Zelio Control - measurement and control relays
REG temperature control relays

Size (mm) - Standard	24 x 48 – 1/32 DIN

Inputs	Thermocouple PT 100 probe - Voltage/current, depending on model

Sampling time	500 ms

Communication on Modbus bus	Yes, except for **REG 24PTP1A●HU**

Dust and watertight front panel	IP66 (conforming to NEMA-4X)	Yes

Functions	Hysteresis	Yes
	PID	Yes
	Auto-tuning	Yes
	Fuzzy logic	Yes
	Ramps	8 steps
	Controlled start-up	No
	Operating mode	Automatic

Alarm outputs	1 on **REG 24PTP1A●HU** only

Display	7 segment LED, 4 digits	1
	Operating indicators	4

Process Outputs (number - type)	1 relay	■
	2 relays	–
	1 solid state relay	■
	1 relay + 1 solid state relay	–
	1 current (4-20 mA)	■
	1 solid state relay + 1 current (4-20 mA)	–

Supply voltage	$\sim$ 100…240 V	**REG 24P●●●●HU**
	$\overline{\sim}$ 24 V	**REG 24P●●●●LU**

Temperature control relay type	**REG 24**

Page	12

48 x 48 – 1/16 DIN	96 x 48 – 1/8 DIN

Universal	Universal
200 ms	200 ms
Yes, except for **REG 48PUNL1●HU**	Yes, except for **REG 96PUNL1●HU**
Yes	Yes
Yes	Yes
Yes	Yes
Yes	Yes
Yes	Yes
16 steps	16 steps
Yes	Yes
Automatic and manual	Automatic and manual
2	3
2, red and green, configurable	2, red and green, configurable
5	6
▪	▪
▪	▪
▪	▪
▪	▪
▪	▪
▪	▪
REG 48PUN●●HU	**REG 96PUN●●HU**
REG 48PUN●●LU	**REG 96PUN●●LU**

REG 48	REG 96
12	12

Zelio Control - measurement and control relays
REG temperature control relays

24 x 48 mm size

48 x 48 mm size

96 x 48 mm size

Presentation

Product
The range of **REG** temperature control relays provides a solution with 3 product sizes (DIN standard):
□ 24 x 48 mm (1/32 DIN),
□ 48 x 48 mm (1/16 DIN),
□ 96 x 48 mm (1/8 DIN).

The range includes 40 models which offer the following characteristics (depending on model):
■ Supply voltage $\sim$ 100...240 V or $\overline{\sim}$ 24 V.
■ Input: Thermocouple PT 100 probe-Voltage/current or universal, depending on model.
■ Configurable display: red and green display colours and possibility of flashing display in the event of an alarm.
■ 1, 2 or 3 alarm outputs, depending on model.
■ Advanced functions, depending on model.

Operation
■ One or two dedicated outputs for heating, cooling or heating/cooling of processes based on PID algorithms.
■ Advanced functions:
□ ramps,
□ fuzzy logic to avoid over/under temperature,
□ auto-tuning,
□ controlled start-up, depending on model.
□ automatic or manual operating mode, depending on model.

Applications
REG temperature control relays are aimed at system integrators and machine manufacturers; they provide a solution for temperature control in the following applications: industrial machines, HVAC, packaging, textile industry.

Application examples:
■ Boilers and furnaces,
■ Extrusion lines,
■ Plastic and rubber injection presses,
■ Thermo-forming,
■ Production of synthetic fibres and polymerisation,
■ Food and drinks processing lines,
■ Moulding presses,
■ Environmental test chambers, overhead furnaces and test benches,
■ UV & Laser technologies,
■ Maintaining the temperature of a colour bath,
■ Cold rooms,
■ Paint booths,
■ Horticultural and livestock farms.

***ZelioControl Soft** software*
can be downloaded from www.schneider-electric.com

Software configuration
"**ZelioControl Soft**" software is used to configure the parameter settings of **REG** temperature control relays (except for REG 24PTP1A●HU).
■ This software is available free of charge and can be downloaded from the following web site: www.schneider-electric.com
■ It runs on a PC, with Windows 98, XP or Vista operating system.
■ It allows modification of parameter settings, saving and downloading of configurations.

# Zelio Control - measurement and control relays
REG temperature control relays

Description

24 x 48 size – 1/32 DIN standard

1 C1 : indicator showing output 1 ON.
2 SV : set-point value indicator; on = SV, off = PV present value indicator, if parameter entry
3 SEL : selector button.
4 Display of parameter value entered, 4 red digits, 10 mm high
5 UP (increment) arrow.
6 DOWN (decrement) arrow.
7 AL1 : relay output alarm on REG 24PTP1A●HU only.
8 AL2 : Modbus alarm.
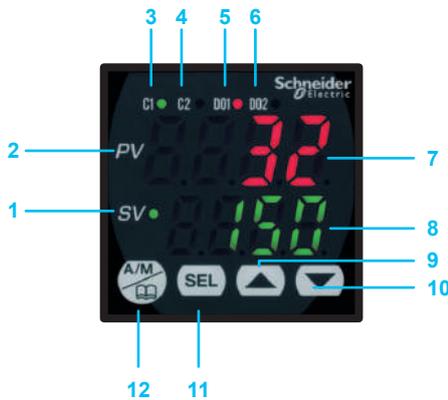
48 x 48 size – 1/16 DIN standard

1 SV : set-point value indicator.
2 PV : present value indicator.
3 C1 : indicator showing output 1 ON.
4 C2 : indicator showing output 2 ON.
5 D01 : Alarm 1 output ON.
6 D02 : Alarm 2 output ON.
7 Display of process value, 4 red digits, 12 mm high
8 Display of parameter value entered, 4 green digits, 10 mm high
9 UP (increment) arrow.
10 DOWN (decrement) arrow.
11 SEL : selector button.
12 A/M : automatic/manual mode or configuration key.

96 x 48 size – 1/8 DIN standard

1 SV : set-point value indicator.
2 PV : present value indicator.
3 C1: indicator showing output 1 ON.
4 C2 : indicator showing, output 2 ON.
5 D01 : Alarm 1 output ON.
6 D02 : Alarm 2 output ON.
7 D03 : Alarm 3 output ON.
8 Display of process value, 4 red digits, 12 mm high
9 Display of parameter value entered, 4 green digits, 10 mm high
10 UP (increment) arrow.
11 DOWN (decrement) arrow.
12 A/M : automatic/manual mode or configuration key.
13 SEL : selector button.

# Zelio Control - measurement and control relays
REG temperature control relays

Examples of architectures with communication on Modbus serial port

Control relays **REG 24**, **REG 48** and **REG 96** *(1)* have a communication port for data exchange and parameter entry on the Modbus bus.
These temperature control relays can be incorporated in intelligent architectures supervised by Magelis terminals or controlled by PLCs (Twido, M340 or Premium) for the exchange and transmission of data such as set-point values, present values and alarms.

REG temperature control relays supervised by a Magelis compact terminal
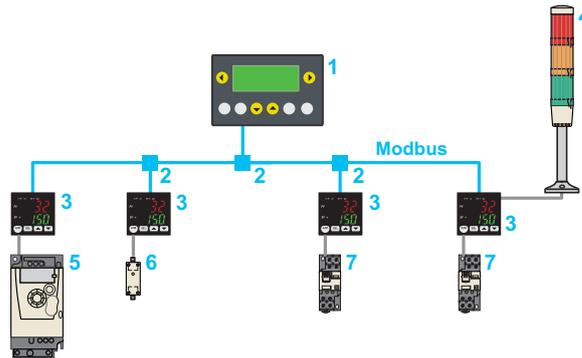
1 Compact terminal **XBT N**, master on the Modbus network.
2 Junction box **TWD XCATR3RJ**.
3 Temperature control relay **REG 24/48/96**.
4 Alarm: illuminated indicator bank **XVM** *(2)*.
5 Current output: variable speed drive **ATV 12H075M2** *(3)*.
6 Solid state relay output **SSR**.
7 Electromechanical relay output **RXM 2AB2●●**.

REG temperature control relays, controlled by PLCs
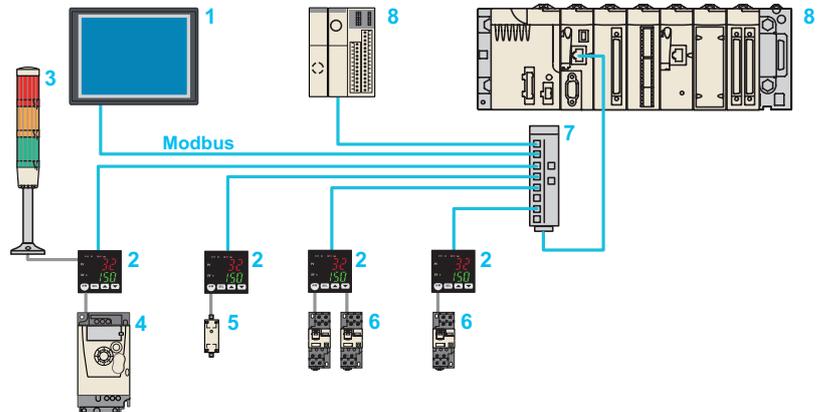
1 Graphic terminal **XBT G**, slave on the Modbus network, for regular reading of values, recording of curves (ramps), changes in presets.
2 Temperature control relay **REG 24/48/96**.
3 Alarm: illuminated indicator bank **XVM** *(2)*.
4 Current output: variable speed drive **ATV 12H075M2** *(3)*.
5 **SSR** solid state relay output.
6 **RXM 2AB2●●** electromechanical relay output.
7 Modbus hub **LU9 GC3**.
8 PLCs with sequential processing of instructions: Twido programmable controller, or Modicon M340 automation platform, masters on the Modbus network.

(1) Except on REG 24PTP1A●HU, REG 48PUNL1●HU and REG 96PUNL1●HU.
(2) Illuminated indicator bank XVM, preassembled and pre-wired with "buzzer" incorporated in the base please see our "Control and signalling components" catalogue
(3) Variable speed drive ATV 12H075M2: frequency converter for 3-phase asynchronous motors, 200…240 V from 0.18 kW to 4 kW.

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Zelio Control - measurement and control relays
REG temperature control relays

Environment characteristics

Size (mm) - Standard			24 x 48 - 1/32 DIN	48 x 48 - 1/16 DIN	96 x 48 - 1/8 DIN
Conforming to standards			EMC EN 61326-1, LVD EN 61010-1		
Product certifications			cURus (873), CSA C22.2 n° 24-93, Gost		
Product marking			CE		
Ambient air temperature around the device	Operation	°C	- 10…+ 50		
	Storage	°C	- 20…+ 60		
Relative humidity			90 % without condensation		
Altitude	Operation	m	2000		
	Storage	m	3000		
Vibration resistance			1 gn (10…70 Hz)		
Shock resistance			5 gn		
Input type	PT100 probe		Yes	Yes	Yes
	Thermocouple J, K, R, B, S, T, E, N, PLII		Yes	Yes	Yes
	Voltage/current	V	1…5	0…5, 1…5, 0…10, 2…10, 0…0.100	
		mA	4…20	0…20, 4…20	
Precision of information displayed		%FS	0.5	0.3	0.3
Number of Process outputs			1	1 or 2	1 or 2
Sampling time		ms	500	200	200

Power supply

Voltage range	∼ 100…240 V	V	85…264		
	⏦ 24 V	V	21.6…26.4		
Power consumption	∼ 100…240 V	VA	6 to 100 8 to 240	12	12
	⏦ 24 V	VA	8	12	12

Communication on Modbus bus

Serial port	Number and type		1 x RS 485		
Flow rate		K bits/s	9600 and 19 200		
Isolation between internal circuit and serial port			Non isolated		
Communication protocol			Modbus slave RTU, half duplex		

Built-in functions

Hysteresis			Yes	Yes	Yes
PID			Yes	Yes	Yes
Auto-tuning			Yes	Yes	Yes
Fuzzy logic			Yes	Yes	Yes
Ramps		Steps	8	16	16
Controlled start-up			No	Yes	Yes
Operating mode			Automatic	Automatic and manual	Automatic and manual

Output characteristics

Relays			SPDT ∼ 220 V, --- 30 V/3A	SPST ∼ 220 V, --- 30 V/3A	
Solid state relay			--- 24 V, 20 mA, 850 Ω		
Current			4…20 mA, load resistance 600 Ω max	4…20 mA, load resistance 600 Ω max / 0…5 V, 1…5 V, 0…10 V, 2…10 V 10 KΩ min	
Alarm outputs	SPDT	∼ V	100-220, load capacity 1 A	100-220, load capacity 3 A	
		⏦ V	30, load capacity 1 A	30, load capacity 3 A	

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REG 24PTP1●●●●
REG 24PUJ1 ●●●

REG 48PUN●●●●●

REG 96PUN●●●●●

Temperature control relays

24 x 48 size – 1/32 DIN standard

Input type	Supply voltage	Number and type of outputs	Alarm	Communication on Modbus bus	Reference	Weight kg
Thermocouple PT100 probe	∼ 100/240 V	1 relay	No	Yes	**REG 24PTP1RHU**	0.200
		1 relay	1	No	**REG 24PTP1ARHU**	0.200
		1 solid state relay	No	Yes	**REG 24PTP1LHU**	0.200
		1 solid state relay	1	No	**REG 24PTP1ALHU**	0.200
		1 current (4-20 mA)	No	Yes	**REG 24PTP1JHU**	0.200
	∼̄ 24 V	1 relay	No	Yes	**REG 24PTP1RLU**	0.200
		1 solid state relay	No	Yes	**REG 24PTP1LLU**	0.200
		1 current (4-20 mA)	No	Yes	**REG 24PTP1JLU**	0.200
Voltage/current	∼ 100/240 V	1 relay	No	Yes	**REG 24PUJ1RHU**	0.200
		1 solid state relay	No	Yes	**REG 24PUJ1LHU**	0.200
	∼̄ 24 V	1 relay	No	Yes	**REG 24PUJ1RLU**	0.200
		1 solid state relay	No	Yes	**REG 24PUJ1LLU**	0.200

48 x 48 size – 1/16 DIN standard

Input type	Supply voltage	Number and type of outputs	Alarm	Communication on Modbus bus	Reference	Weight kg
Universal	∼ 100/240 V	1 relay	2	Yes	**REG 48PUN1RHU**	0.300
				No	**REG 48PUNL1RHU**	0.300
		2 relays	2	Yes	**REG 48PUN2RHU**	0.300
		1 solid state relay	2	Yes	**REG 48PUN1LHU**	0.300
				No	**REG48PUNL1LHU**	0.300
		1 relay + 1 solid state relay	2	Yes	**REG 48PUN2RLHU**	0.300
		1 current (4-20 mA)	2	Yes	**REG 48PUN1JHU**	0.300
		1 solid state relay + 1 current (4-20 mA)	2	Yes	**REG 48PUN2LJHU**	0.300
	∼̄ 24 V	1 relay	2	Yes	**REG 48PUN1RLU**	0.300
		2 relays	2	Yes	**REG 48PUN2RLU**	0.300
		1 solid state relay	2	Yes	**REG 48PUN1LLU**	0.300
		1 relay + 1 solid state relay	2	Yes	**REG 48PUN2RLLU**	0.300
		1 current (4-20 mA)	2	Yes	**REG 48PUN1JLU**	0.300
		1 solid state relay + 1 current (4-20 mA)	2	Yes	**REG 48PUN2LJLU**	0.300

96 x 48 size – 1/8 DIN standard

Input type	Supply voltage	Number and type of outputs	Alarm	Communication on Modbus bus	Reference	Weight kg
Universal	∼ 100/240 V	1 relay	3	Yes	**REG 96PUN1RHU**	0.300
				No	**REG 96PUNL1RHU**	0.300
		2 relays	3	Yes	**REG 96PUN2RHU**	0.300
		1 solid state relay	3	Yes	**REG 96PUN1LHU**	0.300
				No	**REG 96PUNL1LHU**	0.300
		1 relay + 1 solid state relay	3	Yes	**REG 96PUN2RLHU**	0.300
		1 current (4-20 mA)	3	Yes	**REG 96PUN1JHU**	0.300
		1 solid state relay + 1 current (4-20 mA)	3	Yes	**REG 96PUN2LJHU**	0.300
	∼̄ 24 V	1 relay	3	Yes	**REG 96PUN1RLU**	0.300
		2 relays	3	Yes	**REG 96PUN2RLU**	0.300
		1 solid state relay	3	Yes	**REG 96PUN1LLU**	0.300
		1 relay + 1 solid state relay	3	Yes	**REG 96PUN2RLLU**	0.300
		1 current (4-20 mA)	3	Yes	**REG 96PUN1JLU**	0.300
		1 solid state relay + 1 current (4-20 mA)	3	Yes	**REG 96PUN2LJLU**	0.300

Zelio Control - measurement and control relays
REG temperature control relays

Separate components for temperature control relays *(1)*

Description	For use with control relay size	Sold in lots of	Unit reference	Weight g
Bracket for mounting on ⊔ rail	24 x 48	**4**	**REG 24PSOC**	14.93
Terminal block cover	48 x 48	**2**	**REG 48PCOV**	7.77
	96 x 48	**2**	**REG 96PCOV**	13.17

Miniature plug-in relays with lockable test button and LED

2 C/O contacts - Thermal current (Ith): 12 A

Control circuit voltage V	Sold in lots of	Unit reference	Weight kg
--- 12	**10**	**RXM 2AB2JD**	0.037
--- 24	**10**	**RXM 2AB2BD**	0.037
--- 48	**10**	**RXM 2AB2ED**	0.037
--- 110	**10**	**RXM 2AB2FD**	0.037
∼ 24	**10**	**RXM 2AB2B7**	0.037
∼ 48	**10**	**RXM 2AB2E7**	0.037
∼ 120	**10**	**RXM 2AB2F7**	0.037
∼ 230	**10**	**RXM 2AB2P7**	0.037

RXM 2AB2●●

Solid state relays with 1 N/O contact, for mounting on ⊔ rail

Switching	Voltage range		Load current (A)	References	Weight kg
	Input (V)	Output (V)			
SCR output					
Zero voltage	--- 4…32	∼ 24…280	10	**SSR DCDS10A1**	0.272
			20	**SSR DCDS20A1**	0.272
			30	**SSR DCDS30A1**	0.272
			45	**SSR DCDS45A1**	0.482

SSR DCDS10A1

ATV12 variable speed drives with heat sink

For more information, please consult our "Altivar 12 variable speed drives" catalogue

Motor	Network				Altivar 12				
Power indicated on rating plate	Max. line current		Apparent power	Pro-spective max. line Isc	Max. continuous output current (In)	Max. transient current for 60 s	Power dissipated at max. output current (In)	Reference	Weight
	at U1	at U2	at U2		at U2				
kW	*HP*	A	A	kVA	kA	A	A	W	kg
Single-phase supply voltage: 100…120 V 50/60 Hz									
0.75	*1*	18.9	15.7	3.3	1	4.2	6.3	48	**ATV 12H075M2**	1.300
Single-phase supply voltage: 200…240 V 50/60 Hz									
0.75	*1*	10.2	8.5	3.5	1	4.2	6.3	44	**ATV 12H075M2**	0.800
3-phase supply voltage: 200…240 V 50/60 Hz									
0.75	*1*	6.3	5.3	2.2	5	4.2	6.3	41	**ATV 12H075M3**	0.800

(1) To be ordered separately.

ATV 12H075M2

XBT N400/N401

XBT GT63●0

Magelis terminals for supervision on Modbus

Description	Downloadable exchange protocol	Compatible with PLC types	Supply voltage	Screen type	Reference	Weight kg
Compact terminals						
Terminals with 4 lines of 20 characters matrix screen	Modbus	Twido, Nano, TSX Micro, Premium, Modicon M340	⎓ 5 V by terminal port on PLC	LCD backlit green (122 x 32 pixels)	**XBT N400**	0.360
		Twido, Nano, TSX Micro, Premium, Momentum, Quantum, Modicon M340	⎓ 24 V external source	LCD backlit green (122 x 32 pixels)	**XBTN410**	0.380
				LCD backlit green, orange and red (122 x 32 pixels)	**XBTN401**	0.380
	Modbus	TeSys U motor starters Altivar variable speed drives	⎓ 24 V external source	LCD backlit green (122 x 32 pixels)	**XBT NU400**	0.380
Colour graphic terminal with tactile screen						
Multifunction terminal 12.1" with TFT screen	Modbus (RS 485) on RJ45 connector	Twido, Nano, TSX Micro, Premium, Modicon M340	⎓ 5 V by terminal port on PLC	LCD backlit green	**XBT GT6330**	3.000

Description	Compatibility	Physical link	Connector type	Protocol	Reference	Weight kg
Cable for direct connection of XBT N terminals to PLCs length 2.5 m	Twido, Nano, TSX Micro, Premium	RS 485	Mini-Din	Modbus	**XBT Z9780**	–
	Modicon M340	RS 485	RJ45	Modbus	**XBT Z9980**	–

TWD LC●E 40DRF

TSX CUSB 485

TWD XCA ISO

TWD XCA T3RJ

Twido programmable controllers

Controllers

Item	No. of discrete I/O	Supply voltage	Reference	Weight kg
Compact base controllers with integrated Ethernet port Transparent Ready Class A10	24 ∿ 24 V inputs 14 relay outputs 2 ⎓ 24 V solid state relay outputs	∿ 100…240 V	**TWD LCAE 40DRF**	0.525
		⎓ 24 V	**TWD LCDE 40DRF**	0.525

Tap-off, adapter and connection components for RS 485 serial link

Item	Description	Length (m)	Reference	Weight kg
USB/RS485 converter	Allows connection of the **REG** temperature control relay's built-in port to the USB port on the programming PC (for software configuration) To be used with RJ45 cable/free wires	0.4	**TSX CUSB 485**	0.144
RS 485 cable To be used with the USB/RS485 converter	Fitted with a mini-DIN connector and an RJ45 connector	2.5	**TSX CRJMD 25**	0.150
Tap isolation box Screw terminal block for main cable 2 x RF45 for tap-off	RS 485 line isolation (1) Line end adapter (RC 120 Ω, 1nF) Line pre-polarisation (2 R 620Ω) Power supply ⎓ 24 V (screw terminals) Mounting on 35 mm ⌐ rail	–	**TWD XCA ISO**	0.100
Tap junction box 1 x RJ45 for main cable 2 x RF45 for tap-off	Line end adapter (RC 120 Ω, 1nF), Line pre-polarisation (2 R 620Ω) Mounting on 35 mm ⌐ rail	–	**TWD XCA T3RJ**	0.080
Modbus RS 485 cables	1 RJ45 connector and 1 end with free wires	1	**TWD XCA FJ010**	0.060

Tap-off, adapter and connection components for RS 485 serial link

Item	Description	Length (m)	Reference	Weight kg
Modbus hub	10 RJ45 connectors and one screw terminal	–	**LU9 GC3**	0.500
Modbus RS 485 cables	1 RJ45 connector and 1 end with free wires	3	**VW3 A8 306 D30**	0.150
	1 RJ45 connector at each end	0.3	**VW3 A8 306 R03**	0.025
		1	**VW3 A8 306 R10**	0.060
		3	**VW3 A8 306 R30**	0.130

ABL 8MEM24003/24006

Phaseo regulated switch mode power supplies with automatic reset

Input voltage	Secondary			Reference	Weight kg
	Output voltage	Nominal power	Nominal current		
Single-phase (N-L1) or 2-phase (L1-L2) connection					
100…240 V -15 %, + 10 % 50/60 Hz	⎓ 24 V	7 W	0.3 A	**ABL 8MEM24003**	0.100
		15 W	0.6 A	**ABL 8MEM24006**	0.100
		30 W	1.2 A	**ABL 8MEM24012**	0.195
		60 W	2.5 A	**ABL 7RM24025**	0.255

(1) Line isolation recommended for distances > 10 m.

Zelio Control - measurement and control relays
REG temperature control relays

24 x 48 size– 1/32 DIN standard

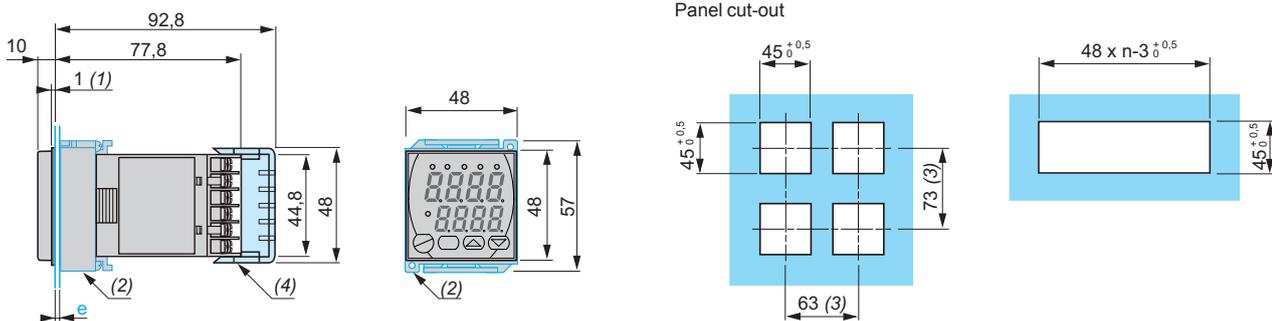**Panel mounting: bracket supplied**

Panel cut-out
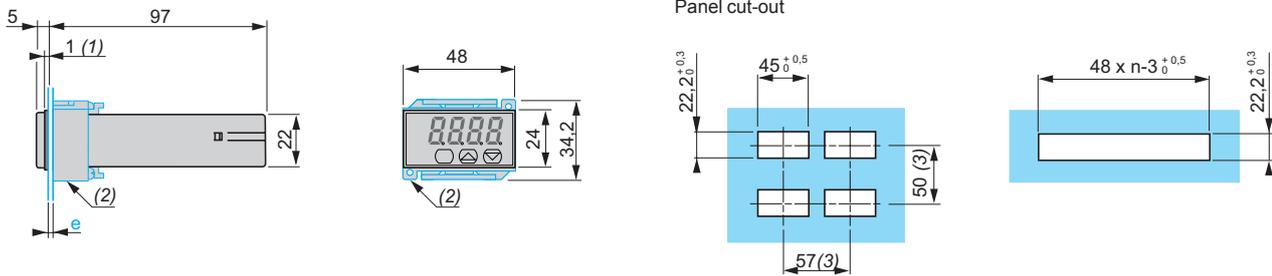
Mounting on ⌶ rail with accessory REG 24PSOC (to be ordered separately, see page 13)
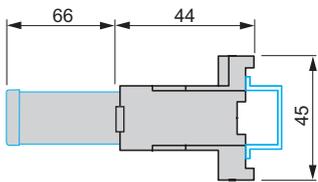
48 x 48 size – 1/16 DIN standard

Panel mounting: bracket supplied

Panel cut-out

96 x 48 – 1/8 DIN standard

Panel mounting; bracket supplied

Panel cut-out
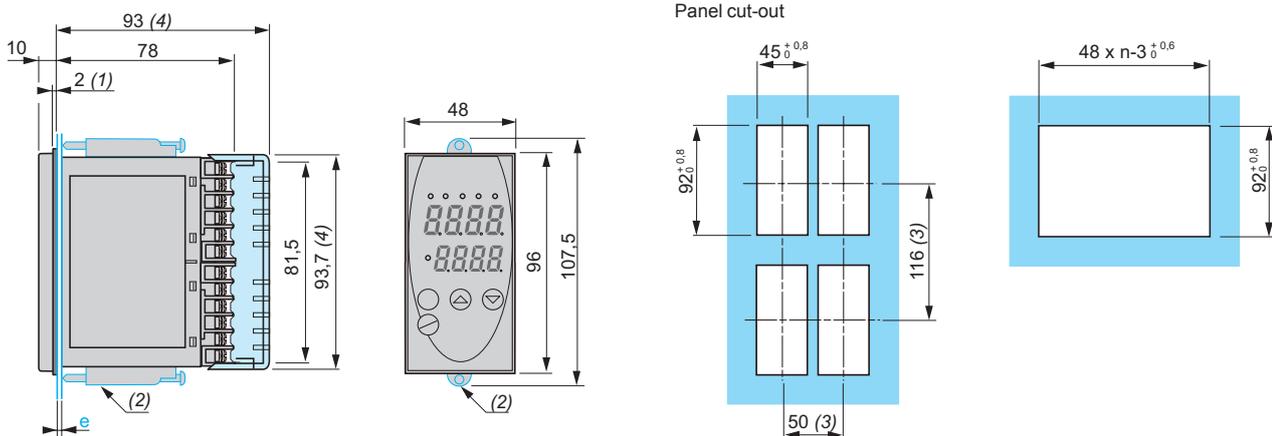
(1) Seal

(2) Fixing brackets supplied with **REG** temperature control relays.

(3) Minimum value.

(4) Terminal block cover, to be ordered separately, see page 13.

Presentation :
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∿ 100…240 V

REG 24PTP1RHU, REG 24PTP1ARHU, REG 24PTP1LHU REG 24PTP1ALHU, REG 24PTP1JHU, REG 24PUJ1RHU, REG 24PUJ1LHU
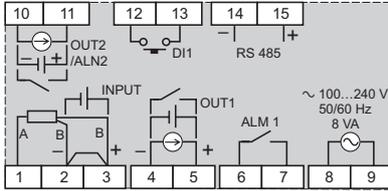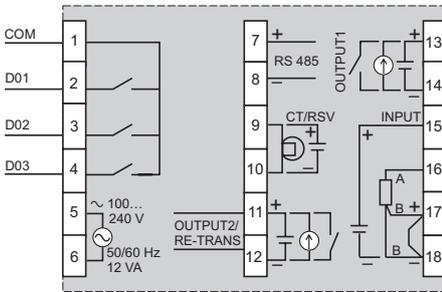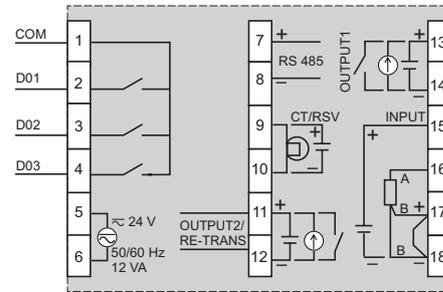

∿ 24 V

REG 24PTP1RLU, REG 24PTP1LLU, REG 24PTP1JLU, REG 24PUJ1RLU, REG 24PUJ1LLU
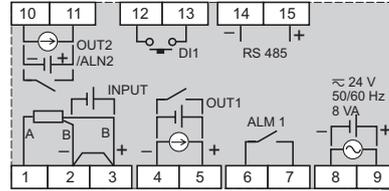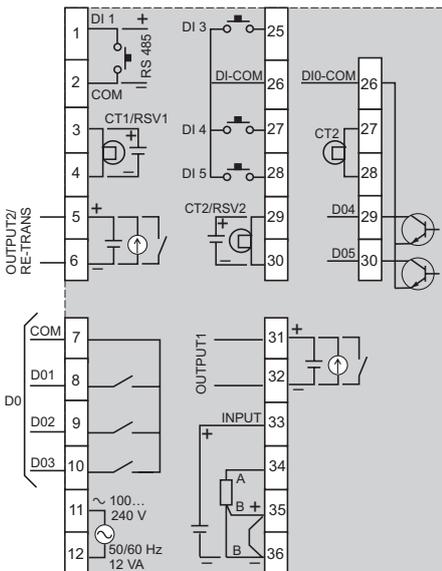

REG 48PUN1RHU, REG 48PUNL1RHU, REG 48PUN2RHU, REG 48PUN1LHU, REG48PUNL1LHU, REG 48PUN2RLHU, REG 48PUN1JHU, REG 48PUN2LJHU

REG 48PUN1RLU, REG 48PUN2RLU, REG 48PUN1LLU, REG 48PUN2RLLU, REG 48PUN1JLU, REG 48PUN2LJLU

REG 96PUN1RHU, REG 96PUNL1RHU, REG 96PUN2RHU, REG 96PUN1LHU, REG 96PUNL1LHU, REG 96PUN2RLHU, REG 96PUN1JHU, REG 96PUN2LJHU

REG 96PUN1RLU, REG 96PUN2RLU, REG 96PUN1LLU, REG 96PUN2RLLU, REG 96PUN1JLU, REG 96PUN2LJLU