32       |                |
| Short-circuit protection (★)                          |          |                    | ★                  |                   |                 |              |                |
| LED output state indicator (⊗)                        |          |                    | ⊗                  |                   |                 |              |                |
| Transmission frequency (kHz)                          |          |                    | 120                |                   | 80              | 75           | 48             |

(3) XX|A|30|P|1PM12    XXS = straight version    XX 30 P = plastic  
                               |S|    |S|                                XX 30 S = stainless steel  
                               |B|                                        XX 30 B = brass

## Accessories

## Programming

Remote control  
teach button for use  
with sensors XX 18.  
XX V1 , XX V  
XXS , XXA



XXZPB100

XX Software  
XXZBOX01  
Configuration interface  
XXZKIT01  
Configuration Kit



Jumper for  
XXW54  
XXZKITDM6



### Suitable female plug-in connectors

L = 5m (without LED)

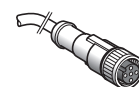
|      |                                  |            |            |              |
|------|----------------------------------|------------|------------|--------------|
| M 8  | for XX512A1...                   | XZCP1041L5 | XZCP0941L5 | XZCC8FCM40V  |
|      | for XX512A2...                   | XZCP0666L5 | XZCP0566L5 | XZCC8FCM30V  |
| M 12 | for all sensors except XX512...) | XZCP1241L5 | XZCP1141L5 | XZCC12FCM40B |

#### PUR Pre-wired connectors (4)

Elbowed



Straight



Other connectors  
Screw terminal



(4) For PVC cable see page 47

For fixing see page 46

# XX Ultrasonic sensors

Detection of any material



|                                                |                              | Mini flat      | Flat                             | Combined multi-fixing           | Flat 80 x 80 |
|------------------------------------------------|------------------------------|----------------|----------------------------------|---------------------------------|--------------|
| Nominal sensing distance Sn                    | Mode proximity or reflex (1) | 10 cm          | 25 cm                            | 50 cm                           | 1 m          |
|                                                | Mode Thru beam               | 20 cm          | 61 ou 100 cm conforming to model | —                               | —            |
| Operating zone for proximity mode              |                              | 0,62...10,2 cm | 5,1...25,4 cm                    | 5,1...50,8 cm                   | 0,1...1 m    |
|                                                |                              | —              | —                                | —                               | —            |
| Sensitivity adjustment                         |                              | Fixed          |                                  | Adjustable using remote control |              |
| Case                                           | P (plastic)                  | P              |                                  |                                 |              |
| Product certification                          |                              | CE, UL         |                                  |                                 |              |
| Temperature range (°C)                         |                              | - 20...+ 65    | 0...+ 50                         | - 20...+ 65                     | 0...+ 70     |
| Degree of protection (conforming to IEC 60529) |                              | IP67           |                                  |                                 |              |
| Dimensions (mm) Ø x L or H x W x D             |                              | 33 x 19 x 7,6  | 74 x 30 x 16                     | M 18 / 18 x 33 x 60             | 80 x 80 x 34 |

## Proximity or Reflex (1) mode with “Discrete” output for DC applications (24 V)

|                                                       |     |                                 |                 |              |              |
|-------------------------------------------------------|-----|---------------------------------|-----------------|--------------|--------------|
| Connection                                            |     | M12 on 0.15 m flying lead 0,15m | M12             |              |              |
| 3-wires                                               | PNP | NO function                     | XX7F1A2PAL01M12 | XX7K1A2PAM12 | XX7V1A1PAM12 |
|                                                       | NPN | NO function                     | XX7F1A2NAL01M12 | —            | XX7V1A1NAM12 |
| Supply voltage limits, min./max. (V) including ripple |     | 10...28                         |                 |              |              |
| Switching capacity, max (mA)                          |     | <100                            |                 |              |              |
| Short-circuit protection (★)                          |     | ★                               |                 |              |              |
| LED output state indicator (⊗)                        |     | ⊗                               |                 |              |              |
| Voltage drop, closed state (V) at I nominal           |     | <1                              |                 |              |              |
| Switching frequency (Hz)                              |     | 100                             | 80              | 40           | 70           |
| Transmission frequency (kHz)                          |     | 500                             | 500             | 300          | 180          |

(1) Reflex mode only for sensor with adjustable sensitivity.

## Proximity mode with “Analogue” output for DC applications (24 V)

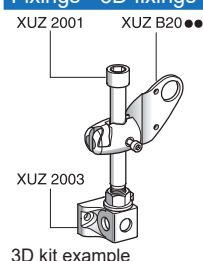
|                                                       |          |                  |         |              |
|-------------------------------------------------------|----------|------------------|---------|--------------|
| Connection by connector                               |          | —                | M12     |              |
| 4-wires                                               | Analogue | 0...10 V output  | —       | XX9V1A1F1M12 |
|                                                       |          | 4...20 mA output | —       | XX9V1A1C2M12 |
| Supply voltage limits, min./max. (V) including ripple |          | —                | 10...28 |              |
| Short-circuit protection (★)                          |          | —                | ★       |              |
| LED output state indicator (⊗)                        |          | —                | ⊗       |              |
| Transmission frequency (kHz)                          |          | —                | 300     | 180          |

## Thru beam mode with “Discrete” output for DC applications (24 V)

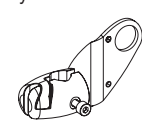
|                         |                            |               |                                           |   |
|-------------------------|----------------------------|---------------|-------------------------------------------|---|
| Connection by connector |                            | —             |                                           |   |
| 4-wires                 | Receiver (NO/PNP + NO/NPN) | XXRF1A8KAM12L | XXRK1A3KAM12 (0,61m)<br>XXRK1A4KAM12 (1m) | — |
|                         | Receiver (NC/PNP + NC/NPN) | —             | XXRK1A3KBM12 (0,61m)                      | — |
|                         | Transmitter                | XXTF1A8M12L   | XXTK1A3M12 (0,61m)<br>XXTK1A4M12 (1m)     | — |

## Accessories

### Fixings - 3D fixings with ball joint



Bracket with ball joint for cylindrical sensors



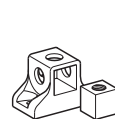
|      |          |
|------|----------|
| for  |          |
| Ø 12 | XUZB2012 |
| Ø 18 | XUZB2003 |
| Ø 30 | XUZB2030 |

M12 rod for ball joint



XUZ2001

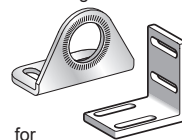
Fixing support for M12 rod



XUZ2003

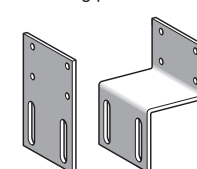
### Simple fixings

90° fixing brackets



|      |         |
|------|---------|
| for  |         |
| Ø 12 | XXZ12   |
| Ø 18 | XUZA118 |
| Ø 30 | XXZ30   |
| XX7F | XXZ1933 |

Mounting plates for XX7K



|         |          |
|---------|----------|
| flat    | XXZ3074F |
| cranked | XXZ3074S |

See page 45 for programming and connectors

# XZ Cabling system

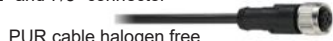
## Pre-wired female connectors



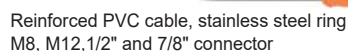
PVC cable  
M8 and M12 connector



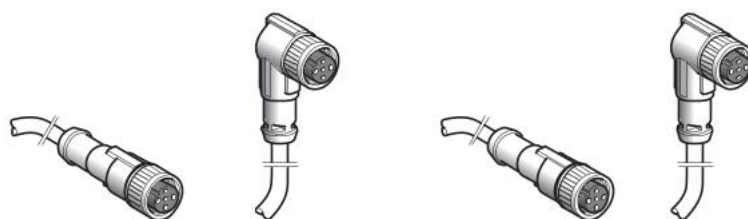
PVC cable  
1/2" and 7/8" connector



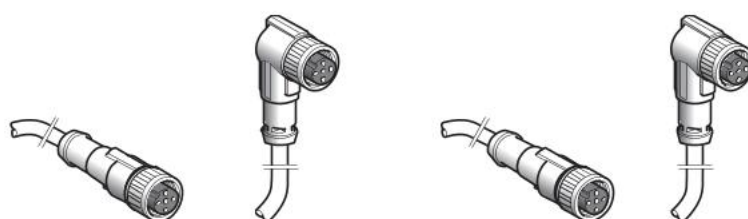
PUR cable halogen free  
M8, M12, 1/2" and 7/8" connector



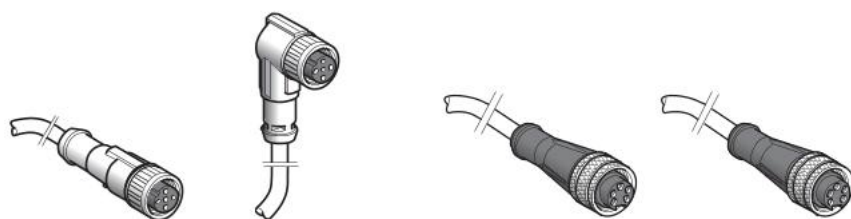
Reinforced PVC cable, stainless steel ring  
M8, M12, 1/2" and 7/8" connector



| Connector Size |                 | M8<br>Straight 3-pins | Elbowed 3-pins | Straight 4-pins | Elbowed 4-pins |
|----------------|-----------------|-----------------------|----------------|-----------------|----------------|
| References     | PVC cable       | XZCPV0566Lp           | XZCPV0666Lp    | XZCPV0941Lp     | XZCPV1041Lp    |
|                | PUR cable       | XZCP0566Lp            | XZCP0666Lp     | XZCP0941Lp      | XZCP1041Lp     |
|                | PVC cable IP69K | XZCPA0566Lp           | –              | XZCPA0941Lp     | –              |



| Connector Size |                 | M12<br>Straight 4-pins | Elbowed 4-pins | Straight 5-pins | Elbowed 5-pins |
|----------------|-----------------|------------------------|----------------|-----------------|----------------|
| References     | PVC cable       | XZCPV1141Lp            | XZCPV1241Lp    | XZCPV1164Lp     | XZCPV1264Lp    |
|                | PUR cable       | XZCP1141Lp             | XZCP1241Lp     | XZCP1164Lp      | XZCP1264Lp     |
|                | PVC cable IP69K | XZCPA1141Lp            | XZCPA1241Lp    | XZCPA1164Lp     | –              |



| Connector Size |                 | 1/2"<br>Straight 3-pins | Elbowed 3-pins | 7/8"<br>Straight 3-pins | Straight 5-pins |
|----------------|-----------------|-------------------------|----------------|-------------------------|-----------------|
| References     | PVC cable       | XZCPV1865Lp             | XZCPV1965Lp    | XZCPV1670Lp             | –               |
|                | PUR cable       | XZCP1865Lp              | XZCP1965Lp     | XZCP1670Lp              | XZCP1764Lp      |
|                | PVC cable IP69K | XZCPA1865Lp             | XZCPA1965Lp    | –                       | –               |

Complete each reference by adding the length of cable, as 2 for 2 m, 5 for 5 m and 10 for 10 m,  
Eg: XZCPV1141L2 is pre-wired connector M12 connectors with 4 contacts and 2 m PVC cable



| Other accessories | Jumpers | Connector | Receptacle |
|-------------------|---------|-----------|------------|
| References        | XZCR... | XZCC...   | XZCE...    |

# XG Radio frequency identification

## 13.56 MHz RFID



### Presentation

XG RFID is open to the majority of ISO 18000-3, ISO 15693 and ISO 14443 electronic tags.

XG RFID integrates Modbus RTU, Uni-Telway, Modbus TCP/IP (using Ethernet box XGSZ33ETH) and Profibus DP (with box XGSZ33PDP) protocols.

The XG RFID offer comprises:

- 3 models of 13.56 MHz smart antenna (read/write)
- 12 models of 13.56 MHz electronic tags
- 1 portable RFID diagnostics terminal
- 3 models of network connection boxes plus connection and mounting accessories.

### Setting-up

XG RFID smart antenna are simple to set-up:

- Integrated RFID and network Function
- No programming
- Automatic detection of the RFID electronic tags (read or write)
- Automatic setting of the communication parameters (speed, format, parity, protocol, etc.)
- Configuration of the network address (1 to 15) using badge included with the smart antenna
- Low sensitivity to metal environments.

### Installation

The XG smart antenna easily integrate in flexible manufacturing production lines:

- quick connection using M12 connector
- screw fixing or clip-on mounting.



| Smart antenna, 13,56 MHz                       |               | Flat form 40                                                                                                            | Flat form 80                                   |
|------------------------------------------------|---------------|-------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|
| Dimensions (mm), W x H x D                     |               | 40 x 40 x 15                                                                                                            | 80 x 80 x 26                                   |
| Nominal sensing distance depending on tag (mm) |               | 18 to 70                                                                                                                | 20 to 100                                      |
| Type of associated tag                         |               | ISO 15693 and ISO 14443 standard tags. Automatic detection of the type of tag.                                          |                                                |
| Display                                        |               | dual colour LED for the communication network, dual colour LED for the RFID communication                               |                                                |
| Conformity to standards                        |               | CE, EN 301489-1, EN 301489-3, ETS 300330-1 and ETS 300330-2, FCC part 15 - UL                                           |                                                |
| Degree of protection conforming to IEC 60529   |               | IP67                                                                                                                    |                                                |
| Serial link                                    | Type          | RS 485                                                                                                                  | Ethernet (dual port)                           |
|                                                | Protocol      | Modbus et Uni-Telway                                                                                                    | MODBUS TCP/IP et EtherNet/IP                   |
|                                                | Speed (Bauds) | 9600...115 200 (automatic detection)                                                                                    | 10/100MB                                       |
| Ambient air temperature (°C)                   |               | For fonctionnement : - 25...+ 70 °C, for stockage : - 40...+ 85 °C                                                      |                                                |
| Nominal Supply voltage                         |               | 24 VDC TBTP (Protective Extra Low Voltage)                                                                              |                                                |
| Connection                                     |               | M12, 5-pins male, shielded connector on flying lead.<br>Only for connection to the communication network and the supply | M12 (Ethernet) -<br>M8 4-pins (Supply voltage) |
| References                                     |               | XGCS4901201                                                                                                             | XGCS8901201<br>XGCS850C201                     |



| Electronic tags                              |                      | Format flat 40       |                  | Badge ISO (1)      | Disque (3)       | Format flat 26    | Cylindrical      |
|----------------------------------------------|----------------------|----------------------|------------------|--------------------|------------------|-------------------|------------------|
| Dimensions (mm), W x H x D                   |                      | 40 x 40 x 15         |                  | 54 x 85,5 x 0,8    | Ø 30 x 3         | 26 x 26 x 13      | M18 x 1 x 12     |
| Type of memory                               |                      | EEPROM               | FRAM             | EEPROM             |                  |                   |                  |
| Memory capacity (bytes)                      |                      | 3 408                | 32 768           | 256                | 112              | 256               | 256              |
| Nominal sensing distance (Read/Write)        | With station XGCS49. | 33                   | 25               | 70                 | 48               | 40                | 18               |
|                                              | With station XGCS89. | 48                   | 39               | 100                | 65               | 55                | 20               |
| Time (ms)                                    | Read                 | 9,25 + 0,375 x n (2) | 6 + 0,25 x n (2) | 12 + 0,825 x n (2) |                  |                   |                  |
|                                              | Write                | 13 + 0,8 x n (2)     | 6 + 0,25 x n (2) | 20 + 11,8 x n (2)  | 12 + 5,6 x n (2) | 20 + 11,8 x n (2) | 19 + 4,1 x n (2) |
| Degree of protection conforming to IEC 60529 |                      | IP68                 |                  | IP65               |                  | IP68              |                  |
| Standard supported                           |                      | ISO 14443            |                  | ISO 15693          |                  |                   |                  |
| Mounting on metal support                    |                      | Yes                  |                  | No                 |                  | Yes               | No               |
| References                                   |                      | XGHB444345           | XGHB443245       | XGHB90E340         | XGHB320345       | XGHB221346        | XGHB211345       |

(1) Customised versions on request. (2) n = number of 16-bit words. (3) Also exists in diameter 50.



| Connection boxes                             | Ethernet Modbus TCP/IP box                         | Profibus box  | EtherNet/IP box |
|----------------------------------------------|----------------------------------------------------|---------------|-----------------|
| Dimensions (mm), W x H x D                   | 130 x 80 x 51                                      | 130 x 80 x 51 | 130 x 80 x 51   |
| Protocols                                    | Modbus TCP/IP                                      | Profibus DP   | EtherNet/IP     |
| Supply voltage                               | 24 VDC PELV. M12, 4-pins male, A coding, connector |               |                 |
| Conformity to standards                      | CE, UL                                             | CE            | CE              |
| Station connection                           | M12, 5-pins female, A coding, connector            |               |                 |
| Degree of protection conforming to IEC 60529 | IP65                                               |               |                 |
| References                                   | XGSZ33ETH                                          | XGSZ33PDP     | XGSZ33EIP       |



| Terminal                                     | Portable 13.56 MHz RFID diagnostics terminal                                                                                                                                                               |
|----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Dimensions (mm), W x H x P                   | 78 x 153 x 27                                                                                                                                                                                              |
| Function                                     | Read/Write operations on electronic tags                                                                                                                                                                   |
| Operating system                             | Proprietary OS                                                                                                                                                                                             |
| Conformity to standards                      | CE, FCC classe A, Part 15                                                                                                                                                                                  |
| Display                                      | 53 x 95 mm colour OLED touchscreen 272 x 480 pixels resolution                                                                                                                                             |
| Degree of protection conforming to IEC 60529 | IP 40                                                                                                                                                                                                      |
| Memory                                       | RAM<br>256 Mb                                                                                                                                                                                              |
|                                              | Storage<br>internal 2 GB + USB socket for memory stick                                                                                                                                                     |
| Reference                                    | XGST2422 (battery, battery charger, 2 GB USB memory stick, and carrying case included with terminal).<br>RFID reader to be ordered separately: XGCS4901201 (integrated reader) or XGW4F111 (remote reader) |



| Connection accessories |                                                                                         |                                                                   |                                                             |                                                     |                                             |                                                   |
|------------------------|-----------------------------------------------------------------------------------------|-------------------------------------------------------------------|-------------------------------------------------------------|-----------------------------------------------------|---------------------------------------------|---------------------------------------------------|
|                        | for Modbus network                                                                      |                                                                   | for Ethernet                                                | Pre-wired connector                                 |                                             | "T" connector                                     |
| Description            | Modbus connecting cable<br>M12 connectors Male / Female                                 | Pre-wired connector<br>M12 male / Bare wires                      | Ethernet<br>connecting cable<br>M12 male / RJ 45            | Pre-wired<br>supply connector<br>M8 female          | Pre-wired<br>supply connector<br>M12 female | Network M12<br>"T" connector<br>1 male / 2 female |
| Application            | RS485 connection between a smart antenna and a connection box or between 2 Modbus boxes | Connection between a Modbus box and a Modbus / Uni-Telway network | Connection between an Ethernet box and the Ethernet network | 24 VDC supply to Ethernet smart antenna XGCS850C201 | 24 VDC supply to connection boxes           | For chaining of smart antennas on RS485 network   |
| L = 2 m                | TCSMCN1M1F2                                                                             | TCSMCN1F2                                                         | XGSZ12E4503 (1)                                             | XZCP0941L5 (3)                                      | XGSZ09L2                                    | TCSCN011M11F                                      |
| L = 5 m                | TCSMCN1M1F5                                                                             | TCSMCN1F5                                                         | XGSZ12E4510 (2)                                             | XZCP0941L2 (4)                                      | XGSZ09L5                                    |                                                   |

(1) L = 3 m

(2) L = 10 m

(3) L = 5 m

(4) L = 2 m

#### Field expander

To be associated with a smart antenna XGCS4901201 for conveying and handling applications



50 x 400 mm  
XGFEC540



250 x 250 mm  
XGFEC2525

#### RS232/RS485 converter

For connecting a PC to an XG RFID smart antenna



XGSZ24

# XG Radio frequency identification

## RFID 13,56 MHz, Fixing Ø 22 mm



| RFID Stations 13,56 MHz, Fixing Ø 22 mm        |                            | Compact station for panel fixing (1)                                       | Compact station for panel fixing with indicator light (1) | Standalone compact station for panel fixing (2)                           |
|------------------------------------------------|----------------------------|----------------------------------------------------------------------------|-----------------------------------------------------------|---------------------------------------------------------------------------|
| Dimensions (mm) W x H x D                      |                            | 40 x 40 x 40                                                               |                                                           |                                                                           |
| Nominal sensing distance depending on tag (mm) |                            | 20 to 70                                                                   |                                                           |                                                                           |
| Type of associated tag                         |                            | ISO 15693 to ISO 14443 standard tags. Automatic detection of the type tag. |                                                           |                                                                           |
| Interface                                      | Physical interface         | RS485                                                                      |                                                           | PNP discrete output 300 mA protected against short-circuits and overloads |
|                                                | Protocol                   | Modbus RTU                                                                 |                                                           | -                                                                         |
| Display                                        | For informing the operator | 2 LEDs (7 selectable colors) driven by Modbus requests                     |                                                           |                                                                           |
|                                                | For the communication      | 1 dual color LED (Modbus network activity)                                 |                                                           | 1 dual color LED (output/status)                                          |
| Conformity to standards                        |                            | EN 301489-1, EN 301489-3, EN 300330-1 et EN 300330-2                       |                                                           |                                                                           |
| Degree of protection conforming to IEC 60529   |                            | IP 65                                                                      |                                                           | IP 65                                                                     |
| Ambient air temperature (°C)                   |                            | For function : - 25...+ 70 °C, for storage : - 40...+ 85 °C                |                                                           | For function : - 40...+ 70 °C, for storage : - 40...+ 85 °C               |
| Nominal Supply voltage                         |                            | 24 TBTP (Protective Extra Low Voltage)                                     |                                                           |                                                                           |
| Connection                                     |                            | 1 connector M12 male, 5-pins                                               |                                                           |                                                                           |
| References                                     |                            | XGCS490B201                                                                | XGCS491B201                                               | XGCS491B201                                                               |

(1) Delivered with a fixing nut and a configuration badge for the network address.

(2) Delivered with a fixing nut - Configuration kit of badges for access control setup ref. **XGSZCNFAC** to order separately



| Electronic tags                          |                                          | EEPROM type<br>memory tag | ISO RFID card | ISO RFID card |
|------------------------------------------|------------------------------------------|---------------------------|---------------|---------------|
| Dimensions (mm) W x H x D                |                                          | 40 x 31 x 4,8             | 54 x 85.5 x 1 |               |
| Type of memory                           |                                          | EEPROM                    |               |               |
| Memory capacity (bytes)                  |                                          | 736                       | 256           | 736           |
| Nominal sensing distance<br>(Read/Write) | With compact stations,<br>Fixing Ø 22 mm | 30 mm                     | 70 mm         | 30 mm         |
| Degree of protection                     |                                          | IP67                      | IP65          | IP65          |
| Supported standard                       |                                          | ISO 14443                 | ISO 15693     | ISO 14443     |
| Order by multiples of                    |                                          | 10                        |               | 25            |
| Reference                                |                                          | XGHPBP3345                | XGHB90E340    | XGHB90E341    |

# XIOT Cloud Connected Sensors

New

The groundbreaking Cloud-Connected Sensor technology from Telemecanique Sensors enables real-time remote monitoring from anywhere you can receive a signal!

## 1. The XIOT captures the event information at your remote locations

Whether you are monitoring the pressure threshold of an irrigation system, the emergency stop trigger on a long distance conveyor chain, or the opening of a lock on a secure gate or other industrial application, the information about the event is captured by the XIOT Cloud Connected Sensor.

## 2. Data and alerts are sent to the internet cloud

The information recorded by the sensor is sent to the internet cloud. This "smart alert" can then be immediately forwarded to any mobile device or platform anywhere you can receive a signal!

## 3. You receive the information on your computer or phone

In real time, from the convenience of your phone or other mobile device, you can get an overview of all your connected sensors and get alerts if there are any status changes on your installed base. These real time alarms, historical data, and data analytics about your connected assets are all available to multiple users through a secure, Cloud-Connected Sensor Application. The immediate information and data analysis provided by the Cloud Connected Sensors app help reduce operational downtime!

It's smart information at your fingertips!



## Three options to choose from

| Description                                                                                            | Transmitter only<br>XIOT11SE0MRCL | Prepaid 5-year<br>access to cloud<br>XIOT11SE5MRCL | Subscription<br>services (1)<br>XIOT11SERMRCL |
|--------------------------------------------------------------------------------------------------------|-----------------------------------|----------------------------------------------------|-----------------------------------------------|
| 1 standalone transmitter<br>Activation magnet<br>Instruction sheet                                     | ✓                                 | ✓                                                  | ✓                                             |
| 5-year subscription to Sigfox LPWAN (2)                                                                | -                                 | ✓                                                  | -                                             |
| Web interface to configure and<br>display data                                                         | -                                 | ✓                                                  | ✓                                             |
| Smartphone apps for alert notifications<br>(IOS and Android)                                           | -                                 | ✓                                                  | ✓                                             |
| Connection to Telemecanique Sensors<br>secure servers via external SCADA<br>system for data processing | -                                 | -                                                  | ✓                                             |

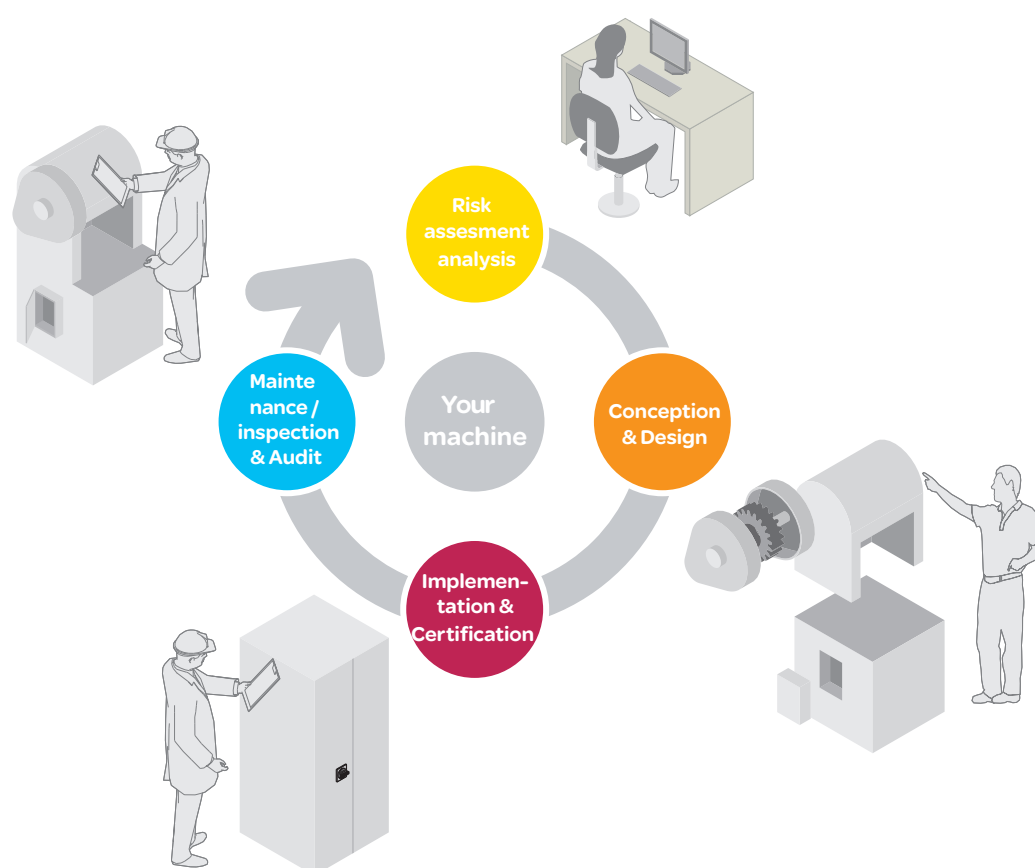
(1) Pricing and terms and conditions available on the online payment site: <https://godigital.schneider-electric.com/smp/home/home-page>

(2) LPWAN: Low power wide area network

# Telemecanique Sensors safety products for your machine's entire life cycle

The Telemecanique Sensors range of safety products enhances safety throughout a machine's entire life cycle from design, manufacture, installation, adjustment, operation and servicing right through to decommissioning.

In addition to moral obligation and economic consequences, the law requires that machinery is safe in regard to accident prevention. Telemecanique Sensors offers an extensive range of safety products, compliant with international standards, designed to provide the most comprehensive protection for personnel and equipment.



## > New machines - the Machinery Directive

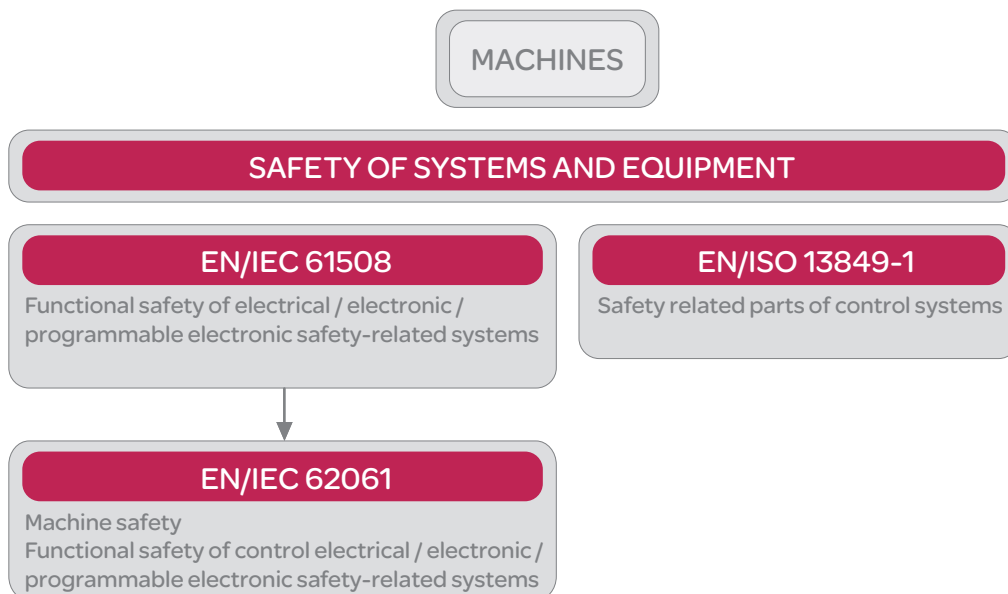
The previous Machinery Directive 98/37/EC was elaborated to help manufacturers ensuring a minimum safety level for machinery and equipment sold within the EU (European Union).

From 29 December 2009 on, the new European Machinery Directive 2006/42/EC is effective. Machines must comply with the Essential Health and Safety Requirements (EHSRs) listed in Annex I of the Directive, thus setting a common minimum level of protection across the EEA (European Economic Area).

Machine manufacturers, or their authorised representatives within the EU, must ensure that the machine is compliant with all requirements from this Directive. This technical file is available to reinforce authorities requests as well as the CE marking must be affixed and a Declaration of Conformity has been signed before the machine may be placed on the market within the EU.

# Functional safety :

> Safety integrity level (SIL), Performance level (PL)



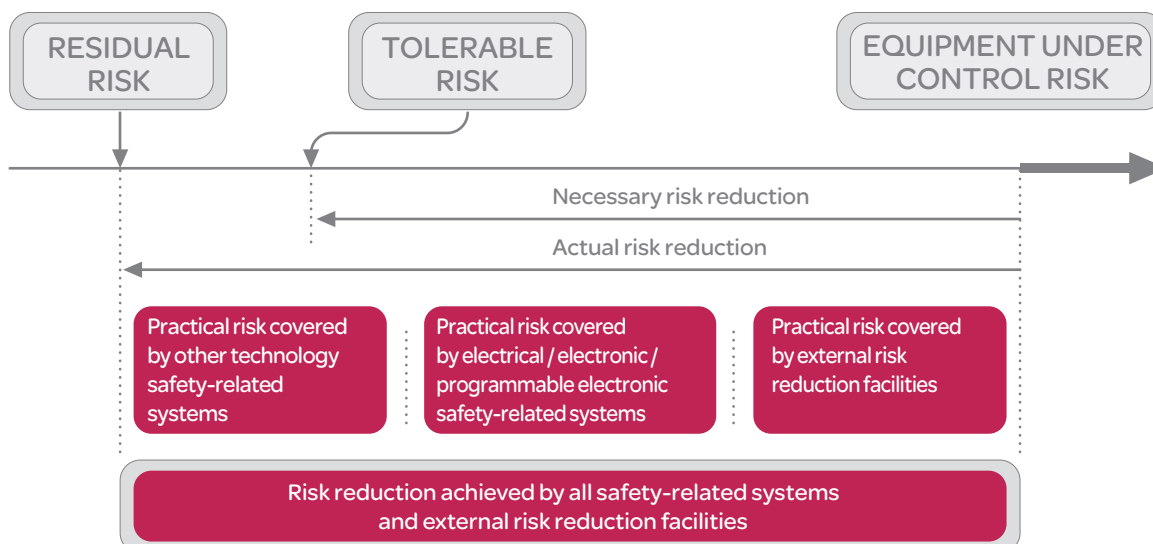
## Risk reduction according to EN/IEC 61508 and EN/ISO 13849-1

**Safety** is achieved by risk reduction (for those hazards that cannot be designed-out).

**Residual risk** is the risk remaining after protective measures have been taken.

**Protective measures** realised by E/E/PE\* safety related systems contribute to risk reduction.

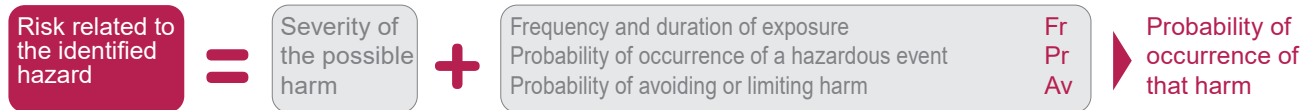
\* Electric / Electronic / Programmable electronic



# Functional safety of machinery

## > Approach according to EN/IEC 62061

### Risk estimation for SIL assignment



### Example of SIL assignment

This assignment should be carried by determining the risk parameters that are shown below in an example.

| Consequences                                                |  | Severity (Se) |  |
|-------------------------------------------------------------|--|---------------|--|
| Irreversible: death, losing an eye or arm                   |  | 4             |  |
| Irreversible: broken limb(s), losing a finger(s)            |  | 3             |  |
| Reversible: requiring attention from a medical practitioner |  | 2             |  |
| Reversible: requiring first aid                             |  | 1             |  |

| Frequency and duration of exposure (Fr) |  | Probability of occurrence |  | Probability (Pr) |  |
|-----------------------------------------|--|---------------------------|--|------------------|--|
| Frequency of exposure                   |  | Very high                 |  | 5                |  |
| 1 h                                     |  | Likely                    |  | 4                |  |
| > 1 h to 1 day                          |  | Possible                  |  | 3                |  |
| > 1 day to 2 weeks                      |  | Rarely                    |  | 2                |  |
| > 2 weeks to 1 year                     |  | Negligible                |  | 1                |  |
| > 1 year                                |  |                           |  |                  |  |

| Probability of avoiding or limiting harm (Av) |  |
|-----------------------------------------------|--|
| Impossible                                    |  |
| Rarely                                        |  |
| Probable                                      |  |

| Serial no. | Hazard   | Se | Fr | Pr | Av | Cl |
|------------|----------|----|----|----|----|----|
| 1          | Hazard X | 4  | 5  | 4  | 3  | 12 |
| 2          |          |    |    |    |    |    |

| Consequences                  | (Se) | Classe Cl |       |       |       |       | Frequency and duration<br>Fr |   | Probability of hzd. Event<br>Pr |   | Avoidance<br>Av |   |
|-------------------------------|------|-----------|-------|-------|-------|-------|------------------------------|---|---------------------------------|---|-----------------|---|
|                               |      | 3-4       | 5-7   | 8-10  | 11-13 | 14-15 |                              |   |                                 |   |                 |   |
| Death, losing an eye or arm   | 4    | SIL 2     | SIL 2 | SIL 2 | SIL 3 | SIL 3 | <= 1 hour                    | 5 | Common                          | 5 |                 |   |
| Permanent, losing fingers     | 3    |           | OM    | SIL 1 | SIL 2 | SIL 3 | > 1 h to <= 1 day            | 5 | Likely                          | 4 |                 |   |
| Reversible, medical attention | 2    |           |       | OM    | SIL 1 | SIL 2 | > 1 day to <= 2 wks          | 4 | Possible                        | 3 | Impossible      | 5 |
| Reversible, first aid         | 1    |           |       |       | OM    | SIL 1 | 2 wks to <= 1 year           | 3 | Rarely                          | 2 | Possible        | 3 |
|                               |      |           |       |       |       |       | > 1 year                     | 2 | Negligible                      | 1 | Likely          | 1 |

In this example the SIL 3 must be achieved by the safety-related control function intended to reduce the risk related to the identified hazard.

### Determination of the SIL level achieved by the Safety-related control function (SRCF)

According to standard EN/IEC 62061 for each safety related control function, the SIL level is linked to:

- a target failure value for the probability of dangerous failure by hour of the SRCF: PFH<sub>D</sub>
- architectural constraints (hardware fault tolerance, diagnosis)
- a set of requirements related to the lifecycle of the safety related electrical control system

| Safety integrity level (SIL) | Probability of a dangerous Failure per Hour PFH <sub>D</sub> |
|------------------------------|--------------------------------------------------------------|
| 3                            | >10 <sup>-8</sup> to <10 <sup>-7</sup>                       |
| 2                            | >10 <sup>-7</sup> to <10 <sup>-6</sup>                       |
| 1                            | >10 <sup>-6</sup> to <10 <sup>-5</sup>                       |

$\lambda_s$  = rate of safe failures,  
 $\lambda_{dd}$  = rate of detected dangerous failures,  
 $\lambda_{du}$  = rate of undetected dangerous failures  
 $\lambda_d = \lambda_{dd} + \lambda_{du}$

In practice, detected dangerous failure are dealt with by fault

The rate of failures  $\lambda$  can be expressed as follows:  $\lambda = \lambda_s + \lambda_{dd} + \lambda_{du}$

The calculation of the PFH<sub>D</sub> for a system

or subsystem depends on several parameters:

- the dangerous failure rate ( $\lambda_d$ ) of the subsystem elements
- the fault tolerance (e.g. redundancy) of the system
- the diagnostic test interval (T2)
- the proof test interval (T1) or lifetime whichever is smaller
- the susceptibility to common cause failures ( $\beta$ )

For each of the four different logical architectures A to D there is a different formula to calculate the PFH<sub>D</sub>. (see EN/IEC 62061)

For a simple system without redundancy and without diagnostic:

$$PFH_D = \lambda_d \times 1/h$$

## > Approach according to EN/ISO 13849-1

### Determination of the Performance Level requested (PLr)

Done using the risk graphic opposite

#### S = Severity of injury

S1 = Slight (normally reversible injury)

S2 = Serious (normally irreversible) injury including death

#### F = Frequency and/or exposure time to the hazard

F1 = Seldom to less often and/or the exposure time is short

F2 = Frequent to continuous and/or the exposure time is long

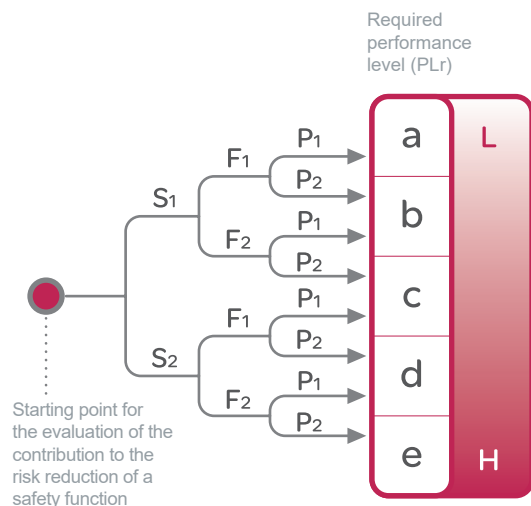
#### P = Possibility of avoiding the hazard or limiting the harm

P1 = Possible under specific conditions

P2 = Scarcely possible

L = Low contribution to risk reduction

H = High contribution to risk reduction



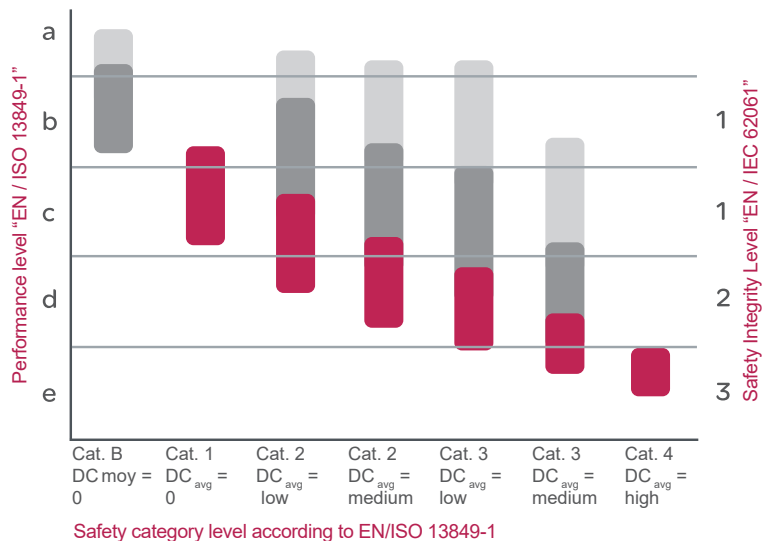
### Determination of the PL achieved by the Safety-related parts of control systems (SRP/CS)

According to standard EN/ISO 13849-1, the Performance level (PL) is linked to a target failure value of probability of dangerous failure per hour for each safety related control function.

| Performance level (PL) | Probability of a dangerous Failure per Hour |
|------------------------|---------------------------------------------|
| a                      | $\geq 10^{-5} \dots < 10^{-4}$              |
| b                      | $\geq 3 \times 10^{-6} \dots < 10^{-5}$     |
| c                      | $\geq 10^{-6} \dots < 3 \times 10^{-6}$     |
| d                      | $\geq 10^{-7} \dots < 10^{-6}$              |
| e                      | $\geq 10^{-8} \dots < 10^{-7}$              |

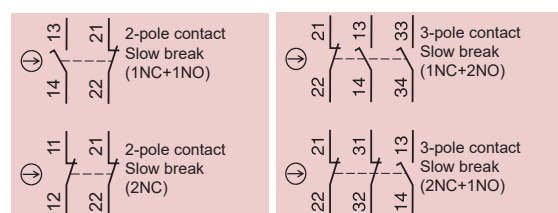
For a SRP/CS (or a combination of SRP/CS) designed according the requirements of the article 6, the PL could be estimated with the figure beside after estimation of several factors such as system structure (categorys), mechanism of failures detection [Diagnosis Coverage (DC)], components reliability [mean time to dangerous failure (MTTFd), Common Cause Failure (CCF)]...

- MTTF<sub>d</sub> of each channel = low
- MTTF<sub>d</sub> of each channel = medium
- MTTF<sub>d</sub> of each channel = high



# Key-operated safety switches without solenoid and actuators

Illustration of contacts with the actuator inserted in the head of the switch



Without locking

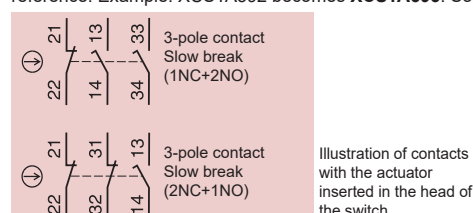


| Plastic, double insulated switches                                 |                                       | Type XCSMP                                                                                  | Type XCSPA         | Type XCSTA         |
|--------------------------------------------------------------------|---------------------------------------|---------------------------------------------------------------------------------------------|--------------------|--------------------|
| Maximum safety level (3)                                           |                                       | PL=e, category 4 conforming to EN/ISO 13849-1 et SIL CL3 conforming to EN/IEC 62061         |                    |                    |
| Actuation speed (min>max)                                          |                                       | 0,05m/s --> 1,5m/s                                                                          | 0,1m/s --> 0,5m/s  | 0,1m/s --> 0,5m/s  |
| Rated operational characteristics (conforming to EN/IEC 60947-5-1) |                                       | AC 15, C 300 / DC 13, Q 300                                                                 |                    |                    |
| Degree of protection conforming to IEC 60529                       |                                       | IP67                                                                                        |                    |                    |
| Reliability data B <sub>10d</sub>                                  |                                       | 5 000 000 value given for a service life of 20 years, limited by mechanical or contact wear |                    |                    |
| Body + Head dimensions (mm) W x D x H                              |                                       | 30 x 15 x 87 mm                                                                             | 30 x 30 x 93,5 mm  | 52 x 30 x 114,5 mm |
| Resistance to forcible withdrawal of actuator                      |                                       | 8 N                                                                                         | 10 N (1)           | 10 N (1)           |
| Connection                                                         |                                       | pre-cabled, L = 2m                                                                          | 1 x ISO M16 entry. | 1 x PG11 entry (5) |
| Safety contacts                                                    | 1NC+1NO break before make, slow break | XCSMP59L2 →                                                                                 | XCSPA592 →         | XCSPA591 →         |
|                                                                    | 2NC slow break                        | XCSMP79L2 →                                                                                 | XCSPA792 →         | XCSPA791 →         |
|                                                                    | 1NC+2NO break before make, slow break | —                                                                                           | XCSPA892 →         | XCSPA891 →         |
|                                                                    | 2NC+1NO break before make, slow break | XCSMP70L2 →                                                                                 | XCSPA992 →         | XCSPA991 →         |
|                                                                    | 2NC+1NO snap action                   | —                                                                                           | XCSPA492 →         | XCSPA491 →         |
|                                                                    | 3NC slow break                        | XCSMP80L2 →                                                                                 | —                  | —                  |
|                                                                    |                                       |                                                                                             |                    | XCSTA592 →         |
|                                                                    |                                       |                                                                                             |                    | XCSTA792 →         |
|                                                                    |                                       |                                                                                             |                    | XCSTA892 →         |

(1) In order to increase the resistance to 50 N, you must add the accessory XCSZ21 to the key actuators XCSZ12

(2) With entry for Pg 11 cable gland, replace the last digit in the reference by 1 (example: XCSTA592 becomes **XCSTA591**). Some PG11 references may not be available.

(5) To order a switch with 1 or 2 cable entries for 1/2" NPT conduit (one Pg11 tapped entry fitted with metal adapter DE9RA1012), replace the last number (2) by 3 in the selected reference. Example: XCSTA592 becomes **XCSTA593**. Some 1/2" NPT references may not be available.



Without locking



With interlocking, manual unlocking  
By button



By key lock

| Interrupteurs metal to double isolation                            |                                       | Type XCSA                                                                                                            |                  | Type XCSB                                                         | Type XCSC        |
|--------------------------------------------------------------------|---------------------------------------|----------------------------------------------------------------------------------------------------------------------|------------------|-------------------------------------------------------------------|------------------|
| Maximum safety level (3)                                           |                                       | PL=e, category 4 conforming to EN/ISO 13849-1 and SIL CL3 conforming to EN/IEC 62061                                 |                  |                                                                   |                  |
| Actuation speed (min>max)                                          |                                       | 0,01m/s --> 0,5m/s                                                                                                   |                  | 0,01m/s --> 0,5m/s                                                |                  |
| Rated operational characteristics (conforming to EN/IEC 60947-5-1) |                                       | AC 15, A 300 / DC 13, Q 300                                                                                          |                  |                                                                   |                  |
| Degree of protection conforming to IEC 60529                       |                                       | IP67                                                                                                                 |                  |                                                                   |                  |
| Reliability data B <sub>10d</sub>                                  |                                       | XCSA: 5 000 000 XCSB/C: 3 000 000 values given for a service life of 20 years, limited by mechanical or contact wear |                  |                                                                   |                  |
| Body + Head dimensions (mm) W x D x H                              |                                       | 40 x 44 x 113,5 mm                                                                                                   |                  | 52 x 44 x 113,5 mm                                                |                  |
| Resistance to forcible withdrawal of actuator                      |                                       | 20 N                                                                                                                 |                  | F <sub>1max</sub> = 1500N ; F <sub>2h</sub> = 1150N (when locked) |                  |
| Connection (6)                                                     |                                       | 1 x ISO M20 entry                                                                                                    | 1 x PG13,5 entry | 1 x ISO M20                                                       | 1 x PG13,5 entry |
| Safety contacts                                                    | 1NC+2NO break before make, slow break | XCSA502 ➡                                                                                                            | XCSA501 ➡        | XCSB502 ➡                                                         | XCSC501 ➡        |
|                                                                    | 2NC+1NO break before make, slow break | XCSA702 ➡                                                                                                            | XCSA701 ➡        | XCSB702 ➡                                                         | XCSC701 ➡        |
|                                                                    | 3NC slow break                        | XCSA802 ➡                                                                                                            | XCSA801 ➡        | –                                                                 | XCSC801 ➡        |

(6) To order a switch with a 1/2" NPT cable entry, replace the last number (2) by 3 in the selected reference. Example: XCSA502 becomes **XCSA503**. Some 1/2" NPT references may not be available.

(3) Using an appropriate and correctly connected safety control unit.

## Accessories



Straight actuator



Right-angled actuator



Pivoting actuator, RH door



Pivoting actuator, LH door

| For safety switches XCSMP |  | Actuators |        |        |        |
|---------------------------|--|-----------|--------|--------|--------|
| References                |  | XCSZ81    | XCSZ84 | XCSZ83 | XCSZ85 |



Straight actuator



Wide actuator L=40 mm (4)



Right-angled actuator



Pivoting actuator



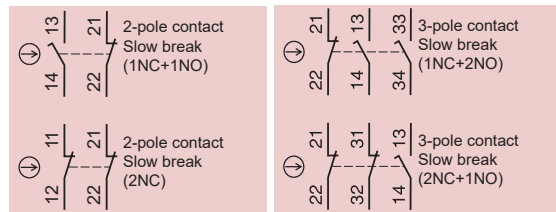
Guard/door retainer

| For safety switches XCSPA/TA |  | Actuators |        |        |        | Retaining device |
|------------------------------|--|-----------|--------|--------|--------|------------------|
| References                   |  | XCSZ11    | XCSZ12 | XCSZ14 | XCSZ13 | XCSZ21           |

(4) For L = 29 mm, reference = XCSZ15.

# Key-operated safety switches with solenoid and actuators

Illustration of the main contacts with the actuator inserted in the head of the switch



| Safety interlock switches                                                                                      |         |                               | Type XCSLF, metal                                                                           |                   | Type XCSLE, plastic                                  |                   |
|----------------------------------------------------------------------------------------------------------------|---------|-------------------------------|---------------------------------------------------------------------------------------------|-------------------|------------------------------------------------------|-------------------|
| Standard version and Connector version                                                                         |         |                               |                                                                                             |                   |                                                      |                   |
| Maximum safety level (3)                                                                                       |         |                               | PL=e, category 4 conforming to EN/ISO 13849-1 and SIL CL3 conforming to EN/IEC 62061        |                   |                                                      |                   |
| Degree of protection conforming to IEC 60529                                                                   |         |                               | IP66 and IP67                                                                               | IP65              | IP66 and IP67                                        | IP65              |
| Reliability data B <sub>10d</sub>                                                                              |         |                               | 5 500 000 value given for a service life of 20 years, limited by mechanical or contact wear |                   |                                                      |                   |
| Body + Head dimensions (mm) W x D x H                                                                          |         |                               | 43,5 x 51 x 205 mm                                                                          |                   | 43,5 x 51 x 205 mm                                   |                   |
| Resistance to forcible withdrawal of actuator (Locked)                                                         |         |                               | F <sub>1max</sub> = 3000 N, f <sub>zh</sub> = 2300 N                                        |                   | F <sub>1max</sub> = 1400 N, f <sub>zh</sub> = 1100 N |                   |
| Locking                                                                                                        |         |                               | on de-energization (1)                                                                      |                   | on de-energization (1)                               |                   |
| Supply voltage for the solenoid and the LEDs                                                                   |         |                               | 24VAC/DC                                                                                    |                   |                                                      |                   |
| Material case                                                                                                  |         |                               | Zamak                                                                                       |                   | Polyamide                                            |                   |
| Wiring Connection (2)                                                                                          |         |                               | 3 x ISO M20                                                                                 | Connector M23 (4) | 3 x ISO M20                                          | Connector M23 (4) |
| Main and auxiliary contacts. (Main contacts actuated by the key. Auxiliary contacts actuated by the solenoid.) | 1NC+1NO | break before make, slow break | XCSLF2525312 ➞                                                                              | –                 | XCSLE2525312 ➞                                       | –                 |
|                                                                                                                | 2NC     | simultaneous, slow break      | XCSLF2727312 ➞                                                                              | –                 | XCSLE2727312 ➞                                       | –                 |
|                                                                                                                | 1NC+2NO | break before make, slow break | XCSLF3535312 ➞                                                                              | XCSLF353531M3 ➞   | XCSLE3535312 ➞                                       | XCSLE353531M3 ➞   |
|                                                                                                                | 2NC+1NO | break before make, slow break | XCSLF3737312 ➞                                                                              | XCSLF373731M3 ➞   | XCSLE3737312 ➞                                       | XCSLE373731M3 ➞   |
|                                                                                                                | 3NC     | simultaneous, slow break      | XCSLF3838312 ➞                                                                              | XCSLF383831M3 ➞   | XCSLE3838312 ➞                                       | –                 |

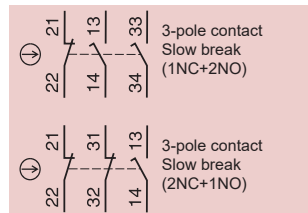


Illustration of the main contacts with the actuator inserted in the head of the switch



| Safety interlock switches.                                 |                                       | Type XCSLF, metal                                                                           |                   |                        |
|------------------------------------------------------------|---------------------------------------|---------------------------------------------------------------------------------------------|-------------------|------------------------|
| Push button version and Push button with connector version |                                       |                                                                                             |                   |                        |
| Maximum safety level (3)                                   |                                       | PL=e, category 4 conforming to EN/ISO 13849-1 et SIL CL3 conforming to EN/IEC 62061         |                   |                        |
| Degree of protection conforming to IEC 60529               |                                       | IP66                                                                                        | IP65              | IP66                   |
| Reliability data B <sub>10d</sub>                          |                                       | 5 500 000 value given for a service life of 20 years, limited by mechanical or contact wear |                   |                        |
| Body + Head dimensions (mm) W x D x H                      |                                       | 43,5 x 51 x 205 mm                                                                          |                   |                        |
| Resistance to forcible withdrawal of actuator              |                                       | 3 000 N                                                                                     |                   |                        |
| Locking                                                    |                                       | on de-energization (1)                                                                      |                   | on de-energization (1) |
| Push button with or without key no. 455 to release         |                                       | Without                                                                                     |                   | With                   |
| Supply voltage for the solenoid and the LEDs (5)           |                                       | 24VAC/DC                                                                                    |                   |                        |
| Material case                                              |                                       | Zamak                                                                                       |                   |                        |
| Connection (2)                                             |                                       | 3 x ISO M20                                                                                 | Connector M23 (4) | 3 x ISO M20            |
| Safety contacts                                            | 1NC+2NO break before make, slow break | XCSLF3535412 →                                                                              | XCSLF353541M3 →   | XCSLF3535612 →         |
|                                                            | 2NC+1NO break before make, slow break | XCSLF3737412 →                                                                              | XCSLF373741M3 →   | XCSLF3737612 →         |

(1) For locking on energisation of solenoid, please refer to [www.tesensors.com](http://www.tesensors.com)

(2) To order a switch with 3 1/2" NPT cable entries, replace the last number in the reference by 3. Example: XCSLF3535312 becomes **XCSLF3535313**. Some 1/2" NPT references may not be available.

(3) Using an appropriate and correctly connected safety control unit.

(4) Connector M23, 19 pins

(5) For 120V~ and 240V~ solenoid supply voltages, please refer to [www.tesensors.com](http://www.tesensors.com)

## Accessories



Straight actuator



Wide actuator



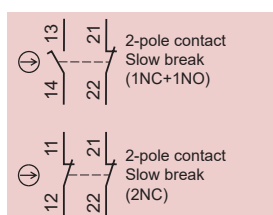
Pivoting actuator



| For safety switches XCSA/B/C/LE/LF | Actuators |        |        | Door lock |
|------------------------------------|-----------|--------|--------|-----------|
| References                         | XCSZ01    | XCSZ02 | XCSZ03 | XCSZ05    |

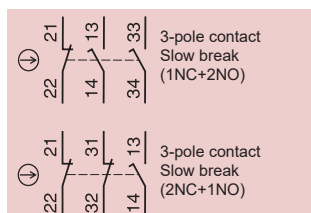
# Safety switches

## with rotary lever or spindle

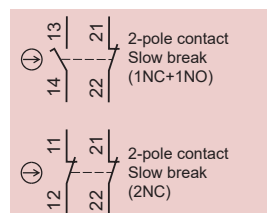


Stainless steel, elbowed (flush with rear of switch) lever      Stainless steel straight lever

| Plastic switches (lever-operated)                                  |                                       | XCSP                                                                                          |               |                |                        |               |
|--------------------------------------------------------------------|---------------------------------------|-----------------------------------------------------------------------------------------------|---------------|----------------|------------------------|---------------|
|                                                                    |                                       | 1 x ISO M16 cable entry (1) (2) (4)                                                           |               |                |                        |               |
| Maximum safety level (3)                                           |                                       | PL=e, category 4 conforming to EN/ISO 13849-1 and SIL CL3 conforming to EN/IEC 62061          |               |                |                        |               |
| Minimum torque (actuation / positive opening)                      |                                       | 0,1 / 0,25 N.m                                                                                |               |                |                        |               |
| Degree of protection                                               |                                       | IP67                                                                                          |               |                |                        |               |
| Rated operational characteristics (conforming to EN/IEC 60947-5-1) |                                       | AC 15, A 300 / DC 13, Q 300                                                                   |               |                |                        |               |
| Dimensions (body + head) W x D x H                                 |                                       | 30 x 30 x 160 mm                                                                              |               |                |                        |               |
| Lever position                                                     |                                       | Lever to left                                                                                 | Lever centred | Lever to right | Lever to left or right | Lever centred |
| Tripping angle                                                     |                                       | 5°                                                                                            |               |                |                        |               |
| Reliability data B <sub>10d</sub>                                  |                                       | 5 000 000 (value given for a service life of 20 years, limited by mechanical or contact wear) |               |                |                        |               |
| Complete switch                                                    | 1NC+1NO break before make, slow break | XCSP592 →                                                                                     | XCSP582 →     | XCSP572 →      | XCSP562 →              | XCSP552 →     |
|                                                                    | 2NC slow break                        | XCSP792 →                                                                                     | XCSP782 →     | XCSP772 →      | XCSP762 →              | XCSP752 →     |
|                                                                    | 1NC+2NO slow break                    | —                                                                                             | —             | —              | XCSP862 →              | —             |
|                                                                    | 2NC+1NO slow break                    | —                                                                                             | —             | —              | XCSP962 →              | —             |



Stainless steel spindle  
30 mm length



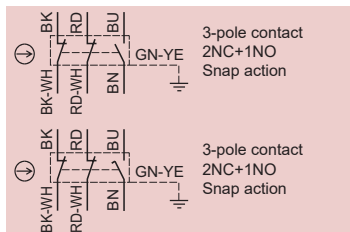
Stainless steel spindle  
30 mm length

| Plastic switches (spindle-operated)                                |                                       | XCSTR                                                                                         |  | XCSPR           |  |
|--------------------------------------------------------------------|---------------------------------------|-----------------------------------------------------------------------------------------------|--|-----------------|--|
|                                                                    |                                       | 2 x ISO M16 cable entries (1) (2) (4)                                                         |  |                 |  |
| Maximum safety level (3)                                           |                                       | PL=e, category 4 conforming to EN/ISO 13849-1 and SIL CL3 conforming to EN/IEC 62061          |  |                 |  |
| Minimum torque (actuation / positive opening)                      |                                       | 0,1 / 0,45 N.m                                                                                |  | 0,1 / 0,25 N.m  |  |
| Degree of protection                                               |                                       | IP67                                                                                          |  |                 |  |
| Rated operational characteristics (conforming to EN/IEC 60947-5-1) |                                       | AC 15, A 300 / DC 13, Q 300                                                                   |  |                 |  |
| Dimensions (body + head) W x P x H                                 |                                       | 52 x 30 x 117 mm                                                                              |  | 30 x 30 x 96 mm |  |
| Tripping angle                                                     |                                       | 5°                                                                                            |  |                 |  |
| Reliability data B <sub>10d</sub>                                  |                                       | 5 000 000 (value given for a service life of 20 years, limited by mechanical or contact wear) |  |                 |  |
| Complete switch                                                    | 1NC+2NO break before make, slow break | XCSTR552 →                                                                                    |  | —               |  |
|                                                                    | 2NC+1NO break before make, slow break | XCSTR752 →                                                                                    |  | —               |  |
|                                                                    | 1NC+1NO break before make, slow break | —                                                                                             |  | XCSPR552 →      |  |
|                                                                    | 2NC slow break                        | —                                                                                             |  | XCSPR752 →      |  |
|                                                                    | 2NC+1NO slow break                    | —                                                                                             |  | XCSPR952 →      |  |

- (1) With entry for Pg 11 cable gland, replace the last digit in the reference by 1 (Example: XCSP592 becomes **XCSP591**). Some Pg11 references may not be available.  
 (2) For entry for ISO M20 cable gland, also order adaptor DE9RA1620 (sold in lots of 5).  
 (3) Using an appropriate and correctly connected safety control unit.  
 (4) With entry for 1/2" NPT conduit, replace the last digit in the reference by 3 (Example: XCSP592 becomes **XCSP593**). Some 1/2" NPT references may not be available.

# Limit switches

## Safety limit switches



Metal  
end plunger

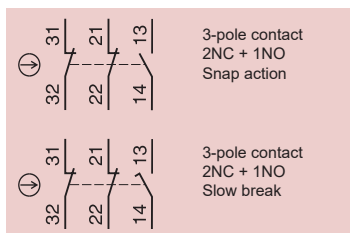


Roller plunger



Thermoplastic  
roller lever

| Miniatures switches                                    | Type XCSM metal<br>cable length = 1 m (1)                                                      |                    |                    |
|--------------------------------------------------------|------------------------------------------------------------------------------------------------|--------------------|--------------------|
| Maximum safety level (2)                               | PL=e, category 4 conforming to EN/ISO 13849-1 and SIL CL3 conforming to EN/IEC 62061           |                    |                    |
| Maximum actuation speed                                | 0,5 m/s                                                                                        | 0,5 m/s            | 1,5 m/s            |
| Minimum force or torque (actuation / positive opening) | 8,5 N / 42,5 N                                                                                 | 7 N / 35 N         | 0,5 N.m / 0,1 N.m  |
| Degree of protection                                   | IP66 + IP67 + IP68                                                                             | IP66 + IP67 + IP68 | IP66 + IP67 + IP68 |
| Dimensions (body + head) W x D x H                     | 30 x 16 x 60 mm                                                                                | 30 x 16 x 70,5 mm  | 30 x 32 x 92,5 mm  |
| Reliability data B <sub>10d</sub>                      | 50 000 000 (value given for a service life of 20 years, limited by mechanical or contact wear) |                    |                    |
| Complete switch                                        | 2NC+1NO snap action                                                                            | XCSM3910L1 →       | XCSM3902L1 →       |
|                                                        | 2NC+1NO slow break                                                                             | XCSM3710L1 →       | XCSM3702L1 →       |



Metal  
plunger



Roller  
plunger



Thermoplastic  
roller lever



Metal  
end plunger



Roller  
plunger



Thermoplastic  
roller lever

| Compact switches                                       |                     | Type XCSD metal<br>1 x ISO M20 x 1.5 cable entry (3) (4)                                       |                  |                  | Type XCSP, plastic<br>1 x ISO M20 x 1.5 cable entry (2) (3) (4) |                  |                  |
|--------------------------------------------------------|---------------------|------------------------------------------------------------------------------------------------|------------------|------------------|-----------------------------------------------------------------|------------------|------------------|
| Maximum safety level (2)                               |                     | PL=e, category 4 conforming to EN/ISO 13849-1 and SIL CL3 conforming to EN/IEC 62061           |                  |                  |                                                                 |                  |                  |
| Maximum actuation speed                                |                     | 0,5 m/s                                                                                        |                  | 1,5 m/s          | 0,5 m/s                                                         |                  | 1,5 m/s          |
| Minimum force or torque (actuation / positive opening) |                     | 15 N / 45 N                                                                                    | 12 N / 36 N      | 10 N.m / 0,1 N.m | 15 N / 45 N                                                     | 12 N / 36 N      | 10 N.m / 0,1 N.m |
| Degree of protection                                   |                     | IP66 + IP67                                                                                    |                  |                  | IP66 + IP67                                                     |                  |                  |
| Dimensions (body + head) W x D x H (mm)                |                     | 34 x 34,5 x 89                                                                                 | 34 x 34,5 x 99,5 | 34 x 43 x 121,5  | 34 x 34,5 x 89                                                  | 34 x 34,5 x 99,5 | 34 x 43 x 121,5  |
| Reliability data B <sub>10d</sub>                      |                     | 50 000 000 (value given for a service life of 20 years, limited by mechanical or contact wear) |                  |                  |                                                                 |                  |                  |
| Complete switch                                        | 2NC+1NO snap action | XCSD3910P20                                                                                    | XCSD3902P20      | XCSD3918P20      | XCSP3910P20                                                     | XCSP3902P20      | XCSP3918P20      |
|                                                        | 2NC+1NO slow break  | XCSD3710P20                                                                                    | XCSD3702P20      | XCSD3718P20      | —                                                               | —                | —                |

(1) For a 2 m long cable, replace the last digit of the reference by 2 (example: XCSD3910L1 becomes **XCSD3910L2**).

For a 5 m long cable, replace the last digit of the reference by 5 (example: XCSD3910L1 becomes **XCSD3910L5**).

(2) Using an appropriate and correctly connected safety control unit.

(3) To order a switch with 1/2" NPT cable entry, replace P20 with N12. Example: XCSD3910P20 becomes **XCSD3910N12**. Some 1/2" NPT references may not be available.

(4) To order a switch with Pg13.5 cable entry, replace P20 with G13. Example: XCSD3702P20 becomes **XCSD3702G13**. Some Pg 13.5 references may not be available.

# RFID Technology

## RFID Safety contact-less switch XCSR



New



| Type                                                                                     | Standalone                                                                        | For series connection<br>(Daisy-chain) (2) (3)                          | For point-to-point<br>connection (Single) |
|------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------|-------------------------------------------|
| Maximum safety level                                                                     | PL=e, category4 conforming to EN/ISO 13849-1 and SIL 3 conforming to EN/IEC 61508 |                                                                         |                                           |
|                                                                                          | Possible functioning without association with a safety control unit               | Functioning in combination with a safety control unit PL=e/Cat4 - SIL 3 |                                           |
| Coding level (conforming to ISO 14119)                                                   | High level (Unique code) (for every model)                                        |                                                                         |                                           |
| Contactors monitoring (EDM) / Start-Restart                                              | embedded                                                                          | Safety control unit management                                          |                                           |
| Degree of protection                                                                     | IP65, IP66, IP67 and IP69K - Ecolab                                               |                                                                         |                                           |
| Outputs Safety OSSDs - maximum current                                                   | 400 mA                                                                            | 200 mA                                                                  |                                           |
| Rated operational characteristics                                                        | Ue=24Vdc - 20%...+1%, Ie=60mA                                                     |                                                                         |                                           |
| Dimensions (mm) W x H x D (Transponder)                                                  | 50 x 15 x 15 mm                                                                   |                                                                         |                                           |
| Dimensions L x P x H (Reader)                                                            | 108,3 x 30 x 15 mm                                                                | 118,6 x 30 x 15 mm                                                      | 108,3 x 30 x 15 mm                        |
| Assured operating sensing distance (Sao) (4)                                             | 10 mm                                                                             |                                                                         |                                           |
| Assured release sensing distance (Sar) (4)                                               | 35 mm                                                                             |                                                                         |                                           |
| Reliability data (PFH <sub>p</sub> /TM)                                                  | 5.10 <sup>-10</sup> / 20 year                                                     |                                                                         |                                           |
| Connection                                                                               | Connector M12 male 8-pins                                                         | 2 connectors M12 males 5-pins                                           | Connector M12 male 5-pins                 |
| References                                                                               |                                                                                   |                                                                         |                                           |
| Transponder + Reader matched in factory - Single matching - Start automatique + EDM      | XCSRC11AM12 (1)                                                                   | XCSRC12M12 (1)                                                          | XCSRC10M12 (1)                            |
| Transponder + Reader matched in factory - Single matching - Start manual monitored + EDM | XCSRC11MM12 (1)                                                                   |                                                                         |                                           |
| Transponder + Reader matched in factory - Single matching                                |                                                                                   |                                                                         |                                           |

(1) For the versions allowing a new pairing (maximum 2 new pairings) of a blank transponder XCSRK2A3, replace the first reference digit '1' by '3'

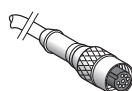
For example, reference XCSRC10M12 becomes **XCSRC30M12**

As soon as a blank transponder has been paired, the former transponder is no longer valid. A blank transponder can be matched only once

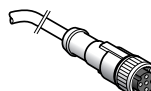
(2) The using of the serial diagnosis unit XCSR210MDB is optionnal but highly recommanded. This diagnosis unit provides and localizes the state of every XCSR sensors of the chain (open/close safe guard status, presence of errors, cabling issue, ...).

(3) The first sensor of serial connexion must be coupled with the loopback chain adaptator XCSRZE

(4) Sao: assured operating distance. Sar: assured release distance.



XZCP29P12Lpp



XZCP11V12Lp



XZCP12V12Lp

| Type                                    | Connection M12 - Pre-wired - for XCSR "Single" et "Daisy-chain" (1)<br>XCSRC10M12 - XCSRC30M12 - XCSRC12M12 (1) and XCSRC32M12 (1) |              |              |              |
|-----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|--------------|--------------|--------------|
| Pre-wired length (cable material : PUR) | 2 m                                                                                                                                | 5 m          | 10 m         | 20 m         |
| Connector M12<br>5-pins Female          | Straight - Pre-wired                                                                                                               | XZCP11V12L2  | XZCP11V12L5  | XZCP11V12L10 |
|                                         | 90° - Pre-wired                                                                                                                    | XZCP12V12L2  | XZCP12V12L5  | XZCP12V12L10 |
|                                         |                                                                                                                                    | XZCP11V12L20 | XZCP12V12L20 |              |

| Type                                    | Connection M12 - Pre-wired - for XCSR "Standalone"<br>XCSRC11AM12 - XCSRC31AM12 - XCSRC11MM12 and XCSRC31M12 |              |              |              |
|-----------------------------------------|--------------------------------------------------------------------------------------------------------------|--------------|--------------|--------------|
| Pre-wired length (cable material : PUR) | 2 m                                                                                                          | 5 m          | 10 m         | 20 m         |
| Connector M12<br>8-pins Female          | Straight - Pre-wired                                                                                         | XZCP29P12L2  | XZCP29P12L5  | XZCP29P12L10 |
|                                         | 90° - Pre-wired                                                                                              | XZCP53P12L2  | XZCP53P12L5  | XZCP53P12L10 |
|                                         |                                                                                                              | XZCP29P12L20 | XZCP53P12L20 |              |

| Type                                       | Connection 2xM12 - Jumpers for XCSR "Daisy-chain"<br>XCSRC12M12 - XCSRC32M12 |                |               |               |                |
|--------------------------------------------|------------------------------------------------------------------------------|----------------|---------------|---------------|----------------|
| Pre-wired length (cable material : PUR)    | 0.3 m                                                                        | 3 m            | 5 m           | 10 m          | 25 m           |
| 2 connectors Straight female M12<br>5-pins | Pre-cabled for serial link directly<br>between the sensors                   | XZCR1111064D03 | XZCR1111064D3 | XZCR1111064D5 | XZCR1111064D10 |
|                                            |                                                                              | XZCR1111064D25 |               |               |                |

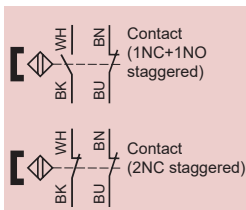
(1) For the connection of the last safety switch of the chain (XCSRC12M12 or XCSRC32M12) to the safety control unit

# Coded magnetic technology

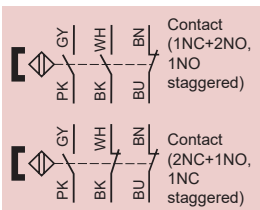
## Plastic coded magnetic switches



(1)



(1)



Rectangular Without LED (2)



Rectangular Without LED (2)



Cylindrical Without LED (2)



Rectangular Without LED (2)



Rectangular Without LED (2)



Cylindrical Without LED (2)

| Plastic switches                                                   |                        | Type XCSDM coded magnetic                                                                      |                    |               | Pre-cabled L = 2 m                       |                    |                 | Connector on flying lead, L = 15 cm (3) |  |  |
|--------------------------------------------------------------------|------------------------|------------------------------------------------------------------------------------------------|--------------------|---------------|------------------------------------------|--------------------|-----------------|-----------------------------------------|--|--|
| Maximum safety level (5)                                           |                        | PL=e, category4 conforming to EN/ISO 13849-1 et SIL 3 conforming to EN/IEC 61508               |                    |               |                                          |                    |                 |                                         |  |  |
| Switches for actuation                                             |                        | face to face, face to side, side to side                                                       |                    | face to face  | face to face, face to side, side to side |                    | face to face    |                                         |  |  |
| Degree of protection                                               |                        | IP66 + IP67 - Ecolab                                                                           |                    |               | IP66 + IP67 - Ecolab                     |                    |                 |                                         |  |  |
| Type of contact                                                    |                        | REED                                                                                           |                    |               | REED                                     |                    |                 |                                         |  |  |
| Rated operational characteristics (conforming to EN/IEC 60947-5-1) |                        | Ue = 24 VDC, Ie = 100 mA                                                                       |                    |               | Ue = 24 VDC, Ie = 100 mA                 |                    |                 |                                         |  |  |
| Dimensions W x D x H                                               |                        | 16 x 7 x 51 mm                                                                                 | 25 x 13 x 88 mm    | M30 x 38,5 mm | 16 x 7 x 51 mm                           | 25 x 13 x 88 mm    | M30 x 38.5 mm   |                                         |  |  |
| Operating zone (4)                                                 |                        | Sao = 5 / Sar = 15                                                                             | Sao = 8 / Sar = 20 |               | Sao = 5 / Sar = 15                       | Sao = 8 / Sar = 20 |                 |                                         |  |  |
| Reliability data B <sub>10d</sub>                                  |                        | 50 000 000 (value given for a service life of 20 years, limited by mechanical or contact wear) |                    |               |                                          |                    |                 |                                         |  |  |
| Switch with coded magnet                                           | 1NC+1NO staggered      | XCSDMC5902                                                                                     | XCSDMP5902         | XCSDMR5902    | XCSDMC590L01M8                           | XCSDMP590L01M12    | XCSDMR590L01M12 |                                         |  |  |
|                                                                    | 2NC staggered          | XCSDMC7902                                                                                     | XCSDMP7902         | XCSDMR7902    | XCSDMC790L01M8                           | XCSDMP790L01M12    | XCSDMR790L01M12 |                                         |  |  |
|                                                                    | 1NC+2NO, 1NO staggered | —                                                                                              | XCSDMP5002         | —             | —                                        | XCSDMP500L01M12    | —               |                                         |  |  |
|                                                                    | 2NC+1NO, 1NC staggered | —                                                                                              | XCSDMP7002         | —             | —                                        | XCSDMP700L01M12    | —               |                                         |  |  |

(1) Illustration of contacts with the magnet in front of the switch.

(2) For version with LED indicator, replace the last 0 in the reference by 1 (example: XCSDMC5902 becomes **XCSDMC5912**).

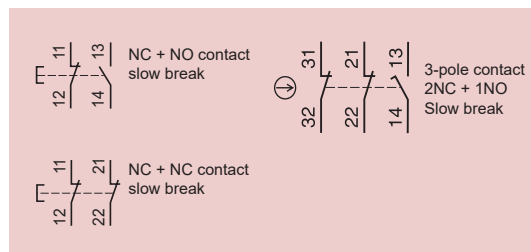
(3) For associated pre-wired female connectors, please refer to the "Safety switches - XCS range" catalogue.

(4) Sao: assured operating distance. Sar: assured release distance.

(5) Using an appropriate and correctly connected safety control unit

## Emergency stops

### Emergency stop rope pull switches



| For operating cable length < 20 - 30m |                        | Without indicator light                                                                     |                  |                  |
|---------------------------------------|------------------------|---------------------------------------------------------------------------------------------|------------------|------------------|
|                                       |                        | Pg 13.5 threaded cable entry                                                                |                  |                  |
| Maximum safety level (2)              |                        | PL=e, category 4 conforming to EN/ISO 13849-1 and SIL3 conforming to EN/IEC 61508           |                  |                  |
| Mechanical life                       |                        | 100 000 cycles                                                                              |                  |                  |
| Shock / vibration resistance          |                        | 50 gn / 10 gn                                                                               |                  |                  |
| Degree of protection                  |                        | IP66 and IP67                                                                               |                  |                  |
| Conformity to standards               |                        | EN/IEC 60947-5-5, EN/ISO 13850, UL (NiSD) - CSA, CCC                                        |                  |                  |
| Dimensions W x D x H                  |                        | 200.9 x 40 x 64.2 mm                                                                        |                  |                  |
| Operating cable length                |                        | < 20 m                                                                                      | < 30 m           |                  |
| Operating cable anchoring point       |                        | Straight                                                                                    | right side       | left side        |
| Reliability data B <sub>10d</sub>     |                        | 500 000 (value given for a service life of 20 years, limited by mechanical or contact wear) |                  |                  |
| Contact                               | 1 NC + 1 NO slow break | XY2CJS15 (4)                                                                                | XY2CJR15 (4)     | XY2CJL15 (4)     |
|                                       | 1 NC + 1 NC slow break | XY2CJS17 (4)                                                                                | XY2CJR17 (4)     | XY2CJL17 (4)     |
|                                       | 2 NC + 1 NO slow break | XY2CJS19 (4) (5)                                                                            | XY2CJR19 (4) (5) | XY2CJL19 (4) (5) |

(2) Using an appropriate and correctly connected safety control unit. (4) For ISO M20 threaded cable entry version, add H29 to the end of the reference selected. Example: XY2CJS15 becomes **XY2CJS15H29**. (5) For 1/2" NPT threaded cable entry version, add H7 to the end of the reference selected. Example: XY2CJS19 becomes **XY2CJS19H7**.

# Emergency stops

## Emergency stop rope pull switches



Booted pushbutton reset



Key release pushbutton reset (key n° 421)



| For operating cable length ≤ 30 m |                        | Simple anchor, without indicator light<br>3 entries of pre-cabled Pg13.5 (4)(5)               |                    | with indicator light |
|-----------------------------------|------------------------|-----------------------------------------------------------------------------------------------|--------------------|----------------------|
| Maximum safety level (2)          |                        | PL=e, category 4 conforming to EN/ISO 13849-1 and SIL 3 conforming to EN/IEC 61508            |                    |                      |
| Mechanical life                   |                        | 800 000 cycles                                                                                |                    |                      |
| Shock / vibration resistance      |                        | 50 gn / 10 gn                                                                                 |                    |                      |
| Degree of protection              |                        | IP65                                                                                          |                    |                      |
| Conformity to standards           |                        | EN/IEC 60947-5-5, EN/ISO 13850, UL NISD and CSA C 22-2 n° 14 (with suffix H7)                 |                    |                      |
| Dimensions W x D x H              |                        | 201 x 71 x 68 mm                                                                              |                    |                      |
| Operating cable length            |                        | ≤ 30 m                                                                                        |                    |                      |
| Operating cable anchoring point   |                        | To right or to left                                                                           |                    |                      |
| Reliability data B <sub>10d</sub> |                        | 4 000 000 (value given for a service life of 20 years, limited by mechanical or contact wear) |                    |                      |
| Contact                           | 1 NC + 1 NO slow break | XY2CH13250 (4) (5)                                                                            | XY2CH13450 (4) (5) | XY2CH13253 (4)       |
|                                   | 1 NC + 1 NC slow break | XY2CH13270 (4) (5)                                                                            | XY2CH13470 (4) (5) | XY2CH13273           |
|                                   | 2 NC + 1 NO slow break | XY2CH13290 (4) (5)                                                                            | —                  | XY2CH13293 (4)       |



Booted pushbutton reset



Key release pushbutton reset (key n° 421)

| For operating cable length ≤ 70 m |                        | Simple anchor, without indicator light<br>3 plain holes with Pg13,5 or ISO M20 cable entries (3)(5) |                    |                |                |
|-----------------------------------|------------------------|-----------------------------------------------------------------------------------------------------|--------------------|----------------|----------------|
| Maximum safety level (2)          |                        | PL=e, category 4 conforming to EN/ISO 13849-1 and SIL 3 conforming to EN/IEC 61508                  |                    |                |                |
| Mechanical life                   |                        | 60 000 cycles                                                                                       |                    |                |                |
| Shock / vibration resistance      |                        | 50 gn / 10 gn                                                                                       |                    |                |                |
| Degree of protection              |                        | IP66                                                                                                |                    |                |                |
| Conformity to standards           |                        | EN/IEC 60947-5-5, EN/ISO 13850, UL NISD and CSA C 22-2 n° 14 (with suffix H7)                       |                    |                |                |
| Dimensions W x D x H              |                        | 229 x 82 x 142 mm                                                                                   |                    |                |                |
| Pre-cabled length                 |                        | ≤ 70 m                                                                                              |                    |                |                |
| Operating cable anchoring point   |                        | To left                                                                                             | To right           | To left        | To right       |
| Reliability data B <sub>10d</sub> |                        | 300 000 (value given for a service life of 20 years, limited by mechanical or contact wear)         |                    |                |                |
| Contact                           | 1 NC + 1 NO slow break | XY2CE2A250 (5)                                                                                      | XY2CE1A250 (5)     | XY2CE2A450 (5) | XY2CE1A450     |
|                                   | 1 NC + 1 NC slow break | XY2CE2A270 (5)                                                                                      | XY2CE1A270 (5)     | XY2CE2A470     | XY2CE1A470     |
|                                   | 2 NC + 2 NO slow break | XY2CE2A290 (3) (5)                                                                                  | XY2CE1A290 (3) (5) | XY2CE2A490 (3) | XY2CE1A490 (3) |



Booted pushbutton reset



Key release pushbutton reset (key n° 455)

| For pre-cabled length ≤ 2X100 m   |                        | Double latching, without indicator lights<br>3 entries of pre-cabled ISO M20 or cable gland 13 (Pg13,5) (3) (5) |                |                |            |
|-----------------------------------|------------------------|-----------------------------------------------------------------------------------------------------------------|----------------|----------------|------------|
| Maximum safety level (2)          |                        | PL=e, category 4 conforming to EN/ISO 13849-1 and SIL 3 conforming to EN/IEC 61508                              |                |                |            |
| Mechanical life                   |                        | 60 000 cycles                                                                                                   |                |                |            |
| Shock / vibration resistance      |                        | 50 gn / 10 gn                                                                                                   |                |                |            |
| Degree of protection              |                        | IP66                                                                                                            |                |                |            |
| Conformity to standards           |                        | EN/IEC 60947-5-5, EN/ISO 13850, UL NISD and CSA C 22-2 n° 14 (with suffix H7)                                   |                |                |            |
| Dimensions W x D x H              |                        | 327.4 x 82 x 142 mm                                                                                             |                |                |            |
| Pre-cabled length                 |                        | ≥ 2 x 35 m et ≤ 2 x 100 m                                                                                       |                |                |            |
| Bellows matter                    |                        | Nitrile                                                                                                         | Silicone       | Nitrile        | Silicone   |
| Reliability data B <sub>10d</sub> |                        | 300 000 (value given for a service life of 20 years, limited by mechanical or contact wear)                     |                |                |            |
| Contact                           | 2 NC + 2 NO slow break | XY2CEDA290 (3) (5)                                                                                              | XY2CEDC290 (3) | XY2CEDA590 (3) | XY2CEDC590 |

(2) Use an appropriated and well connected control system

(3) With protected LED, supply voltage light 24 V or 130 V, add 6 at the end of the reference (Example: XY2CE1A290 becomes **XY2CE1A296**). / With DEL protected, Supply voltage indicator 230 V, add 7 at the end of the reference (Example: : XY2CE1A290 becomes **XY2CE1A297**)

(4) For the threaded entry cable version ISO M20, add H29 at the end of the reference. Example: : XY2CH13250 becomes **XY2CH13250H29**.

(5) For the threaded entry cable version 1/2" NPT, add H7 at the end of the reference. Example: : XY2CE2A250 becomes **XY2CE2A250H7**

## Accessories

| Mounting kits | XY2CJ         | XY2CH         | XY2CE         | XY2CED         |
|---------------|---------------|---------------|---------------|----------------|
| References    | XY2CZ9425 (1) | XY2CZ9330 (2) | XY2CZ9570 (3) | XY2CZ96200 (4) |

(1) Kit contents: 1 galvanised cable L:30.5 (Ø 3.2 mm), quick tensioner, cable supports, and end spring.

(2) Kit contents: 1 galvanised cable L: 30.5 m (Ø 3.2 mm) and end spring.

(3) Kit contents: 1 galvanised cable L: 70.5 m (Ø 5 mm), turnbuckle, cable supports, cable end protectors and end spring.

(4) Kit contents: 2 galvanised cables L: 100.5m (D 5mm) and quick tensioners.

# Light curtains

## Type 2 conforming to IEC 61496-1 & IEC 61496-2

### Main features

Automatic or Manual Start/Restart selectable by wiring  
 External Device Monitoring (EDM) selectable by wiring  
 Two maximum Sensing Distance selectable by wiring  
 Test function (beam blocked state simulation)  
 Led indicators for status and diagnosis  
 Muting possible with dedicated Safety module XPSLCMUT1160  
 2 outputs solid-state PNP OSSD (\*)  
 (NO when the sensing area is occupied)  
 (\*) Output Signal Switching Devices



|                                                                          |               |                                          |                           |
|--------------------------------------------------------------------------|---------------|------------------------------------------|---------------------------|
| Maximum safety level achieved by the solution<br>EN ISO 13849-1 (3)      |               | PLc/cat2                                 |                           |
| Maximum safety level achieved by the solution<br>IEC 61508/IEC 62061 (3) |               | SIL 1/SILCL1                             |                           |
| Type<br>IEC 61496-1 & IEC 61496-2                                        |               | Type 2 Multi-beam, infrared transmission |                           |
| Nominal sensing distance (Sn)                                            |               | 0...4 m or 0...12 m selectable           |                           |
| Resolution (detection capability)                                        |               | 30 mm (Hand detection)                   | 2-3 or 4 (Body Detection) |
| Number of safety outputs                                                 |               | 2 solid-state PNP                        |                           |
| Response time (depending on model)                                       |               | 4.5...22.5 ms                            | 3...3.5 ms                |
| Operating temperature range                                              |               | -30°C...+55°C                            |                           |
| Degree of protection (1)                                                 |               | IP65 - IP67                              |                           |
| Connection                                                               |               | M12 Connector                            |                           |
| Reliability data                                                         |               | PFHd = 2.04E-8 to 8.98E-8                | PFHd = 1.71E-8 to 2.02E-8 |
| Mission time                                                             |               | TM = 20 year                             |                           |
| Height protected (mm)                                                    | 160           | XUSL2E30H016N                            | —                         |
|                                                                          | 260           | XUSL2E30H026N                            | —                         |
|                                                                          | 310           | XUSL2E30H031N                            | —                         |
|                                                                          | 460           | XUSL2E30H046N                            | —                         |
|                                                                          | 510 - 2 beams | —                                        | XUSL2E2BB051N             |
|                                                                          | 610           | XUSL2E30H061N                            | —                         |
|                                                                          | 760           | XUSL2E30H076N                            | —                         |
|                                                                          | 810 - 3 beams | —                                        | XUSL2E3BB081N             |
|                                                                          | 910           | XUSL2E30H091N                            | —                         |
|                                                                          | 910 - 4 beams | —                                        | XUSL2E4BB091N             |
|                                                                          | 1060          | XUSL2E30H106N                            | —                         |
|                                                                          | 1210          | XUSL2E30H121N                            | —                         |
|                                                                          | 1360          | XUSL2E30H136N                            | —                         |
|                                                                          | 1510          | XUSL2E30H151N                            | —                         |
|                                                                          | 1660          | XUSL2E30H166N                            | —                         |
|                                                                          | 1810          | XUSL2E30H181N                            | —                         |

## Type 2 conforming to IEC 61496-1 and 2

### Light curtain functions

Auto/Manual  
 Monitoring of external switching devices  
 (EDM: External Devices Monitoring),  
 LED display of operating modes  
 Integral muting function.



|                                                                                 |                    |                                                                                                                |                   |
|---------------------------------------------------------------------------------|--------------------|----------------------------------------------------------------------------------------------------------------|-------------------|
| Maximum safety level achieved by the solution<br>(EN/ISO 13849-1, EN/IEC 62061) |                    | PLc/cat2, SILCL1 (For use with XPSCM1144* - See p70)                                                           |                   |
| Type                                                                            |                    | Single-beam with infrared emission                                                                             |                   |
| Height protected (conforming to prEN 999)                                       |                    | up to 1200 mm (1 to 4 beams)                                                                                   |                   |
| Nominal sensing distance (Sn)                                                   |                    | 8 m                                                                                                            |                   |
| Number of circuits                                                              | Safety             | 2"F"                                                                                                           |                   |
|                                                                                 | Additional         | 4 solid-state                                                                                                  |                   |
| Response time                                                                   |                    | < 25 ms                                                                                                        |                   |
| Reliability data                                                                |                    | PFHd = 4.6E -7 conforming to EN/IEC 61508<br>PFHd = 5.5E -7 conforming to EN/IEC 61508, with function "muting" |                   |
| Thru-beam pairs,<br>axially aligned                                             | Pre-cabled L = 5 m | PNP                                                                                                            | XU2S18PP340L5 (2) |
|                                                                                 | M12 connector      | PNP                                                                                                            | XU2S18PP340D (2)  |

(1) Also exists in IP69k model, ECOLAB certified.

(2) For viewfinding to 90°, add W in the reference. Example XU2S18PP340L5 becomes **XU2S18PP340WL5**

(3) Achievable in standalone operation (without safety control unit).

# Light curtains

## Type 4 conforming to IEC 61496-1 & IEC 61496-2

### Main features

- Automatic or Manual Start/Restart selectable by wiring
- External Device Monitoring (EDM) selectable by wiring
- Two maximum Sensing Distance selectable by wiring
- Test function (beam blocked state simulation)
- Led indicators for status and diagnosis
- Muting possible with dedicated Safety module XPSLCMUT1160
- Integrated muting function available on XUSL4M\* range (see p68)
- 2 outputs solid-state PNP OSSD (\*)
- (NO when the sensing area is occupied)
- (\*) Output Signal Switching Devices



|                                                                          |               |                                          |                                |                                 |
|--------------------------------------------------------------------------|---------------|------------------------------------------|--------------------------------|---------------------------------|
| Maximum Safety level achieved by the solution<br>EN ISO 13849-1 (2)      |               | PLe/cat4                                 |                                |                                 |
| Maximum Safety level achieved by the solution<br>IEC 61508/IEC 62061 (2) |               | SIL3/SILCL3                              |                                |                                 |
| Type<br>IEC 61496-1 & IEC 61496-2                                        |               | Type 4 Multi-beam, infrared transmission |                                |                                 |
| Nominal sensing distance (Sn)                                            |               | 0...3 m or 1...6 m selectable            | 0...4 m or 0...12 m selectable | 0...4 m or 0...12 m selectable  |
| Resolution (detection capability)                                        |               | 14 mm (Finger detection)                 | 30 mm (Hand detection)         | 2-3 or 4 beams (Body Detection) |
| Number of safety outputs                                                 |               | 2 solid-state PNP                        |                                |                                 |
| Response time (depending on model)                                       |               | 4...23.5 ms                              | 4...22 ms                      | 2.5...3 ms                      |
| Operating temperature range                                              |               | -20°C...+55°C                            | -30°C...+55°C                  |                                 |
| Degree of protection (1)                                                 |               | IP65 - IP67                              |                                |                                 |
| Connection                                                               |               | M12 Connector                            |                                |                                 |
| Reliability data (depending on model) conforming to EN/IEC 61508         |               | PFHd = 1.03E-8 to 3.71E-8                | PFHd = 7.08E-9 to 2.02E-8      | PFHd = 6.89E-9 to 8.21E-9       |
| Mission time                                                             |               | TM = 20 years                            |                                |                                 |
| Height protected (mm)                                                    | 160           | XUSL4E14F016N                            | XUSL4E30H016N                  | —                               |
|                                                                          | 260           | —                                        | XUSL4E30H026N                  | —                               |
|                                                                          | 310           | XUSL4E14F031N                            | XUSL4E30H031N                  | —                               |
|                                                                          | 460           | XUSL4E14F046N                            | XUSL4E30H046N                  | —                               |
|                                                                          | 510 - 2 beams | —                                        | —                              | XUSL4E2BB051N                   |
|                                                                          | 610           | XUSL4E14F061N                            | XUSL4E30H061N                  | —                               |
|                                                                          | 760           | XUSL4E14F076N                            | XUSL4E30H076N                  | —                               |
|                                                                          | 810 - 3 beams | —                                        | —                              | XUSL4E3BB081N                   |
|                                                                          | 910           | XUSL4E14F091N                            | XUSL4E30H091N                  | —                               |
|                                                                          | 910 - 4 beams | —                                        | —                              | XUSL4E4BB091N                   |
|                                                                          | 1060          | XUSL4E14F106N                            | XUSL4E30H106N                  | —                               |
|                                                                          | 1210          | XUSL4E14F121N                            | XUSL4E30H121N                  | —                               |
|                                                                          | 1360          | XUSL4E14F136N                            | XUSL4E30H136N                  | —                               |
|                                                                          | 1510          | XUSL4E14F151N                            | XUSL4E30H151N                  | —                               |
|                                                                          | 1660          | XUSL4E14F166N                            | XUSL4E30H166N                  | —                               |
|                                                                          | 1810          | XUSL4E14F181N                            | XUSL4E30H181N                  | —                               |

| Type                                                             |               | Long Range models<br>For hand and body protection |                                 |
|------------------------------------------------------------------|---------------|---------------------------------------------------|---------------------------------|
| Nominal sensing distance (Sn)                                    |               | 0...10 m or 3...20 m selectable                   | 0...10 m or 3...20 m selectable |
| Operating temperature range                                      |               | -20°C...+55°C                                     |                                 |
| Reliability data (depending on model) conforming to EN/IEC 61508 |               | PFHd = 9.13E-9 to 2.29E-8                         | PFHd = 9.15E-9 to 1.08E-8       |
| Mission time (conforming to modèle)                              |               | 3...13 ms                                         | 2.5 ms                          |
| Height protected (mm)                                            | 160           | XUSL4E30H016L                                     | –                               |
|                                                                  | 310           | XUSL4E30H031L                                     | –                               |
|                                                                  | 460           | XUSL4E30H046L                                     | –                               |
|                                                                  | 510 - 2 beams | –                                                 | XUSL4E2BB051L                   |
|                                                                  | 610           | XUSL4E30H061L                                     | –                               |
|                                                                  | 760           | XUSL4E30H076L                                     | –                               |
|                                                                  | 810 - 3 beams | –                                                 | XUSL4E3BB081L                   |
|                                                                  | 910           | XUSL4E30H091L                                     | –                               |
|                                                                  | 910 - 4 beams | –                                                 | XUSL4E4BB091L                   |
|                                                                  | 1060          | XUSL4E30H106L                                     | –                               |
|                                                                  | 1210          | XUSL4E30H121L                                     | –                               |
|                                                                  | 1360          | XUSL4E30H136L                                     | –                               |
|                                                                  | 1510          | XUSL4E30H151L                                     | –                               |
|                                                                  | 1660          | XUSL4E30H166L                                     | –                               |
|                                                                  | 1810          | XUSL4E30H181L                                     | –                               |

(1) Also exists in IP69K model, ECOLAB certified.

(2) Achievable in standalone operation (without safety control unit)

# Light curtains

## Type 4 conforming to IEC 61496-1 & IEC 61496-2

### Main features

- Automatic or Manual Start/Restart selectable by wiring
- External Device Monitoring (EDM) selectable by wiring
- Two maximum Sensing Distance selectable by wiring
- Test function (beam blocked state simulation)
- Led indicators for status and diagnosis
- Muting possible with dedicated Safety module (XPSLCMUT1160)
- 2 outputs solid-state PNP OSSD (\*)
- (NO when the sensing area is occupied)
- (\*) Output Signal Switching Devices



| Type                                                             |               | Cascadable models - Master Segments (2)                                                         |                                |                                 |
|------------------------------------------------------------------|---------------|-------------------------------------------------------------------------------------------------|--------------------------------|---------------------------------|
| Nominal sensing distance (Sn)                                    |               | 0...3 m or 1...6 m selectable                                                                   | 0...4 m or 0...12 m selectable | 0...4 m or 0...12 m selectable  |
| Resolution (detection capability)                                |               | 14 mm (Finger detection)                                                                        | 30 mm (Hand detection)         | 2-3 or 4 beams (Body Detection) |
| Number of circuits Safety                                        |               | 2 solid-state PNP                                                                               |                                |                                 |
| Response time                                                    |               | Depends on the number and the model of segments used. See the “User Manual” for the calculation |                                |                                 |
| Operating temperature range                                      |               | -20°C...+55°C                                                                                   | -30°C...+55°C                  |                                 |
| Degree of protection                                             |               | IP65 - IP67                                                                                     |                                |                                 |
| Connection                                                       |               | 2xM12 Connector                                                                                 |                                |                                 |
| Reliability data (depending on model) conforming to EN/IEC 61508 |               | PFHd = 1.27E-8 to 2E-8                                                                          | PFHd = 9.47E-9 to 1.43E-8      | PFHd = 6.89E-9 to 8.21E-9       |
| Mission time                                                     |               | TM = 20 years                                                                                   |                                |                                 |
| Height protected (mm) (1)                                        | 310           | XUSL4E14F031NM                                                                                  | –                              | –                               |
|                                                                  | 460           | XUSL4E14F046NM                                                                                  | XUSL4E30H046NM                 | –                               |
|                                                                  | 510 - 2 beams | –                                                                                               | –                              | XUSL4E2BB051NM                  |
|                                                                  | 610           | XUSL4E14F061NM                                                                                  | XUSL4E30H061NM                 | –                               |
|                                                                  | 760           | XUSL4E14F076NM                                                                                  | XUSL4E30H076NM                 | –                               |
|                                                                  | 810 - 3 beams | –                                                                                               | –                              | XUSL4E3BB081NM                  |
|                                                                  | 910           | –                                                                                               | XUSL4E30H091NM                 | –                               |
|                                                                  | 910 - 4 beams | –                                                                                               | –                              | XUSL4E4BB091NM                  |
|                                                                  | 1060          | –                                                                                               | XUSL4E30H106NM                 | –                               |

| Type                                                             |               | Cascadable models - Slave1 Segments (2)                                                          |                           |                           |
|------------------------------------------------------------------|---------------|--------------------------------------------------------------------------------------------------|---------------------------|---------------------------|
| Reliability data (depending on model) conforming to EN/IEC 61508 |               | PFHd = 1.27E-8 to 2E-8                                                                           | PFHd = 9.47E-9 to 1.43E-8 | PFHd = 6.89E-9 to 8.21E-9 |
| Response time                                                    |               | Depends on the number and the models of segments used. See the "User Manual" for the calculation |                           |                           |
| Connection                                                       |               | M12 Connector                                                                                    |                           |                           |
| Height protected (mm) (1)                                        | 310           | XUSL4E14F031NS1                                                                                  | –                         | –                         |
|                                                                  | 460           | XUSL4E14F046NS1                                                                                  | XUSL4E30H046NS1           | –                         |
|                                                                  | 510 - 2 beams | –                                                                                                | –                         | XUSL4E2BB051NS1           |
|                                                                  | 610           | XUSL4E14F061NS1                                                                                  | XUSL4E30H061NS1           | –                         |
|                                                                  | 760           | XUSL4E14F076NS1                                                                                  | XUSL4E30H076NS1           | –                         |
|                                                                  | 810 - 3 beams | –                                                                                                | –                         | XUSL4E3BB081NS1           |
|                                                                  | 910           | –                                                                                                | XUSL4E30H091NS1           | –                         |
|                                                                  | 910 - 4 beams | –                                                                                                | –                         | XUSL4E4BB091NS1           |
|                                                                  | 1060          | –                                                                                                | XUSL4E30H106NS1           | –                         |

| Type                                                             |               | Cascadable models - Slave2 Segments (2)                                                          |                           |                           |
|------------------------------------------------------------------|---------------|--------------------------------------------------------------------------------------------------|---------------------------|---------------------------|
| Reliability data (depending on model) conforming to EN/IEC 61508 |               | PFHd = 1.52E-8 to 2E-8                                                                           | PFHd = 9.47E-9 to 1.43E-8 | PFHd = 6.89E-9 to 8.21E-9 |
| Response time                                                    |               | Depends on the number and the models of segments used. See the "User Manual" for the calculation |                           |                           |
| Connection                                                       |               | 2xM12 Connector                                                                                  |                           |                           |
| Height protected (mm) (1)                                        | 310           | –                                                                                                | –                         | –                         |
|                                                                  | 460           | XUSL4E14F046NS2                                                                                  | XUSL4E30H046NS2           | –                         |
|                                                                  | 510 - 2 beams | –                                                                                                | –                         | XUSL4E2BB051NS2           |
|                                                                  | 610           | XUSL4E14F061NS2                                                                                  | XUSL4E30H061NS2           | –                         |
|                                                                  | 760           | XUSL4E14F076NS2                                                                                  | XUSL4E30H076NS2           | –                         |
|                                                                  | 810 - 3 beams | –                                                                                                | –                         | XUSL4E3BB081NS2           |
|                                                                  | 910           | –                                                                                                | XUSL4E30H091NS2           | –                         |
|                                                                  | 910 - 4 beams | –                                                                                                | –                         | XUSL4E4BB091NS2           |
|                                                                  | 1060          | –                                                                                                | XUSL4E30H106NS2           | –                         |

(1) Other heights available on request

(2) Cable sold separately, please refer to Page 47

# Light curtains

## Type 4 conforming to IEC 61496-1 & IEC 61496-2

### Main features

- Integrated muting function
- Automatic or Manual Start/Restart selectable by wiring
- External Device Monitoring (EDM) selectable by wiring
- Two maximum Sensing Distance selectable by wiring
- Test function (beam blocked state simulation)
- Led indicators for status and diagnosis
- 2 outputs solid-state PNP OSSD (\*)
- (NO when the sensing area is occupied)
- (\*) Output Signal Switching Devices

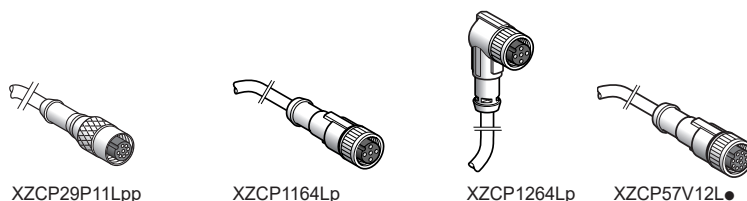


| Type                          |               | Integrated muting models (1)<br>For body protection (2)                                               |                             |
|-------------------------------|---------------|-------------------------------------------------------------------------------------------------------|-----------------------------|
| Nominal sensing distance (Sn) |               | 0...4 m or 0...12 m selectable                                                                        |                             |
| Operating temperature range   |               | -30°C...+55°C                                                                                         |                             |
| Package contents              |               | Hardware and software configuration (with SoMute software), partial muting and integrated muting lamp | Hardware configuration only |
| Height protected (mm)         | 510 - 2 beams | XUSL4MA2BB051N                                                                                        | XUSL4MB2BB051N              |
|                               | 810 - 3 beams | XUSL4MA3BB081N                                                                                        | XUSL4MB3BB081N              |
|                               | 910 - 4 beams | XUSL4MA4BB091N                                                                                        | XUSL4MB4BB091N              |

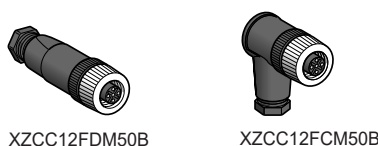
(1) Possible association with pre-built/pre-adjusted muting arms XUSZAS\* (single beam muting sensors) and XUSZAM\* (multi-beam muting sensors).

(2) For hand detection, some models are available in 30mm and 40mm resolutions, in different protected heights.

## Cabling accessories



| Type                         |                     |                      |                 |                 | M12 connector - Pre-wired |             |              |              |              |
|------------------------------|---------------------|----------------------|-----------------|-----------------|---------------------------|-------------|--------------|--------------|--------------|
| PUR cable length             |                     |                      |                 |                 | 2 m                       | 5 m         | 10 m         | 15 m         | 25 m         |
| M12 connector 5-pins Female  | XUSL2E* / 4E* / 4M* | Straight - Pre-wired | For transmitter |                 | XZCP1164L2                | XZCP1164L5  | XZCP1164L10  | XZCP1164L15  | XZCP1164L25  |
|                              |                     |                      |                 | 90° - Pre-wired | XZCP1264L2                | XZCP1264L5  | XZCP1264L10  | XZCP1264L15  | XZCP1264L25  |
| M12 connector 8-pins Female  | XUSL2E* / 4E*       | Straight - Pre-wired | For Receiver    |                 | XZCP29P11L2               | XZCP29P11L5 | XZCP29P11L10 | XZCP29P11L15 | XZCP29P11L25 |
|                              |                     |                      |                 | 90° - Pre-wired | XZCP53P11L2               | XZCP53P11L5 | XZCP53P11L10 | XZCP53P11L15 | XZCP53P11L25 |
| M12 connector 12-pins Female | XUSL4M*             | Straight - Pre-wired | For Receiver    |                 |                           | XZCP57V12L5 | XZCP57V12L10 | XZCP57V12L15 |              |

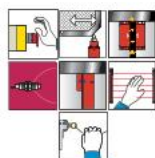


| Type                        |                                                 |                 |                                                      | M12 connector - with screw terminals |  |
|-----------------------------|-------------------------------------------------|-----------------|------------------------------------------------------|--------------------------------------|--|
| Cable length                |                                                 |                 |                                                      | 2 m                                  |  |
| M12 connector 5-pins Female | 90° - 5 poles with screw terminals- cable gland | For transmitter |                                                      | XZCC12FCM50B                         |  |
|                             |                                                 |                 | Straight - 5 poles with screw terminals- cable gland | XZCC12FDM50B                         |  |
| M12 connector 8-pins Female | 90° - 8 poles with screw terminals- cable gland | For Receiver    |                                                      | XZCC12FCM80B                         |  |
|                             |                                                 |                 | Straight - 8 poles with screw terminals- cable gland | XZCC12FDM80B                         |  |

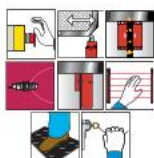
| Type                                                |                           | 2xM12 connectors - Jumpers |               |               |                |                |
|-----------------------------------------------------|---------------------------|----------------------------|---------------|---------------|----------------|----------------|
| PUR cable length                                    |                           | 0.3 m                      | 3 m           | 5 m           | 10 m           | 25 m           |
| 2 straight M12 - Female/Female connectors - 5 poles | For Master/Slave cascable | XZCR1111064D03             | XZCR1111064D3 | XZCR1111064D5 | XZCR1111064D10 | XZCR1111064D25 |

# Safety modules for monitoring

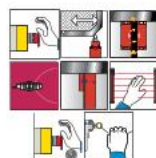
## Universal safety relays XPSU



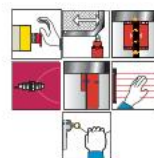
XPSUAF



XPSUAK



XPSUAT



XPSUDN



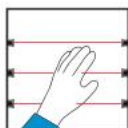
XPSUS

| Maximum achievable safety level     | PL e / Category 4 conforming to ISO 13849-1<br>SILCL3 conforming to IEC 62061<br>SIL3 conforming to IEC61508 |                                            |                                                                                                                                                                      |                                            |                         |
|-------------------------------------|--------------------------------------------------------------------------------------------------------------|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|-------------------------|
| Number of outputs                   | 3 NO<br>1 pulsed output                                                                                      | 2 NO<br>1 redundant NC,<br>1 pulsed output | 3 NO immediate<br>3 NO delayed (selectable from 0.1 s to 15 min.<br>by 10 steps of 0.1 s which can be multiplied<br>by 1, 10, 100, and 1,000) or immediate<br>+ 1 NC | 3 NO<br>1 redundant NC,<br>1 pulsed output | 2 NO<br>1 pulsed output |
| Display                             | 6 LEDS                                                                                                       | 6 LEDS                                     | 8 LEDS                                                                                                                                                               | 16 LEDS                                    | 6 LEDS                  |
| Supply voltage                      | 24 V AC/DC and 48-240 V AC/DC                                                                                |                                            |                                                                                                                                                                      |                                            |                         |
| Synchronization time between inputs | Selectable                                                                                                   |                                            |                                                                                                                                                                      |                                            |                         |
| Input channels                      | 2                                                                                                            | 2                                          | 3                                                                                                                                                                    | 12                                         | 4                       |
| Start input                         | Automatic, manual & monitored start                                                                          |                                            |                                                                                                                                                                      |                                            |                         |
| Control configurable pulsed outputs | 3 ON/OFF                                                                                                     |                                            | 4 ON/OFF                                                                                                                                                             | 7 ON/OFF                                   | 3 ON/OFF                |
| Module width                        | 22.5 mm/0.886 in.                                                                                            |                                            | 45 mm/1.77 in.                                                                                                                                                       | 45 mm/1.77 in.                             | 22.5 mm/0.886 in.       |

Complete references and other XPSU safety universal modules are available on [www.schneider-electric.com](http://www.schneider-electric.com)

# Safety relay for monitoring

## XU2S single beam Type 2 photoelectric sensors

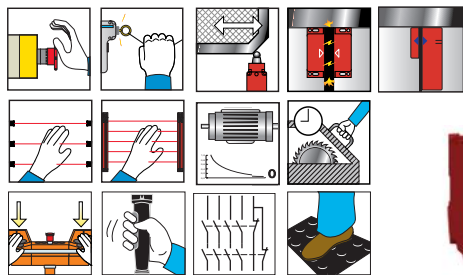


| Maximum safety level of the solution attained (EN/ISO 13849-1, EN/IEC 62061) |            | PL c / Cat. 2, SILCL 1 |
|------------------------------------------------------------------------------|------------|------------------------|
| Number of circuits                                                           | Safety     | 2"F"                   |
|                                                                              | Additional | 4 solid-state          |
| Display (number of LEDs)                                                     |            | 4                      |
| Width of housing                                                             |            | 45 mm                  |
| Integral Muting function                                                     |            | Yes                    |
| For utilisation with                                                         |            | XU2S18*                |
| Supply voltage                                                               | 24 VDC     | XPSCM1144P (1)         |

(1) For version with non removable terminal block, delete the letter P from the end of the reference (example: XPSCM1144P becomes **XPSCM1144**).

# Modules for monitoring

## Modular safety controller XPSMCM



| Maximum safety level reached by the solution | PL e / Cat. 4, SILCL 3 5 (EN/ISO 13849-1, EN/IEC 62061)                                                                                                                            |                                                                                                                                                                                    |                                                                                                                                                                                                                                                   |                                                                                                                                                                                       |                                                                                                                                                                                                                         | Without safety level                                                                                                                                                                                                 |
|----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Function                                     | Central Unit (CPU) (standalone) (2)                                                                                                                                                | Extension units input/output                                                                                                                                                       | Extension units Outputs Relay                                                                                                                                                                                                                     | Extension units speed control                                                                                                                                                         | Extension units Communication                                                                                                                                                                                           | Extension units communication bus                                                                                                                                                                                    |
| Case dimensions                              | 22,5 x 99 x 114,5                                                                                                                                                                  |                                                                                                                                                                                    |                                                                                                                                                                                                                                                   |                                                                                                                                                                                       |                                                                                                                                                                                                                         |                                                                                                                                                                                                                      |
| References                                   | XPSMCMCP0802 (1)                                                                                                                                                                   | XPSMCMMX                                                                                                                                                                           | XPSMCMER                                                                                                                                                                                                                                          | XPSMCMEN                                                                                                                                                                              | XPSMCMCO0000S                                                                                                                                                                                                           | XPSMCMCO0000                                                                                                                                                                                                         |
| Main characteristics                         | <ul style="list-style-type: none"> <li>- 8 digitals inputs</li> <li>- 2 OSSD pairs 400 mA</li> <li>- 4 Test outputs</li> <li>- 2 Status outputs</li> <li>- 2 EDM inputs</li> </ul> | <ul style="list-style-type: none"> <li>- 8 digitals inputs</li> <li>- 2 OSSD pairs 400 mA</li> <li>- 4 Test outputs</li> <li>- 2 Status outputs</li> <li>- 2 EDM inputs</li> </ul> | <ul style="list-style-type: none"> <li>- 2 or 4 Safety relay outputs 2NO + 1NC (without connection to the extension bus)</li> <li>- 1 or 2 EDM inputs</li> </ul>                                                                                  | <ul style="list-style-type: none"> <li>- 1 or 2 Inputs for coder (TTL or HTL or Sin/Cos) or 1 or 2 Inputs for proximity sensors</li> <li>- 2 Outputs digital configurables</li> </ul> | <ul style="list-style-type: none"> <li>- for connection XPSMCMCP0802 to remote modules (≤ 50 m)</li> <li>- creation to 6 islands, with full length of 250 m and maximum 50 m between 2 communication modules</li> </ul> | <ul style="list-style-type: none"> <li>- for data exchange and network systems diagnosis or field-bus</li> <li>- available interfaces (CAN open, Ethernet IP, Modbus RTU, Modbus TCP, Profibus DP et USB)</li> </ul> |
| References                                   | XPSMCMC10804 (1)                                                                                                                                                                   | XPSMCMCI                                                                                                                                                                           | XPSMCMRO                                                                                                                                                                                                                                          |                                                                                                                                                                                       |                                                                                                                                                                                                                         |                                                                                                                                                                                                                      |
| Main characteristics                         | <ul style="list-style-type: none"> <li>- 8 digital inputs</li> <li>- 4 OSSD pairs 400mA</li> <li>- 4 Test outputs</li> <li>- 4 EDM inputs</li> </ul>                               | <ul style="list-style-type: none"> <li>- 8 or 16 digital inputs</li> <li>- 4 Test outputs</li> </ul>                                                                               | <ul style="list-style-type: none"> <li>- 4 modules Safety relay outputs 2NO + 1NC (with onnection to the extension bus)</li> <li>- 4 Independent safety relay outputs and 4 EDM outputs corresponding</li> <li>- 0 or 8 Status outputs</li> </ul> |                                                                                                                                                                                       |                                                                                                                                                                                                                         |                                                                                                                                                                                                                      |
| References                                   |                                                                                                                                                                                    | XPSMCMDO                                                                                                                                                                           |                                                                                                                                                                                                                                                   |                                                                                                                                                                                       |                                                                                                                                                                                                                         |                                                                                                                                                                                                                      |
| Main characteristics                         | <ul style="list-style-type: none"> <li>- Compatible with Extension module XPSMCMCI0400, channels analogic input</li> </ul>                                                         | <ul style="list-style-type: none"> <li>- 2 or 4 OSSD pairs 400 mA</li> <li>- 2 or 4 Status outputs</li> <li>- 2 or 4 EDM inputs</li> </ul>                                         |                                                                                                                                                                                                                                                   |                                                                                                                                                                                       |                                                                                                                                                                                                                         |                                                                                                                                                                                                                      |

(1) Configuration, Programming, simulation and documentation by means of an intuitive software (SoSafe)

(2) Extension units available (input, output, relay, speed control, communication).

More information on [schneider-electric.com](http://schneider-electric.com)

Discover our full offer on  
[www.tesensors.com](http://www.tesensors.com)

## Schneider Electric

Head office  
35, rue Joseph Monier - CS 30323  
92500 Rueil-Malmaison Cedex  
France

[www.tesensors.com](http://www.tesensors.com)

The information provided in this documentation contains general descriptions and/or technical characteristics of the performance of the products contained herein. This documentation is not intended as a substitute for and is not to be used for determining suitability or reliability of these products for specific user applications. It is the duty of any such user or integrator to perform the appropriate and complete risk analysis, evaluation and testing of the products with respect to the relevant specific application or use thereof. Neither Schneider Electric nor any of its affiliates or subsidiaries shall be responsible or liable for misuse of the information contained herein.

Design : IGS-CP  
Photos : Schneider Electric