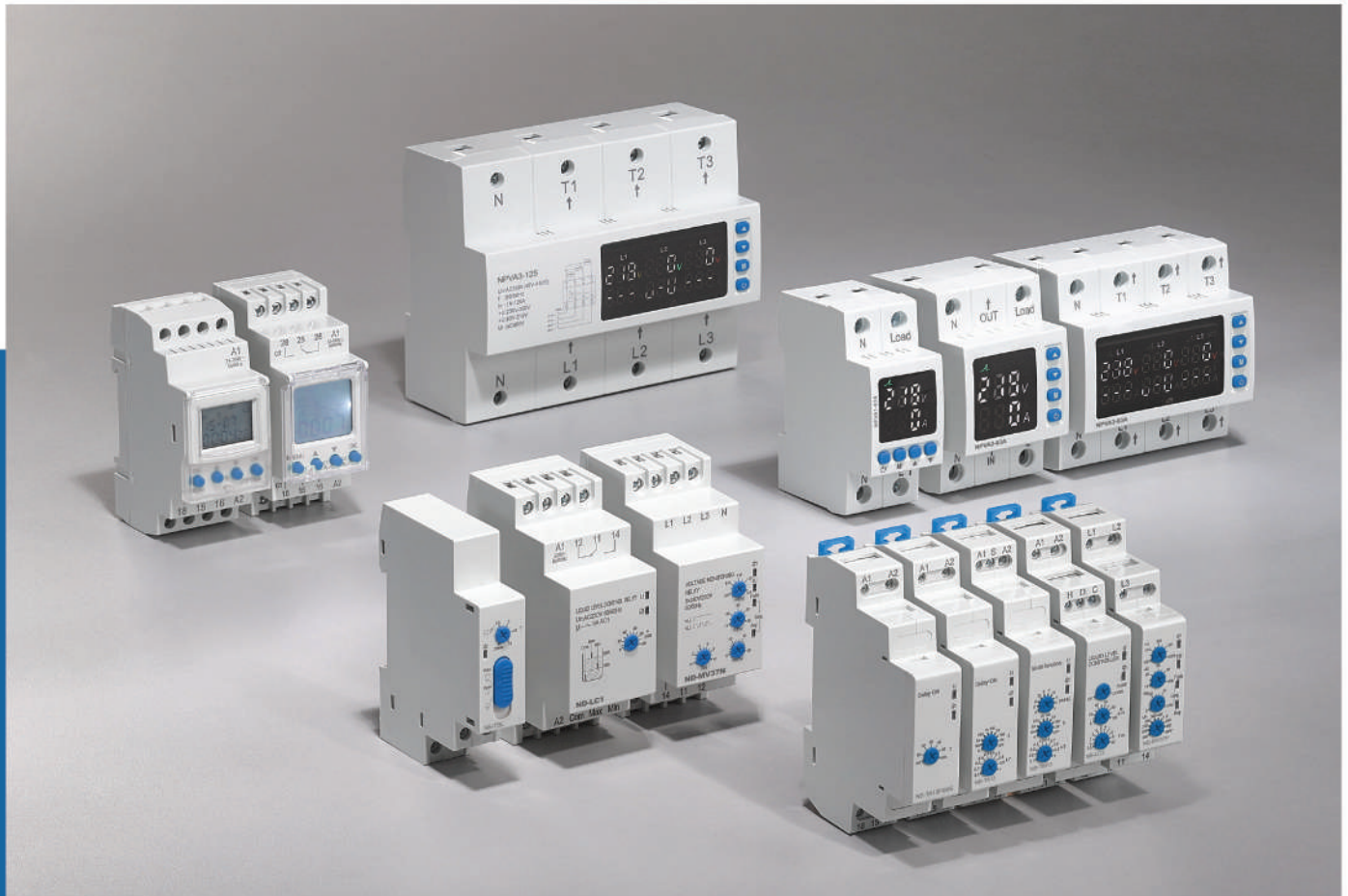


NiSTRO



Catalogue

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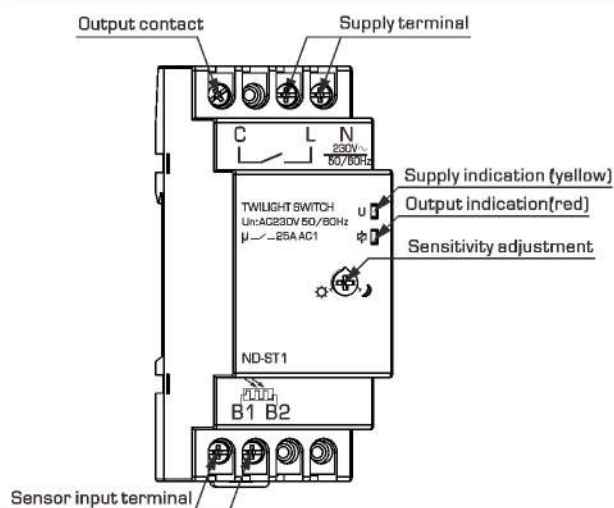
Features

- Sensitivity adjustment from 2 to 100 lux.
- Eternal light sensor included in delivery.
- Fixed switching on and off delay.
- LED indication for power supply and relay status.
- 2 module Din-rail mounting.

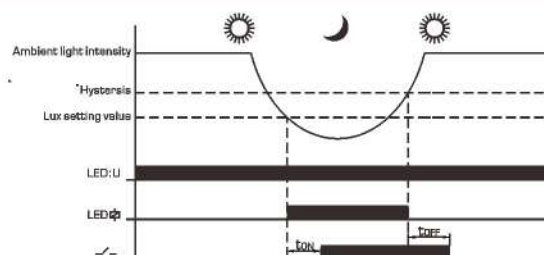
Technical data

Rated control voltage	AC230V
Frequency	50/60Hz
Sensitivity threshold	2~100lux adjustable
Switch-on delay	2-5s
Switch-off delay	10-15s
Hysteresis (switching off/on ratio)	1.20
Output contact	1NO
Current rating	25A/250V AC1
Incandescent lamp load	3000 W
Halogen lamp load	3000 W
Fluorescent lamp load (compensated)	1000 W
Fluorescent lamp load (uncompensated)	1300 W
Protection degree	Terminal: IP20, Sensor: IP65
Ambient temperature	-20°C~+55°C

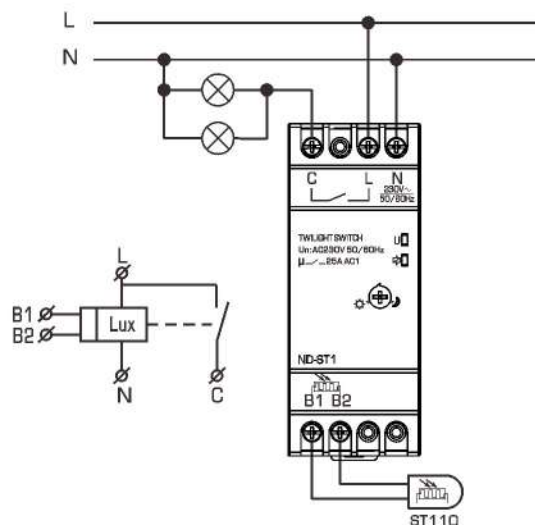
Description



Function diagram



Wiring diagram





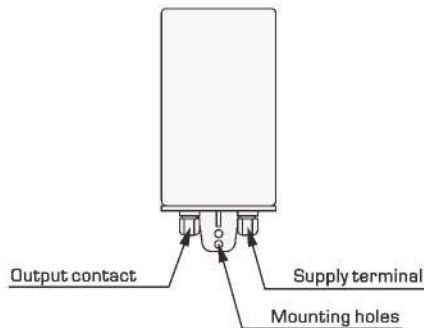
□ Features

- Sensitivity adjustment from 2 to 200 lux.
- Wall or pole fixing.
- Protection against dust and rain.
- LED indication for instantaneous signal of calibration point.
- Resisting the rays UV.

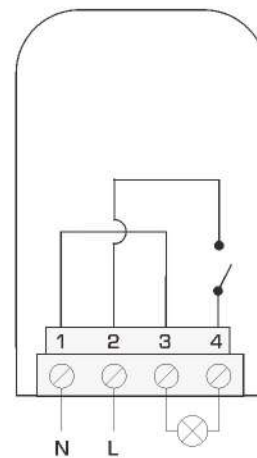
□ Technical data

Rated control voltage	AC24-240V
Frequency	50/60Hz
Sensitivity threshold	2~200lux adjustable
Output contact	1NO
Current rating	16A/250V AC1
Incandescent lamp load	2000 W
Halogen lamp load	1500 W
Fluorescent lamp load	1000 W
LED lamp load(230V)	200 W
Protection degree	IP54
Wire size	0.5mm ² ~2.5mm ²

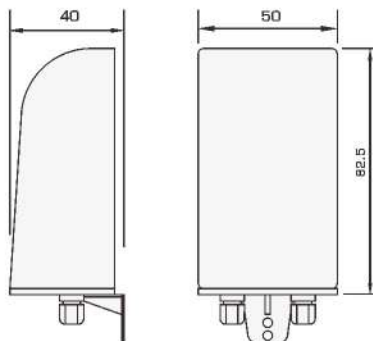
□ Description



□ Wiring diagram



□ Dimensions





Technical data

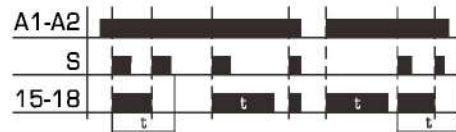
Models	NS-BP11	NS-BP21
Supply terminals	A1, A2	
Pulse terminal	S	
Supply voltage	AC 230V	
Rated frequency	50/60Hz	
Controlling current	<1mA	
Power consumption	<0.8W	
Output contacts	1 C/O	
Time adjustment range	-	1 min~12min
Current rating	10A / AC1	
Insulation voltage	250V	
Protection degree	IP20	
Pollution degree	3	
Electrical life	10 ⁵	
Mechanical life	10 ⁶	
Altitude	≤2000m	
Ambient temperature	-20°C~+55°C	
Storage temperature	-30°C~+70°C	
Wire size	0.5mm ² ~2.5mm ²	
Torque	0.5Nm	
Mounting	TH-35 DIN-Rail	

Function diagrams

● NS-BP11



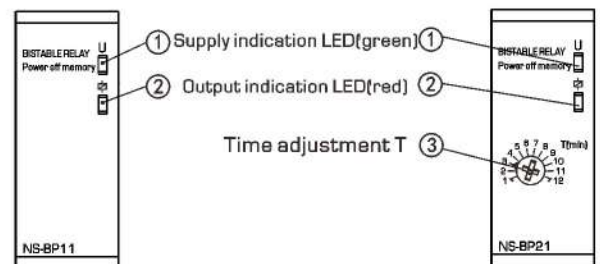
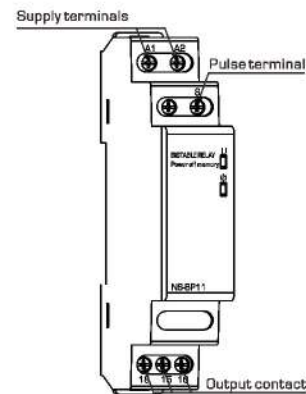
● NS-BP21



Features

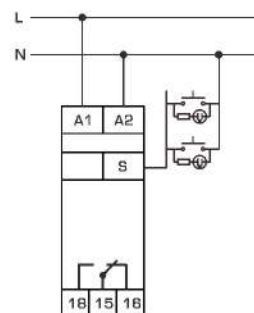
- Microcontroller based.
- Bistable lighting control.
- Relay state memory.
- Operation with illuminated pushbuttons.
- Device triggering by either L or N.
- LED indication for power supply and relay status.
- 1 Module Din-rail mounting.

Front-face panel

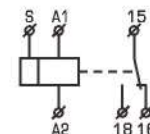
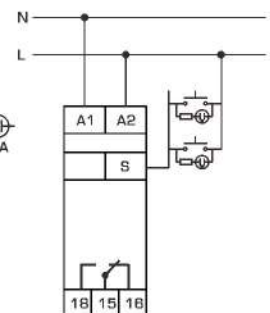


Wiring diagrams

● Start impulse: N



● Start impulse: L





Technical data

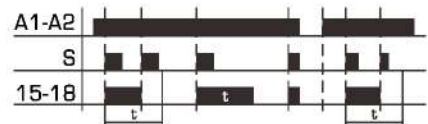
Models	NS-BP31	NS-BP41
Supply terminals	A1, A2	
Pulse terminal	S	
Supply voltage	AC 230V	
Rated frequency	50/60Hz	
Controlling current	<1mA	
Power consumption	<0.8W	
Output contacts	1 C/O	
Time adjustment range	-	1 min~12 min
Current rating	10A / AC1	
Insulation voltage	250V	
Protection degree	IP20	
Pollution degree	3	
Electrical life	10 ⁵	
Mechanical life	10 ⁶	
Altitude	≤2000m	
Ambient temperature	-20°C~+55°C	
Storage temperature	-30°C~+70°C	
Wire size	0.5mm ² ~2.5mm ²	
Torque	0.5Nm	
Mounting	TH-35 DIN-Rail	

Function diagrams

● NS-BP31



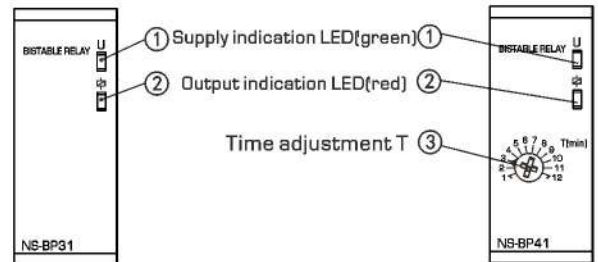
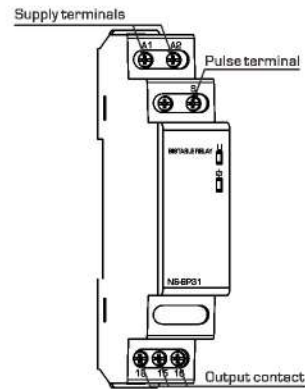
● NS-BP41



Features

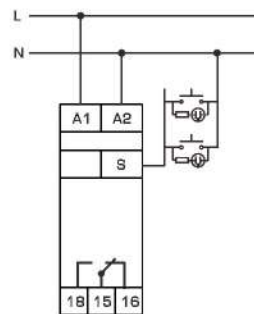
- Microcontroller based
- Bistable lighting control
- Operation with illuminated pushbuttons
- Device triggering by either L or N
- 1 C/O output-10A
- LED indication for power supply and relay status
- 1 Module Din-rail mounting

Front-face panel

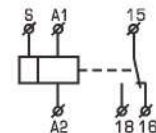
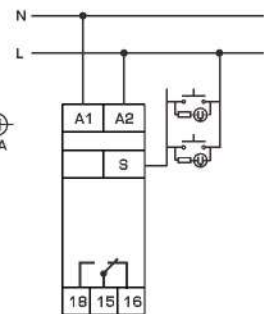


Wiring diagrams

● Start impulse: N



● Start impulse: L





Technical data

Models	NS-IR1	NS-IR1M
Supply terminals	L,N	
Pulse terminal	S	
Supply voltage	AC/DC 24-240V	
Rated frequency	50/60Hz	
Controlling current	<1mA	
Power consumption	<0.8W	
Output contacts	1 NO	
Memory function	No	Yes
Current rating	16A /AC1, 10A/DC30V	
Insulation voltage	250V	
Protection degree	IP20	
Pollution degree	3	
Electrical life	10 ⁵	
Mechanical life	10 ⁶	
Altitude	≤2000m	
Ambient temperature	-20°C~+55°C	
Storage temperature	-30°C~+70°C	
Wire size	0.5mm ² ~2.5mm ²	
Torque	0.5Nm	
Mounting	TH-35 DIN-Rail	

Function diagrams

● NS-IR1



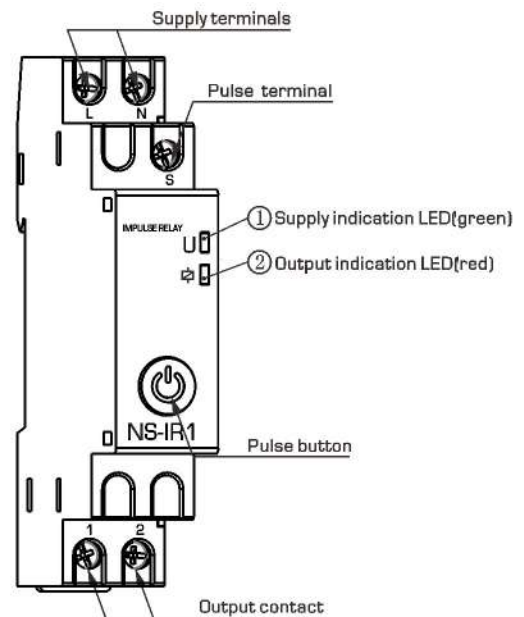
● NS-IR1M



Features

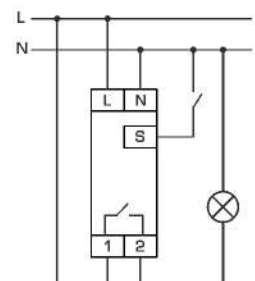
- Microcontroller based.
- Switch on/off control via button on the panel.
- 1 NO output-16A.
- LED indication for power supply and relay status.
- 1 Module Din-rail mounting.

Front-face panel

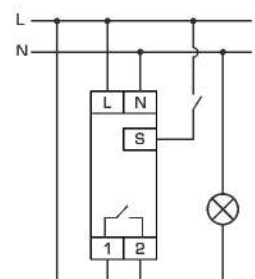


Wiring diagrams

● Pulse from N phase



● Pulse from L phase





Technical data

Models	NS-IR2	NS-IR2M
Supply terminals	L, N	
Pulse terminal	S	
Supply voltage	AC220-240V	
Rated frequency	50/60Hz	
Power off memory	No	Yes
Power consumption	<0.8W	
Output contacts	1 NO	
Current rating	16A / AC250V; 10A / DC30V	
Insulation voltage	250V	
Protection degree	IP20	
Pollution degree	3	
Electrical life	10 ⁵	
Mechanical life	10 ⁶	
Altitude	≤ 2000m	
Ambient temperature	-20°C~+55°C	
Storage temperature	-30°C~+70°C	
Wire size	0.5mm ² ~2.5mm ²	
Torque	0.5Nm	
Mounting	TH-35 DIN-Rail	

Function diagrams

● NS-IR2



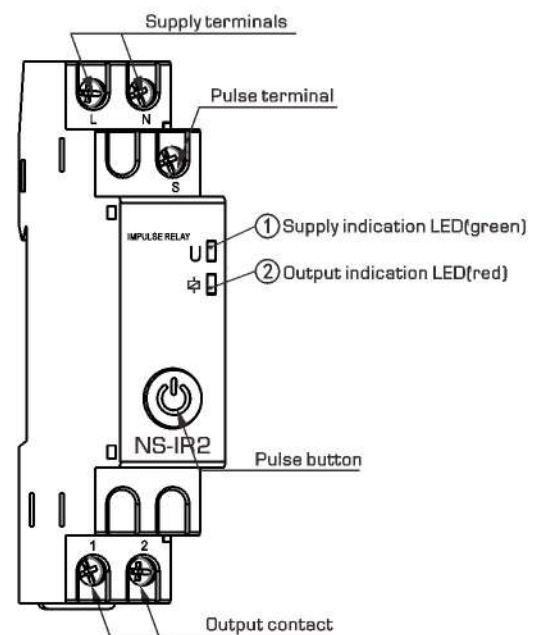
● NS-IR2M



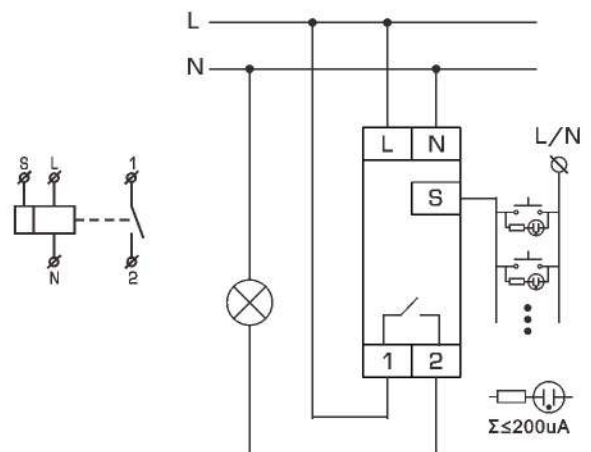
Features

- Microcontroller based
- Switch on/off control via button on the panel
- Operation voltage: AC 220-240V
- 1 NO output-16A
- LED indication for power supply and relay status
- 1 Module Din-rail mounting

Front-face panel



Wiring diagrams





Features

- Microcontroller based
- Bistable lighting control
- Operation with illuminated pushbuttons
- Device triggering by either L or N
- 1 NO output-10A
- LED indication for power supply and relay status
- 1 Module Din-rail mounting

Technical data

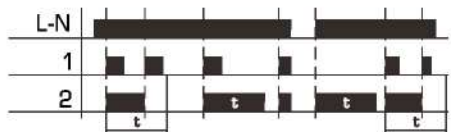
Models	NB-BP1	NB-BP2
Supply terminals	3,4	
Output terminal	2	
Pulse terminal	1	
Supply voltage	AC 230V	
Rated frequency	50/60Hz	
Output contacts	1 NO	
Power consumption	<0.8W	
Memory function	-	Yes
Time adjustment range	-	1min~12min
Current rating	10A / AC1	
Insulation voltage	250V	
Protection degree	IP20	
Pollution degree	3	
Electrical life	10 ⁵	
Mechanical life	10 ⁶	
Altitude	≤2000m	
Ambient temperature	-20°C~+55°C	
Storage temperature	-30°C~+70°C	
Wire size	0.5mm ² ~2.5mm ²	
Torque	0.5Nm	

Function diagrams

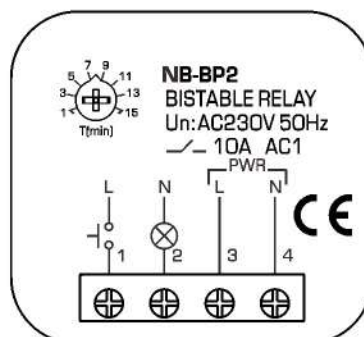
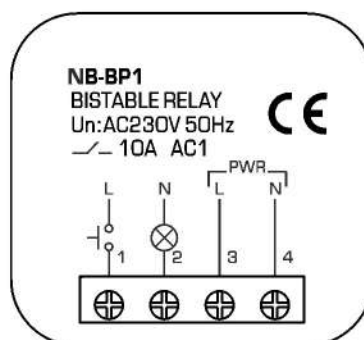
●NB-BP1



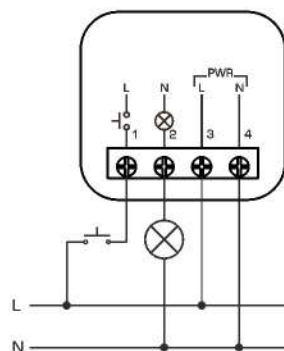
●NB-BP2



Front-face panel



Wiring diagrams

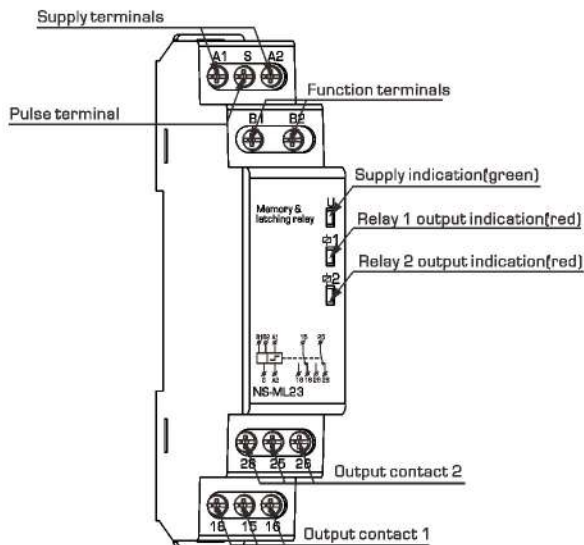




Technical data

Models	NS-ML14	NS-ML24
Supply terminals	A1, A2	
Pulse terminal	S	
Supply voltage	AC/DC12-240V	
Rated frequency	50/60Hz	
Supply indication	green LED	
Output indication	red LED	
Output contacts	1 C/O	2 C/O
Current rating	16 A / AC1	
Insulation voltage	250V	
Protection degree	IP20	
Pollution degree	3	
Electrical life	10 ⁵	
Mechanical life	10 ⁶	
Altitude	≤2000m	
Ambient temperature	-20°C~+55°C	
Storage temperature	-30°C~+70°C	
Wire size	0.5mm ² ~2.5mm ²	
Mounting	TH-35 DIN-Rail	

Front-face panel



Features

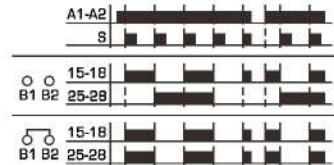
- Microcontroller based
- Memory relay
- AC/DC12-240V universal voltage
- Function selected via external jumper between B1-B2
- LED indication for power supply and relay status
- 1 Module Din-rail mounting

Function diagrams

● NS-ML14

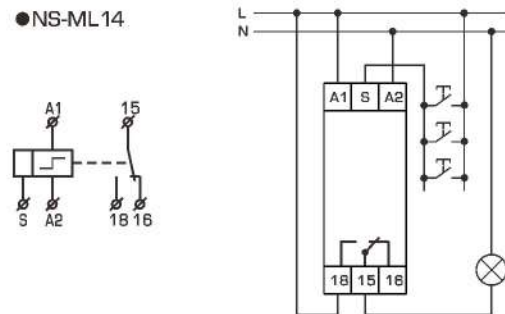


● NS-ML24

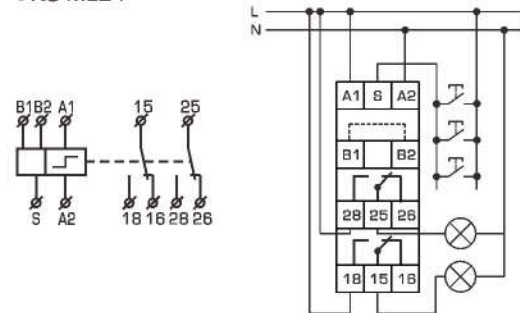


Wiring diagrams

● NS-ML14



● NS-ML24





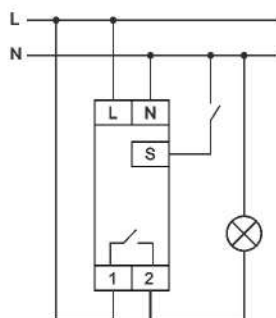
□ Features

- Microcontroller based
- Memory function
- AC/DC 48-240V universal voltage
- 1NO output- 16A
- WiFi and bluetooth connection available
- 1 Module Din-rail mounting

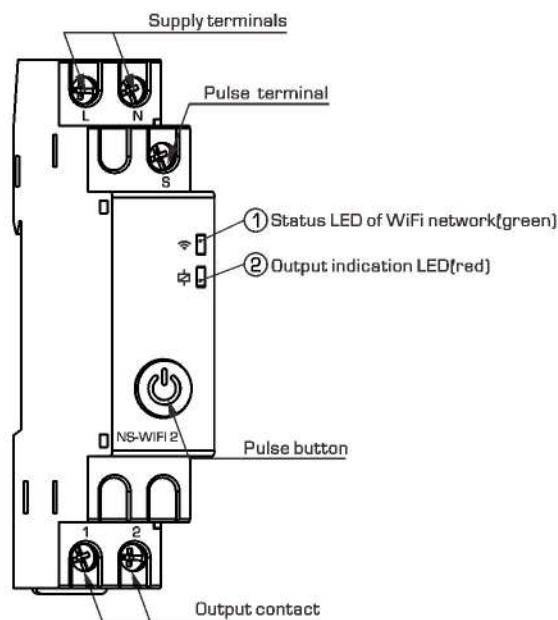
□ Technical data

Models	NS-WIFI 2
Supply terminals	A1,A2
Pulse terminal	S
Supply voltage	AC/DC 48-240V
Rated frequency	50/60Hz
Supply indication	green LED
Output indication	red LED
Output contacts	1 NO
Current rating	16A /AC1
Astronomical function	Yes
Insulation voltage	250V
Protection degree	IP20
Pollution degree	3
Electrical life	10 ⁵
Mechanical life	10 ⁶
Altitude	≤2000m
Ambient temperature	-20°C~+55°C
Storage temperature	-30°C~+70°C
Wire size	0.5mm ² ~2.5mm ²
Torque	0.5Nm
Mounting	TH-35 DIN-Rail

□ Wiring diagram



□ Front-face panel

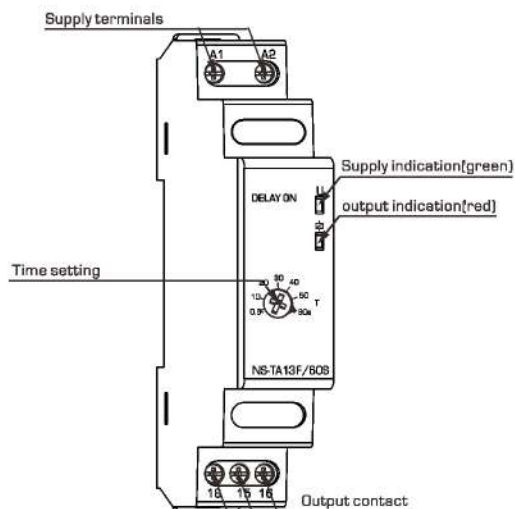




Technical data

Models	NS-TA13F	NS-TB13F
Supply terminals	A1, A2	
Supply voltage	AC/DC 24-240V	
Rated frequency	50/60Hz	
Time range	0.1-1s, 1-10s, 0.1min-1min, 1-10min, 0.3-30s, 0.6-60s	
Setting accuracy	<5%	
Repetition accuracy	<0.2%	
Output contacts	1 C/O	
Current rating	8A /AC1	
Contacts capacity	AC-15: 2A	
Insulation voltage	250V	
Protection degree	IP20	
Pollution degree	3	
Electrical life	10 ⁵	
Mechanical life	10 ⁶	
Altitude	≤2000m	
Ambient temperature	-20°C~+55°C	
Storage temperature	-30°C~+70°C	
Wire size	0.5mm ² ~2.5mm ²	
Torque	0.5Nm	
Mounting	TH-35 DIN-Rail	

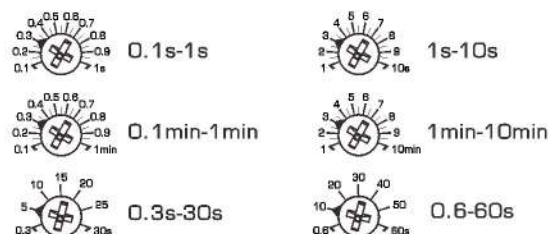
Front-face panel



Features

- Microcontroller based
- ON-delay/OFF-delay
- Time range: 0.1s-1s, 1s-10s, 0.3-30s, 0.6-60s
0.1min-1min, 1min-10min
- Repetition accuracy<0.2%
- LED indication for power supply and relay status
- 1 Module Din-rail mounting

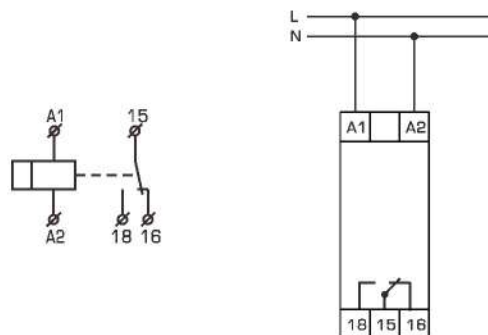
Time range



Function diagrams



Wiring diagrams

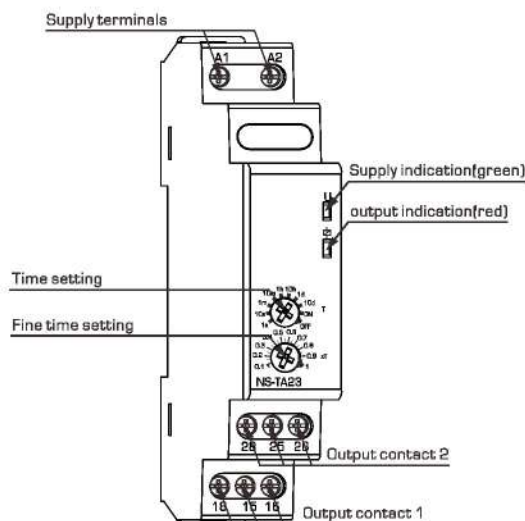




Technical data

Models	NS-TA14	NS-TA13	NS-TA23
Supply terminals	A1,A2		
Supply voltage	AC/DC 12-240V	AC/DC 24-240V	
Rated frequency	50/60Hz		
Time range	0.1s-10days		
Setting accuracy	<5%		
Repetition accuracy	≤0.2%		
Output contacts	1 C/O	2 C/O	
Current rating	8A /AC1		
Contacts capacity	AC-15: 2A		
Insulation voltage	250V		
Protection degree	IP20		
Pollution degree	3		
Electrical life	10 ⁵		
Mechanical life	10 ⁶		
Altitude	≤2000m		
Ambient temperature	-20°C~-55°C		
Storage temperature	-30°C~-70°C		
Wire size	0.5mm ² ~2.5mm ²		
Torque	0.5Nm		
Mounting	TH-35 DIN-Rail		

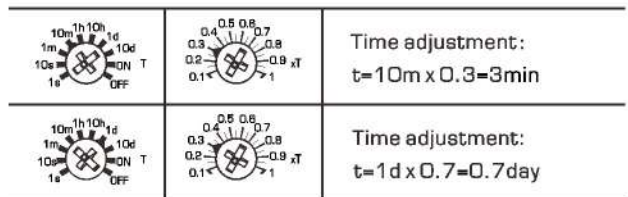
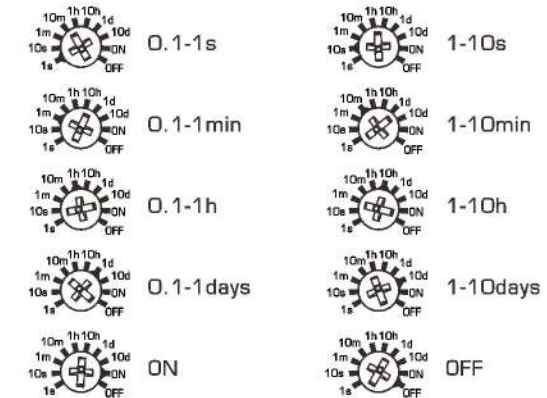
Front-face panel



Features

- Microcontroller based
- ON-delay
- 10 time ranges(1s, 10s, 1m, 10m, 1h, 10h, 1d, 10d, ON, OFF)
- Repetition accuracy≤0.2%
- LED indication for power supply and relay status
- 1 Module Din-rail mounting

Time range



Function diagrams

●NS-TA13, NS-TA14

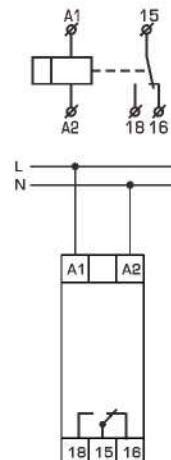


●NS-TA23

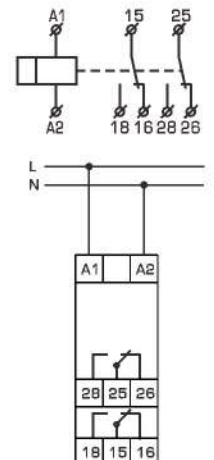


Wiring diagrams

●NS-TA13 /NS-TA14



●NS-TA23

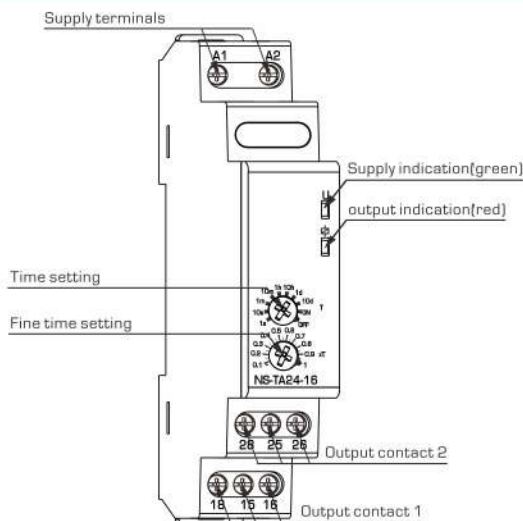




- Technical data

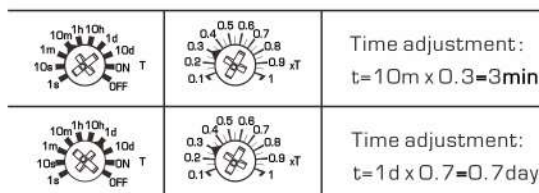
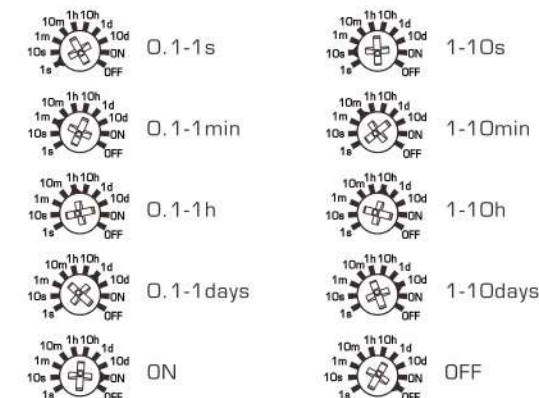
Models	NS-TA14-16	NS-TA24-16
Supply terminals	A1,A2	
Supply voltage	AC/DC 12-240V	
Rated frequency	50/60Hz	
Time range	0.1s-10days	
Setting accuracy	<5%	
Repetition accuracy	≤0.2%	
Output contacts	1 C/O	2 C/O
Current rating	16A /AC1	
Insulation voltage	250V	
Protection degree	IP20	
Pollution degree	3	
Electrical life	10 ⁵	
Mechanical life	10 ⁶	
Altitude	≤2000m	
Ambient temperature	-20° C~+55° C	
Storage temperature	-30° C~+70° C	
Wire size	0.5mm ² ~2.5mm ²	
Torque	0.5Nm	
Mounting	TH-35 DIN-Rail	

☐ Front-face panel



- Features

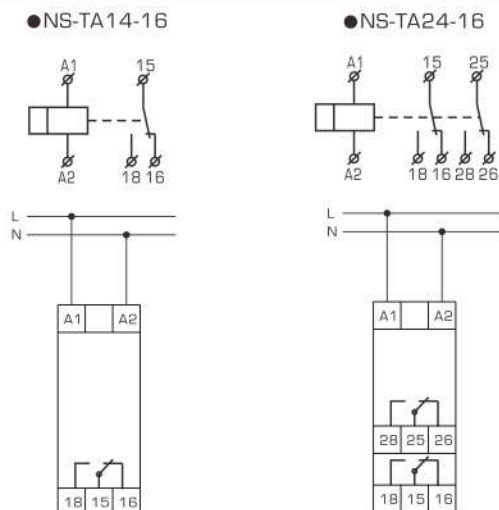
- Microcontroller based
- ON-delay
- 10 time ranges(1s, 10s, 1m, 10m, 1h, 10h, 1d, 10d, ON, OFF)
- Repetition accuracy $\leq 0.2\%$
- LED indication for power supply and relay status
- 1 Module Din-rail mounting

☐ Time range

- ☐ **Function diagrams**



- ☐ **Wiring diagrams**

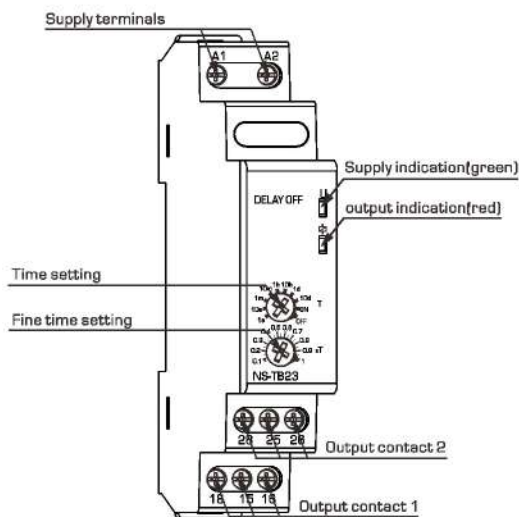




Technical data

Models	NS-TB14	NS-TB13	NS-TB23
Supply terminals	A1,A2		
Supply voltage	AC/DC 12-240V	AC/DC 24-240V	
Rated frequency	50/60Hz		
Time range	0.1s-10days		
Setting accuracy	<5%		
Repetition accuracy	≤0.2%		
Output contacts	1 C/O	2 C/O	
Current rating	8A /AC1		
Contacts capacity	AC-15: 2A		
Insulation voltage	250V		
Protection degree	IP20		
Pollution degree	3		
Electrical life	10 ⁵		
Mechanical life	10 ⁶		
Altitude	≤2000m		
Ambient temperature	-20°C~+55°C		
Storage temperature	-30°C~+70°C		
Wire size	0.5mm ² ~2.5mm ²		
Torque	0.5Nm		
Mounting	TH-35 DIN-Rail		

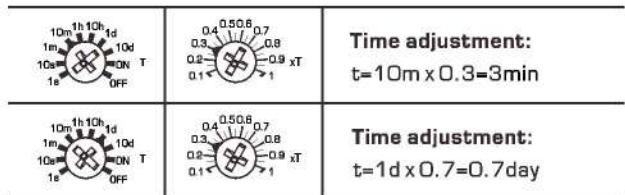
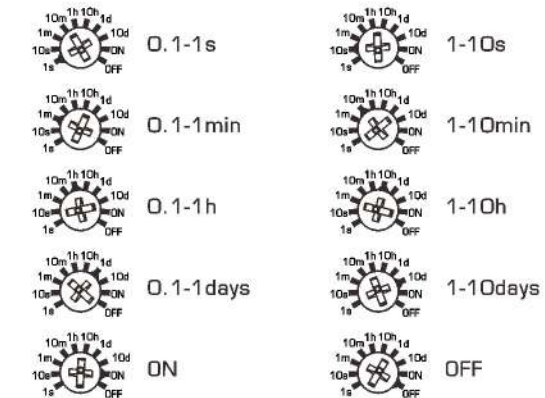
Front-face panel



Features

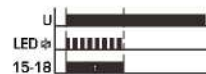
- Microcontroller based
- OFF-delay
- 10 time ranges(1s, 10s, 1m, 10m, 1h, 10h, 1d, 10d, ON, OFF)
- Repetition accuracys0.2%
- LED indication for power supply and relay status
- 1 Module Din-rail mounting

Time range



Function diagrams

●NS-TB13, NS-TB14

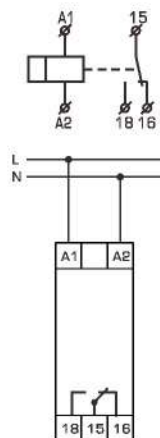


●NS-TB23

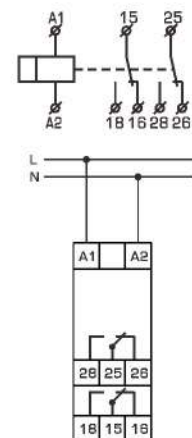


Wiring diagrams

●NS-TB13/NS-TB14



●NS-TB23

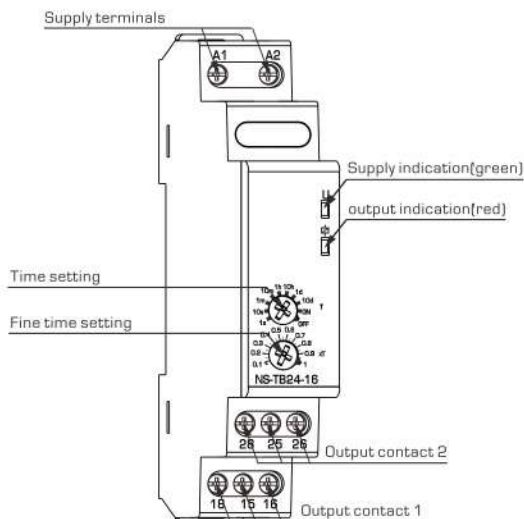




Technical data

Models	NS-TB14-16	NS-TB24-16
Supply terminals	A1, A2	
Supply voltage	AC/DC 12-240V	
Rated frequency	50/60Hz	
Time range	0.1s-10days	
Setting accuracy	<5%	
Repetition accuracy	<0.2%	
Output contacts	1 C/O	2 C/O
Current rating	16A / AC1	
Insulation voltage	250V	
Protection degree	IP20	
Pollution degree	3	
Electrical life	10 ⁵	
Mechanical life	10 ⁶	
Altitude	≤2000m	
Ambient temperature	-20°C~+55°C	
Storage temperature	-30°C~+70°C	
Wire size	0.5mm ² ~2.5mm ²	
Torque	0.5Nm	
Mounting	TH-35 DIN-Rail	

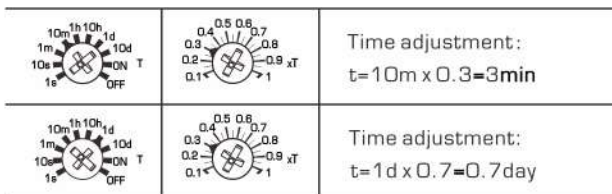
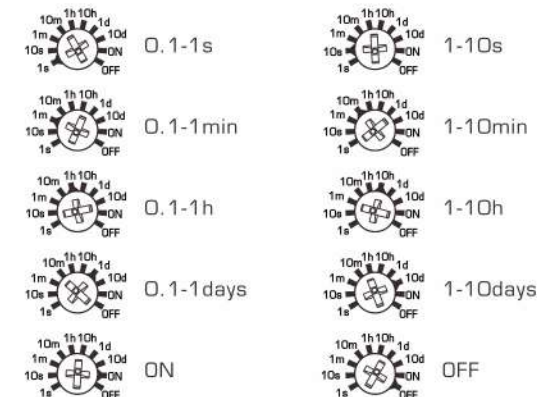
Front-face panel



Features

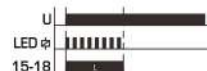
- Microcontroller based
- OFF-delay
- 10 time ranges(1s, 10s, 1m, 10m, 1h, 10h, 1d, 10d, ON, OFF)
- Repetition accuracy<0.2%
- LED indication for power supply and relay status
- 1 Module Din-rail mounting

Time range



Function diagrams

● NS-TB14-16

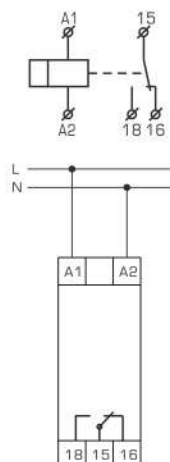


● NS-TB24-16

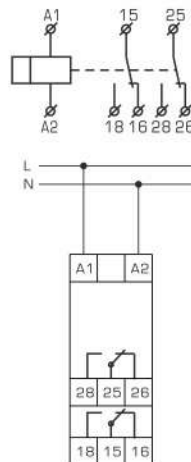


Wiring diagrams

● NS-TB14-16



● NS-TB24-16

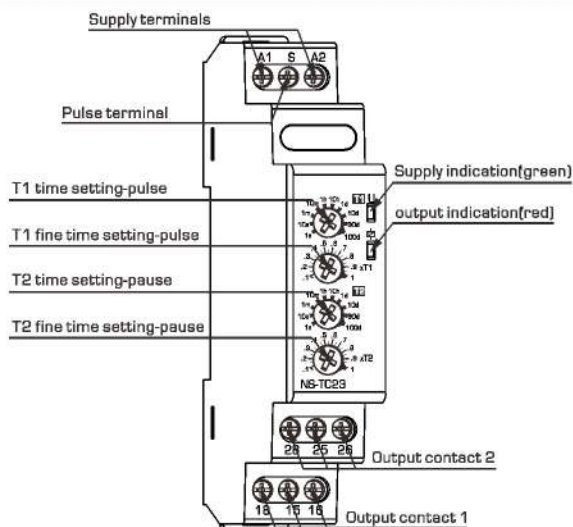




Technical data

Models	NS-TC13	NS-TC23	NS-TC23T
Supply terminals	A1, A2		
Supply voltage	AC/DC 24-240V		
Rated frequency	50/60Hz		
Time range	0.1s-100days		
Setting accuracy	<5%		
Repetition accuracy	<0.2%		
Output contacts	1 C/O	2 C/O	1 inst. C/O+1C/O
Current rating	8A / AC1		
Contacts capacity	AC-15: 2A		
Insulation voltage	250V		
Protection degree	IP20		
Pollution degree	3		
Electrical life	10 ⁵		
Mechanical life	10 ⁶		
Altitude	≤2000m		
Ambient temperature	-20°C~+55°C		
Storage temperature	-30°C~+70°C		
Wire size	0.5mm ² ~2.5mm ²		
Torque	0.5Nm		
Mounting	TH-35 DIN-Rail		

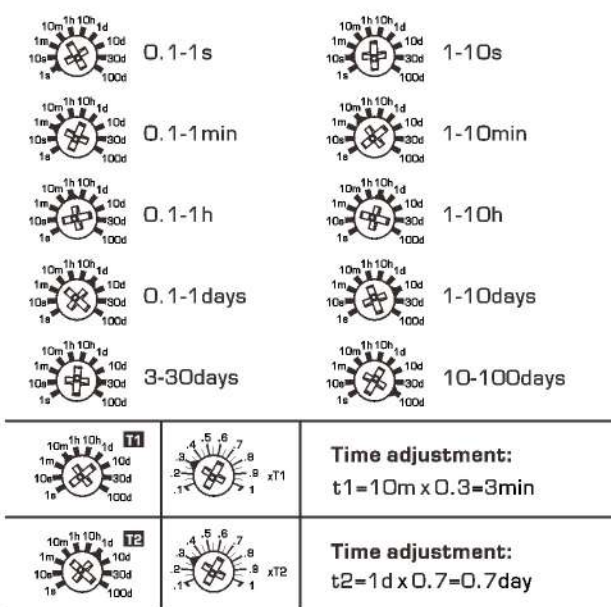
Front-face panel



Features

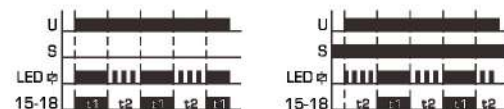
- Microcontroller based
- Cycler beginning with pulse/cycler beginning with pause
- 10 time ranges(1s, 10s, 1m, 10m, 1h, 10h, 1d, 10d, 30d, 100d)
- Repetition accuracy<0.2%
- Function selected via external jumper between A1-S
- LED indication for power supply and relay status
- 1 Module Din-rail mounting

Time range

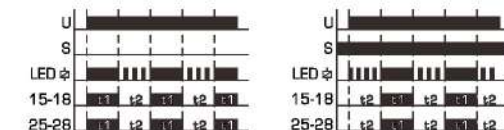


Function diagrams

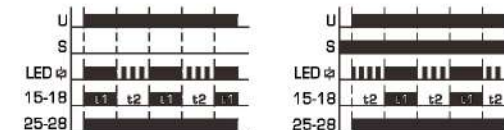
●NS-TC13



●NS-TC23

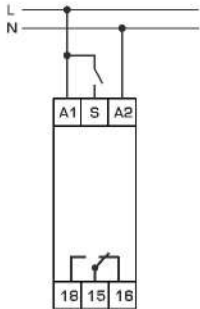
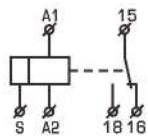


●NS-TC23T

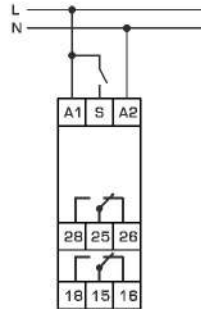
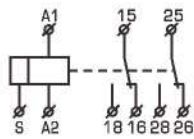


□ Wiring diagrams

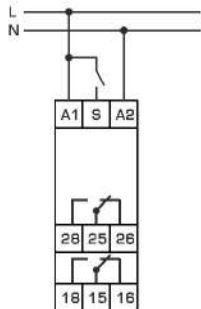
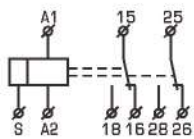
●NS-TC13



●NS-TC23



●NS-TC23T

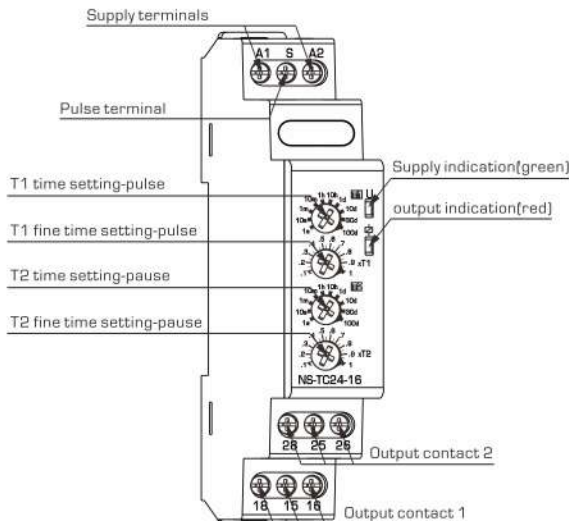




Technical data

Models	NS-TC14-16	NS-TC24-16
Supply terminals	A1, A2	
Supply voltage	AC/DC 12-240V	
Rated frequency	50/60Hz	
Time range	0.1s-100days	
Setting accuracy	<5%	
Repetition accuracy	<0.2%	
Output contacts	1 C/O	2 C/O
Current rating	16A / AC1	
Insulation voltage	250V	
Protection degree	IP20	
Pollution degree	3	
Electrical life	10 ⁵	
Mechanical life	10 ⁶	
Altitude	≤2000m	
Ambient temperature	-20°C~+55°C	
Storage temperature	-30°C~+70°C	
Wire size	0.5mm ² ~2.5mm ²	
Torque	0.5Nm	
Mounting	TH-35 DIN-Rail	

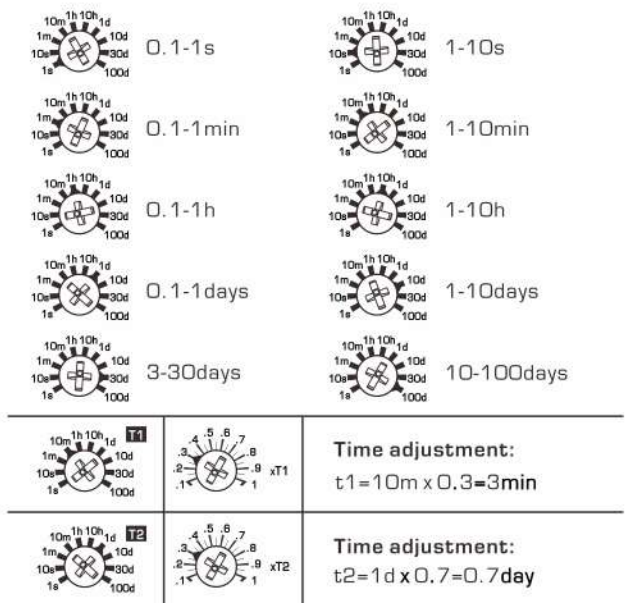
Front-face panel



Features

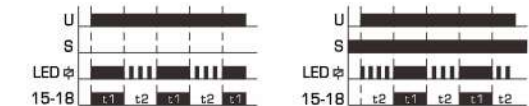
- Microcontroller based
- Cycler beginning with pulse/cycler beginning with pause
- 10 time ranges(1s, 10s, 1m, 10m, 1h, 10h, 1d, 10d, 30d, 100d)
- Repetition accuracy<0.2%
- Function selected via external jumper between A1-S
- LED indication for power supply and relay status
- 1 Module Din-rail mounting

Time range

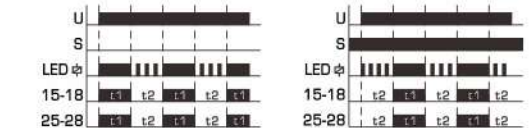


Function diagrams

●NS-TC14-16

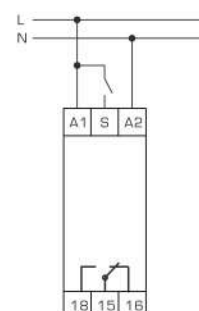


●NS-TC24-16

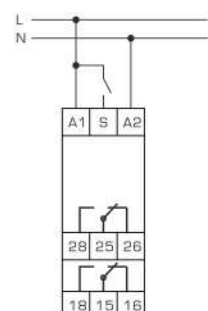


Wiring diagrams

●NS-TC14-16



●NS-TC24-16

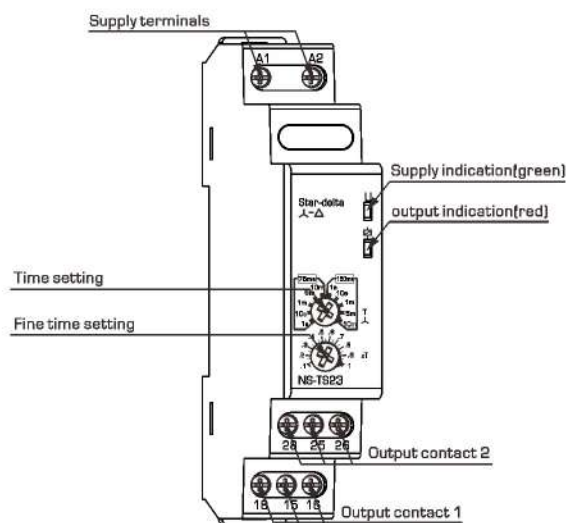




Technical data

Models	NS-TS23
Supply terminals	A1, A2
Supply voltage	AC/DC 24-240V
Rated frequency	50/60Hz
Time range	t1(Δ): 0.1s~10m, t2(Λ-Δ): 75ms/150ms
Time setting	Potentiometer
Setting accuracy	<5%
Output contacts	2 C/O
Current rating	8A / AC1
Contacts capacity	AC-15: 2A
Insulation voltage	250V
Protection degree	IP20
Pollution degree	3
Electrical life	10 ⁵
Mechanical life	10 ⁶
Altitude	≤2000m
Ambient temperature	-20°C~+55°C
Storage temperature	-30°C~+70°C
Wire size	0.5mm ² ~2.5mm ²
Torque	0.5Nm
Mounting	TH-35 DIN-Rail

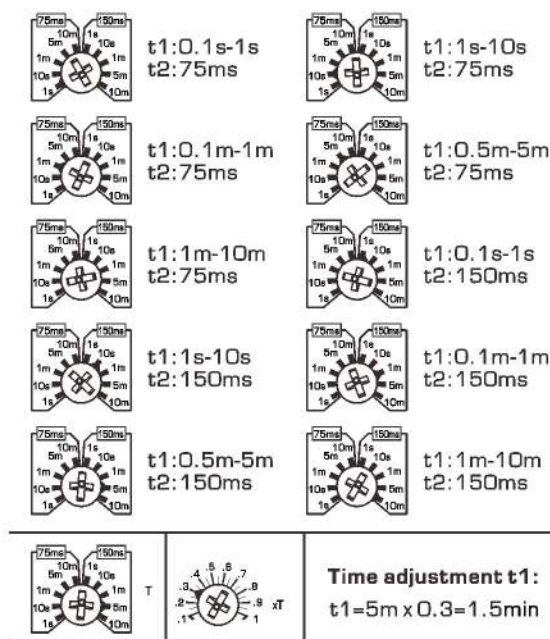
Front-face panel



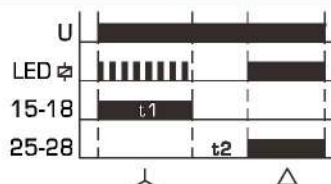
Features

- Microcontroller based
- Star-delta start
- Star-delta transition time 75ms or 150ms
- 2 changeover contacts
- LED indication for power supply and relay status
- 1 Module Din-rail mounting

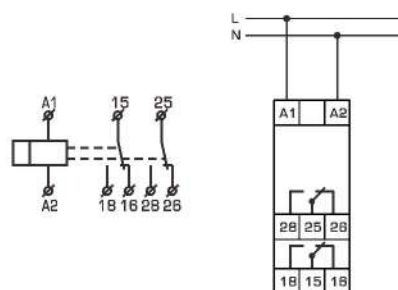
Time range



Function diagram



Wiring diagrams

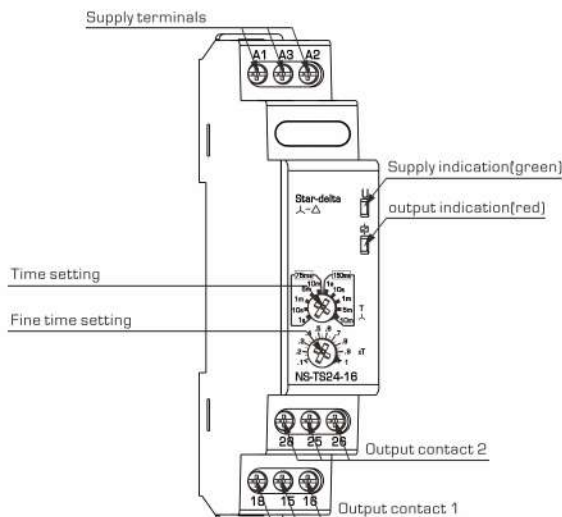




Technical data

Supply voltage	AC/DC 12-240V
Rated frequency	50/60Hz
Time range	t1(λ): 0.1s~10m, t2(λ-Δ): 75ms/150ms
Setting accuracy	<5%
Output contacts	2 C/O
Current rating	16A / AC1
Insulation voltage	250V
Protection degree	IP20
Pollution degree	3
Electrical life	10 ⁵
Mechanical life	10 ⁵
Altitude	≤2000m
Ambient temperature	-20°C~+55°C
Storage temperature	-30°C~+70°C
Wire size	0.5mm ² ~2.5mm ²
Torque	0.5Nm
Mounting	TH-35 DIN-Rail

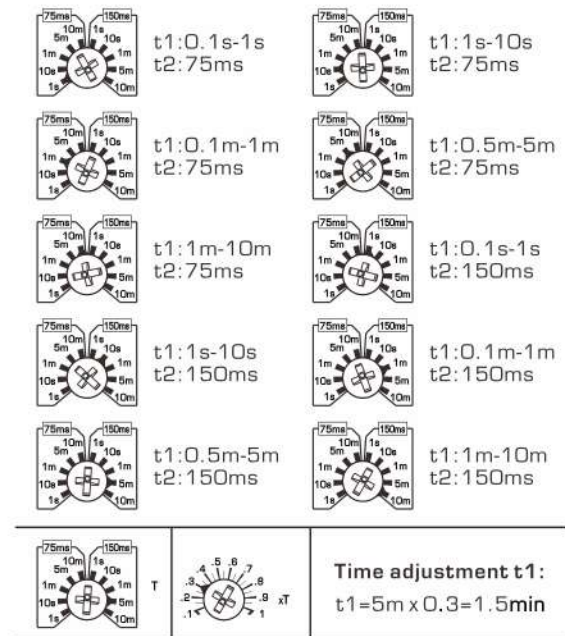
Front-face panel



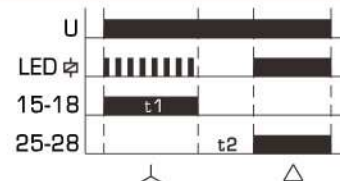
Features

- Microcontroller based
- Star-delta start
- Star-delta transition time 75ms or 150ms
- 2 changeover contacts
- LED indication for power supply and relay status
- 1 Module Din-rail mounting

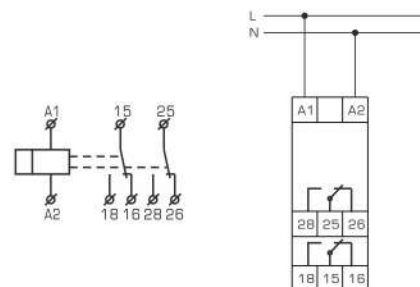
Time range



Function diagram



Wiring diagram

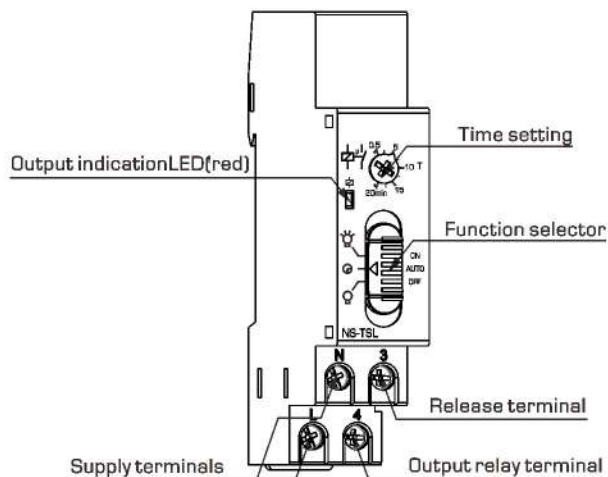




Technical data

Supply voltage	AC 220-240V
Rated frequency	50/60Hz
Time range	0.5-20min
Setting accuracy	<5%
Output contacts	1NO
Current rating	16A /AC1
Max. illuminated switch	100mA
Protection degree	IP20
Pollution degree	3
Electrical life	10 ⁵
Mechanical life	10 ⁸
Altitude	≤2000m
Ambient temperature	-20°C~+55°C
Storage temperature	-30°C~+70°C
Wire size	0.5mm ² ~2.5mm ²
Torque	0.5Nm
Mounting	TH-35 DIN-Rail

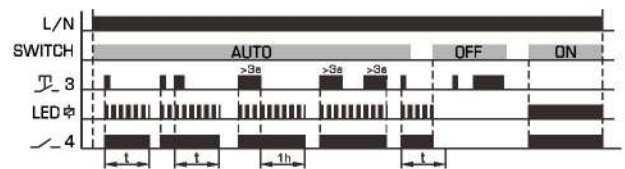
Front-face panel



Features

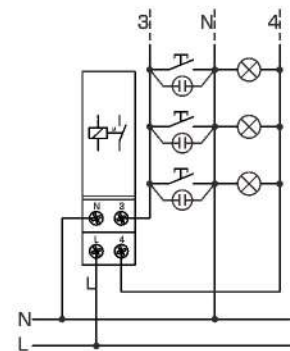
- Microcontroller based
- Possibility of 3wire or 4wire connection
- ON, OFF, AUTO three operation modes.
- 1NO-16A contact
- LED indication for power supply and relay status
- 1 Module Din-rail mounting

Function diagram

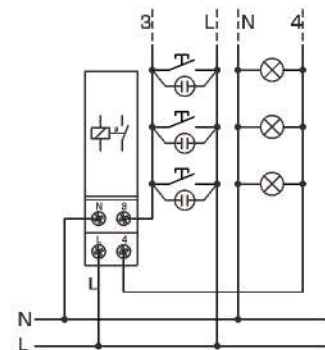


Wiring diagram

3 wire connection



4 wire connection

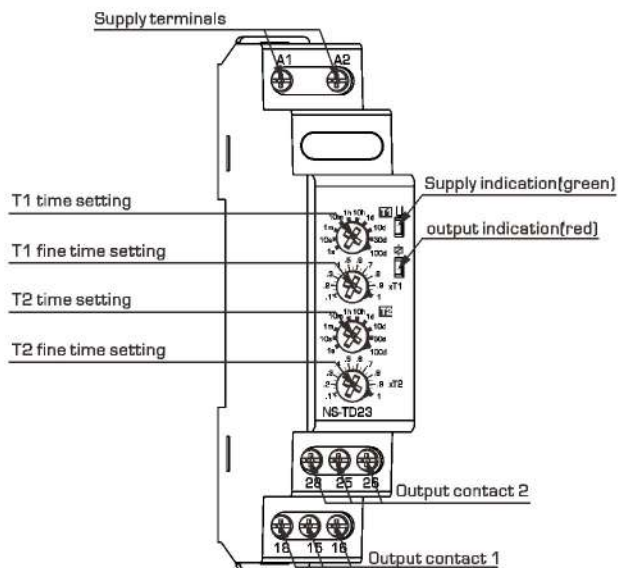




Technical data

Supply terminals	A1, A2
Supply voltage	AC/DC 24-240V
Rated frequency	50/60Hz
Time range	0.1s-10days
Setting accuracy	<5%
Repetition accuracy	<0.2%
Output contacts	2 C/O
Current rating	8A /AC1
Contacts capacity	AC-15: 2A
Insulation voltage	250V
Protection degree	IP20
Pollution degree	3
Electrical life	10 ⁵
Mechanical life	10 ⁶
Altitude	≤2000m
Ambient temperature	-20°C~+55°C
Storage temperature	-30°C~+70°C
Wire size	0.5mm ² ~2.5mm ²
Torque	0.5Nm
Mounting	TH-35 DIN-Rail

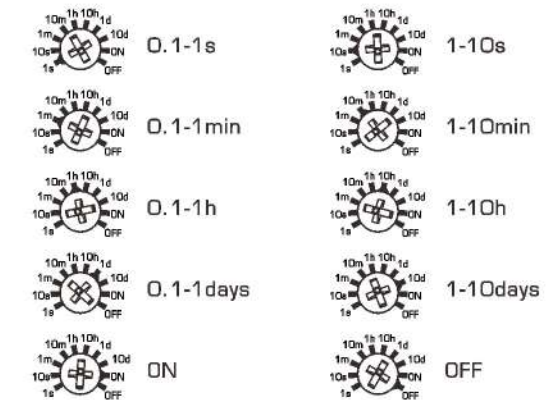
Front-face panel

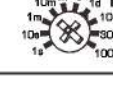
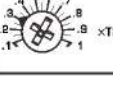


Features

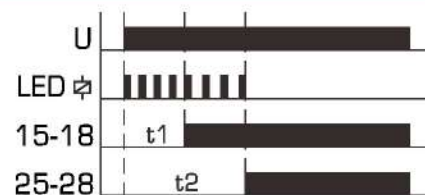
- Microcontroller based
- 2x delay on
- 10 time ranges(1s, 10s, 1m, 10m, 1h, 10h, 1d, 10d, ON, OFF)
- Repetition accuracy<0.2%
- T1 and T2 are independently adjustable
- LED indication for power supply and relay status
- 1 Module Din-rail mounting

Time range

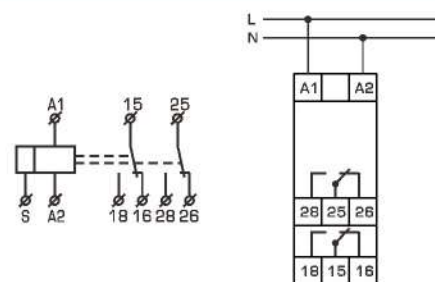


		Time adjustment: $t_1 = 10m \times 0.3 = 3min$
		Time adjustment: $t_2 = 1d \times 0.7 = 0.7day$

Function diagram



Wiring diagram

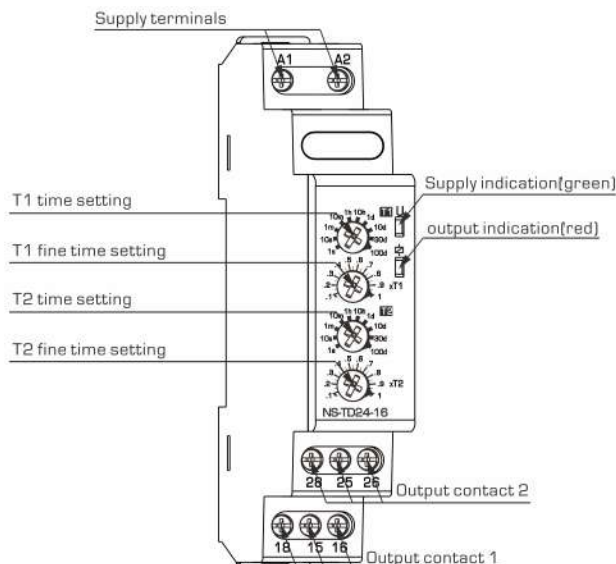




Technical data

Supply terminals	A1,A2
Supply voltage	AC/DC12-240V
Rated frequency	50/60Hz
Time range	0.1s-10days
Setting accuracy	<5%
Repetition accuracy	<0.2%
Output contacts	2 C/O
Current rating	16A /AC1
Insulation voltage	250V
Protection degree	IP20
Pollution degree	3
Electrical life	10 ⁵
Mechanical life	10 ⁶
Altitude	≤2000m
Ambient temperature	-20°C~+55°C
Storage temperature	-30°C~+70°C
Wire size	0.5mm ² ~2.5mm ²
Torque	0.5Nm
Mounting	TH-35 DIN-Rail

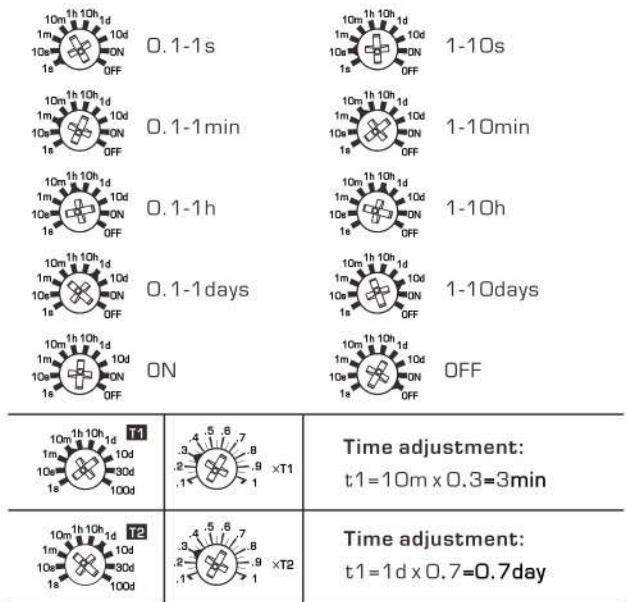
Front-face panel



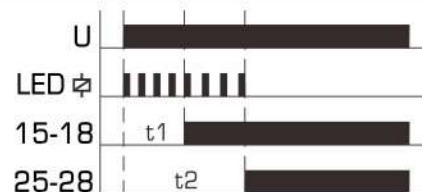
Features

- Microcontroller based
- 2x delay on
- 10 time ranges(1s, 10s, 1m, 10m, 1h, 10h, 1d, 10d, ON, OFF)
- Repetition accuracy<0.2%
- T1 and T2 are independently adjustable
- LED indication for power supply and relay status
- 1 Module Din-rail mounting

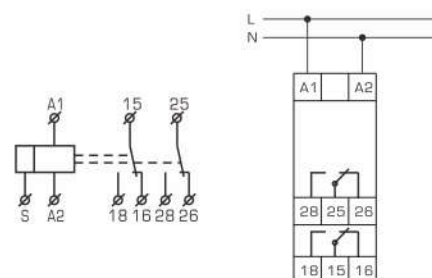
Time range



Function diagram



Wiring diagram

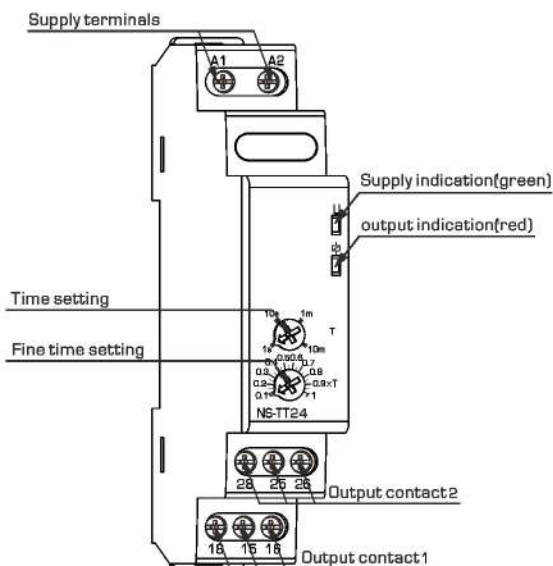




Technical data

Supply terminals	A1,A2
Supply voltage	AC/DC12-240V
Rated frequency	50/60Hz
Time range	0.1s-600s
Setting accuracy	<5%
Repetition accuracy	<0.2%
Output contacts	2 C/O
Current rating	8A /AC1
Insulation voltage	250V
Protection degree	IP20
Pollution degree	3
Electrical life	10 ⁵
Mechanical life	10 ⁶
Altitude	≤2000m
Ambient temperature	-20°C~+55°C
Storage temperature	-30°C~+70°C
Wire size	0.5mm ² ~2.5mm ²
Torque	0.5Nm
Mounting	TH-35 DIN-Rail

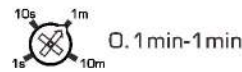
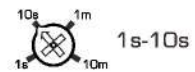
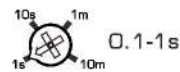
Front-face panel



Features

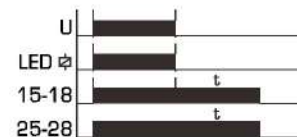
- Microcontroller based
- True delay OFF(delay OFF without power supply)
- 4 time ranges(1s, 10s, 100s, 600s)
- Repetition accuracy<0.2%
- LED indication for relay status
- 1 Module Din-rail mounting

Time range

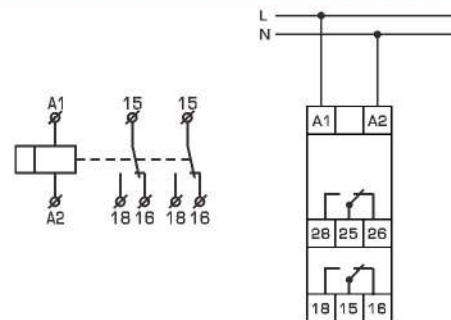


		Time adjustment: $t = 10m \times 0.3 = 3min$
		Time adjustment: $t = 10s \times 0.7 = 7s$

Function diagram



Wiring diagram





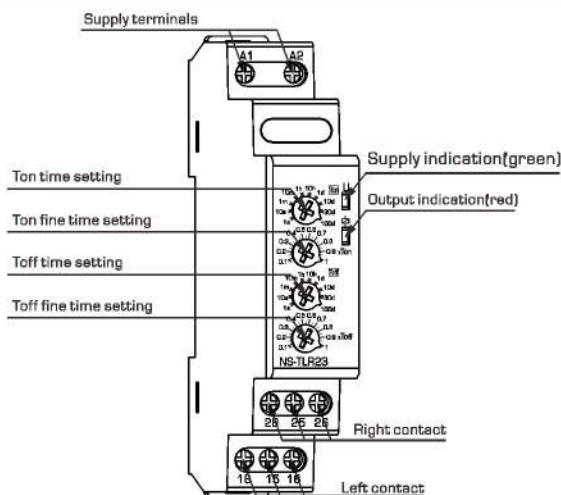
Right-left relay is used for 2 different loads, which works by turn. First load starts working, stops and waits(off) and second load starts working. Both working time is same.

Initially first relay is energized. After Ton delay, relay is de-energized. Both relays are de-energized during Toff delay. At the end of Toff, second relay stays in this position during Ton. When Ton finished both relays are de-energized. This cycle is repeated continuously.

Technical data

Supply voltage	AC/DC 24 - 240V
Rated frequency	50/60Hz
Time range	0.1s-100days
Setting accuracy	<5%
Repetition accuracy	<0.2%
Output contacts	2 C/O
Current rating	8A /AC1
Contacts capacity	AC-15: 2A
Insulation voltage	250V
Protection degree	IP20
Electrical life	10 ⁵
Mechanical life	10 ⁶
Altitude	≤2000m
Ambient temperature	-20°C~+55°C
Wire size/Torque	0.5mm ² ~2.5mm ² /0.5Nm
Mounting	TH-35 DIN-Rail

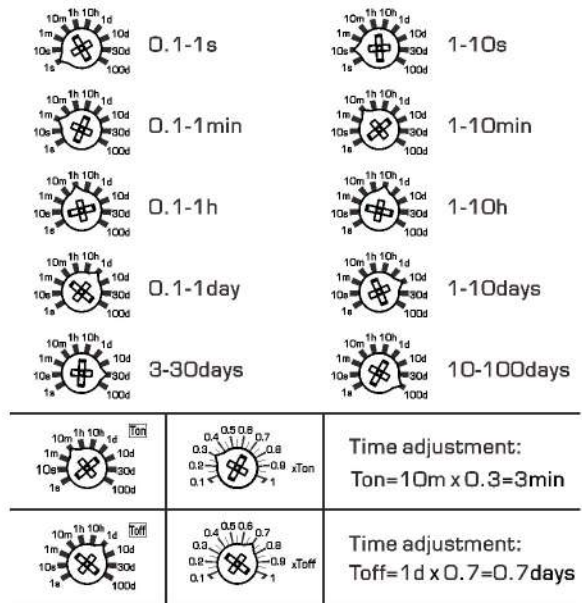
Front-face panel



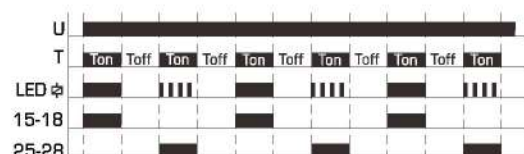
Features

- Microcontroller based
- Right-left operation
- 10 time ranges(1s, 10s, 1m, 10m, 1h, 10h, 1d, 10d, 30d, 100d)
- Repetition accuracy<0.2%
- LED indication for relay status
- 1 Module Din-rail mounting

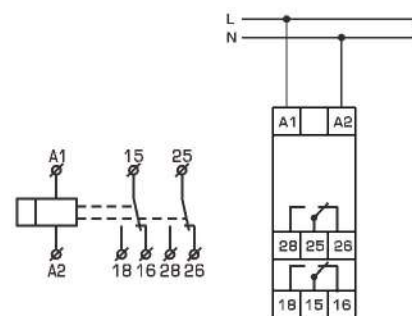
Time range



Function diagram



Wiring diagram





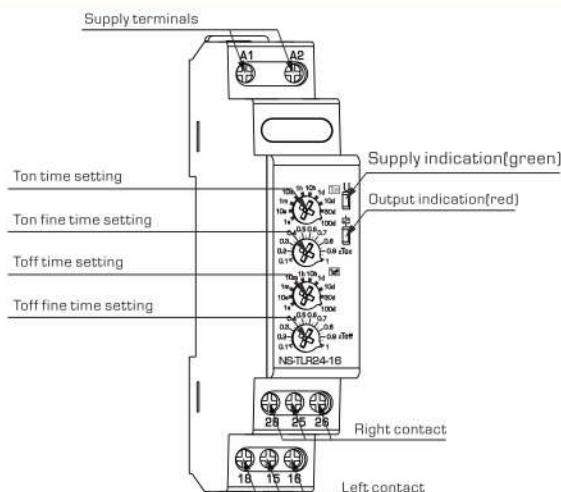
Right-left relay is used for 2 different loads, which works by turn. First load starts working, stops and waits(off) and second load starts working. Both working time is same.

Initially first relay is energized. After Ton delay, relay is de-energized. Both relays are de-energized during Toff delay. At the end of Toff, second relay stays in this position during Ton. When Ton finished both relays are de-energized. This cycle is repeated continuously.

Technical data

Supply voltage	AC/DC12-240V
Rated frequency	50/60Hz
Time range	0.1s-100days
Setting accuracy	<5%
Repetition accuracy	<0.2%
Output contacts	2 C/O
Current rating	16A / AC1
Insulation voltage	250V
Protection degree	IP20
Electrical life	10 ⁵
Mechanical life	10 ⁶
Altitude	≤2000m
Ambient temperature	-20°C~+55°C
Wire size/Torque	0.5mm ² ~2.5mm ² /0.5Nm
Mounting	TH-35 DIN-Rail

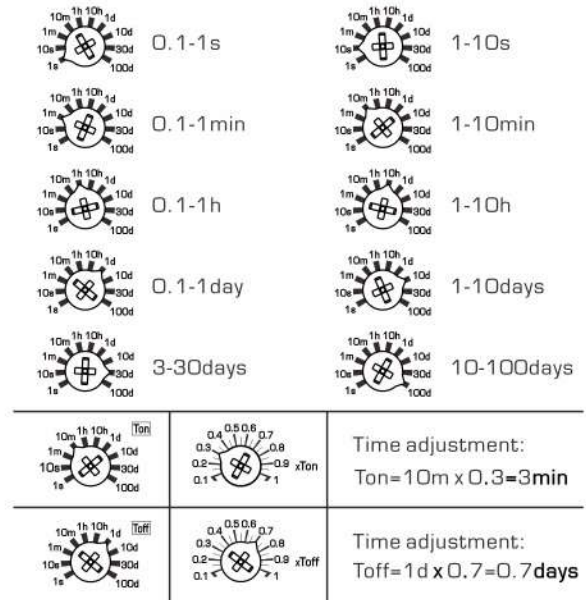
Front-face panel



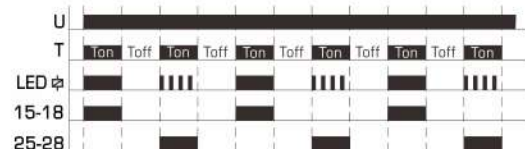
Features

- Microcontroller based
- Right-left operation
- 10 time ranges(1s, 10s, 1m, 10m, 1h, 10h, 1d, 10d, 30d, 100d)
- Repetition accuracy<0.2%
- LED indication for relay status
- 1 Module Din-rail mounting

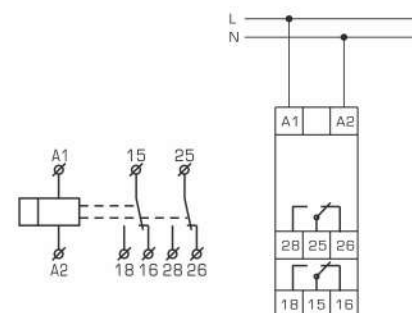
Time range



Function diagram



Wiring diagram

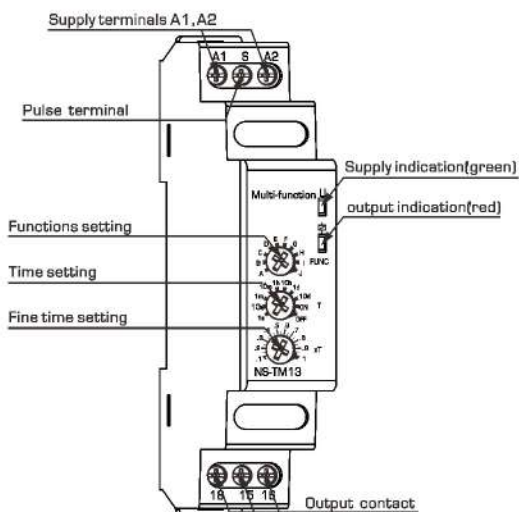




Technical data

Models	NS-TM14	NS-TM13	NS-TM23
Supply terminals	A1,A2		
Pulse terminal	S		
Supply voltage	AC/DC 12-240V	AC/DC 24- 240V	
Rated frequency	50/60Hz		
Time range	0.1s-10days		
Setting accuracy	<5%		
Repetition accuracy	<0.2%		
Output contacts	1 C/O	2 C/O	
Current rating	8A /AC1		
Contacts capacity	AC-15: 2A		
Insulation voltage	250V		
Protection degree	IP20		
Pollution degree	3		
Electrical life	10 ⁵		
Mechanical life	10 ⁶		
Altitude	≤2000m		
Ambient temperature	-20˚C~+55˚C		
Storage temperature	-30˚C~+70˚C		
Wire size	0.5mm ² ~2.5mm ²		
Torque	0.5Nm		
Mounting	TH-35 DIN-Rail		

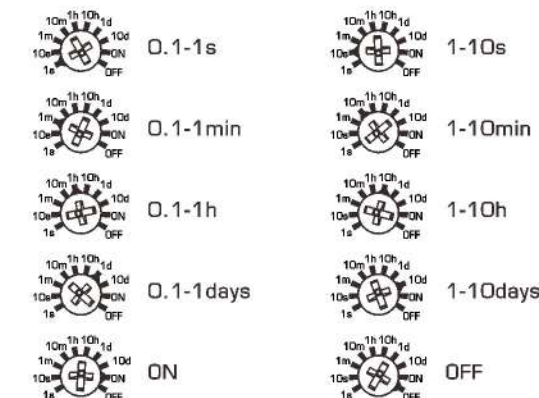
Front-face panel



Features

- Microcontroller based
- 10 functions
- 10 time ranges(1s, 10s, 1m, 10m, 1h, 10h, 1d, 10d, ON, OFF)
- Wide supply voltage.
- LED indication for power supply and relay status
- 1 Module Din-rail mounting

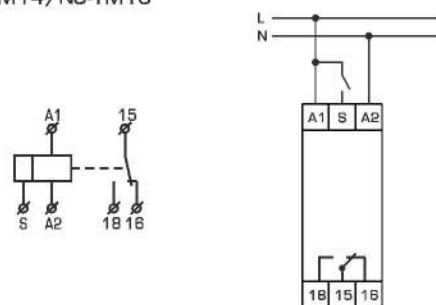
Time range



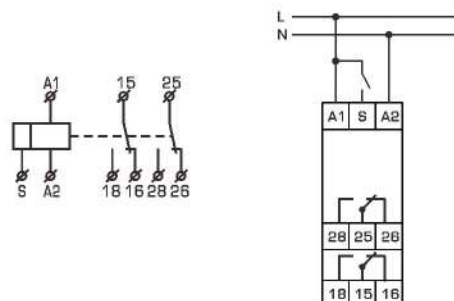
		Time adjustment: $t = 10m \times 0.3 = 3min$
		Time adjustment: $t = 1d \times 0.7 = 0.7day$

Wiring diagrams

● NS-TM14/NS-TM13



● NS-TM23



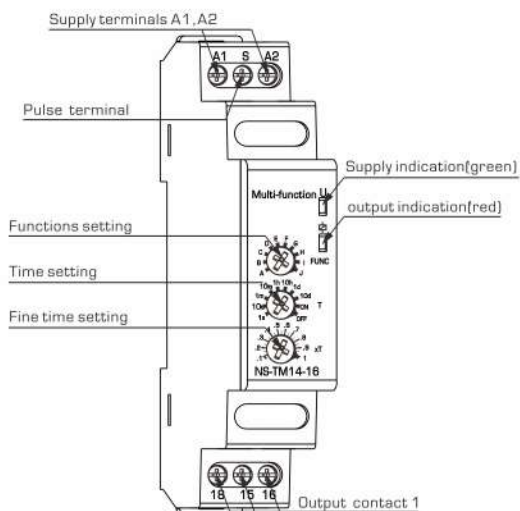
□ Function diagrams

A		SWITCH ON DELAY - after the supply voltage has been applied the time t measurement starts. After the time is over the relay switches on (pos. 15-18). The next switch on interval appears after power supply voltage reset.
B		SWITCH OFF DELAY - after the supply voltage has been applied, the relay switches on immediately (pos. 15-18), and the preset time t is measured. After the preset time t has been measured, the output relay returns to the initial state (pos. 15-16).
C		FLASHER STARTING WITH OFF - (Starting from the switch off position). After the supply voltage has been applied, the preset time t is measured. After the time t is over, the relay switches on (pos. 15-18) and the preset time t is measured once more. After the preset time t is over, the output relay returns to the initial state (pos. 15-16), and the next operating cycle of the relay starts. The relay operates until the supply voltage is removed.
D		FLASHER STARTING WITH ON - (Starting from the switch on position). After the supply voltage has been applied, the relay is switched on immediately (pos. 15-18) and the preset time t is measured. After the time t is over, the relay switches off (pos. 15-16) and the preset time t is measured once more. After the preset time t is over, the relay R returns to the initial state, and the next operating cycle of the relay starts. The relay operates until the supply voltage is removed.
E		DELAY IMPULSE GENERATION 0,5 s - after the supply voltage has been applied the time measure t starts. After the time is over the relay switches on (pos. 15-18) for 0,5s, and switches off (pos. 15-16). The next switch on interval appears after power supply voltage reset.
F		TIME IMPULSE RELEASED BY RISING EDGE - after the impulse release has been applied to the powered system (rising edge) it switches on the relay (pos. 15-18), and starts to measure the preset time. After the time t is over the relay switches off (pos. 15-16). Impulse time duration is not important here.
G		TIME IMPULSE RELEASED BY FALLING EDGE - powered system switches on the relay after impulse release fades (falling edge) (pos. 15-18) and time measurement starts. The relay is switched off after time t is over. The following impulse release fades during time measurement does not cause time measure from the beginning (non-retriggerable).
H		SWITCH ON/OFF DELAY - after the impulse release has been applied to the powered system (rising edge) let the relay be switched off (pos. 15-16), at the same time, starts the preset time t measurement. After the time is over the relay is switched on (pos. 15-18). After the impulse release fade is detected (falling edge), the system starts preset time measurement again after it is over the relay is switched off (pos. 15-16). In case the impulse duration is shorter than the preset time t the relay is switched on for the t time only
I		LATCHING RELAY - supply voltage U must be applied continuously. Output changes state with every trigger switch s closure. If supply voltage U is removed, relay contacts return to their shelf state..
J		TIME IMPULSE RELEASED BY RISING EDGE WITH SWITCH OFF DELAY (retriggerable) - after the impulse release has been applied to the powered system (rising edge) it switches on the relay (pos. 15-18). After the impulse release fade is detected (falling edge), the system starts preset time measurement again and when it is over the relay is switched off (pos. 15-16). The following impulse release fade during time measurement causes from the beginning (retriggerable).

☐ Technical data

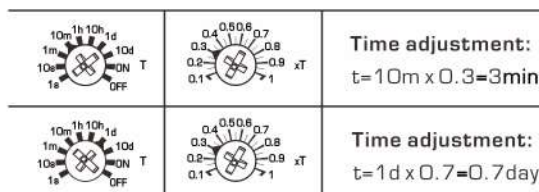
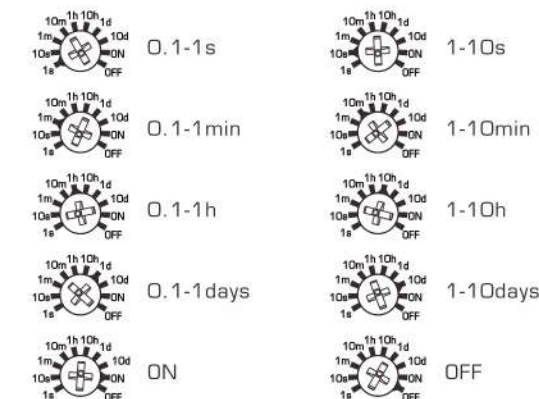
Models	NS-TM14-16	NS-TM24-16
Supply terminals	A1,A2	
Pulse terminal	S	
Supply voltage	AC/DC 12- 240V	
Rated frequency	50/60Hz	
Time range	0.1s-10days	
Setting accuracy	<5%	
Repetition accuracy	<0.2%	
Output contacts	1 C/O	2 C/O
Current rating	16A /AC1	
Insulation voltage	250V	
Protection degree	IP20	
Pollution degree	3	
Electrical life	10 ⁵	
Mechanical life	10 ⁶	
Altitude	≤2000m	
Ambient temperature	-20℃~+55℃	
Storage temperature	-30℃~+70℃	
Wire size	0.5mm ² ~2.5mm ²	
Torque	0.5Nm	
Mounting	TH-35 DIN-Rail	

☐ Front-face panel



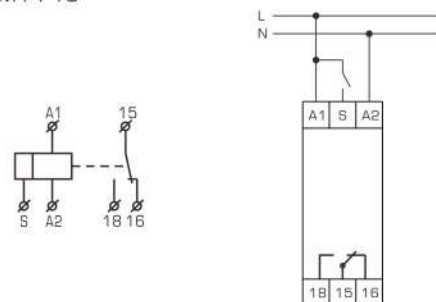
□ Features

- Microcontroller based
- 10 functions
- 10 time ranges{1s,10s,1m,10m,1h,10h,1d,10d,ON,OFF}
- Wide supply voltage.
- LED indication for power supply and relay status
- 1 Module Din-rail mounting

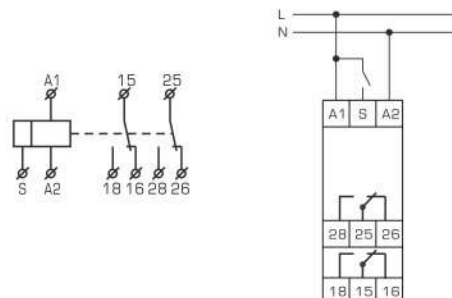
☐ Time range

- Wiring diagrams

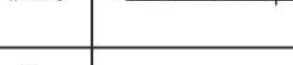
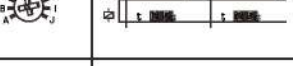
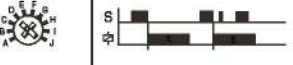
●NS-TM14-16



●NS-TM24-16



□ Function diagrams

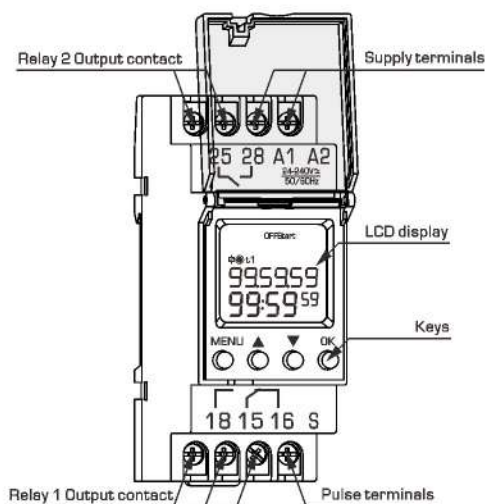
A		SWITCH ON DELAY - after the supply voltage has been applied the time t measurement starts. After the time is over the relay switches on (pos. 15-18). The next switch on interval appears after power supply voltage reset.
B		SWITCH OFF DELAY - after the supply voltage has been applied, the relay switches on immediately (pos. 15-18), and the preset time t is measured. After the preset time t has been measured, the output relay returns to the initial state (pos. 15-16).
C		FLASHER STARTING WITH OFF - (Starting from the switch off position). After the supply voltage has been applied, the preset time t is measured. After the time t is over, the relay switches on (pos. 15-18) and the preset time t is measured once more. After the preset time t is over, the output relay returns to the initial state (pos. 15-16), and the next operating cycle of the relay starts. The relay operates until the supply voltage is removed.
D		FLASHER STARTING WITH ON - (Starting from the switch on position). After the supply voltage has been applied, the relay is switched on immediately (pos. 15-18) and the preset time t is measured. After the time t is over, the relay switches off (pos. 15-16) and the preset time t is measured once more. After the preset time t is over, the relay R returns to the initial state, and the next operating cycle of the relay starts. The relay operates until the supply voltage is removed.
E		DELAY IMPULSE GENERATION 0,5 s - after the supply voltage has been applied the time measure t starts. After the time is over the relay switches on (pos. 15-18) for 0,5s, and switches off (pos. 15-16). The next switch on interval appears after power supply voltage reset.
F		TIME IMPULSE RELEASED BY RISING EDGE - after the impulse release has been applied to the powered system (rising edge) it switches on the relay (pos. 15-18), and starts to measure the preset time. After the time t is over the relay switches off (pos. 15-16). Impulse time duration is not important here.
G		TIME IMPULSE RELEASED BY FALLING EDGE - powered system switches on the relay after impulse release fades (falling edge)(pos. 15-18) and time measurement starts. The relay is switched off after time t is over. The following impulse release fades during time measurement does not cause time measure from the beginning(non-retriggerable).
H		SWITCH ON/OFF DELAY - after the impulse release has been applied to the powered system (rising edge) let the relay be switched off (pos. 15-16), at the same time, starts the preset time t measurement. After the time is over the relay is switched on (pos. 15-18). After the impulse release fade is detected (falling edge), the system starts preset time measurement again after it is over the relay is switched off (pos. 15-16). In case the impulse duration is shorter than the preset time t the relay is switched on for the t time only
I		LATCHING RELAY - supply voltage U must be applied continuously. Output changes state with every trigger switch s closure. If supply voltage U is removed, relay contacts return to their shelf state..
J		TIME IMPULSE RELEASED BY RISING EDGE WITH SWITCH OFF DELAY (retriggerable) - after the impulse release has been applied to the powered system (rising edge) it switches on the relay (pos. 15-18). After the impulse release fade is detected (falling edge), the system starts preset time measurement again and when it is over the relay is switched off (pos. 15-16). The following impulse release fade during time measurement causes from the beginning[retriggerable].



Technical data

Supply terminals	A1, A2
Pulse terminal	S
Supply voltage	AC/DC 24-240V
Rated frequency	50/60Hz
Time range	0s-99h59min59sec
Repetition accuracy	max. ±3s/24h 25°C
Data readout	Back-lighted LCD display
Data storage	10 year
Output contacts	1 C/O + 1 NO
Current rating	8A / AC1
Contacts capacity	AC-15: 2A
Insulation voltage	250V
Protection degree	IP20
Pollution degree	3
Electrical life	10 ⁵
Mechanical life	10 ⁶
Altitude	≤2000m
Ambient temperature	-20°C~+55°C
Storage temperature	-30°C~+70°C
Wire size	0.5mm ² ~2.5mm ²
Torque	0.5Nm
Mounting	TH-35 DIN-Rail

Front-face panel

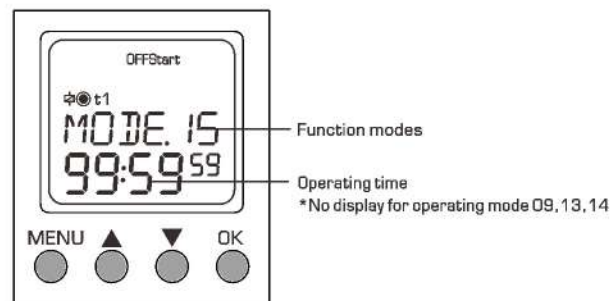
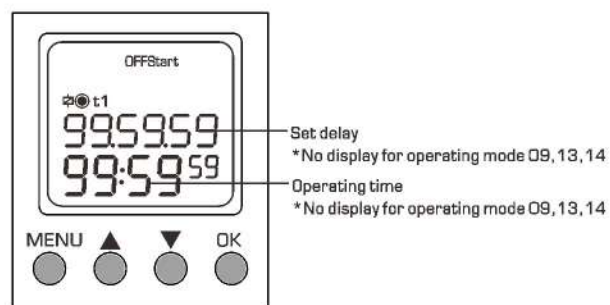


Features

- Microcontroller based
- LCD display for functions, set delay and operating time
- 24 functions
- Time range: 0s-99h59min59sec.
- AC/DC 24-240V supply voltage
- 1C/O+1NO contacts
- Backlighted LCD display
- Easy setting by keys
- 2 module Din-rail mounting

Description

Panel

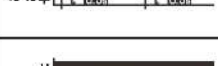
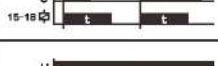
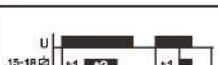


Symbol legend

- ⊕ — Relay 1 ON
- ⊖ — Relay 1 OFF
- SET — Parameters setting
- ONStart — Starting with ON
- OFFStart — Starting with OFF
- ┌ — Time impulse release by rising edge
- └ — Time impulse release by falling edge
- start — Starting with S pulse
- T — Time delay T
- T1 — Time delay T1
- T2 — Time delay T2

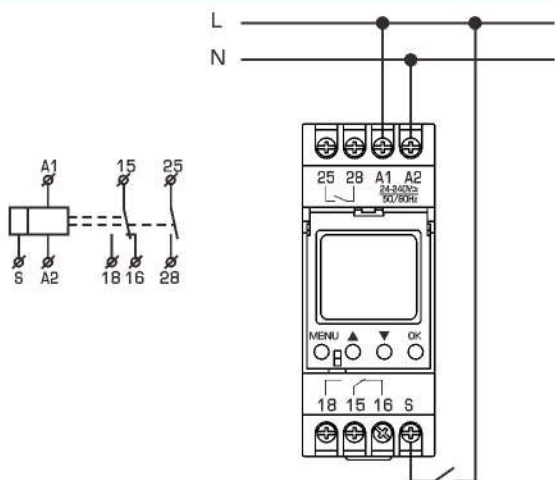
Keys

MENU	Enter configuration menu	OK	Confirm settings
Arrow	Exit configuration menu	Arrow	Select menu
Arrow	Select menu	Arrow	Select menu
Arrow	Digit +	Arrow	Digit -

01		SWITCH ON DELAY - after the supply voltage has been applied the preset time t measure starts. After the time is over the relay switches on (pos. 15-18). The next switch on mode appears after power supply voltage reset.
02		SWITCH OFF DELAY - after the supply voltage has been applied, the relay switches on immediately (pos. 15-18), and the preset time t is measured. After the preset time is measured, the relay is switched off (pos. 15-16). The next switch on interval appears after power supply voltage reset.
03		FLASHER STARTING WITH OFF – (Starting from the switch off position). After the supply voltage has been applied, the preset time t is measured. After the time is over, the relay switches on (pos. 15-18). Again with the preset time t interval, the relay is switched off (pos. 15-16) and switched on (pos. 15-18). The next switch on interval appears after power supply voltage reset.
04		FLASHER STARTING WITH ON – (Starting from the switch on position). After the supply voltage has been applied, the relay is immediately switched on (pos. 15-18) and the preset time t is measured. After the time t is over, the relay switches off (pos. 15-16). Again with the preset time t interval the relay is switched on (pos. 15-18) and switched off (pos. 15-16). The next switch on interval appears after power supply voltage reset.
05		IMPULSE GENERATOR DELAY 0,5 sec. - After the supply voltage has been applied the preset time t measure starts. After the time t is over the relay switches on (pos. 15-18) for 0,5 second, and switches off (pos. 15-16). The next switch on interval appears after power supply voltage reset.
06		TIME IMPULSE RELEASED BY RISING EDGE – after the impulse release has been applied to the power supply system (rising edge) it switches on the relay (pos. 15-18) and starts to measure the preset time. After the time t is over the relay is switched off (pos. 15-16). Impulse time duration is not important here.
07		TIME IMPULSE RELEASED BY FALLING EDGE – power supply system switches on the relay after impulse release fades (falling edge) (pos. 15-18) and time measurement starts. After the time t is over the relay is switched off (pos. 15-16). The following impulse release fades during time measurement does not cause time measure from the beginning (non-retriggerable).
08		SWITCH ON/OFF DELAY – after the impulse release has been applied to the power-supply system (rising edge), it lets the relay be switched off (pos. 15-16) and at the same time starts the preset time t measurement. After the time is over the relay is switched on (pos. 15-18). After the impulse release fade is detected (falling edge), again the system starts the preset time measurement. When it is over the relay is switched off (pos. 15-16). In case the impulse duration time is shorter than the preset time t , the relay is switched on only for the time t .
09		BISTABLE RELAY WITH TIME LIMIT – after the impulse release has been applied to the power supply system (rising edge), it switches on the relay (pos. 15-18) and starts to measure the preset time t . The relay is switched off during the next impulse release (rising edge) or after time t is over in case there was no such impulse occurrence. Impulse time duration is not important for system operating.
10		TIME IMPULSE RELEASED BY RISING EDGE WITH SWITCH OFF DELAY (retriggerable) - after the impulse release has been applied to the power-supply system (rising edge) it switches on the relay (pos. 15-18). After the impulse release fade is detected (rising edge), the system starts the preset time t measurement and when the time is over the relay is switched off (pos. 15-16). The following impulse release fade during time measurement causes time measure from the beginning (retriggerable).
11		TIME IMPULSE RELEASED BY RISING EDGE WITH SWITCH OFF DELAY (non-retriggerable) - after the impulse release has been applied to the power-supply system (rising edge) it switches on the relay (pos. 15-18). After the impulse release fade is detected (falling edge), the system starts the preset time t measurement and when the time is over the relay is switched off (pos. 15-16).
12		SWITCH ON DELAY RELEASED BY IMPULSE - after the impulse release has been applied to the power supply system (rising edge) it keeps the relay in a switched off position (pos. 15-16) and simultaneously starts the preset time t measurement. After the time t is over the relay is switched on (pos. 15-18). The relay is switched on as long as there is a power supply voltage on, the next release impulses do not effect operation of the relay.
13		PERMANENT SWITCH ON MODE - After the supply voltage has been applied the relay is switched on permanently. When choosing this mode t_1 and t_2 time adjustments do not matter.
14		PERMANENT SWITCH OFF MODE - After the supply voltage has been applied the relay is switched off permanently. When choosing this mode t_1 and t_2 time adjustments do not matter.
15		SWITCH ON DELAY - after the supply voltage has been applied the t_1 time measure starts. After the time is over the relay switches on (pos. 15-18) for t_2 time. The next switch on interval appears after power supply voltage reset.
16		SWITCH OFF DELAY - after the supply voltage has been applied, the output relay switches on immediately (pos. 15-18), and the preset time t_1 is measured. After the preset time is measured, the relay is switched off (pos. 15-16) for the preset t_2 time and its another switch on mode. The next switch on interval appears after power supply voltage reset.
17		FLASHER STARTING WITH OFF – (Starting from the switch off position). After the supply voltage has been applied, the preset time t_1 is measured. After the time is over, the relay switches on (pos. 15-18) for the preset t_2 time and again switches off (pos. 15-16) for the preset t_1 time. The next switch on interval appears after power supply voltage reset.
18		FLASHER STARTING WITH OFF – (Starting from the switch on position). After the supply voltage has been applied, the output relay switches on immediately (pos. 15-18) for the preset time t_1 . After the time is over, the relay is switched off (pos. 15-16) for the preset t_2 time and its another switch on mode for t_1 time. The next switch on interval appears after power supply voltage reset.

19		SWITCH ON/OFF DELAY- (retriggerable) – after the impulse release has been applied to the power supply system (rising edge), it lets the relay be switched off (pos. 15-16) and at the same time, starts the preset time t1 measurement. After the time is over the relay is switched on (po. 15-18). After the impulse release fade is detected (falling modulated voltage), the system starts preset t2 time measurement and after it is over the relay is switched off (po. 15-16). In case the impulse release duration is shorter than the preset time t1, the relay is not switched on. Applying the impulse release during the preset t2 time measurement does not cause switching off the relay but it starts time measurement after the impulse fade (falling modulated voltage).
20		SWITCH ON/OFF DELAY- (non-retriggerable) – after the impulse release has been applied to the power-supply system (rising edge), it lets the relay be switched off (pos. 15-16), at the same time, starts the preset time t1 measurement. After the time is over the relay is switched on (pos. 15-18). After the impulse release fade is detected (falling modulated voltage), the system starts preset time t2 measurement and after it is over the relay is switched off (po. 15-16). The release input state can change during the time t2 measurement and does not affect functioning of the system. In case the impulse release duration is shorter than the preset time t1, the relay is not switched on.
21		IMPULSE GENERATION WITH AN ALTERNATE TIME DURATION - after the impulse release has been applied to the power-supply system (growing value), it switches on the relay for the preset time t1, and switches it off. The next impulse release causes the relay switches on for t2 time. Another one switches on the relay for t1 time, etc. The impulse release time duration does not influence the relay switching on time.
22		SWITCH OFF DELAY RELEASED BY FALLING EDGE- after the impulse release has been applied to the power supply system, it switches on the relay (pos. 15-18). Impulse release fade causes the preset time t1 measurement, after it is over the relay is switched off (po. 15-16) for the preset time t2. During the t2 time the system is resistant to signals release. After the t2 time is over the relay is switched on again in the moment of applying impulse release (growing value)
23		TIME IMPULSE RELEASED BY IMPULSE WITH SPECIFIC TIME DURATION - after the impulse release has been applied and lasts continuously for the preset time t1, it switches on the relay (pos. 15-18) for time t2. If the release impulse is shorter than the preset time t1, the relay is not switched on - during switching on the relay the releasing impulses are ignored.
24		IMPULSE RELEASED BY FALLING EDGE - after the impulse release has been applied to the power supply system (rising edge), it switches on the relay for the preset time t1, and after the time elapses it switches off the relay. The impulse release fade (falling edge) switches on the relay (pos. 15-18) for the preset time t2, and after the time elapses it switches it off. During switching on the relay the rising edge and the falling edge are ignored.

□ Wiring diagram

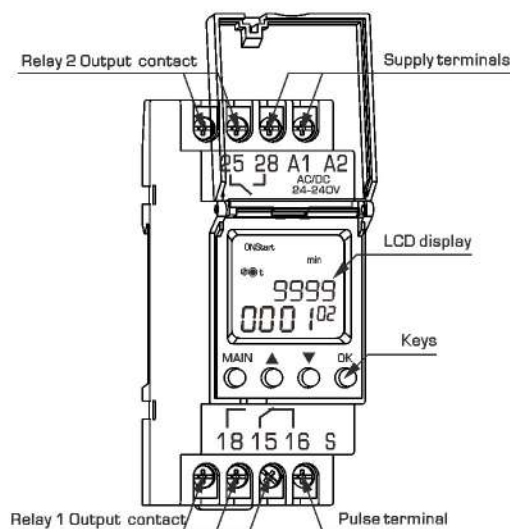




Technical data

Supply terminals	A1, A2
Pulse terminal	S
Supply voltage	AC/DC 24-240V
Rated frequency	50/60Hz
Time range	0-9999s, 0-9999min
Repetition accuracy	max.±3s/24h 25°C
Data readout	Back-lighted LCD display
Data storage	10 year
Output contacts	2NO
Current rating	8A /AC1
Contacts capacity	AC-15: 2A
Insulation voltage	250V
Protection degree	IP20
Pollution degree	3
Electrical life	10 ⁵
Mechanical life	10 ⁶
Altitude	≤2000m
Ambient temperature	-20°C~+55°C
Storage temperature	-30°C~+70°C
Wire size	0.5mm ² ~2.5mm ²
Torque	0.5Nm
Mounting	TH-35 DIN-Rail

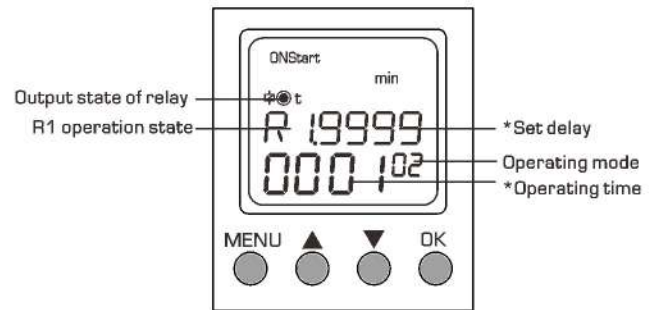
Front-face panel



Features

- Microcontroller based
- 24 functions
- LCD display functions, set delay and operating time
- Time ranges: 0-9999s, 0-9999min
- AC/DC 24-240V supply voltage
- 2 independent NO contacts, can be controlled by different operating modes.
- Backlighted LCD display
- Easy to set by keys
- 2 module Din-rail mounting

Panel



*: No display for operating mode 09, 13, 14.

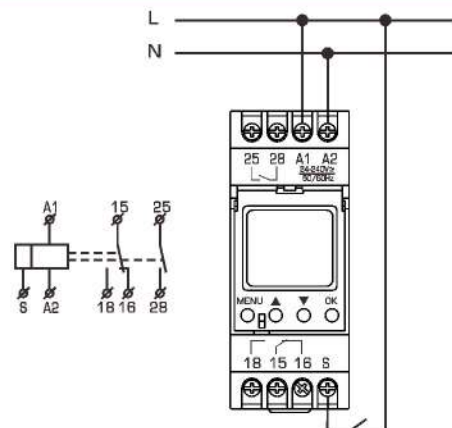
Symbol legend

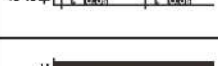
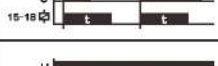
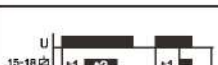
●	Output relay ON	min	Set time: minute
○	Output relay OFF	sec	Set time: second
R 1	Output relay 1	T	Time delay T
R 2	Output relay 2	T 1	Time delay T 1
SET	Parameters setting	T 2	Time delay T 2
ONStart	Starting with ON	start	Starting with S pulse
OFFStart	Starting with OFF		
J	Time impulse release by rising edge		
L	Time impulse release by falling edge		

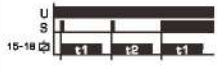
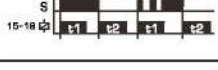
Keys

MENU	Enter configuration menu	OK	Confirm settings
	Exit configuration menu		
▲	Select menu	▼	Select menu
	Digit +		Digit -
	Display menu selection		Display menu selection

Wiring diagrams



01		SWITCH ON DELAY - after the supply voltage has been applied the preset time t measure starts. After the time is over the relay switches on (pos. 15-18). The next switch on mode appears after power supply voltage reset.
02		SWITCH OFF DELAY - after the supply voltage has been applied, the relay switches on immediately (pos. 15-18), and the preset time t is measured. After the preset time is measured, the relay is switched off (pos. 15-16). The next switch on interval appears after power supply voltage reset.
03		FLASHER STARTING WITH OFF – (Starting from the switch off position). After the supply voltage has been applied, the preset time t is measured. After the time is over, the relay switches on (pos. 15-18). Again with the preset time t interval, the relay is switched off (pos. 15-16) and switched on (pos. 15-18). The next switch on interval appears after power supply voltage reset.
04		FLASHER STARTING WITH ON – (Starting from the switch on position). After the supply voltage has been applied, the relay is immediately switched on (pos. 15-18) and the preset time t is measured. After the time t is over, the relay switches off (pos. 15-16). Again with the preset time t interval the relay is switched on (pos. 15-18) and switched off (pos. 15-16). The next switch on interval appears after power supply voltage reset.
05		IMPULSE GENERATOR DELAY 0,5 sec. - After the supply voltage has been applied the preset time t measure starts. After the time t is over the relay switches on (pos. 15-18) for 0,5 second, and switches off (pos. 11-12). The next switch on interval appears after power supply voltage reset.
06		TIME IMPULSE RELEASED BY RISING EDGE – after the impulse release has been applied to the power supply system (rising edge) it switches on the relay (pos. 15-18) and starts to measure the preset time. After the time t is over the relay is switched off (pos. 15-16). Impulse time duration is not important here.
07		TIME IMPULSE RELEASED BY FALLING EDGE – power supply system switches on the relay after impulse release fades (falling edge) (pos. 15-18) and time measurement starts. After the time t is over the relay is switched off (pos. 15-16). The following impulse release fades during time measurement does not cause time measure from the beginning (non-retriggerable).
08		SWITCH ON/OFF DELAY – after the impulse release has been applied to the power-supply system (rising edge), it lets the relay be switched off (pos. 15-16) and at the same time starts the preset time t measurement. After the time is over the relay is switched on (pos. 15-18). After the impulse release fade is detected (falling edge), again the system starts the preset time measurement. When it is over the relay is switched off (pos. 15-16). In case the impulse duration time is shorter than the preset time t , the relay is switched on only for the time t .
09		BISTABLE RELAY WITH TIME LIMIT – after the impulse release has been applied to the power supply system (rising edge), it switches on the relay (pos. 15-18) and starts to measure the preset time t . The relay is switched off during the next impulse release (rising edge) or after time t is over in case there was no such impulse occurrence. Impulse time duration is not important for system operating.
10		TIME IMPULSE RELEASED BY RISING EDGE WITH SWITCH OFF DELAY (retriggerable) - after the impulse release has been applied to the power-supply system (rising edge) it switches on the relay (pos. 15-18). After the impulse release fade is detected (rising edge), the system starts the preset time t measurement and when the time is over the relay is switched off (pos. 15-16). The following impulse release fade during time measurement causes time measure from the beginning (retriggerable).
11		TIME IMPULSE RELEASED BY RISING EDGE WITH SWITCH OFF DELAY (non-retriggerable) - after the impulse release has been applied to the power-supply system (rising edge) it switches on the relay (pos. 15-18). After the impulse release fade is detected (falling modulated voltage), the system starts the preset time t measurement and when the time is over the relay is switched off (pos. 15-16).
12		SWITCH ON DELAY RELEASED BY IMPULSE - after the impulse release has been applied to the power supply system (rising edge) it keeps the relay in a switched off position (pos. 15-16) and simultaneously starts the preset time t measurement. After the time t is over the relay is switched on (pos. 15-18). The relay is switched on as long as there is a power supply voltage on, the next release impulses do not effect operation of the relay.
13		PERMANENT SWITCH ON MODE - After the supply voltage has been applied the relay is switched on permanently. When choosing this mode t_1 and t_2 time adjustments do not matter.
14		PERMANENT SWITCH OFF MODE - After the supply voltage has been applied the relay is switched off permanently. When choosing this mode t_1 and t_2 time adjustments do not matter.
15		SWITCH ON DELAY - after the supply voltage has been applied the t_1 time measure starts. After the time is over the relay switches on (pos. 15-18) for t_2 time. The next switch on interval appears after power supply voltage reset.
16		SWITCH OFF DELAY - after the supply voltage has been applied, the output relay switches on immediately (pos. 15-18), and the preset time t_1 is measured. After the preset time is measured, the relay is switched off (pos. 15-16) for the preset t_2 time and its another switch on mode. The next switch on interval appears after power supply voltage reset.
17		FLASHER STARTING WITH OFF – (Starting from the switch off position). After the supply voltage has been applied, the preset time t_1 is measured. After the time is over, the relay switches on (pos. 15-18) for the preset t_2 time and again switches off (pos. 15-16) for the preset t_1 time. The next switch on interval appears after power supply voltage reset.
18		FLASHER STARTING WITH OFF – (Starting from the switch on position). After the supply voltage has been applied, the output relay switches on immediately (pos. 15-18) for the preset time t_1 . After the time is over, the relay is switched off (pos. 15-16) for the preset t_2 time and its another switch on mode for t_1 time. The next switch on interval appears after power supply voltage reset.

19		SWITCH ON/OFF DELAY- (retriggerable) – after the impulse release has been applied to the power supply system (rising edge), it lets the relay be switched off (pos. 15-16) and at the same time, starts the preset time t1 measurement. After the time is over the relay is switched on (po. 15-18). After the impulse release fade is detected (falling modulated voltage), the system starts preset t2 time measurement and after it is over the relay is switched off (po. 15-16). In case the impulse release duration is shorter than the preset time t1, the relay is not switched on. Applying the impulse release during the preset t2 time measurement does not cause switching off the relay but it starts time measurement after the impulse fade (falling modulated voltage).
20		SWITCH ON/OFF DELAY- (non-retriggerable) – after the impulse release has been applied to the power-supply system (rising edge), it lets the relay be switched off (pos. 15-16), at the same time, starts the preset time t1 measurement. After the time is over the relay is switched on (pos. 15-18). After the impulse release fade is detected (falling modulated voltage), the system starts preset time t2 measurement and after it is over the relay is switched off (po. 15-16). The release input state can change during the time t2 measurement and does not affect functioning of the system. In case the impulse release duration is shorter than the preset time t1, the relay is not switched on.
21		IMPULSE GENERATION WITH AN ALTERNATE TIME DURATION - after the impulse release has been applied to the power-supply system (growing value), it switches on the relay for the preset time t1, and switches it off. The next impulse release causes the relay switches on for t2 time. Another one switches on the relay for t1 time, etc. The impulse release time duration does not influence the relay switching on time.
22		SWITCH OFF DELAY RELEASED BY FALLING EDGE- after the impulse release has been applied to the power supply system, it switches on the relay (pos. 15-18). Impulse release fade causes the preset time t1 measurement, after it is over the relay is switched off (po. 15-16) for the preset time t2. During the t2 time the system is resistant to signals release. After the t2 time is over the relay is switched on again in the moment of applying impulse release (growing value)
23		TIME IMPULSE RELEASED BY IMPULSE WITH SPECIFIC TIME DURATION - after the impulse release has been applied and lasts continuously for the preset time t1, it switches on the relay (pos. 15-18) for time t2. If the release impulse is shorter than the preset time t1, the relay is not switched on - during switching on the relay the releasing impulses are ignored.
24		IMPULSE RELEASED BY FALLING EDGE - after the impulse release has been applied to the power supply system (rising edge), it switches on the relay for the preset time t1, and after the time elapses it switches off the relay. The impulse release fade (falling edge) switches on the relay (pos. 15-18) for the preset time t2, and after the time elapses it switches it off. During switching on the relay the rising edge and the falling edge are ignored.



Description

ND-TP16A series digital time switch are used for realization of time functions in the control and automation systems. It operates according to the set time schedule planned by the user. There is an internal battery which can protect real time clock and all the settings when the electric power supply is off.

Technical data

Supply terminals	A1,A2
Rated voltage	AC/DC24-264V
Rated frequency	50/60Hz
Power consumption	1W
Number of programs	50 on/off
Program	weekly, daily and pulse programs
Mode of work	manual, automatic, holiday
Summer/winter time	off, automatic changes
Time tolerance	≤1s/day at 25°C
Replaceable battery	CR2032
Data readout	LCD display
Number of contacts	1 C/O
Current of contacts	16A/250V AC1
Switching capacity	4000VA/AC1,384W/DC
Mechanical life	10 ⁵
Electrical life	10 ⁵
Rated insulation voltage	250V
Protection degree	IP20
Pollution degree	3
Altitude	≤2000m
Ambient temperature	-20°C~+55°C
Permissible relative humidity	≤50%(40°C, without condensation)
Storage temperature	-30°C~+70°C
Wire size	1mm ² ~ 4mm ²
Tightening torque	0.5Nm
Mounting	TH-35 Rail(EN60715)
Standard	IEC 60730-1/IEC 60730-2-7

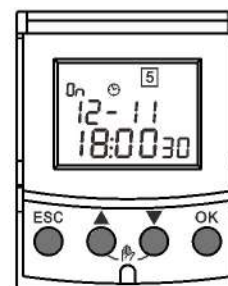
Maximum pilotable power

2000W	2000W	1000W	500W	500W

Features

- Digital time switch with weekly and programs.
- Replaceable battery (CR2032 lithium battery).
- 50 on/off.
- Sealable cover of the front panel, easy setting by 4 keys.
- Automatic summer/winter time changeover.
- LCD display.
- Holiday mode.
- Single channel.
- Manual control by keys combination.
- Automatic transfer of weekdays.
- AC/DC24-264V input supply.
- Double-module, mounted on TH-35 rail.

Front-face panel



1 2 3 4 5 6 7 Days of the week, Monday, Tuesday,.....Sunday

On OFF Relay status: On Activate
OFF Deactivate

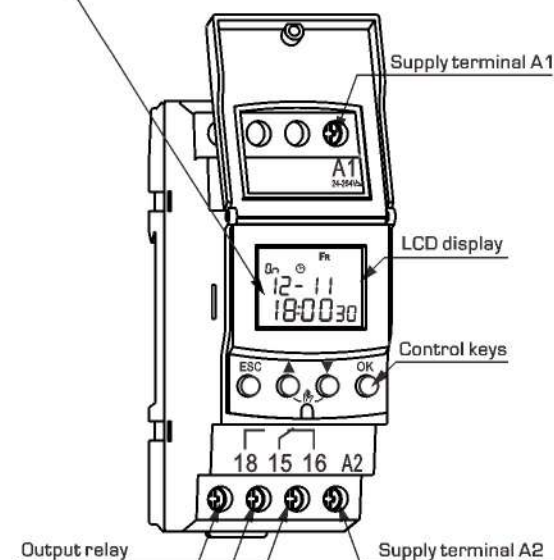
☀ Automatic mode ⚙ Summer time
🔄 Manual mode 📏 Pulse setting
❄ Winter time ☑ Low battery

ESC ○ Back from menu OK ○ Enter main menu
○ Restore/cancel programs ○ Confirm selection

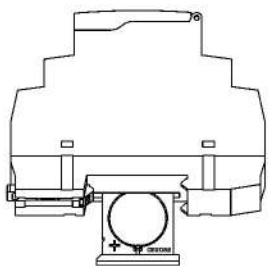
▲ ○ Select menu ▼ ○ Select menu
○ Increase a numerical value ○ Decrease a numerical value

🔄 ○ manual operation

12-11 DD-MM, 12th. November

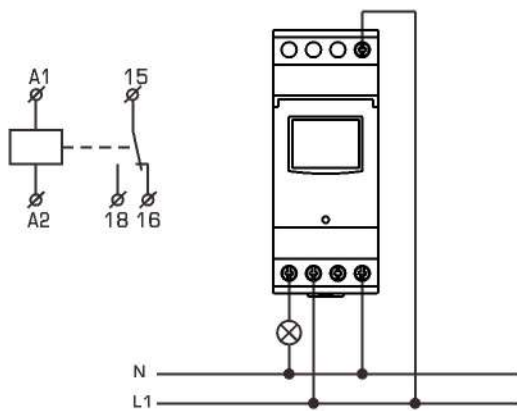


□ Battery replacement

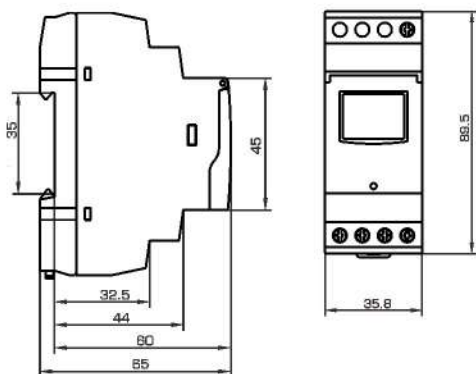


1. Disconnect the main connection.
2. Open the battery cover and insert the battery with the positive(+) side facing up as shown in the figure.
3. Make sure the battery is seated correctly in the battery slot and close the battery cover.

□ Wiring diagram



□ Dimensions



Single channel digital weekly time switch ND-TPD1/ND-TPD1B



Description

ND-TPD series weekly time switch is used for realization of time functions in the control systems and automation. It operates according to the set time schedule planned by the user. Pulse program can be used for school or factory bell ringing. There is an internal battery which can protect real time clock and all the settings when the electric power supply is off.

Technical data

Model	ND-TPD1	ND-TPD1B
Rated voltage	AC220-240V	AC/DC24-264V
Rated frequency	50/60Hz, 0	
Power consumption	1W	
Supply voltage tolerance	±10%	
Number of channels	1	
Number of programs	52	
Programs	weekly, daily and pulse	
Operating modes	manual, automatic, holiday	
Summer/winter time	off, automatic changes	
Time tolerance	≤1s/day at 25°C	
Power reserve	3 years	10 years
Data readout	LCD display	LCD display with backlight
Number of contacts	1 C/O	
Current of contacts	16A/250V AC1	
Switching capacity	4000VA/AC1,384W/DC	
Mechanical life	10 ⁶	
Electrical life	10 ⁵	
Rated insulation voltage	250V	
Protection degree	IP20	
Pollution degree	3	
Altitude	≤2000m	
Ambient temperature	-20°C~+55°C	
Permissible relative humidity	≤50% at 40°C (without condensation)	
Storage temperature	-30°C~+70°C	
Wire size	1mm ² ~4mm ²	
Tightening torque	0.5Nm	
Mounting	TH-35 Rail(EN60715)	
Standard	EN/IEC60730-1, EN/IEC60730-2-7	

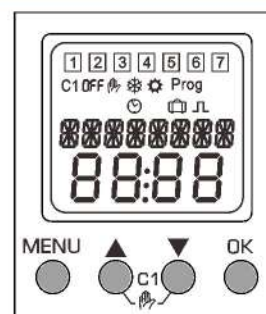
Maximum pilotable power

2300W	2300W	1000W	500W	500W

Features

- Weekly time switch with pulse program
- 3 or 10 years power reserve(lithium battery).
- 52 programs
- Sealable cover of the front panel, easy setting by 4 keys.
- Automatic summer/winter time switchover
- LCD display
- Holiday mode.
- single channel
- Manual control by keys combination.
- Automatic transfer of weekdays
- 220-240VAC or 24-264VAC/DC input supply.
- 2 module Din-rail mounting

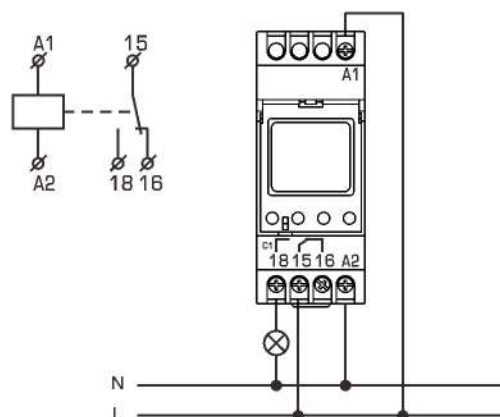
Front-face panel



Symbol legend

- 1 2 3 4 5 6 7 — Days of the week Monday, Tuesday, ...Sunday
 C1 — Channel 1 ☀ — Holiday mode
 OFF — Relay status ❄ — Winter time
 ☀ — Automatic mode ⚙ — Summer time
 ⚙ — Manual mode Prog — Program setting
 ⏏ — Pulse setting

Wiring diagram





Description

ND-TPD2 digital time switch is used for realization of time functions in the control systems and automation. It operates according to the set time schedule planned by the user. Pulse program can be used for school or factory bell ringing.

There is an internal battery which can protect real time clock and all the settings when the electric power supply is off.

Technical data

Supply terminals	A1-A2
Rated voltage	AC/DC24-264V
Rated frequency	50/60Hz,0
Power consumption	2W
Supply voltage tolerance	±10%
Number of channels	2
Number of programs	90
Programs	weekly, daily and pulse
Operating modes	manual, automatic, holiday
Summer/winter time	off, automatic changes
Time tolerance	≤1s/day at 25°C
Power reserve	10 years
Data readout	LCD display
Number of contacts	2 C/O
Current of contacts	16A/250V AC1
Switching capacity	4000VA/AC1,384W/DC
Mechanical life	10 ⁶
Electrical life	10 ⁵
Rated insulation voltage	250V
Protection degree	IP20
Pollution degree	3
Altitude	≤2000m
Ambient temperature	-20°C~+55°C
Permissible relative humidity	≤50% at 40°C(without condensation)
Storage temperature	-30°C~+70°C
Wire size	1mm ² ~4mm ²
Tightening torque	0.5Nm
Mounting	TH-35 Rail(EN60715)
Standard	EN/IEC60730-1, EN/IEC60730-2-7

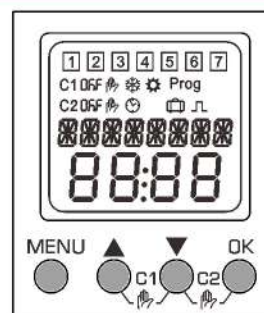
Maximum pilotable power

2300W	2300W	1000W	500W	500W

Features

- Digital time switch with weekly program
- 10 year power reserve(lithium battery).
- 90 programs
- Sealable cover of the front panel, easy setting by 4 keys.
- Automatic summer/winter time switchover
- Back-lighted LCD display
- Holiday mode.
- Double channels (each channel can be assigned an individual program)
- Manual control by keys combination.
- Automatic transfer of weekdays
- 24-264V AC/DC input supply.
- 2 module Din-rail mounting

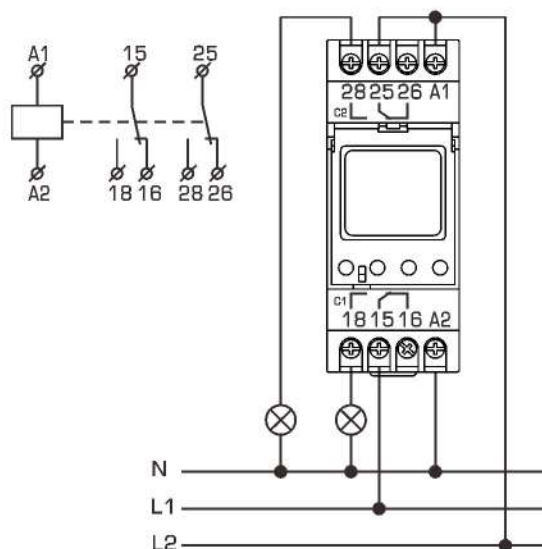
Front-face panel



Symbol legend

- 1 2 3 4 5 6 7 — Days of the week Monday, Tuesday, ...Sunday
- C1 — Channel 1 ☐ — Holiday mode
- C2 — Channel 2 ❄ — Winter time
- On OFF — Relay status ☀ — Summer time
- ⌚ — Automatic mode Prog — Program setting
- 🔊 — Manual mode ⌚ — Pulse setting

Wiring diagram



Single channel astronomical time switch ND-TPA1/ND-TPA1B



Description

ND-TPA series astronomical time switch is for realization of time functions in the systems of automatics and steering. It will calculate the sunrise and sunset according to the geographic position and time zone. Night break program can be used to turn off the output at night.

There is an internal battery which can protect real time clock and all the settings when the electric power supply is off.

Technical data

Model	ND-TPA1	ND-TPA1B
Rated voltage	AC 220-240V	AC/DC 24-264V
Rated frequency	50/60Hz, 0	
Power consumption	1W	
Supply voltage tolerance	±10%	
Number of channels	1	
Program	astronomical	
Mode of work	manual, automatic, holiday,	
Summer/winter time	off, automatic changeover	
Time tolerance	≤1s/day at 25°C	
Power reserve	3 years	10 years
Data readout	LCD display	LCD display with backlight
Number of contacts	1 C/O	
Current of contacts	16A/250V AC1	
Switching capacity	4000VA/AC, 384W/DC	
Mechanical life	10 ⁶	
Electrical life	10 ⁵	
Rated insulation voltage	250V	
Protection degree	IP20	
Pollution degree	3	
Altitude	≤2000m	
Ambient temperature	-20°C~+55°C	
Permissible relative humidity	≤50% at 40°C (without condensation)	
Storage temperature	-30°C~+70°C	
Wire size	1mm ² ~4mm ²	
Tightening torque	0.5Nm	
Mounting	TH-35 Rail(EN60715)	
Standard	EN/IEC60730-1, EN/IEC60730-2-7	

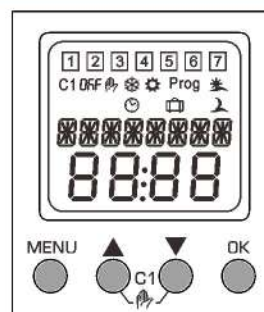
Maximum pilotable power

2300W	2300W	1000W	500W	500W

Features

- Digital time switch with astronomical program
- 3 year or 10 year power reserve(lithium battery).
- Sealable cover of the front panel, easy setting by 4 keys.
- Automatic summer/winter time switchover
- LCD display
- Holiday mode.
- Single channel
- Automatic transfer of weekdays
- 220-240VAC or 24-264VAC/DC input supply.
- 2 module Din-rail mounting

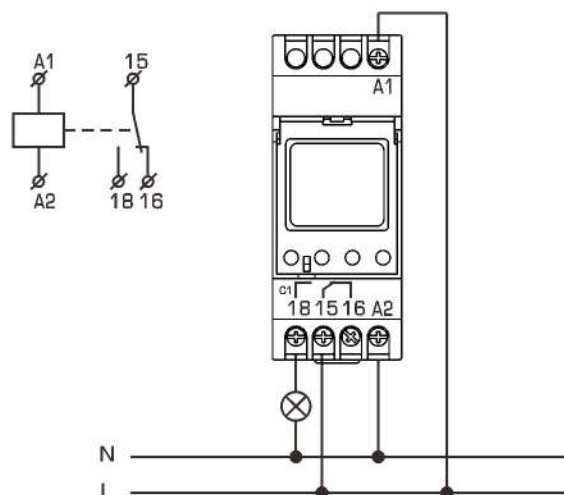
Front-face panel



Symbol legend

- 1 2 3 4 5 6 7 — Days of the week Monday, Tuesday, ...Sunday
 C1 — Channel 1
 On OFF — Relay status: On Activate OFF Deactivate
 — Sunrise
 — Sunset
 — Automatic mode
 — Manual mode
 — Holiday mode
 — Winter time
 — Summer time
 Prog — Program setting

Wiring diagram





Description

ND-TPA2 astronomical time switch is for realization of time functions in the systems of automatics and steering. It will calculate the sunrise and sunset according to the geographic position and time zone. Night break program can be used to turn off the output at night.

There is an internal battery which can protect real time clock and all the settings when the electric power supply is off.

Technical data

Supply terminals	A1-A2
Rated voltage	AC/DC 24-264V
Rated frequency	50/60Hz, 0
Power consumption	2W
Supply voltage tolerance	±10%
Number of channels	2
Program	astronomical
Mode of work	manual, automatic, holiday,
Summer/winter time	off, automatic changeover
Time tolerance	≤1s/day at 20°C
Power reserve	10 years
Data readout	LCD display, with back light
Number of contacts	2 C/0
Current of contacts	16A/250V AC1
Switching capacity	4000VA/AC, 384W/DC
Mechanical life	10 ⁶
Electrical life	10 ⁵
Rated insulation voltage	250V
Protection degree	IP20
Pollution degree	3
Altitude	≤2000m
Ambient temperature	-20°C~+55°C
Permissible relative humidity	≤50% at 40°C(without condensation)
Storage temperature	-30°C~+70°C
Wire size	1mm ² ~4mm ²
Tightening torque	0.5Nm
Mounting	TH-35 Rail(EN60715)
Standard	EN/IEC60730-1, EN/IEC60730-2-7

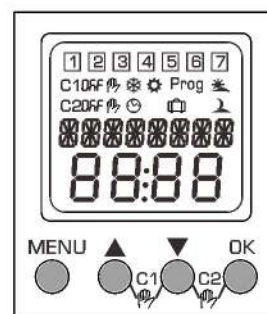
Maximum pilotable power

2300W	2300W	1000W	500W	500W

Features

- Digital time switch with astronomical program
- 10 year power reserve(lithium battery).
- Sealable cover of the front panel, easy setting by 4 keys.
- Automatic summer/winter time switchover
- Back-lighted LCD display
- Holiday mode.
- 2 channels version(each channel can be assigned an individual program)
- Automatic transfer of weekdays
- 24-264V AC/DC input supply.
- 2 module Din-rail mounting

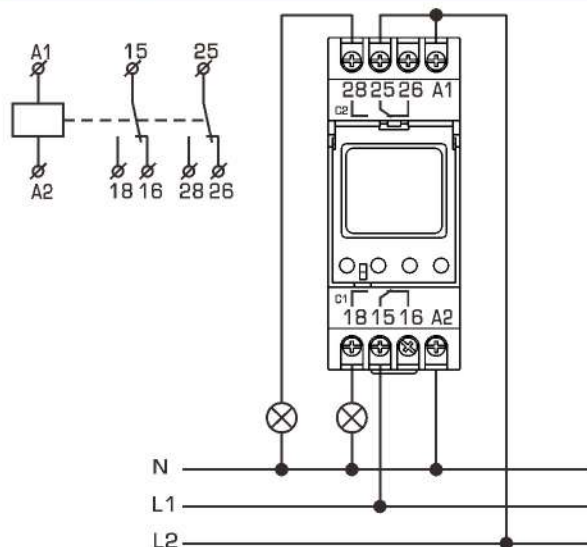
Front-face panel



Symbol legend

- 1 2 3 4 5 6 7 — Days of the week Monday, Tuesday, ...Sunday
- C1 — Channel 1
- C2 — Channel 2
- OFF — Relay status
- ⌚ — Automatic mode
- 🕒 — Manual mode
- 🏠 — Holiday mode
- ☀ — Sunrise
- 🌇 — Sunset
- ❄ — Winter time
- ☀ — Summer time
- Prog — Program setting

Wiring diagram



Single channel multifunction time switch ND-TPM1/ND-TPM1B



Description

ND-TPM series multifunction time switch is for realization of time functions in the systems of automatics and steering. It calculates the sunrise and sunset time automatically according to the set geographic position and time zone, without the use of a photocell sensor.

There is an internal battery which can protect real time clock and all the settings when the electric power supply is off.

Technical data

Model	ND-TPM1	ND-TPM1B
Rated voltage	AC 220-240V	AC/DC 24-264V
Rated frequency	50/60Hz, 0	
Power consumption	1W	
Supply voltage tolerance	±10%	
Number of channels	1	
Number of programs	40	
Program	weekly, annual and astronomical	
Mode of work	manual, automatic, holiday, random	
Summer/winter time	off, automatic changeover	
Time tolerance	≤1s/day at 20°C	
Power reserve	3 years	10 years
Data readout	LCD display	LCD display with backlight
Number of contacts	1 C/O	
Current of contacts	16A/250V AC1	
Switching capacity	4000VA/AC, 384W/DC	
Mechanical life	10 ⁵	
Electrical life	10 ⁵	
Rated insulation voltage	250V	
Protection degree	IP20	
Pollution degree	3	
Altitude	≤2000m	
Ambient temperature	-20°C~+55°C	
Permissible relative humidity	≤50% at 40°C (without condensation)	
Storage temperature	-30°C~+70°C	
Wire size	1mm ² ~4mm ²	
Tightening torque	0.5Nm	
Mounting	TH-35 Rail(EN60715)	
Standard	EN/IEC60730-1, EN/IEC60730-2-7	

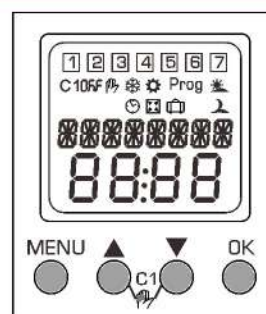
Maximum pilotable power

2300W	2300W	1000W	500W	500W

Features

- Astronomical and annual programs.
- 3 year 10 year power reserve(lithium battery).
- 40 programs
- Sealable cover of the front panel, easy setting by 4 keys.
- Automatic summer/winter time switchever
- Back-lighted LCD display(can be turned off)
- Holiday mode.
- Random mode
- Single channel
- Automatic transfer of weekdays
- 24-264V AC/DC input supply.
- 2 module Din-rail mounting

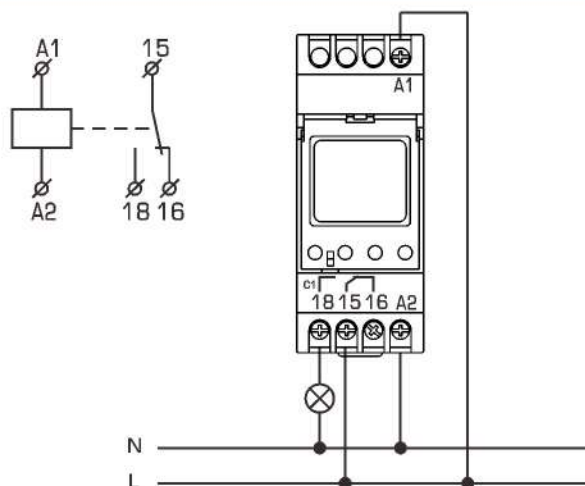
Front-face panel



Symbol legend

- 1 2 3 4 5 6 7 — Days of the week Monday, Tuesday, ... Sunday
 C1 — Channel 1
 OFF — Relay status
 ☀ — Sunrise
 ☿ — Sunset
 ☼ — Automatic mode
 ☼ — Manual mode
 ☼ — Holiday mode
 ☼ — Random mode
 ☼ — Winter time
 ☼ — Summer time
 Prog — Program setting

Wiring diagram





Description

ND-TPM2 multifunction time switch is for realization of time functions in the systems of automatics and steering. It calculates the sunrise and sunset time automatically according to the set geographic position and time zone, without the use of a photocell sensor.

There is an internal battery which can protect real time clock and all the settings when the electric power supply is off.

Technical data

Supply terminals	A1-A2
Rated voltage	AC/DC 24-264V
Rated frequency	50/60Hz, 0
Power consumption	2W
Supply voltage tolerance	±10%
Number of channels	2
Number of programs	80
Program	weekly, annual, astronomical
Mode of work	manual, automatic, holiday, random
Summer/winter time	off, automatic changeover
Time tolerance	≤1 s/day at 20°C
Power reserve	10 years
Data readout	LCD display, with back light
Number of contacts	2 C/O
Current of contacts	16A/250V AC1
Switching capacity	4000VA/AC, 384W/DC
Mechanical life	10 ⁶
Electrical life	10 ⁵
Rated insulation voltage	250V
Protection degree	IP20
Pollution degree	3
Altitude	≤2000m
Ambient temperature	-20°C~+55°C
Permissible relative humidity	≤50% at 40°C(without condensation)
Storage temperature	-30°C~+70°C
Wire size	1mm ² ~4mm ²
Tightening torque	0.5Nm
Mounting	TH-35 Rail(EN60715)
Standard	EN/IEC60730-1, EN/IEC60730-2-7

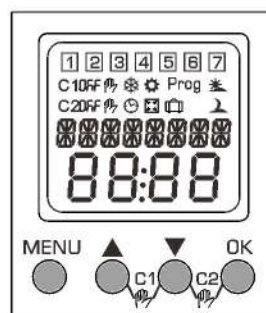
Maximum pilotable power

2300W	2300W	1000W	500W	500W

Features

- Astronomical and annual programs
- 10 year power reserve(lithium battery)
- 80 programs
- Sealable cover of the front panel, easy setting by 4 keys.
- Automatic summer/winter time switchover
- Back-lighted LCD display(can be turned off)
- Holiday mode.
- Random mode
- 2 channels (each channel can be assigned an individual program)
- Automatic transfer of weekdays
- 24-264V AC/DC input supply.
- 2 module Din-rail mounting

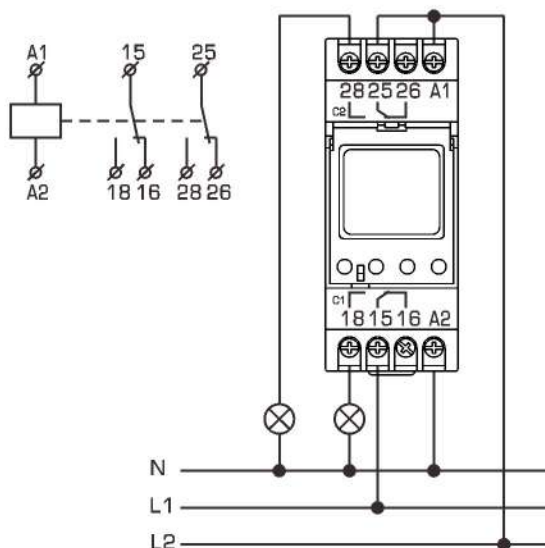
Front-face panel



Symbol legend

- 1 2 3 4 5 6 7 — Days of the week Monday, Tuesday, ...Sunday
- C1 — Channel 1
- C2 — Channel 2
- On OFF — Relay status
- ☉ — Automatic mode
- ☾ — Manual mode
- 📅 — Holiday mode
- ☺ — Random mode
- ☀ — Sunrise
- 🌇 — Sunset
- ❄ — Winter time
- ☀ — Summer time
- Prog — Program setting

Wiring diagram





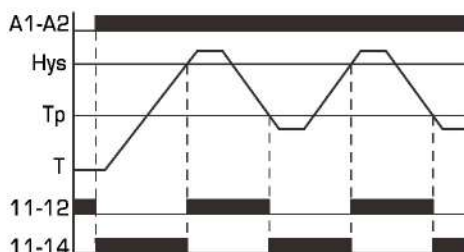
Technical data

Supply terminals	A1, A2
Supply voltage	AC/DC 24-240V
Rated frequency	50/60Hz
Power consumption	1.5W
Measuring terminals	T1, T2
Temperature range	-5~40°C
Hysteresis	-0.5~3°C
Output contacts	1C/0
Current rating	16A/250V AC1
Switching capacity	4000VA/AC1, 300W/DC
Protection degree	IP20
Pollution degree	3
Electrical life	10 ⁵
Mechanical life	10 ⁶
Altitude	≤2000m
Ambient temperature	-20°C~+55°C
Humidity	≤50% @40°C (without condensation)
Storage temperature	-30°C~+70°C
Wire size	0.5mm ² ~2.5mm ²
Torque	0.5Nm
Mounting	TH-35 Rail

Temperature sensor

Model	RT811
Measure element	NTC
Sensor dimensions	φ6mmx50mm
Sensor material	Stainless steel
Cable size and length	2x0.5mm ² /2.5m
Cable material	High temperature PVC

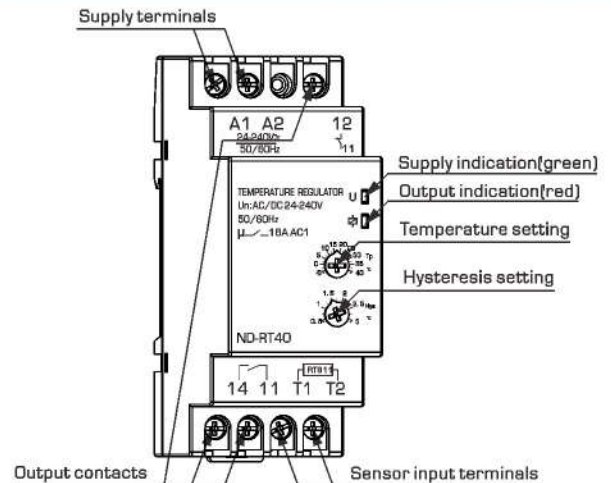
Function diagram



Features

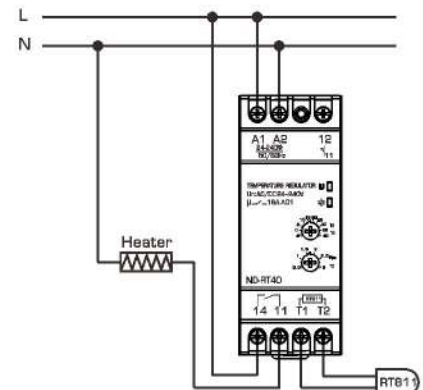
- Microcontroller based
- Temperature and hysteresis setting by knobs
- External NTC probe IP65
- Temperature control range -5°C~40°C
- Output contact 1C/0-16A/250V
- LED indication for power supply and relay state
- AC/DC24-240V wide input range
- 2 module Din-rail mounting

Operating instruction

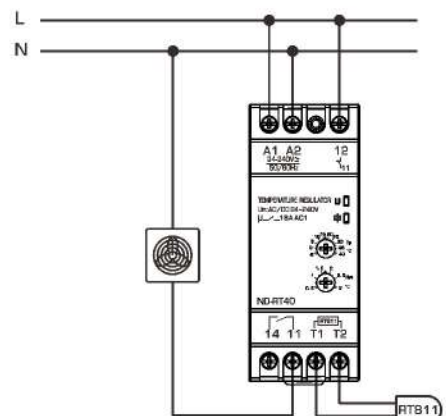


Wiring diagrams

Heating



Cooling





Technical data

Supply terminals	A1, A2
Supply voltage	AC/DC 24-240V
Rated frequency	50/60Hz
Power consumption	1.5W
Measuring terminals	T1, T2
Alarm terminals	21, 24
Output terminals	11, 14
Temperature range	-25~130 °C
Hysteresis	1~30 °C
Correction range	-9~9 °C
Setting step value	1 °C
Display	LCD with backlight
Output contact	1NO
Current rating	16A/250V AC1
Switching capacity	4000VA/AC1, 300W/DC
Alarm current rating	2A/250V AC1
Protection degree	IP20
Pollution degree	3
Electrical life	10 ⁵
Mechanical life	10 ⁶
Altitude	≤2000m
Ambient temperature	-20 °C~+55 °C
Humidity	≤50% @ 40 °C (without condensation)
Storage temperature	-30 °C~+70 °C
Wire size	0.5mm ² ~2.5mm ²
Torque	0.5Nm
Mounting	TH-35 Rail

Temperature sensor

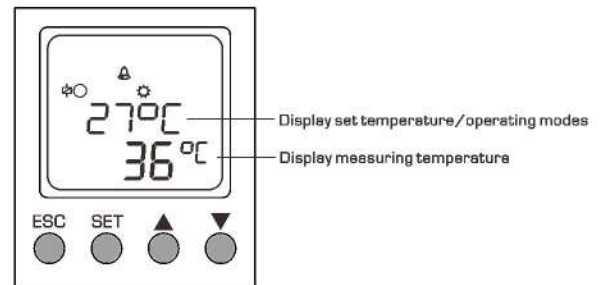
Model	RT801
Measure element	KTY81-210
Sensor dimensions	φ6mmx50mm
Sensor material	Stainless steel
Cable size and length	2x0.3mm ² /2.5m
Cable material	Silicone

Features

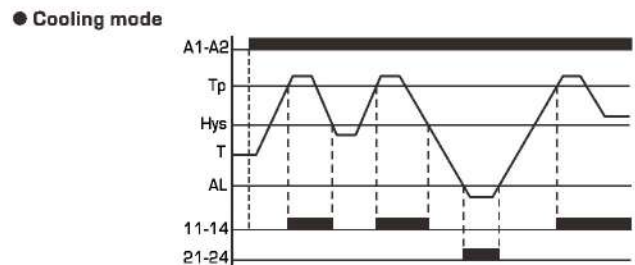
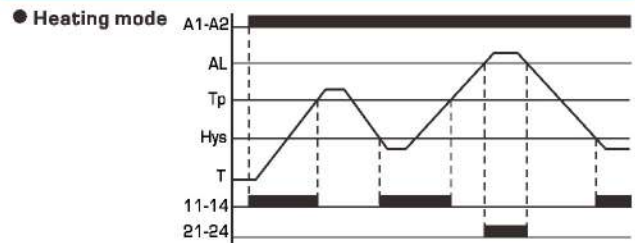
- Microcontroller based
- Heating/cooling operating modes selectable
- LCD display operating modes, set and operating temperature
- Temperature measurement range -25 °C~130 °C
- Alarm function
- Auto-reset
- Easy to set with keys
- AC/DC 24-240V wide input range
- 2 module Din-rail mounting

Operating instruction

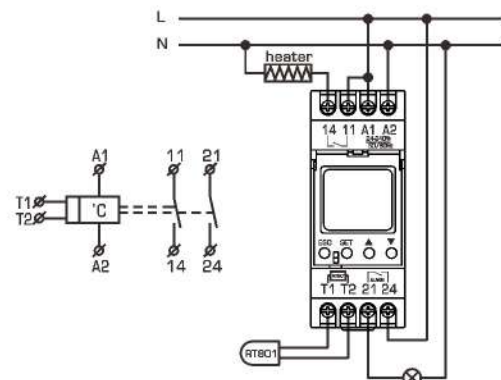
Display



Function diagrams



Wiring diagram

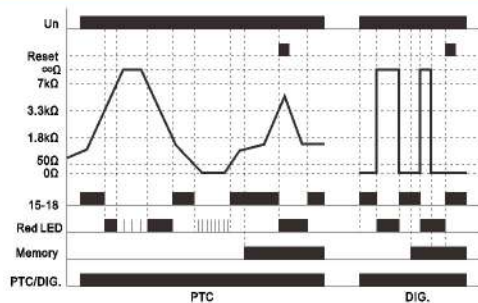




Technical data

Supply terminals	A1, A2
Rated supply voltage	AC/DC 24-240V
Rated frequency	0, 50/60Hz
Measuring terminals	Ta-Tb
Cold sensor resistance	50Ω-1.5kΩ
Upper level	3.3kΩ
Bottom level	1.8kΩ
Sensor	PTC temperature of motor winding
Measurement accuracy	5%
Temperature dependence	<0.1%/°C
Current rating	8A /AC1
Inrush current	10A/<3s
Type of output	2C/O
Rated insulation voltage	250V
Max. fuse ratings	RT36-00 5A
Protection degree	IP20
Pollution degree	3
Electrical life	10 ⁵
Mechanical life	10 ⁶
Altitude	≤2000m
Ambient temperature	-20°C~+55°C
Humidity	≤50% at 40°C (without condensation)
Storage temperature	-30°C~+70°C
Wire size	0.5mm ² ~2.5mm ²
Torque	0.5Nm
Mounting	TH-35 rail (IEC/EN60715)

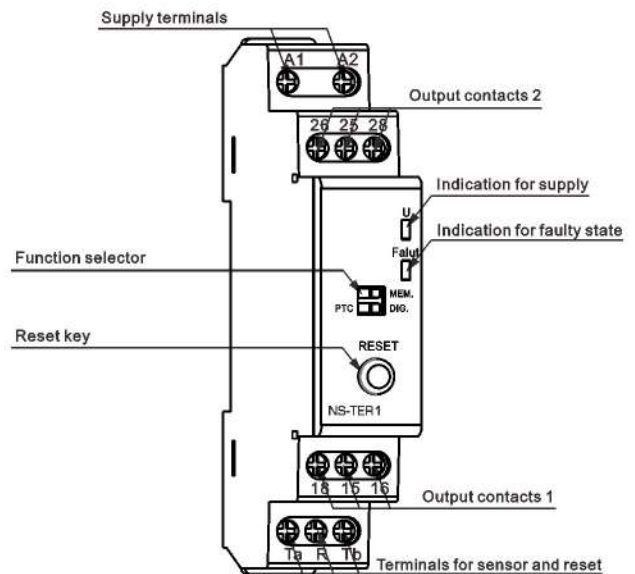
Function diagrams



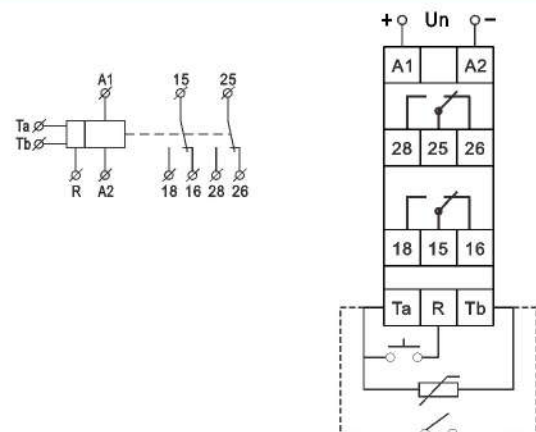
Features

- Microcontroller based
- Multi supply AC/DC 24-240V
- It monitors motor coil temperature
- Fixed levels of switching
- Memory function
- 2C/O-8A output
- 1 module Din rail mounting

Front-face panel



Wiring diagram





Technical data

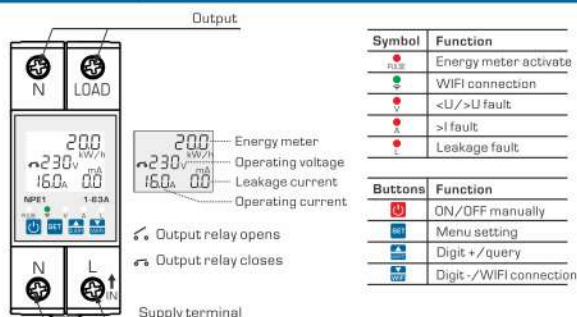
Rated supply voltage	AC 220V
Operation voltage range	AC 50V~350V
Rated frequency	50/60Hz
Overvoltage(U>) setting range	220~300V
Undervoltage(U<) setting range	120~210V
Overcurrent(I>) setting range	1~63A
Maximum operating current I _{max}	90A
Leakage current setting range	10mA~99mA
Power-on delay	Ton: 1s~300s
Recovery delay	Tr: 1s~500s
Overcurrent faults trip delay range	Ta: 1s~600s
Overvoltage(U>) trip delay	0.5s
Undervoltage(U<) trip delay	0.5s
Leakage current trip delay	<0.1s
Rated insulation voltage	350V
Output contact	1NO
Electrical life	10 ⁴
Mechanical life	10 ⁶
Protection degree	IP20
Pollution degree	3
Altitude	≤2000m
Operating temperature	-5°C~40°C
Humidity	≤50% at 40°C(without condensation)
Storage temperature	-25°C~55°C

* Operating current value

Default setting

Technical parameter	Setting range	Step	Factory setting
Overvoltage trip value	220V-300V	1V	250V
Undervoltage trip value	80V-210V	1V	170V
Overcurrent(I>) setting range	1-63A	1A	63A
Leakage current setting range	10mA-99mA	1mA	30mA
Power-on delay	1s-300s	1s	15s
Recovery delay	1s-600s	1s	90s
Overcurrent trip delay	1s-500s	1s	15s

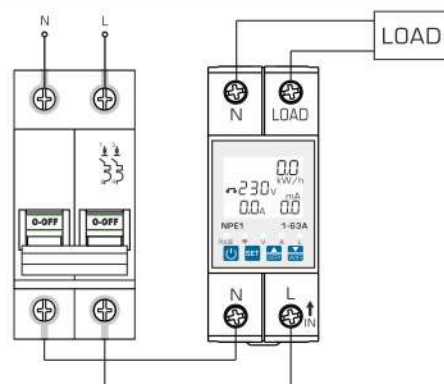
Front-face panel



Features

- WIFI control.
- Double 3 digit display for voltage, current, leakage current and kWh power etc.
- Protect electrical device against over/under voltage, over current and earth leakage faults
- Parameters setting by keys.
- 1-63A adjustable.
- 2 Module, DIN Rail mounting.

Wiring diagram



- Rated operating current of circuit breaker is 75% maximum current of the relay I_e=0.75x I_{max}

WIFI connection

1. Download App

- Scan the QR code and download App
Use your phone to scan the QR code below to download App.
- Search "Smart Life" by Google Play with Android phone or App Store with Iphone .





Technical data

Rated supply voltage	AC 220V
Operation voltage range	AC 50V~450V
Rated frequency	50/60Hz
Overvoltage(U>) setting range	220~300V
Undervoltage(U<) setting range	80~210V
Hysteresis	>U: 5V; <U: 3V
Start/reclose delay	Ton: 5s~600s
Overvoltage(U>) trip delay	≤305V:0.04s; >305V: 0.02s
Undervoltage(U<) trip delay	≥80V:0.5s ,<80V:0.02s
Voltage measurement accuracy	<1%
Rated insulation voltage	400V
Output contact	1NO
Electrical life	10 ⁴
Mechanical life	10 ⁵
Protection degree	IP20
Pollution degree	3
Altitude	≤2000m
Operating temperature	-5℃~40℃
Humidity	≤50% at 40℃[without condensation]
Storage temperature	-25℃~55℃

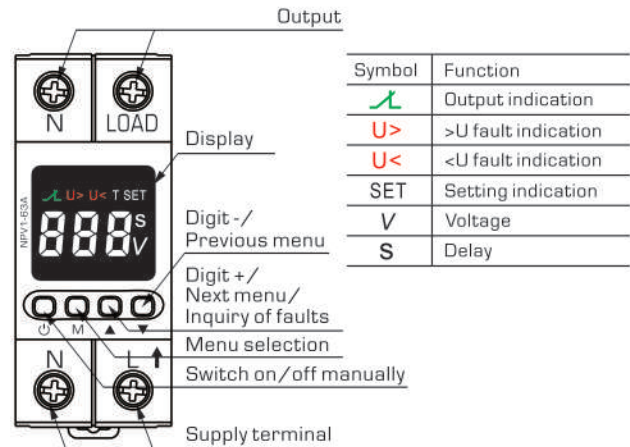
Technical parameter	Setting range	Step	Factory default
Overvoltage trip value	220V~300V	1V	250V
Undervoltage trip value	80V~210V	1V	170V
Sart/reclose delay	5s~600s	1s	5s
Auto-reclose setting	ON/OFF		ON
Reset to factory default	ON/OFF		OFF
Password function	ON/OFF		OFF
Password setting	000~999	1	000

Current specification	25A	32A	40A	50A	63A
Rated operating current(In,A)	25	32	40	50	63
Maximum operating current I _{max} (A, within 10min)	30	40	50	60	80
Max. power of load(kW)	5.5	7	8.8	11	13.9
Maximum wire size(mm ²)	6	8	10	16	16

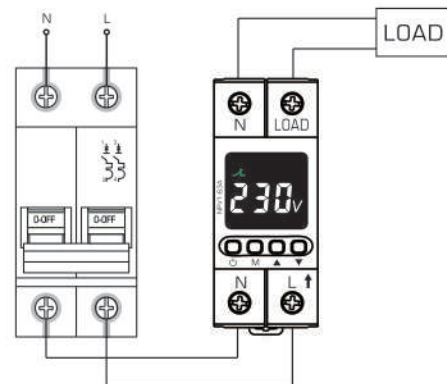
Features

- True RMS measurement.
- LED display for operating voltage and current value.
- Protect electrical device against over /under voltage.
- Password protection available.
- Parameters setting by keys.
- 45-65Hz.
- 2 Module, DIN Rail mounting.

Front-face panel



Wiring diagram



- Rated operating current of circuit breaker is 75% maximum current of the relay I_e=0.75x I_{max}



Technical data

Rated supply voltage	AC 220V
Operation voltage range	AC 50V~450V
Rated frequency	50/60Hz
Overtoltage(U>) setting range	220~300V
Undervoltage(U<) setting range	80~210V
Hysteresis	>U: 5V; <U: 3V
Start/reclose delay	Ton: 5s~600s
Overtoltage(U>) trip delay	≤305V:0.04s; >305V: 0.02s
Undervoltage(U<) trip delay	≥80V:0.5s , <80V:0.02s
Voltage measurement accuracy	<1%
Rated insulation voltage	400V
Output contact	1NO
Electrical life	10 ⁴
Mechanical life	10 ⁵
Protection degree	IP20
Pollution degree	3
Altitude	≤2000m
Operating temperature	-5℃~40℃
Humidity	≤50% at 40℃(without condensation)
Storage temperature	-25℃~55℃

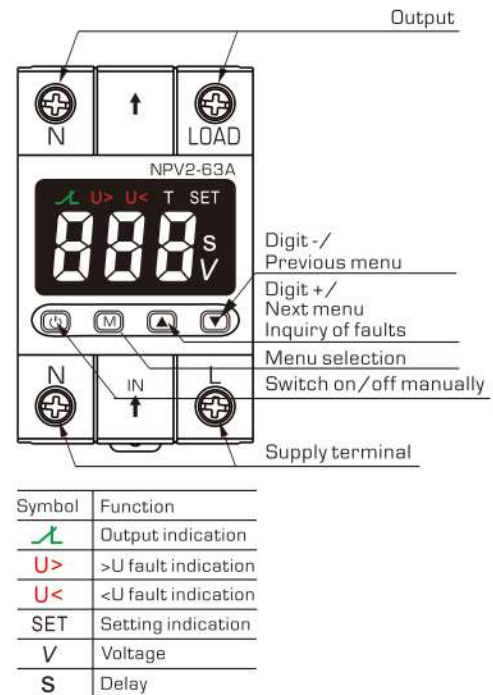
Technical parameter	Setting range	Step	Factory default
Overtoltage trip value	220V~300V	1V	250V
Undervoltage trip value	80V~210V	1V	170V
Sart/reclose delay	5s~600s	1s	5s
Auto-reclose setting	ON/OFF		ON
Reset to factory default	ON/OFF		OFF
Password function	ON/OFF		OFF
Password setting	000~999	1	000

Current specification	25A	32A	40A	50A	63A
Rated operating current(In, A)	25	32	40	50	63
Maximum operating current I _{max} (A, within 10min)	30	40	50	60	80
Max. power of load(kW)	5.5	7	8.8	11	13.9
Maximum wire size(mm ²)	6	8	10	16	16

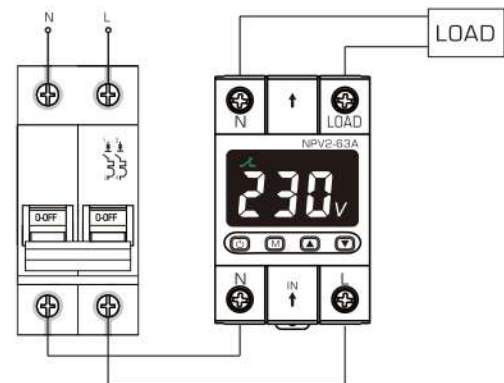
Features

- Microcontroller based.
- LED display for operating voltage value.
- Protect electrical device against over and under voltage.
- Password protection available.
- Parameters setting by keys.
- 45-65Hz.
- 3 Modules, DIN Rail mounting.

Front-face panel



Wiring diagram



- Rated operating current of circuit breaker is 75% maximum current of the relay I_e=0.75x I_{max}



Technical data

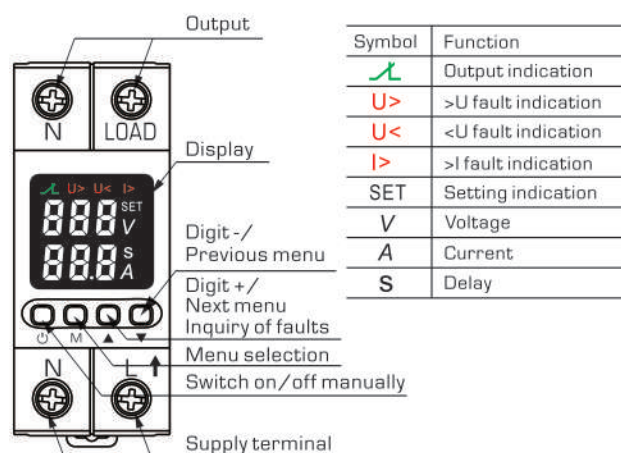
Rated supply voltage	AC 220V
Operation voltage range	AC 50V~450V
Rated frequency	50/60Hz
Overvoltage(U>) setting range	220~300V
Undervoltage(U<) setting range	80~210V
Overcurrent(I>) setting range	1~63A
Maximum operating current I _{max} (within 10min)	90A
Max. power of load	13.9kW
Hysteresis	>U: 5V; <U: 3V
Start/reclose delay setting	Ton: 5s~600s
Overcurrent faults trip delay range	Ta: 0s~600s
Trip delay for short circuit fault	Tsd: 0s~5s
Overvoltage(U>) trip delay	≤305V: 0.04s; >305V: 0.02s
Undervoltage(U<) trip delay	≥80V: 0.5s; <80V: 0.02s
Overcurrent(I>) trip delay	I _r >2I _{set} (max. 90A): 0.02s; I _r ≤1.25I _{set} : Ta; 1.25I _{set} <I _r ≤2I _{set} : 5s(Ta<5s)
Continuous overcurrent times setting	OFF-1~20
Voltage measurement accuracy	<1%
Rated insulation voltage	400V
Output contact	1NO
Electrical life	10 ⁴
Mechanical life	10 ⁶
Protection degree	IP20
Pollution degree	3
Altitude	≤2000m
Operating temperature	-20°C~50°C
Humidity	≤50% at 40°C(without condensation)
Storage temperature	-30°C~70°C

Technical parameter	Setting range	Step	Factory default
Overvoltage trip value	220V~300V	1V	250V
Undervoltage trip value	80V~210V	1V	170V
Overcurrent trip value	1A~63A	1A	63A
Start/reclose delay	5s~600s	1s	5s
Trip delay for overcurrent fault	0s~600s	1s	90s
Trip delay for short circuit fault	0s~5s	0.1s	0.2s
Continuous overcurrent faults times	OFF-1~20	1	3
Auto reclose setting	ON/OFF		ON
Reset to factory default	ON/OFF		OFF
Password function	ON/OFF		OFF
Password setting	000-999	1	000

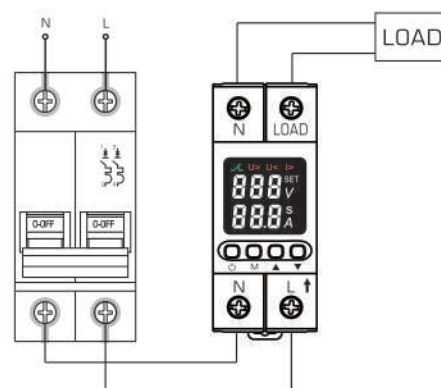
Features

- True RMS measurement.
- Double 3 digit display for operating voltage and current value.
- Protect electrical device against over/under voltage and overcurrent.
- Password protection available.
- Parameters setting by keys.
- 1-63A adjustable.
- 2 Module, DIN Rail mounting.

Front-face panel



Wiring diagram



- Rated operating current of circuit breaker is 75% maximum current of the relay I_e=0.75x I_{max}



Technical data

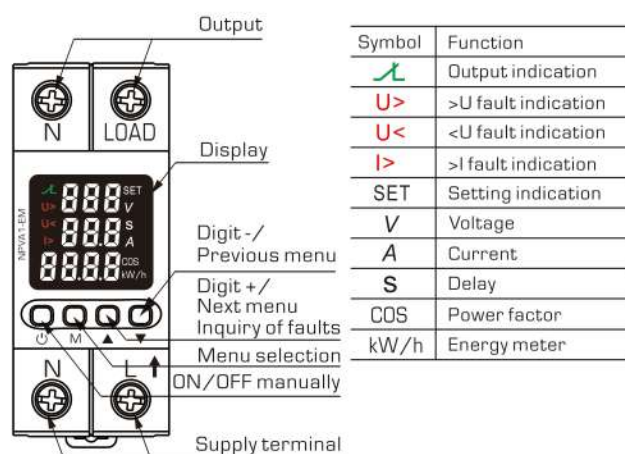
Rated supply voltage	AC 220V
Operation voltage range	AC 50V~450V
Rated frequency	50/60Hz
Overvoltage(U>) setting range	220~300
Undervoltage(U<) setting range	80~210V
Overcurrent(I>) setting range	1~63A
Maximum operating current I _{max} (within 10min)	90A
Max. power of load	13.9kW
Hysteresis	>U: 5V; <U: 3V
Start/reclose delay	Ton: 5s~600s
Overcurrent faults trip delay range	Ta: 1s~600s
Overvoltage(U>) trip delay	0.5s
Undervoltage(U<) trip delay	0.5s
Energy meter display	0.1kW-9999kW
Voltage measurement accuracy	<1%
Rated insulation voltage	400V
Output contact	1NO
Electrical life	10 ⁴
Mechanical life	10 ⁵
Protection degree	IP20
Pollution degree	3
Altitude	≤2000m
Operating temperature	-5℃~40℃
Humidity	≤50% at 40℃(without condensation)
Storage temperature	-25℃~55℃

Technical parameter	Setting range	Step	Factory default
Overvoltage trip value	220V~300V	1V	250V
Undervoltage trip value	80V~210V	1V	170V
Overcurrent trip value	1A~63A	1A	63A
Start/reclose delay	5s~600s	1s	5s
Overcurrent faults trip delay	1s~600s	1s	90s
Continuous overcurrent times	OFF-1-20	1	3
Energy limitation	OFF-1-9999	1	OFF
Auto reclose setting	ON/OFF		ON
Reset to factory default	ON/OFF		OFF
Password function	ON/OFF		OFF
Password setting	000~999	1	000

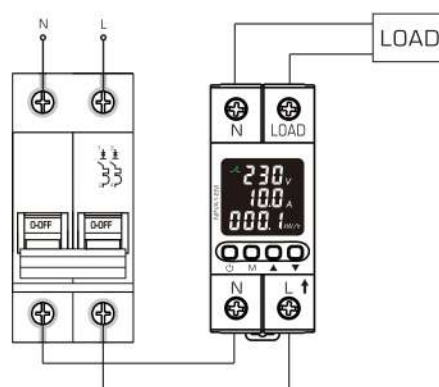
Features

- True RMS measurement.
- Double 3 digit display for operating voltage and current value.
- Protect electrical device against over/under voltage and overcurrent.
- Password protection available.
- Parameters setting by keys.
- 1-63A adjustable.
- 2 Modules, DIN Rail mounting.

Front-face panel



Wiring diagram



- Rated operating current of circuit breaker is 75% maximum current of the relay I_e=0.75x I_{max}



Technical data

Rated supply voltage	AC 220V
Operation voltage range	AC 50V~450V
Rated frequency	50/60Hz
Overvoltage[U>] setting range	220~300V
Undervoltage[U<] setting range	80~210V
Overcurrent[I>] setting range	1~63A
Maximum operating current I _{max} (within 10min)	90A
Max. power of load	13.9kW
Hysteresis	>U: 5V; <U: 3V
Start/reclose delay setting	Ton: 5s~600s
Overcurrent faults trip delay range	Ta: 0s~600s
Trip delay for short circuit fault	Tsd: 0-5s
Overvoltage[U>] trip delay	≤305V: 0.04s; >305V: 0.02s
Undervoltage[U<] trip delay	≥80V: 0.5s, <80V: 0.02s
Overcurrent[I>] trip delay	I _r >2I _{set} (max. 90A): 0.02s; I _r ≤1.25I _{set} : Ta; 1.25I _{set} <I _r ≤2I _{set} : 5s(Ta<5s)
Continuous overcurrent times setting	OFF-1~20
Voltage measurement accuracy	<1%
Rated insulation voltage	400V
Output contact	1NO
Electrical life	10 ⁴
Mechanical life	10 ⁶
Protection degree	IP20
Pollution degree	3
Altitude	≤2000m
Operating temperature	-20℃~55℃
Humidity	≤50% at 40℃(without condensation)
Storage temperature	-30℃~70℃

Technical parameter	Setting range	Step	Factory default
Overvoltage trip value	220V-300V	1V	250V
Undervoltage trip value	80V-210V	1V	170V
Overcurrent trip value	1A~63A	1A	63A
Start/reclose delay	5s-600s	1s	5s
Trip delay for overcurrent fault	0s-600s	1s	90s
Trip delay for short circuit fault	0s-5s	0.1s	0.2s
Continuous overcurrent faults times	OFF-1~20	1	3
Auto reclose setting	ON/OFF		ON
Reset to factory default	ON/OFF		OFF
Password function	ON/OFF		OFF
Password setting	000-999	1	000

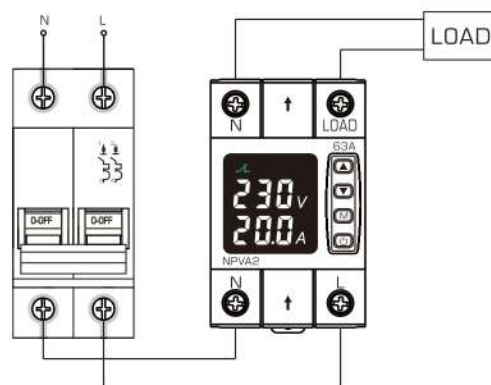
Features

- Microcontroller based.
- Double 3 digit display for operating voltage and current value.
- Protect electrical device against over/under voltage and overcurrent.
- Password protection available.
- Parameters setting by keys.
- 1-63A adjustable.
- 3 Module, DIN Rail mounting.

Front-face panel

	Symbol	Function
Digit +/ Next menu Inquiry of faults		Output indication
Digit -/ Previous menu		>U fault indication
		<U fault indication
		>I fault indication
Menu selection	SET	Setting indication
ON/OFF manually	V	Voltage
	A	Current
	S	Delay

Wiring diagram



- Rated operating current of circuit breaker is 75% maximum current of the relay I_e=0.75x I_{max}



Technical data

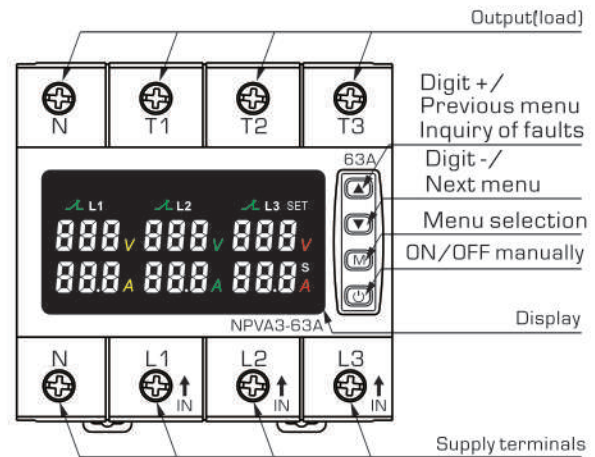
Rated supply voltage	AC 220V
Operation voltage range	3P+N: 50V~450V
Rated frequency	50/60Hz
Overvoltage(U>) setting range	220~300V
Undervoltage(U<) setting range	80~210V
Overcurrent setting range	1A~63A
Phase sequence setting	ON/OFF
Asymmetry setting range	20V~99V-OFF
Start/reclose delay	Ton:5s~600s
Trip delay for overcurrent fault	Ta:0s~600s
Trip delay for short circuit fault	0.04s~5.0s
Continuous overcurrent times setting	OFF~1~20
Auto reclose setting	ON-OFF
Hysteresis	Overvoltage and asymmetry: 5V Undervoltage: 3V
Overvoltage(U>) trip delay	≤305V: 0.04s; >305V: 0.02s
Undervoltage(U<) trip delay	≥80V: 0.5s, <80V: 0.02s
Overcurrent(I>) trip delay	Ir>2Iset(max. 90A): 0.04s; Ir≤1.25Iset: Ta; 1.25Iset<Ir≤2Iset: 5s(Ta<5s)
Asymmetry trip delay	10s
Max. permissible current	90A
Voltage measurement accuracy	±1%(over the whole range)
Rated insulation voltage	450V
Terminal wire capacity/Torque	1~16 mm ² /2.5 Nm
Operating temperature	-20°C~55°C

Technical parameter	Setting range	Step	Factory default
Overvoltage trip value	220V~300V	1V	250V
Undervoltage trip value	80V~210V	1V	170V
Overcurrent trip value	1A~63A	1A	100A
Start/reclose delay	5s~600s	1s	5s
Trip delay for overcurrent fault	0s~600s	1s	15s
Trip delay for short circuit fault	0s~5s	0.1s	0.2s
Asymmetry trip value	20V~99V-OFF	1V	50V
Continuous overcurrent faults times	OFF~1~20	1	3
Operation mode	000-000		000
Phase sequence protection	ON-OFF		OFF
Auto reclose setting	ON-OFF		ON
Reset to factory default	ON/OFF		OFF
Password function	ON-OFF		OFF
Password setting	000-999	1	000

000 :Synchronous mode; 000:Asynchronous mode

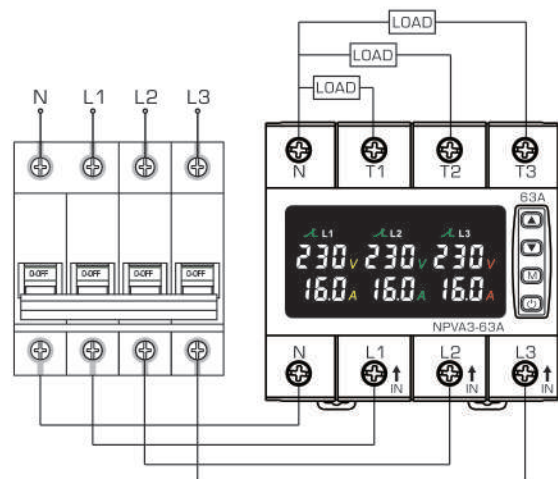
Features

- Microcontroller based
- Digit display for operating voltage and current value
- Protect electrical device against over/under voltage, overcurrent, three phase asymmetry and incorrect phase sequence.
- Asynchronous and synchronous modes
- Parameters setting by keys
- 1-63A adjustable
- 5 Module, DIN Rail mounting



Symbol	Function
	Output indication
L1/L2/L3	L1 phase/L2 phase/L3 phase
SET	Setting indication
V	Voltage
A	Current
S	Delay

Wiring diagram



- Rated operating current of circuit breaker is 75% maximum current of the relay
Ie=0.75x Imax



Technical data

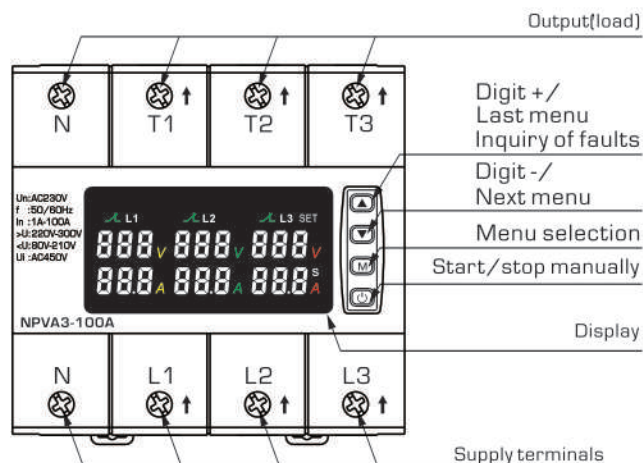
Rated supply voltage	AC 220V
Operation voltage range	3P+N: 50V~450V
Rated frequency	50/60Hz
Overvoltage(U>) setting range	220~300V
Undervoltage(U<) setting range	80~210V
Overcurrent setting range	1A~100A
Phase sequence setting	ON/OFF
Asymmetry setting range	20V~99V-OFF
Start/reclose delay	Ton:5s~600s
Trip delay for overcurrent fault	Ta:0s~600s
Trip delay for short circuit fault	0.04s~5.0s
Continuous overcurrent times setting	OFF~1~20
Auto reclose setting	ON-OFF
Hysteresis	Overvoltage and asymmetry: 5V Undervoltage: 3V
Overvoltage(U>) trip delay	≤300V: 0.04s; >300V: 0.02s
Undervoltage(U<) trip delay	≥80V: 0.5s, <80V: 0.02s
Overcurrent(I>) trip delay	I>2Iset(max. 90A): 0.04s; I≤1.25Iset: Ta: 1.25Iset<I≤2Iset: 5s(Ta<5s)
Asymmetry trip delay	10s
Max. permissible current	120A
Current rating	100A
Voltage measurement accuracy	±1%(over the whole range)
Rated insulation voltage	450V
Terminal wire capacity/Torque	4~50mm ² /3.5 Nm
Operating temperature	-20°C~55°C

Technical parameter	Setting range	Step	Factory default
Overvoltage trip value	220V~300V	1V	250V
Undervoltage trip value	80V~210V	1V	170V
Overcurrent trip value	1A~100A	1A	100A
Start/reclose delay	5s~600s	1s	5s
Trip delay for overcurrent fault	0s~600s	1s	15s
Trip delay for short circuit fault	0s~5s	0.1s	0.2s
Asymmetry trip value	20V~99V-OFF	1V	50V
Continuous overcurrent faults times	OFF~1~20	1	3
Operation mode	000-000		000
Phase sequence protection	ON-OFF		OFF
Auto reclose setting	ON-OFF		ON
Reset to factory default	ON/OFF		OFF
Password function	ON-OFF		OFF
Password setting	000~999	1	000

000: Synchronous mode; 000: Asynchronous mode

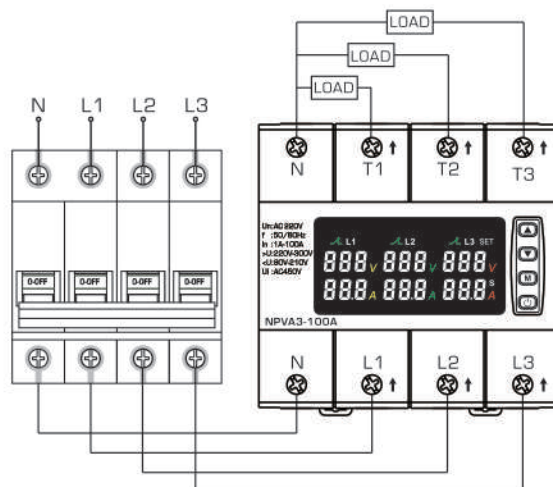
Features

- Microcontroller based.
- Digit display for operating voltage and current value.
- Protect electrical device against over/under voltage, overcurrent, three phase asymmetry and incorrect phase sequence.
- Asynchronous and synchronous modes available.
- Parameters setting by keys.
- 1-100A adjustable.
- 5 Module, DIN Rail mounting.



Symbol	Function
	Output indication
L1/L2/L3	L1 phase/L2 phase/L3 phase
SET	Setting indication
V	Voltage
A	Current
S	Delay

Wiring diagram



- Rated operating current of circuit breaker is 75% maximum current of the relay
I_e=0.75x I_{max}



Technical data

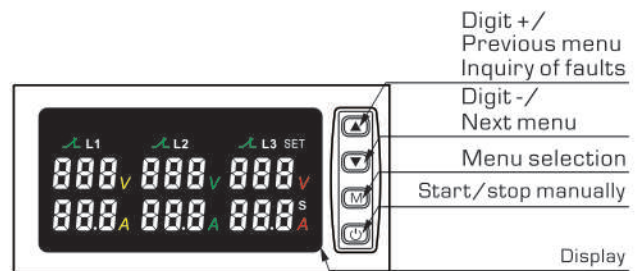
Rated supply voltage	AC 220V
Operation voltage range	3P+N: 50V~450V
Rated frequency	50/60Hz
Overvoltage(U>) setting range	220~300V
Undervoltage(U<) setting range	80~210V
Overcurrent setting range	1A~125A
Phase sequence setting	ON/OFF
Asymmetry setting range	20V~99V-OFF
Start/reclose delay	Ton:5s~600s
Trip delay for overcurrent fault	Ta:0s~600s
Trip delay for short circuit fault	0.04s~5.0s
Continuous overcurrent times setting	OFF~1~20
Auto reclose setting	ON-OFF
Hysteresis	Overvoltage and asymmetry: 5V Undervoltage:3V
Overvoltage(U>) trip delay	≤300V:0.04s; >300V: 0.02s
Undervoltage(U<) trip delay	≥80V:0.5s, <80V:0.02s
Overcurrent(I>) trip delay	I>2Iset(max.90A):0.04s; I≤1.25Iset: Ta; 1.25Iset<I≤2Iset: 5s(Ta<5s)
Asymmetry trip delay	10s
Max. permissible current	150A
Current rating	125A
Voltage measurement accuracy	≤1%(over the whole range)
Rated insulation voltage	450V
Terminal wire capacity/Torque	4~50mm ² /3.5 Nm
Operating temperature	-20℃~55℃

Technical parameter	Setting range	Step	Factory default
Overvoltage trip value	220V~300V	1V	250V
Undervoltage trip value	80V~210V	1V	170V
Overcurrent trip value	1A~125A	1A	125A
Start/reclose delay	5s~600s	1s	5s
Trip delay for overcurrent fault	0s~600s	1s	15s
Trip delay for short circuit fault	0s~5s	0.1s	0.2s
Asymmetry trip value	20V~99V-OFF	1V	50V
Continuous overcurrent faults times	OFF~1~20	1	3
Operation mode	000-000		000
Phase sequence protection	ON-OFF		OFF
Auto reclose setting	ON-OFF		ON
Reset to factory default	ON/OFF		OFF
Password function	ON-OFF		OFF
Password setting	000-999	1	000

000:Synchronous mode; 000:Asynchronous mode

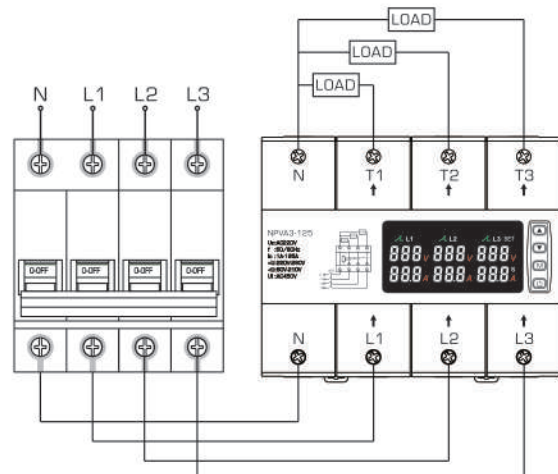
Features

- Microcontroller based.
- Digit display for operating voltage and current value.
- Protect electrical device against over/under voltage, overcurrent, three phase asymmetry and incorrect phase sequence.
- Asynchronous and synchronous modes available.
- Parameters setting by keys.
- 1-125A adjustable.
- 8 Module, DIN Rail mounting.



Symbol	Function
	Output indication
L1/L2/L3	L1 phase/L2 phase/L3 phase
SET	Setting indication
V	Voltage
A	Current
S	Delay

Wiring diagram



- Rated operating current of circuit breaker is 75% maximum current of the relay
Ie=0.75x Imax



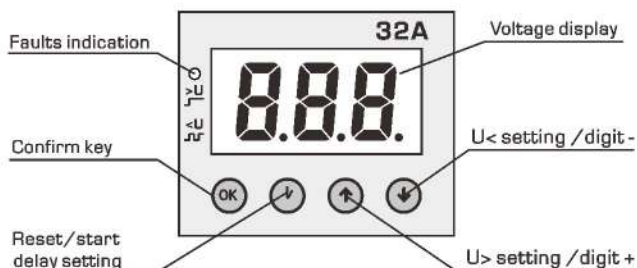
Technical data

Rated voltage	AC 220V
Operation voltage range	AC 50V~450V
Rated frequency	50/60Hz
Overvoltage(>U) setting range	220~300V
Undervoltage(U<) setting range	80~210V
Hysteresis	2%
>U trip delay	0.5s
<U trip delay	≥ 80V: 0.5s, < 80V: <0.1s
Reset/start delay	5s~600s
Voltage measurement accuracy	≤1%(over the whole range)
Rated insulation voltage	400V
Output contact	1NO
Electrical life	10 ⁵
Mechanical life	10 ⁶
Protection degree	IP20
Pollution degree	3
Altitude	≤2000m
Ambient temperature	-20°C~+55°C
Humidity	≤50% at 40°C(without condensation)
Storage temperature	-30°C~+70°C

Technical parameter	Setting range	Step	Factory setting
Overvoltage trip value	220V~300V	1V	250V
Undervoltage trip value	80V~210V	1V	170V
Reset/start delay	5s~600s	1s	15s

Current specification	25A	32A	40A	50A	63A
Rated operating current(In,A)	25	32	40	50	63
Maximum operating current I _{max} (A, within 10min)	30	40	50	60	80
Max. power of load(kW)	5.5	7	8.8	11	13.9
Maximum wire size(mm ²)	6	8	10	16	16

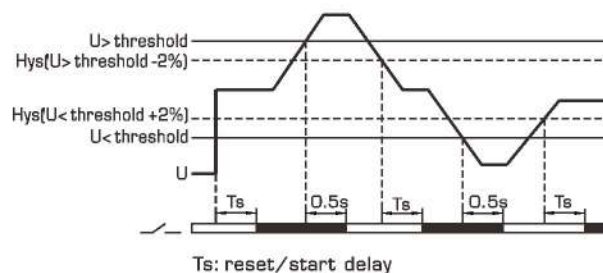
Front panel



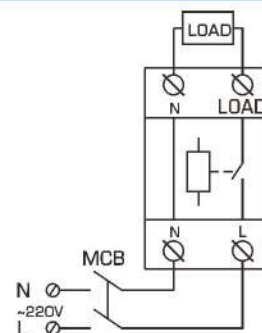
Features

- Microcontroller based
- 3 digit display for operating voltage value
- Protect electrical device against overvoltage and undervoltage
- Reset/start delay adjustable(5~600s)
- Voltage measurement accuracy ≤1%
- Parameters setting by keys
- LEDs indication for overvoltage and undervoltage faults
- 3 Module, DIN Rail mounting

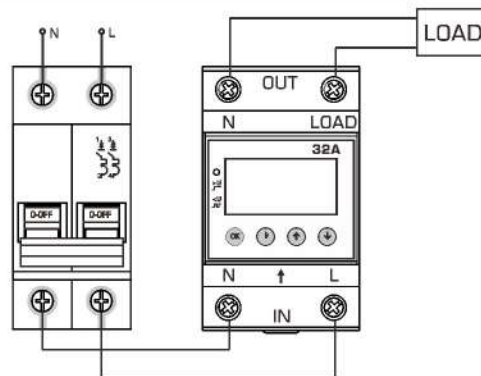
Function diagram



Symbol



Wiring diagram



- Rated operating current of circuit breaker is 75% maximum current of the relay
I_e=0.75x I_{max}



Technical data

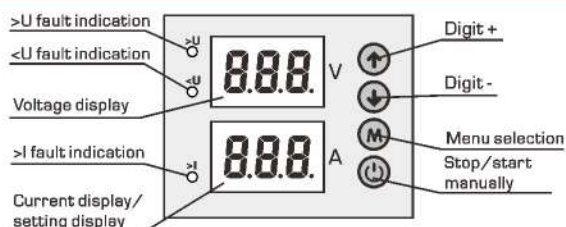
Rated supply voltage	AC 220V
Operation voltage range	AC 50V~450V
Rated frequency	50/60Hz
Overvoltage(U>) setting range	220~300V
Undervoltage(U<) setting range	80~210V
Hysteresis	2%
Reset/start delay	Ts: 5s~600s
Overcurrent faults trip delay range	Ta: 5s~600s
Overvoltage(U>) trip delay	<0.5s
Undervoltage(U<) trip delay	≥80V: 0.5s, <80V: 0.1s
Overcurrent(I>) trip delay	$I_n < I_r$ * I_{max} : Ta; I_r * I_{max} : ≤0.1s
Voltage measurement accuracy	≤1%(over the whole range)
Rated insulation voltage	400V
Output contact	1NO
Electrical life	10 ⁵
Mechanical life	10 ⁶
Protection degree	IP20
Pollution degree	3
Altitude	≤2000m
Ambient temperature	-20°C~+55°C

* Operating current value

Technical parameter	Setting range	Step	Factory setting
Overvoltage trip value	220V~300V	1V	250V
Undervoltage trip value	80V~210V	1V	170V
Reset/start delay	5s~600s	1s	15s
Overcurrent faults trip delay	5s~600s	1s	90s

Current specification	25A	32A	40A	50A	63A
Rated operation current(I _n , A)	1-25	1-32	1-40	1-50	1-63
Maximum operating current I _{max} (A, within 10min)	32	40	50	60	80
Max. power of load[kW]	5.5	7	8.8	11	13.9
Maximum wire size(mm ²)	6	8	10	16	16

Front panel

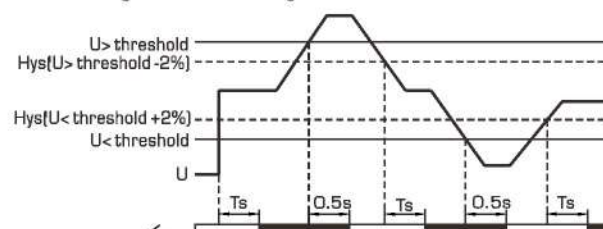


Features

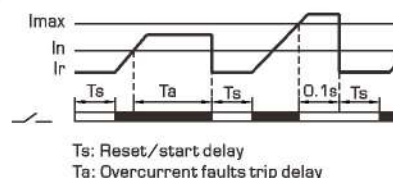
- Microcontroller based
- Double 3 digit display for operating voltage value
- Protect electrical device against overvoltage and undervoltage
- Reset/start delay adjustable(5~600s)
- Voltage measurement accuracy ≤1%
- Parameters setting by keys
- LEDs indication for overvoltage and undervoltage faults
- 3 Module, DIN Rail mounting

Function diagrams

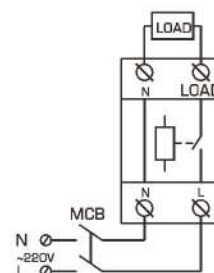
Overvoltage and undervoltage



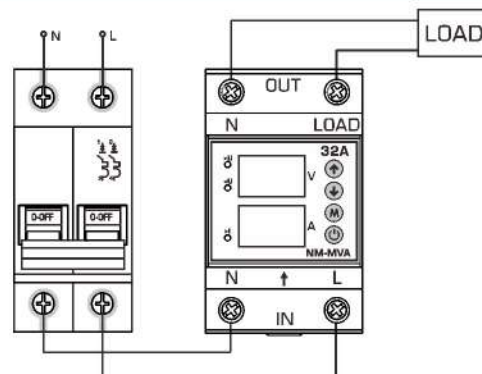
Overcurrent



Symbol



Wiring diagram



- Rated operating current of circuit breaker is 75% maximum current of the relay
 $I_e = 0.75 I_{max}$



Technical data

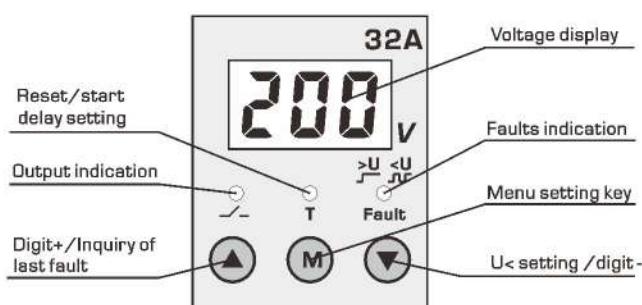
Rated supply voltage	AC 220V
Operation voltage range	AC 80V~400V
Rated frequency	50/60Hz
Overvoltage(>U) setting range	220~280V
Undervoltage(<U) setting range	140~210V
Hysteresis	2%
>U and <U trip delay	0.5s
Reset/start delay	5s~600s
Voltage measurement accuracy	±1%(over the whole range)
Rated insulation voltage	400V
Output contact	1NO
Electrical life	10 ⁵
Mechanical life	10 ⁶
Protection degree	IP20
Pollution degree	3
Altitude	≤2000m
Ambient temperature	-20°C~+55°C
Humidity	≤50% at 40°C (without condensation)
Storage temperature	-30°C~+70°C

Default setting

Technical parameter	Setting range	Step	Factory setting
Overvoltage trip value	220V~280V	1V	270V
Undervoltage trip value	140V~210V	1V	170V
Reset/start delay	5s~600s	1s	5s

Current specification	15A	25A	32A	50A	63A
Rated operating current(In,A)	15	25	32	50	63
Maximum operating current I _{max} (A, within 10min)	25	30	40	60	80
Max. power of load(kW)	3.6	5.5	7	11	13.9

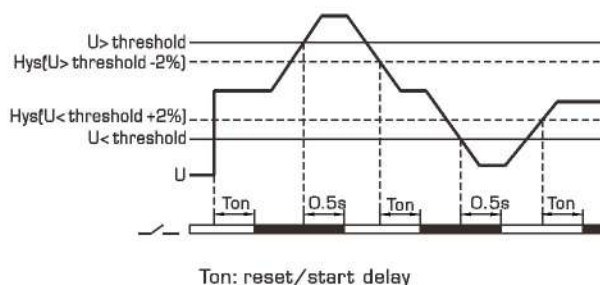
Front panel



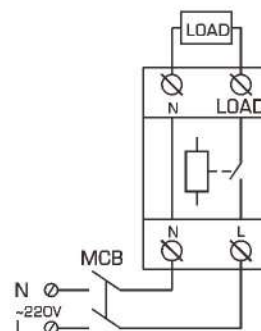
Features

- Microcontroller based
- 3 digit display for operating voltage value
- Protect electrical device against overvoltage and undervoltage
- Reset/ start delay adjustable(5~600s)
- Voltage measurement accuracy ≤ 1%
- Parameters setting by keys
- LEDs indication for overvoltage and undervoltage faults
- 2 Module DIN Rail mounting

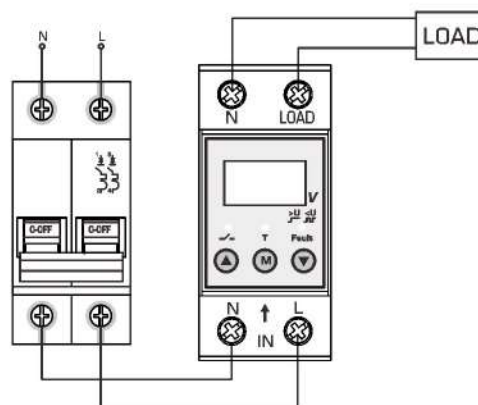
Function diagram



Symbol



Wiring diagram



- Rated operating current of circuit breaker is 75% maximum current of the relay
I_e≤0.75x I_{max}



Technical data

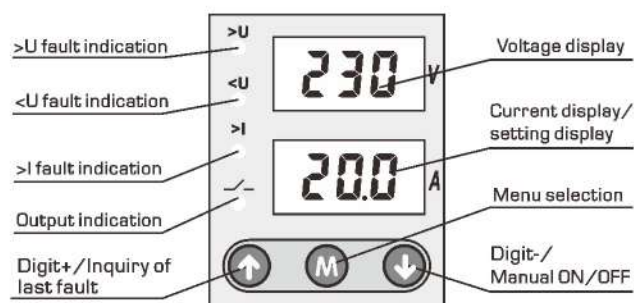
Rated supply voltage	AC 220V
Operation voltage range	AC80V~400V
Rated frequency	50/60Hz
Overvoltage(U>) setting range	220~280V
Undervoltage(U<) setting range	140~210V
Hysteresis	>U: 5V; <U: 3V
Reset/start delay	Ts: 5s~600s
Overcurrent faults trip delay range	Ta: 5s~600s
Overvoltage(U>) trip delay	<0.5s
Undervoltage(U<) trip delay	≥120V: 0.5s, <120V: 0.1s
Overcurrent(I>) trip delay	$I_n < I_r$: $I_n \leq I_{max}$: Ts; $I_n \geq I_{max}$: ≤0.1s
Voltage measurement accuracy	2% (over the whole range)
Rated insulation voltage	400V
Output contact	1NO
Electrical life	10 ⁵
Mechanical life	10 ⁶
Protection degree	IP20
Pollution degree	3
Altitude	≤2000m

* Operating current value

Technical parameter	Setting range	Step	Factory setting
Overvoltage trip value	220V~280V	1V	250V
Undervoltage trip value	140V~210V	1V	170V
Reset/start delay	5s~600s	1s	5s
Overcurrent faults trip delay	5s~600s	1s	90s

Current specification	25A	32A	40A	50A	63A
Rated operation current(I _n , A)	1-25	1-32	1-40	1-50	1-63
Maximum operating current I _{max} (A, within 10min)	32	40	50	60	80
Max. power of load(kW)	5.5	7	8.8	11	13.9
Maximum wire size(mm ²)	6	8	10	16	16

Front panel

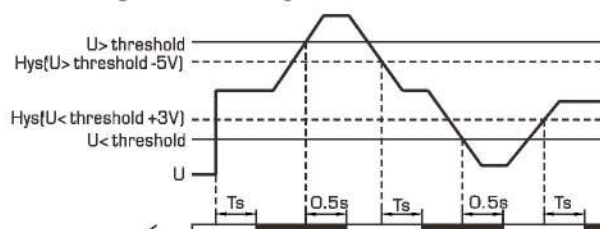


Features

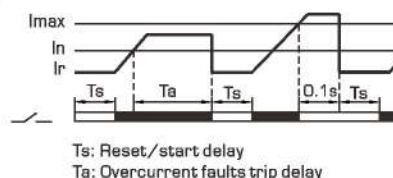
- Microcontroller based
- Double 3 digit display for operating voltage value
- Protect electrical device against overvoltage and undervoltage
- Reset/start delay adjustable(5~600s)
- Voltage measurement accuracy ≤1%
- Parameters setting by keys
- LEDs indication for overvoltage and undervoltage faults
- 3 Module, DIN Rail mounting

Function diagrams

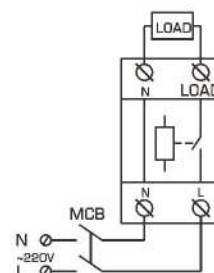
Overvoltage and undervoltage



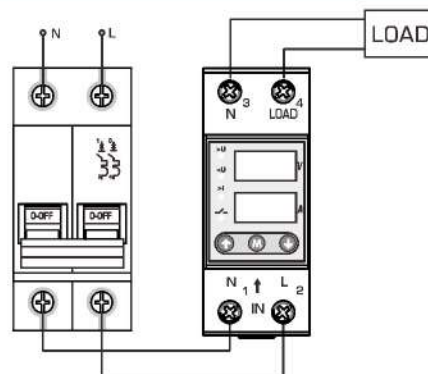
Overcurrent



Symbol



Wiring diagram



- Rated operating current of circuit breaker is 75% maximum current of the relay
 $I_e = 0.75 \times I_{max}$



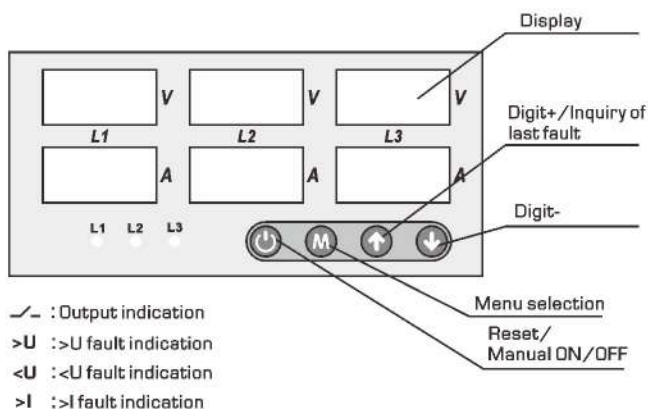
Technical data

Rated supply voltage	AC 220V
Operation voltage range	AC 50V~450V
Rated frequency	50/60Hz
Overvoltage(U>) setting range	220~300V
Undervoltage(U<) setting range	80~210V
Hysteresis	2%
Reset/start delay	Ts: 5s~600s
Overcurrent faults trip delay range	Ta: 5s~600s
Overvoltage(U>) trip delay	<0.1s
Undervoltage(U<) trip delay	≥80V: 0.5s, <80V: 0.1s
Overcurrent(I>) trip delay	In<Ir * <80A; Ta; Ir * ≥Imax: ≤0.1s
Voltage measurement accuracy	1%(over the whole range)
Rated insulation voltage	400V
Output contact	1NO
Electrical life	10 ⁵
Mechanical life	10 ⁶
Protection degree	IP20

* Operating current value

Technical parameter	Setting range	Step	Factory setting
Overvoltage trip value	220V~300V	1V	250V
Undervoltage trip value	80V~210V	1V	170V
Reset/start delay	5s~600s	1s	5s
Overcurrent trip value	1A~63A	1A	63A
Overcurrent trip delay	5s~600s	1s	15s
Asymmetry trip value	20V~99V	1V	50V
Continuous overcurrent faults times	OFF-1~20	1	3
Phase sequence protection	ON-OFF		OFF

Front panel

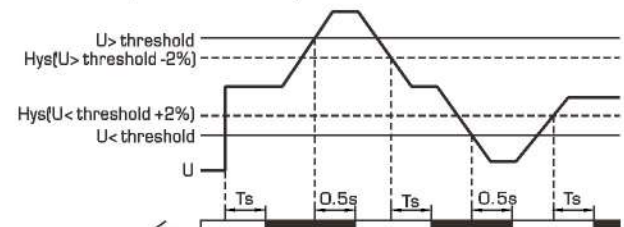


Features

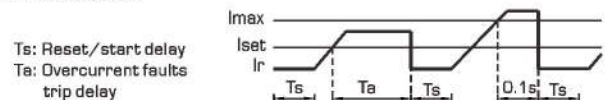
- Microcontroller based
- Double 3 digit display for operating voltage value
- Protect electrical device against overvoltage and undervoltage
- Reset/start delay adjustable(5~600s)
- Voltage measurement accuracy ≤1%
- Parameters setting by keys
- **Asynchronous and synchronous modes**
- LEDs indication for overvoltage and undervoltage faults
- 5 Modules, DIN Rail mounting

Function diagrams

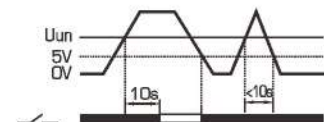
Overvoltage and undervoltage



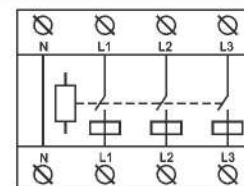
Overcurrent



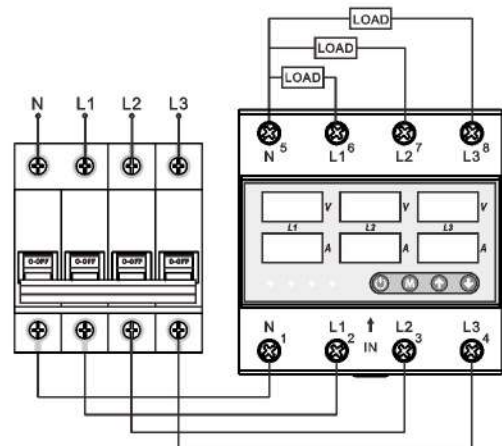
Asymmetry



Symbol



Wiring diagram





Features

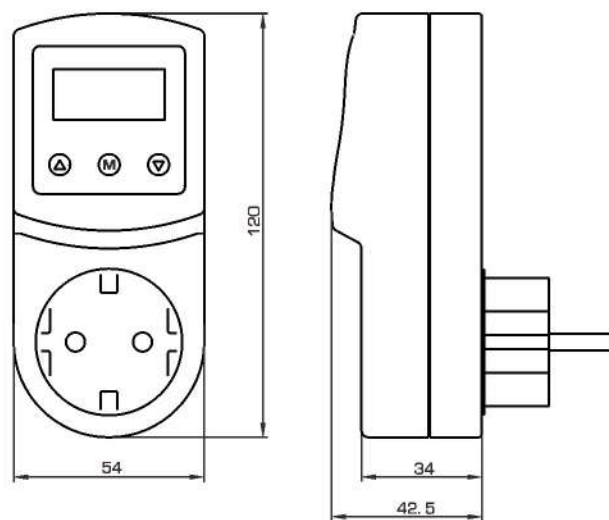
- Microcontroller based
- 4 digit display for operating voltage value
- Protection against overvoltage, undervoltage.
- Wide measurement range 100-400V
- Parameters setting by keys

Technical data

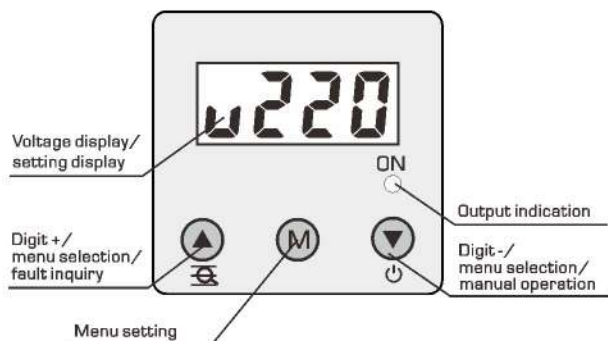
Rated supply voltage	AC 230V
Operation voltage range	AC 100V~400V
Rated frequency	50Hz
Overvoltage(U>) setting range	220~280V
Undervoltage(U<) setting range	160~210V
U> Hysteresis	5V
U< Hysteresis	3V
Reset/start delay	Ts: 5s~600s
Overvoltage(U>) trip delay	<285V:0.5s; ≥285V:0.1s; ≥380V:0.02s
Undervoltage trip delay	0.5s
Rated insulation voltage	250V
Maximum switching current	16A
Electrical life	10 ⁵
Mechanical life	10 ⁵
Protection degree	IP20
Pollution degree	3
Altitude	≤2000m
Ambient temperature	-20°C~+55°C
Humidity	≤50% at 40°C(without condensation)

Technical parameter	Setting range	Step	Factory setting
Overvoltage trip value	220V~280V	1V	250V
Undervoltage trip value	160V~210V	1V	170V
Reset/start delay	5s~600s	1s	10s

Dimensions



Front panel



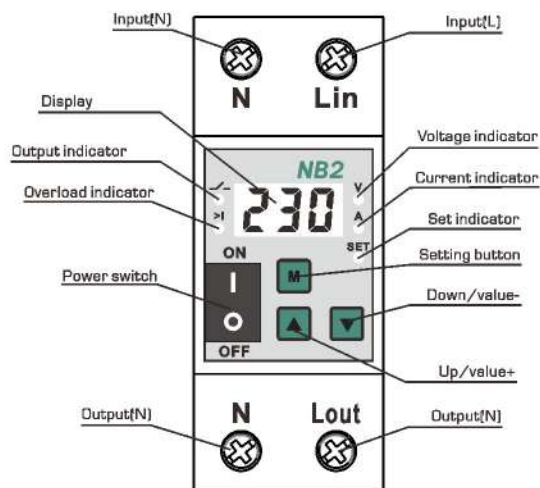


Technical data

Models	NB2-22	NB2-40	NB2-63
Rated current	2A-22A	1A-40A	5A-63A
Rated supply voltage	AC 220V, 50Hz		
Operation voltage range	AC 100V~300V		
Overvoltage(U>) setting	220-280V		
Undervoltage(U<) setting	140-210V		
Start delay	3-100s		
Recovery time for faults	10s		
Overvoltage trip time	>260V:0.5s; >285V:0.1s; >380V:0.04s		
Undervoltage trip time	<160V:0.5s; <80V:0.1s		
Rated insulation voltage	400V		
Output contact	1NO		
Protection degree	IP20		
Altitude	≤2000m		
Ambient temperature	-20°C~+55°C		

Technical data	Setting range	Step	Factory setting
C_{Ur} Current setting A	NB2-22 2A-22A NB2-40 1A-40A NB2-63 5A-63A	1	5
U_{rH} U> setting V	220-280	1	250
U_{rL} U< setting V	140-210	1	170
U_{Pr} Voltage protection	on : The function is on off : The function is off		on
t_{on} Start delay s	5-100	1	5
$PR5$ Password setting	000-999		111

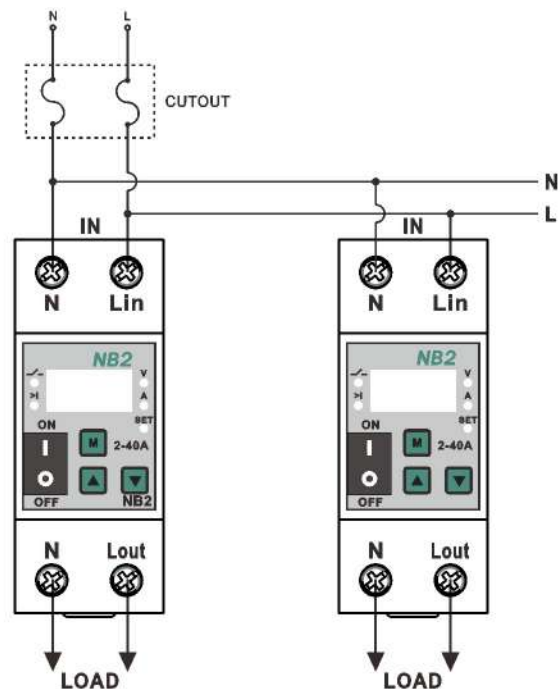
Front panel



Features

- Microcontroller based
- 3 digit display for operating current value
- Protect electrical device against over/under voltage, over current and short circuit.
- Parameters setting by key
- Password setting by users
- LEDs indication for faults
- 2 Module DIN Rail mounting

Wiring diagram

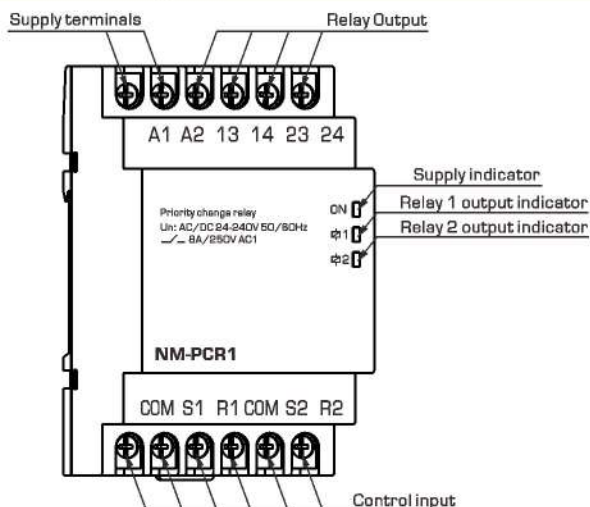




Technical data

Supply terminals	A1,A2
Rated supply voltage	AC/DC 24-240V
Rated frequency	50/60Hz
Power consumption	1.5W max
Control input terminals	COM,S1,S2,R1,R2
Type of input	Negative
Input voltage	12V
Input current	1mA max
High input signal	>3.5V
Low input signal	<1.5V
Input delay	20ms
Control delay of second motor in case of simultaneity at power up	4s
Type of output	1NO
Maximum switching current	8A/250V AC-1
Pollution degree	3
Electrical life	10 ⁵
Mechanical life	10 ⁶
Altitude	≤2000m
Ambient temperature	-20°C~+55°C
Permissible relative humidity	≤50% at 40°C (without condensation)
Storage temperature	-30°C~+70°C
Conductor size	0.5mm ² ~2.5mm ²
Torque	0.5Nm

Front-face panel

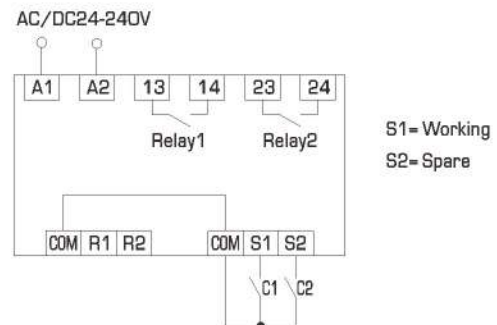
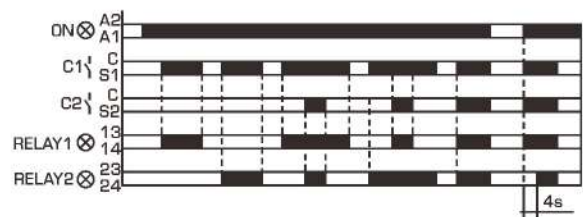


Features

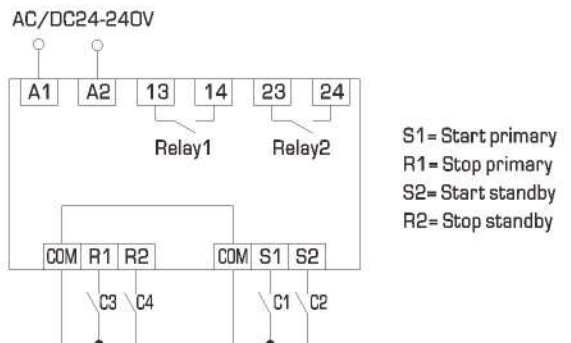
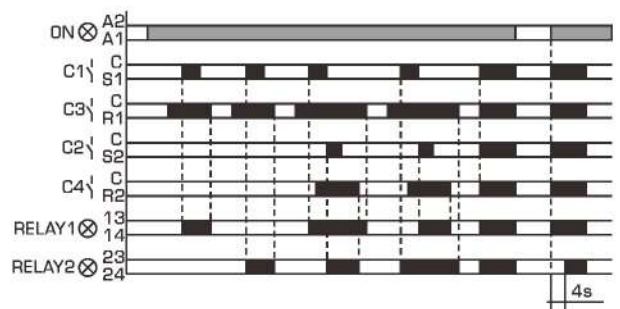
- Microcontroller based.
- Priority control for starting of 2 motor
- Standard 2wire control
- Possible 3 wire control
- LED indication for control state
- 3 Module, Din-rail mounting

Function and wiring diagram

Two wire control



Three wire control

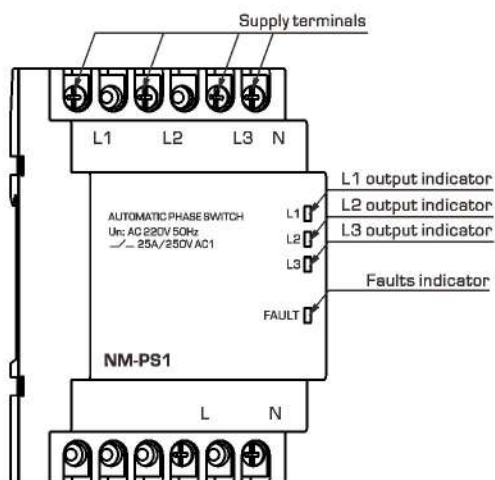




Technical data

Supply terminals	N, L1, L2, L3
Rated supply voltage	AC 3*220V(N-L1/L2/L3)
Operation voltage range	AC 50-400V
Rated frequency	50/60Hz
U _{max} setting range	280V
U _{min} setting range	190
Auto-reclosing delay(Ton)	1s
Prior phase	L1
Switching time	<150ms
Voltage hysteresis	10V
Voltage accuracy	<1%
Max operating phase voltage	400V
Transient withstand	450V
Maximum load current(AC-1)	25A(160A/20ms)
Pollution degree	3
Electrical life	10 ⁵
Mechanical life	10 ⁶
Altitude	≤2000m
Ambient temperature	-20°C~+55°C
Permissible relative humidity	≤50% at 40°C(without condensation)
Storage temperature	-30°C~+70°C
Conductor size	0.5mm ² ~2.5mm ²
Torque	0.5Nm

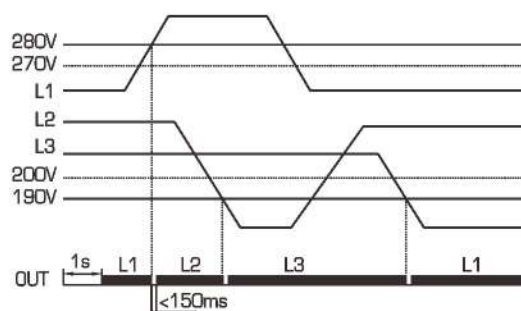
Front-face panel



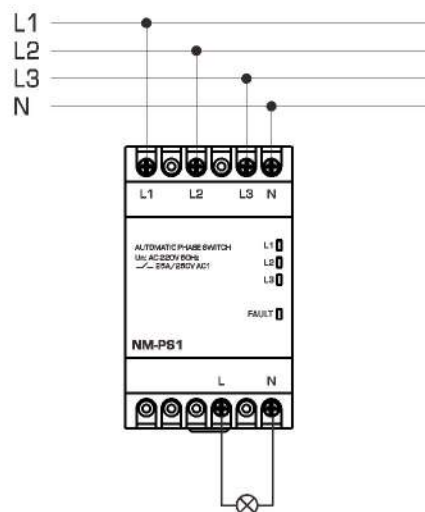
Features

- Microcontroller based.
- Switching time <150ms
- Maximum load 25A(160A/20ms)
- Over and under voltage protection
- LED indication for control state
- 3 Module, Din-rail mounting

Function diagram



Wiring diagram

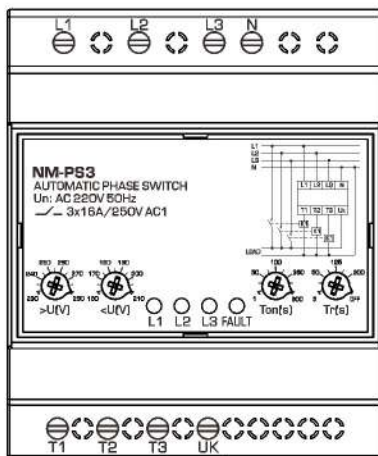




Technical data

Supply terminals	N, L1, L2, L3
Rated supply voltage	AC 3 * 220V (N-L1 / L2 / L3)
Operation voltage range	AC 50-400V
Rated frequency	50/60Hz
U _{max} setting range	230-280V
U _{min} setting range	160-210V
Auto-reclosing delay (T _{on})	1-600s
Return delay to priority phase	5-200s / OFF
Switch delay to reserve phases	< 0.2s
Voltage hysteresis	6V
Voltage accuracy	< 1%
Max operating phase voltage	400V
Transient withstand	450V
Maximum switched current of output contacts	16A
Pollution degree	3
Electrical life	10 ⁵
Mechanical life	10 ⁶
Altitude	≤ 2000m
Ambient temperature	-20°C ~ +55°C
Permissible relative humidity	≤ 50% at 40°C (without condensation)
Storage temperature	-30°C ~ +70°C
Conductor size	0.5mm ² ~ 2.5mm ²
Torque	0.5Nm

Front-face panel



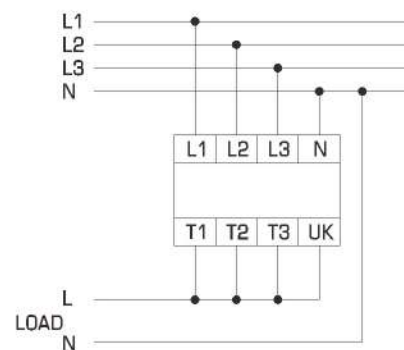
- N, L1, L2, L3: supply terminals.
- T1, T2, T3: Voltage output terminal
- UK: Voltage measurement terminal

Features

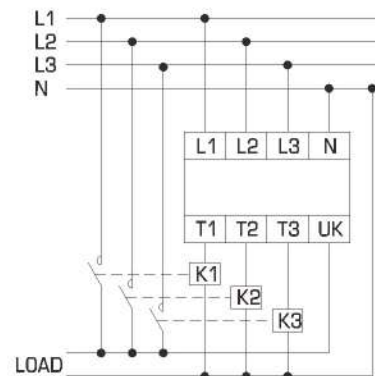
- Microcontroller based.
- Parameter setting by knobs
- With "Priority" phase
- Overvoltage and undervoltage
- LED indication for control state
- Din-rail mounting

Wiring diagrams

- Current load is not more than 16A



- Current load is more than 16A





Technical data

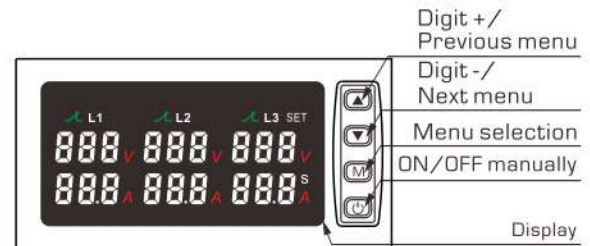
Rated supply voltage	AC 220V
Operation voltage range	AC 50V~450V
Rated frequency	50/60Hz
Overvoltage(U>) setting range	220~300V
Undervoltage(U<) setting range	80~210V
Overcurrent setting range	1A~63A
Priority phase setting	L1,L2,L3,OFF
Overcurrent faults trip delay	Ta:0s-600s
Start/reclos delay	Ton:1s-600s
Delay to return to priority phase	Tr:5s-600s/OFF
Switch delay to reserve phases	Tc:0s-20s
Trip delay for short circuit fault	Tsd:0s-5s
Hysteresis	Overvoltage and asymmetry: 5V Undervoltage:3V
Overvoltage(U>) trip delay	<0.1s
Undervoltage(U<) trip delay	<0.1s
Overcurrent(I>) trip delay	Ir>2Iset(max.90A):0.05s; Ir≤1.25Iset: Ta; 1.25Iset<Ir≤2Iset: 5s(Ta<5s)
Max. permissible current	90A
Current rating	63A
Continuous overcurrent times	OFF-1~20
Voltage measurement accuracy	≤ 1%(over the whole range)
Rated insulation voltage	450V
Output contact	1NO
Terminal wire capacity/Torque	4~50mm ² /3.5 Nm
Operating temperature	-20 °C~55 °C

Technical parameters	Setting range	Step	Factory default
Overvoltage trip value setting	220V-300V	1V	250V
Undervoltage trip value setting	80V-210V	1V	170V
Overcurrent trip value	1A-63A	1A	63A
Priority phase setting	L1,L2,L3,OFF		OFF
Continuous overcurrent times	OFF-1~20		OFF
Overcurrent faults trip delay	0-600s	1s	90s
Start/reclos delay	1s-600s	1s	5s
Trip delay for short circuit fault	0s~5s	0.1s	0.2s
Switch delay to reserve phases	0s-20s	0.1s	0s
Delay to return to priority phase	5s-600s/OFF	1s	15s
Password function	ON-OFF		OFF
Password setting	000-999		000

Features

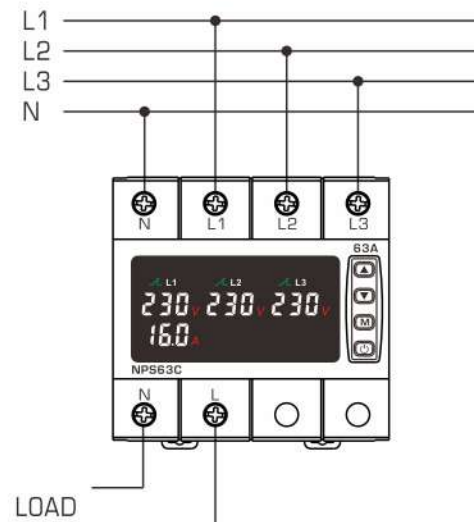
- True RMS measurement.
- Digit display for operating voltage and current values.
- Protect electrical device against over/under voltage and overcurrent.
- Neutral loss detection.
- Parameters setting by keys
- Password setting available.
- 5 Modules, DIN Rail mounting

Front-face panel



Symbol	Function
	Output indication
L1/L2/L3	L1 phase/L2 phase/L3 phase
SET	Setting indication
V	Voltage
A	Current
S	Delay

Wiring diagrams





Technical data

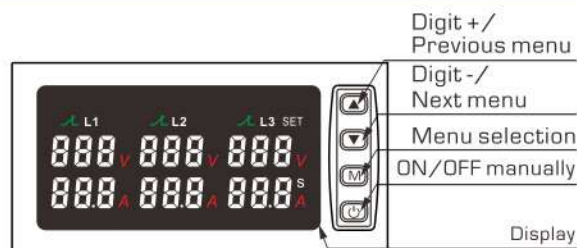
Rated supply voltage	AC 220V
Operation voltage range	AC 50V~450V
Rated frequency	50/60Hz
Overvoltage(U>) setting range	220~300V
Undervoltage(U<) setting range	80~210V
Overcurrent setting range	1A~100A
Priority phase setting	L1,L2,L3,OFF
Overcurrent faults trip delay	Ta:0s-600s
Start/reclos delay	Ton:1s-600s
Delay to return to priority phase	Tr:5s-600s/OFF
Switch delay to reserve phases	Tc:0s-20s
Trip delay for short circuit fault	Tsd:0s-5s
Hysteresis	Overvoltage and asymmetry: 5V Undervoltage:3V
Overvoltage(U>) trip delay	<0.1s
Undervoltage(U<) trip delay	<0.1s
Overcurrent(I>) trip delay	Ir>2Iset(max.90A):0.05s; Ir≤1.25Iset: Ta; 1.25Iset<Ir≤2Iset: 5s(Ta<5s)
Max. permissible current	120A
Current rating	100A
Continuous overcurrent times	OFF-1~20
Voltage measurement accuracy	≤ 1%(over the whole range)
Rated insulation voltage	450V
Output contact	1NO
Terminal wire capacity/Torque	4~50mm ² /3.5 Nm
Operating temperature	-20 °C~55 °C

Technical parameters	Setting range	Step	Factory default
Overvoltage trip value setting	220V-300V	1V	250V
Undervoltage trip value setting	80V-210V	1V	170V
Overcurrent trip value	1A-100A	1A	63A
Priority phase setting	L1,L2,L3,OFF		OFF
Continuous overcurrent times	OFF-1~20		OFF
Overcurrent faults trip delay	0-600s	1s	90s
Start/reclos delay	1s-600s	1s	5s
Trip delay for short circuit fault	0s-5s	0.1s	0.2s
Switch delay to reserve phases	0s-20s	0.1s	0s
Delay to return to priority phase	5s-600s/OFF	1s	15s
Password function	ON-OFF		OFF
Password setting	000-999		000

Features

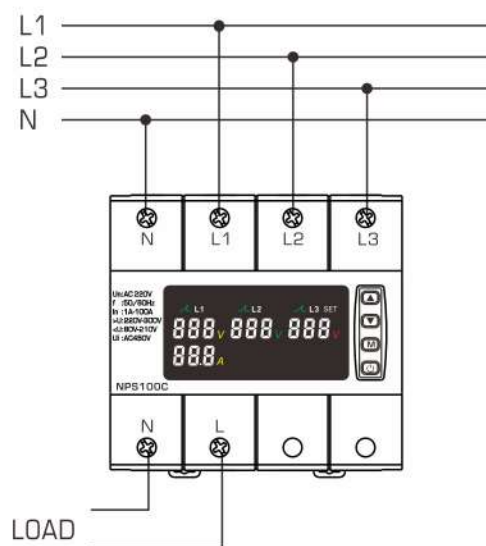
- True RMS measurement.
- Digit display for operating voltage and current values.
- Protect electrical device against over/under voltage and overcurrent.
- Neutral loss detection.
- Parameters setting by keys
- Password setting available.
- 6 Modules, DIN Rail mounting

Front-face panel



Symbol	Function
	Output indication
L1/L2/L3	L1 phase/L2 phase/L3 phase
SET	Setting indication
V	Voltage
A	Current
S	Delay

Wiring diagrams





Technical data

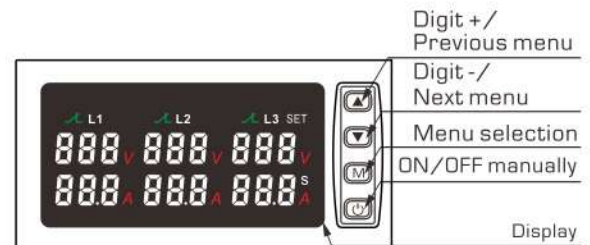
Rated supply voltage	AC 220V
Operation voltage range	AC 50V~450V
Rated frequency	50/60Hz
Overvoltage(U>) setting range	220~300V
Undervoltage(U<) setting range	80~210V
Overcurrent setting range	1A~125A
Priority phase setting	L1, L2, L3, OFF
Overcurrent faults trip delay	Ta: 0s-600s
Start/reclos delay	Ton: 1s-600s
Delay to return to priority phase	Tr: 5s-600s/OFF
Switch delay to reserve phases	Tc: 0s-20s
Trip delay for short circuit fault	Tsd: 0s-5s
Hysteresis	Overvoltage and asymmetry: 5V Undervoltage: 3V
Overvoltage(U>) trip delay	<0.1s
Undervoltage(U<) trip delay	<0.1s
Overcurrent(I>) trip delay	Ir>2Iset(max. 90A): 0.05s; Ir≤1.25Iset: Ta; 1.25Iset<Ir≤2Iset: 5s(Ta<5s)
Max. permissible current	150A
Current rating	125A
Continuous overcurrent times	OFF-1~20
Voltage measurement accuracy	≤ 1%(over the whole range)
Rated insulation voltage	450V
Output contact	1NO
Terminal wire capacity/Torque	4~50mm ² /3.5 Nm
Operating temperature	-20 °C~55 °C

Technical parameters	Setting range	Step	Factory default
Overvoltage trip value setting	220V-300V	1V	250V
Undervoltage trip value setting	80V-210V	1V	170V
Overcurrent trip value	1A-125A	1A	63A
Priority phase setting	L1, L2, L3, OFF		OFF
Continuous overcurrent times	OFF-1~20		OFF
Overcurrent faults trip delay	0-600s	1s	90s
Start/reclos delay	1s-600s	1s	5s
Trip delay for short circuit fault	0s-5s	0.1s	0.2s
Switch delay to reserve phases	0s-20s	0.1s	0s
Delay to return to priority phase	5s-600s/OFF	1s	15s
Password function	ON-OFF		OFF
Password setting	000-999		000

Features

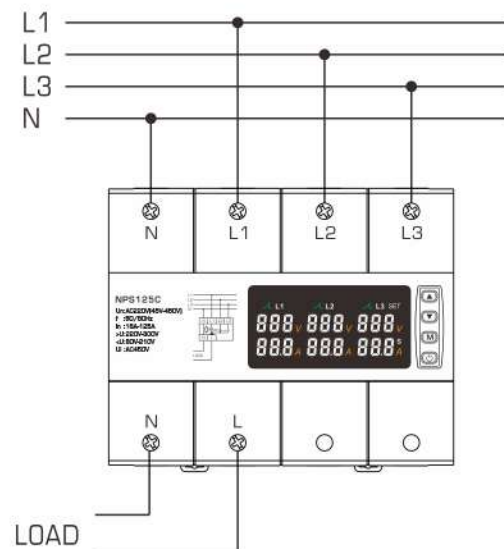
- True RMS measurement.
- Digit display for operating voltage and current values.
- Protect electrical device against over/under voltage and overcurrent.
- Neutral loss detection.
- Parameters setting by keys
- Password setting available.
- 8 Modules, DIN Rail mounting

Front-face panel



Symbol	Function
	Output indication
L1/L2/L3	L1 phase/L2 phase/L3 phase
SET	Setting indication
V	Voltage
A	Current
S	Delay

Wiring diagrams

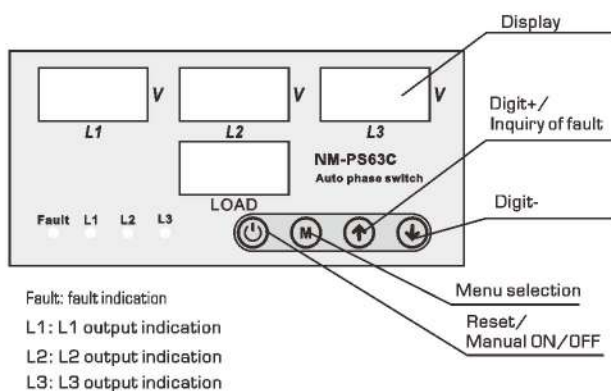




Technical data

Supply terminals	N, L1, L2, L3
Rated supply voltage	AC 3*220V(N-L1/L2/L3)
Rated frequency	50Hz
U _{max} setting range	220-300V
U _{min} setting range	80-210V
Auto-reclosing delay(Ton)	1-600s
Return delay to priority phase	5-200s/OFF
Switch delay to reserve phases	<0.2s
Voltage hysteresis	5V
Overvoltage trip delay	0.1s; ≥350V: 0.02s
Undervoltage trip delay	5s
Voltage accuracy	<1%
Max. operating phase voltage	400V
Rated operating current	1-63A
Max. operating current	80A
Pollution degree	3
Electrical life	10 ⁵
Mechanical life	10 ⁶
Altitude	≤2000m
Ambient temperature	-20°C~+55°C
Permissible relative humidity	≤50% at 40°C(without condensation)
Storage temperature	-30°C~+70°C
Conductor size	0.5mm ² ~2.5mm ²

Front-face panel

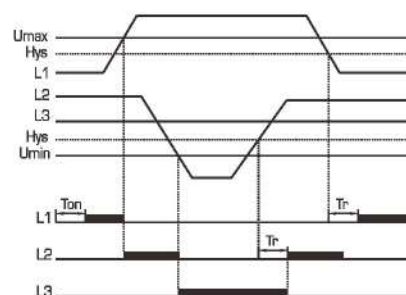


Features

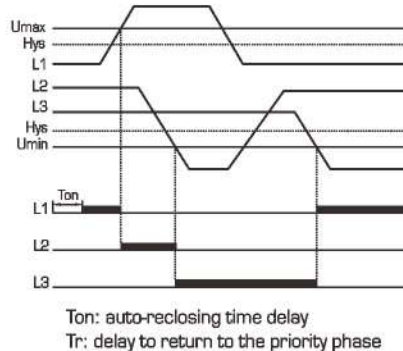
- Microcontroller based.
- Parameter setting by knobs
- With "Priority" phase
- Overvoltage and undervoltage protection
- 63A output
- LED indication for operating voltage.
- Din-rail mounting

Function diagrams

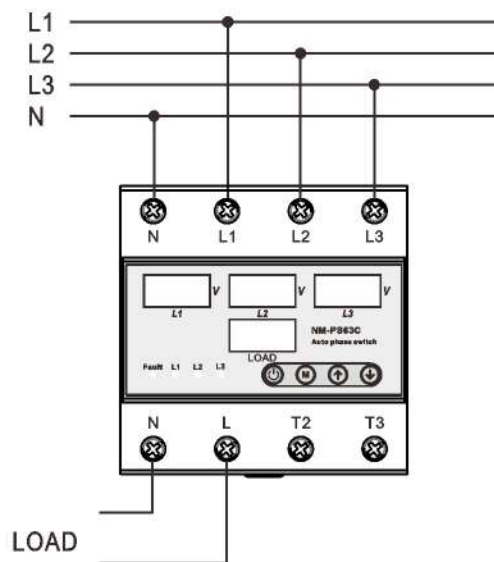
● Tr set at 5-200s



● Tr set at OFF



Wiring diagrams

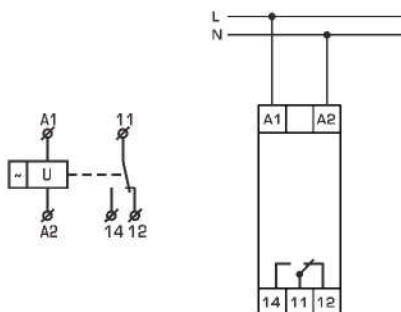




Technical data

Supply terminals	A1, A2
Rated supply voltage	AC220V
Rated frequency	50/60Hz
Voltage operation range	AC150-275V
U> threshold setting	225V~275V
U< threshold setting	165V~215V
Hysteresis	±3% of threshold setting value
Voltage measurement error	±1% (over the whole range)
Trip delay	0.1~10s
Trip delay error	±5%+0.1s
Output contacts	11, 12, 14
Current rating	8A / AC1
Contacts capacity	AC-15: 2A
Type of output	1C/0
Rated insulation voltage	250V
Max. fuse ratings	RT36-00 5A
Protection degree	IP20
Pollution degree	3
Electrical life	10 ⁵
Mechanical life	10 ⁶
Altitude	≤2000m
Ambient temperature	-20°C~+55°C
Humidity	≤50% at 40°C (without condensation)
Storage temperature	-30°C~+70°C
Wire size	0.5mm ² ~2.5mm ²

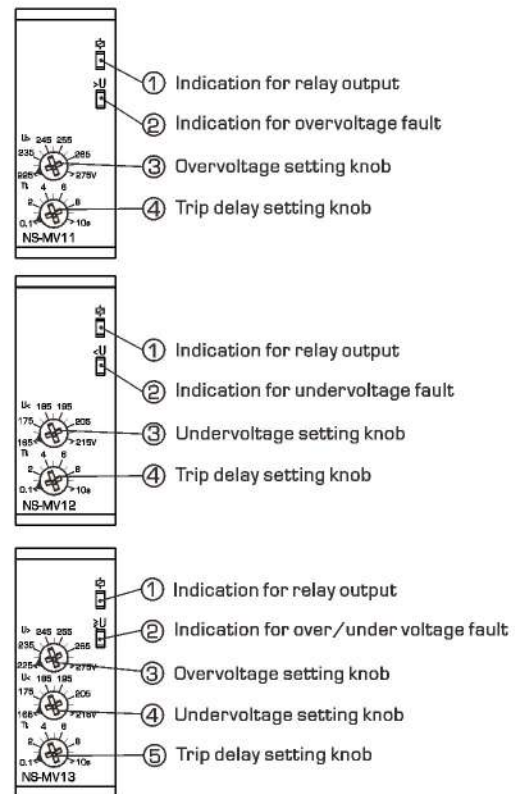
Wiring diagram



Features

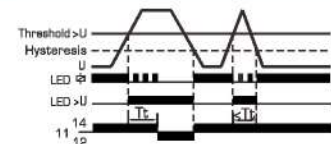
- Microcontroller based
- Supply voltage monitoring (True RMS measurement)
- Voltage measurement error: ≤1%
- LED indication for control state
- Threshold voltage and trip delay setting by independent knobs
- Auto reset
- 1 module Din rail mounting

Front-face panel

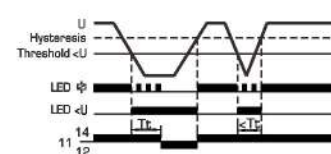


Function diagrams

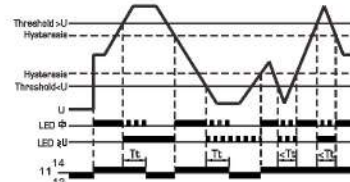
NS-MV11



NS-MV12



NS-MV13

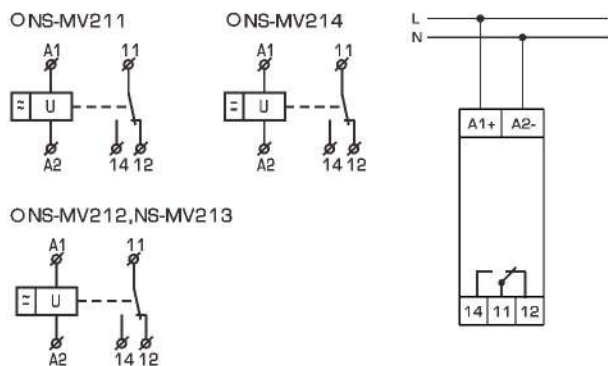




Technical data

Models	NS-MV211	NS-MV212	NS-MV213	NS-MV214
Supply terminals	A1-A2			
Rated supply voltage	AC220V	AC/DC 24...48V	AC/DC 110...240V	DC12V
Operation range	AC 150-280V	AC/DC 15-150V	AC/DC 30-270V	DC 6-30V
Rated frequency	45-65Hz	45-65,0Hz	45-65,0Hz	0Hz
U> threshold setting	225-275V	20-80V	65-260V	9-15V
U< threshold setting	165-215V	20-80V	65-260V	9-15V
Hysteresis	±3% of threshold setting value			
Measurement error	≤1% (over the whole range)			
Trip delay	0.1~10s			
Trip delay error	±5%+0.1s			
Output contacts	11, 12, 14			
Current rating	16A / AC1			
Type of output	1C/O			
Rated insulation voltage	250V			
Protection degree	IP20			
Pollution degree	3			
Electrical life	10 ⁵			
Mechanical life	10 ⁶			
Altitude	≤2000m			
Ambient temperature	-20°C~+55°C			
Humidity	≤50% at 40°C (without condensation)			
Storage temperature	-30°C~+70°C			
Wire size	0.5mm ² ~2.5mm ²			
Torque	0.5Nm			
Rail	TH-35 (IEC/EN60715)			

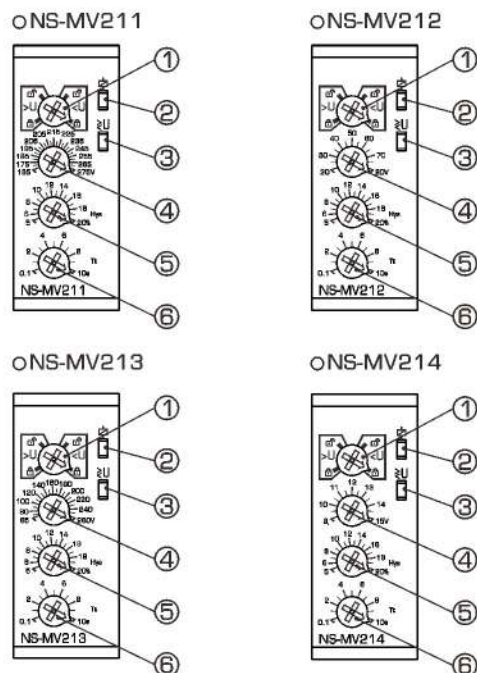
Wiring diagram



Features

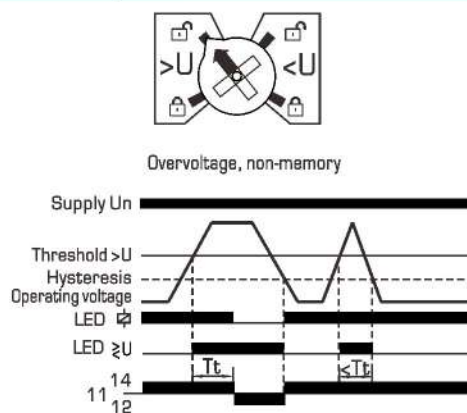
- Microcontroller based
- Supply voltage monitoring (True RMS measurement)
- Voltage measurement error: ≤1%
- LED indication for control state
- Threshold voltage and trip delay setting by independent knobs
- Fault state locked.
- 1 module Din rail mounting

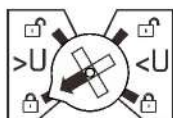
Front-face panel



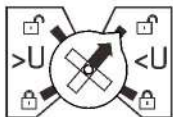
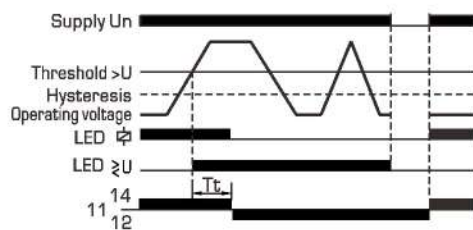
- ① U>/U< function selector
- ② Indication for relay output ϕ
- ③ Indication for over/under voltage fault $\geq U$
- ④ Voltage faults setting Uset
- ⑤ Voltage hysteresis setting Hys
- ⑥ Trip delay setting Tt

Function diagrams

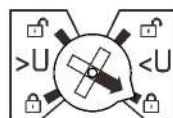
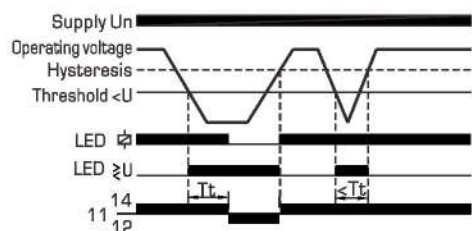




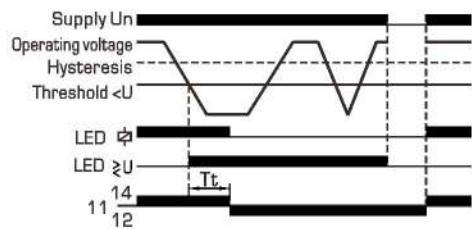
Overvoltage, memory



Undervoltage, non-memory



Undervoltage, memory

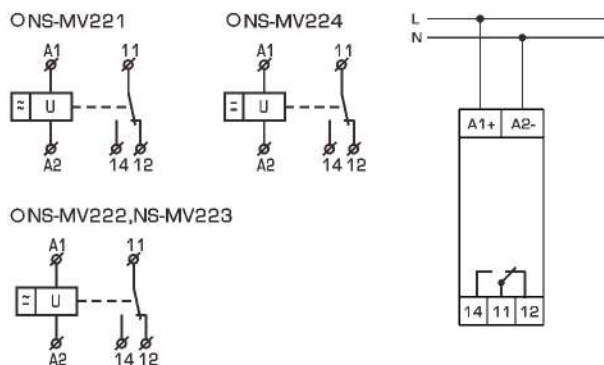




Technical data

Models	NS-MV221	NS-MV222	NS-MV223	NS-MV224
Supply terminals	A1-A2			
Rated supply voltage	AC220V	AC/DC 24...48V	AC/DC 110...240V	DC12V
Operation range	AC 150-280V	AC/DC 15-150V	AC/DC 30-270V	DC 6-30V
Rated frequency	45-65Hz	45-65,0Hz	45-65,0Hz	0Hz
U> threshold setting	225-275V	20-80V	65-260V	9-15V
U< threshold setting	165-215V	20-80V	65-260V	9-15V
Hysteresis	±3% of threshold setting value			
Measurement error	≤1% (over the whole range)			
Trip delay	0.1~10s			
Trip delay error	±5%+0.1s			
Output contacts	11, 12, 14			
Current rating	16A / AC1			
Type of output	1C/O			
Rated insulation voltage	250V			
Protection degree	IP20			
Pollution degree	3			
Electrical life	10 ⁶			
Mechanical life	10 ⁶			
Altitude	≤2000m			
Ambient temperature	-20°C~+55°C			
Humidity	≤50% at 40°C (without condensation)			
Storage temperature	-30°C~+70°C			
Wire size	0.5mm ² ~2.5mm ²			
Torque	0.5Nm			
Rail	TH-35 (IEC/EN60715)			

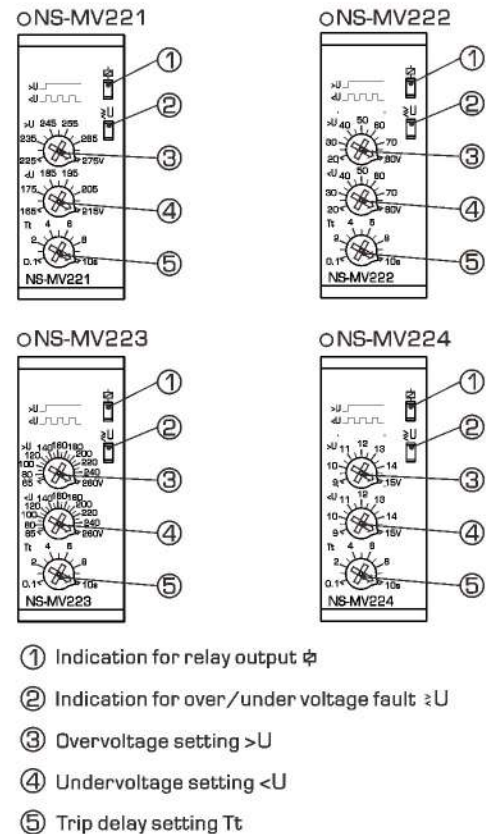
Wiring diagram



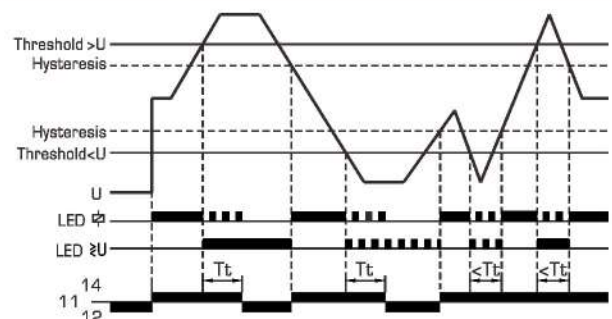
Features

- Microcontroller based
- Supply voltage monitoring (True RMS measurement)
- Voltage measurement error: ≤1%
- LED indication for control state
- Threshold voltage and trip delay setting by independent knobs
- Auto reset
- 1 module Din rail mounting

Front-face panel



Function diagrams

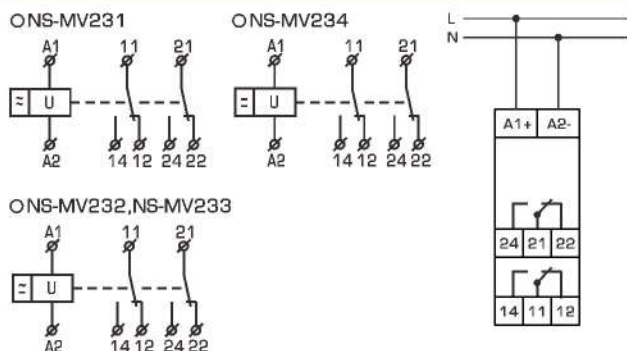




Technical data

Models	NS-MV231	NS-MV232	NS-MV233	NS-MV234
Supply terminals	A1-A2			
Rated supply voltage	AC220V	AC/DC 24...48V	AC/DC 110...240V	DC12V
Operation range	AC 150-280V	AC/DC 15-150V	AC/DC 30-270V	DC 6-30V
Rated frequency	45-65Hz	45-65,0Hz	45-65,0Hz	0Hz
U> threshold setting	225-275V	20-80V	65-260V	9-15V
U< threshold setting	165-215V	20-80V	65-260V	9-15V
Hysteresis	±3% of threshold setting value			
Measurement error	≤1% (over the whole range)			
Trip delay	0.1~10s			
Trip delay error	±5%+0.1s			
Output contacts	11, 12, 14; 21, 22, 24			
Current rating	16A / AC1			
Type of output	2C/O			
Rated insulation voltage	250V			
Protection degree	IP20			
Pollution degree	3			
Electrical life	10 ⁵			
Mechanical life	10 ⁶			
Altitude	≤2000m			
Ambient temperature	-20°C~+55°C			
Humidity	≤50% at 40°C (without condensation)			
Storage temperature	-30°C~+70°C			
Wire size	0.5mm ² ~2.5mm ²			
Torque	0.5Nm			
Rail	TH-35 (IEC/EN60715)			

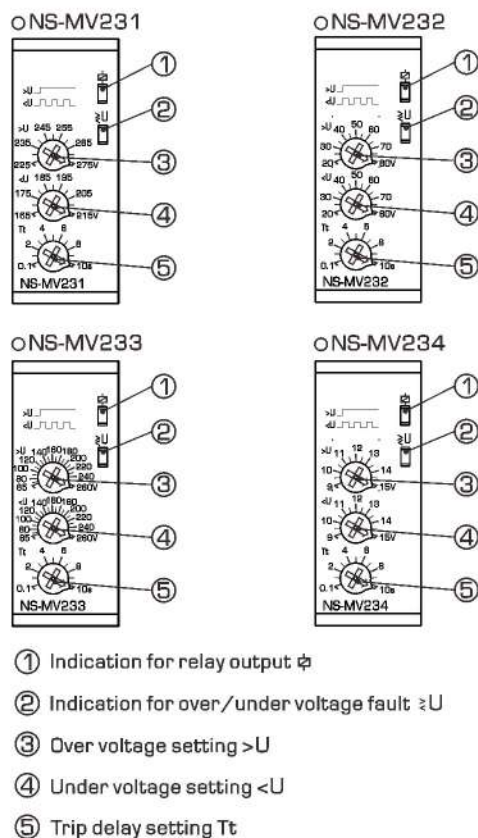
Wiring diagram



Features

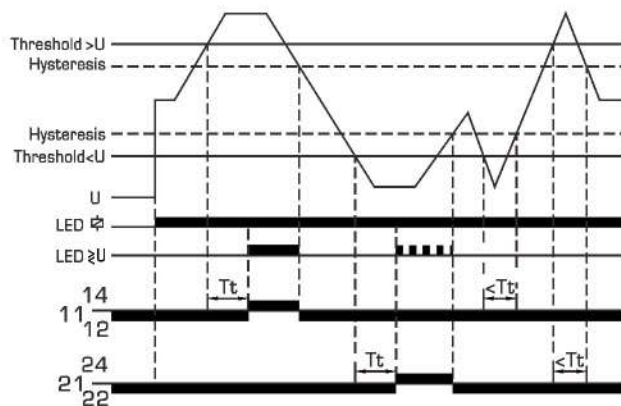
- Microcontroller based
- Supply voltage monitoring (True RMS measurement)
- Voltage measurement error: ≤1%
- LED indication for control state
- Threshold voltage and trip delay setting by independent knobs
- Auto reset
- 1 module Din rail mounting

Front-face panel



- ① Indication for relay output ϕ
- ② Indication for over/under voltage fault $\geq U$
- ③ Over voltage setting $> U$
- ④ Under voltage setting $< U$
- ⑤ Trip delay setting T_t

Function diagrams





Technical data

Modes	3phase 3wire	3phase 4wire
Supply terminals	L1,L2,L3	L1,L2,L3,N
Supply voltage	380V/400V/415V	220V/230V/240V
Operating voltage range	266V-540V	154V-312V
U> setting value	[105%-125%]xUn	
U< setting value	[75%-95%]xUn	
Asymmetry setting	adjustable: 5%~20%; fixed: 8%	
U> trip delay	adjustable: 0.1~10s; fixed: 2s	
U< trip delay	adjustable: 0.1~10s; fixed: 2s	
Asymmetry trip delay	adjustable: 0.1~10s; fixed: 2s	
Hysteresis	2% fixed	
Trip time for incorrect phase sequence and phase failure	<0.5s	
Delay error	±10%+0.1s	
Knob setting error	1% x scale value	
Rated insulation voltage	415V	
Output contacts	1C/0	
Current rating	8A/250V AC1	
Mechanical life	10 ⁵	
Electrical life	10 ⁵	
Protection degree	IP20	
Pollution degree	3	
Altitude	≤2000m	
Ambient temperature	-20°C~+55°C	
Permissible relative humidity	≤50% at 40°C(without condensation)	
Storage temperature	-30°C~+70°C	
Wire size/Torque	0.5mm ² ~2.5mm ² /0.5Nm	
Mounting	TH-35 Rail(EN60715)	

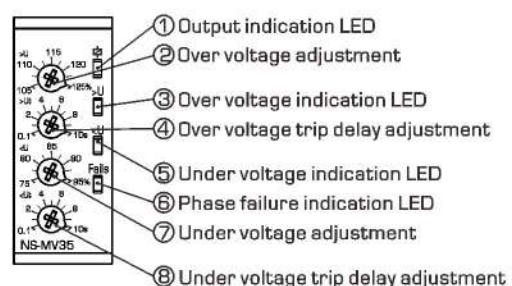
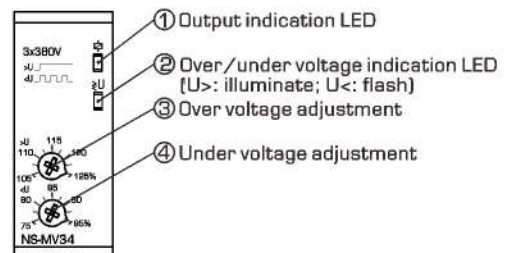
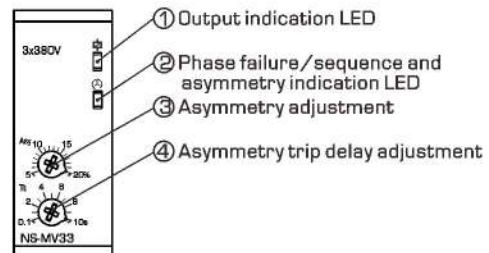
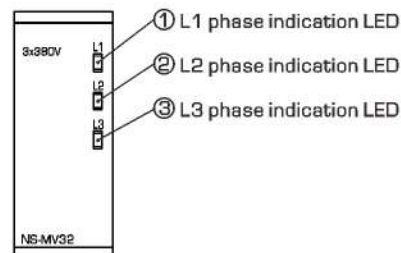
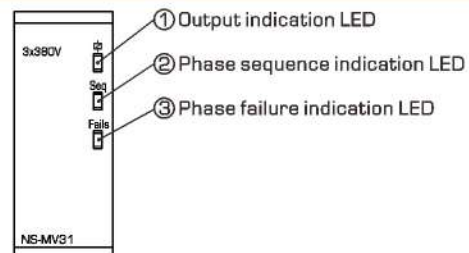
Models	U>	U<	Phase failure	Phase sequence	Asymmetry
NS-MV31(N)			●	●	
NS-MV32(N)			●	●	●
NS-MV33(N)			●	●	●
NS-MV34(N)	●	●	●		
NS-MV35(N)	●	●	●		
NS-MV36(N)	●	●	●	●	
NS-MV37(N)	●	●	●	●	●

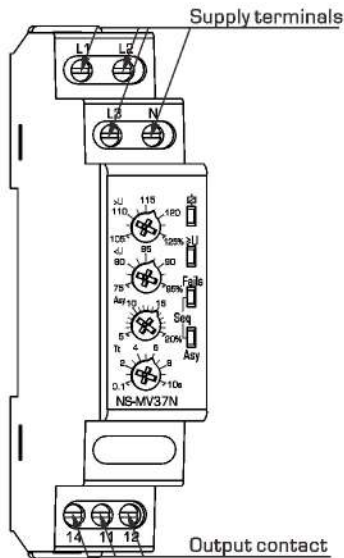
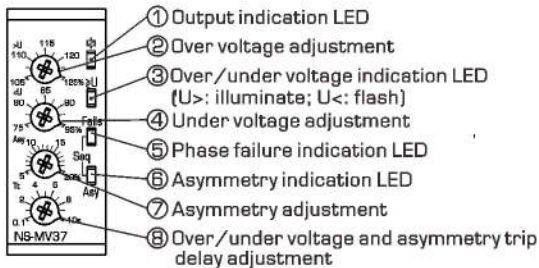
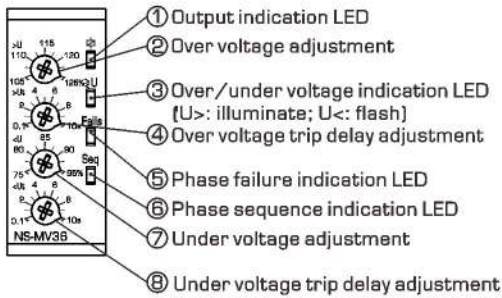
Models	Supply voltage (Un)	Note
NS-MV3□/208	3x208	3phase 3wire
NS-MV3□/220	3x220	3phase 3wire
NS-MV3□/240	3x240	3phase 3wire
NS-MV3□/380	3x380	3phase 3wire
NS-MV3□/400	3x400	3phase 3wire
NS-MV □/	3x415	3phase 3wire
NS-MV □ /	3x380/220	3phase 4wire
NS-MV □ /	3x400/230	3phase 4wire
NS-MV □ /	3x415/240	3phase 4wire

Features

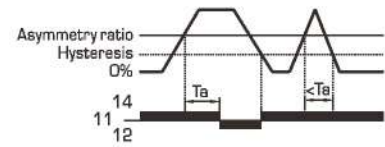
- Microcontroller based.
- True RMS measurement
- Parameters setting by knobs
- N phase failure protection for 3phase 4 wire
- 1C/0 output-8A
- LED indication for supply and output state
- 1 module Din-rail mounting

Front-face panel





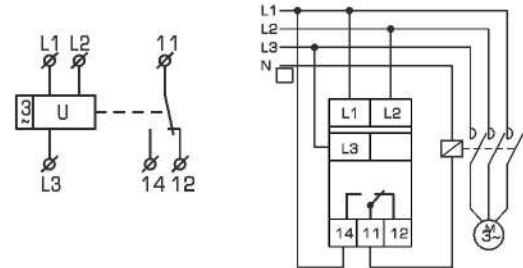
● Asymmetry



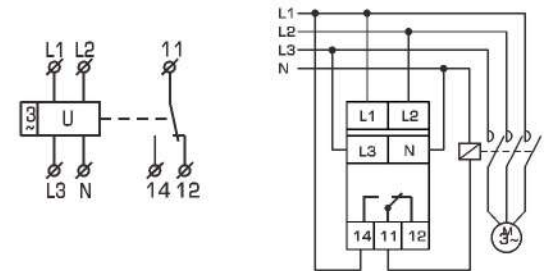
Ta: Asymmetry trip delay

□ Wiring diagrams

● NS-MV31/32/33/34/35/36/37

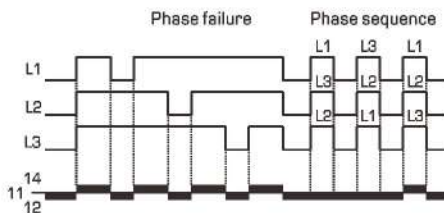


● NS-MV31N/32N/33N/34N/35N/36N/37N

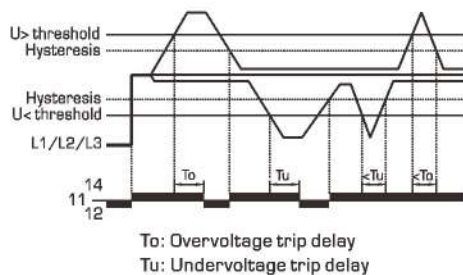


□ Function diagrams

● Phase failure and phase sequence



● Overvoltage and undervoltage





Technical data

Models	3phase 3wire	3phase 4wire
Monitoring terminals	L1, L2, L3	L1, L2, L3, N
U> setting value	(105%~125%)xUn	
U< setting value	(75%~95%)xUn	
Asymmetry setting	adjustable: 5%~20%; fixed: 8%	
U> trip delay	adjustable: 0.1~10s; fixed: 2s	
U< trip delay	adjustable: 0.1~10s; fixed: 2s	
Asymmetry trip delay	adjustable: 0.1~10s; fixed: 2s	
Voltage hysteresis	2%	
Asymmetry hysteresis	2%	
Trip time for incorrect phase sequence and phase failure	≤0.2s	
Voltage measurement error	≤1%	
Delay error	±5%+0.1s	
Knob setting error	1% x scale value	
Rated insulation voltage	480V	
Output contacts	2C/0	
Current rating	8A/250V AC1	
Mechanical life	10 ⁶	
Electrical life	10 ⁶	
Protection degree	IP20	
Pollution degree	3	
Altitude	≤2000m	
Ambient temperature	-20°C~+55°C	
Permissible relative humidity	≤50% at 40°C(without condensation)	
Storage temperature	-30°C~+70°C	
Wire size/Torque	0.5mm ² ~2.5mm ² /0.5Nm	
Mounting	TH-35 Rail(EN60715)	

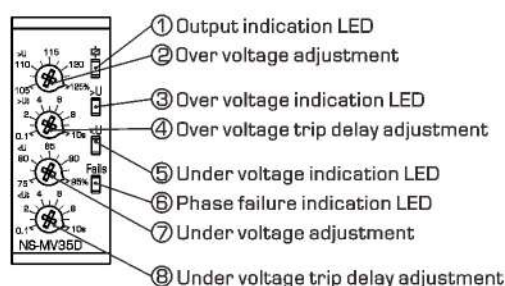
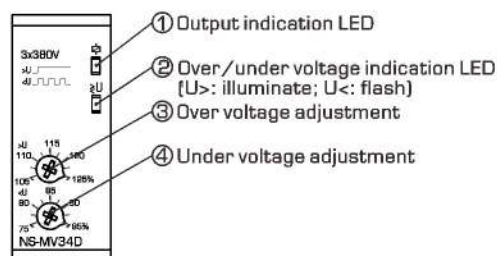
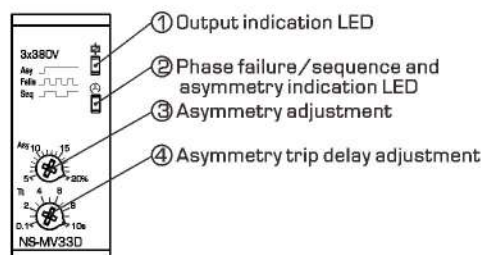
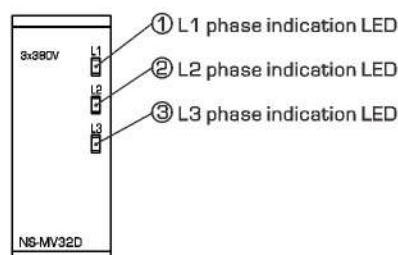
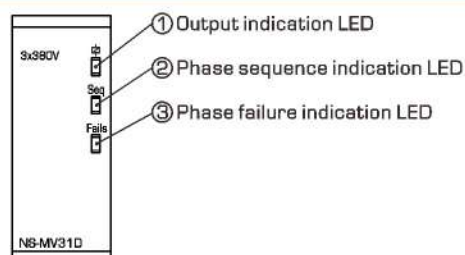
Function code	U>	U<	Phase failure	Phase sequence	Asymmetry
31			●	●	
32			●	●	
33			●	●	●
34	●	●	●		
35	●	●	●		
36	●	●	●	●	
37	●	●	●	●	●

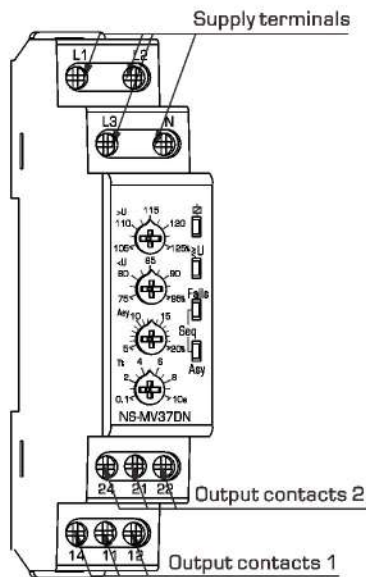
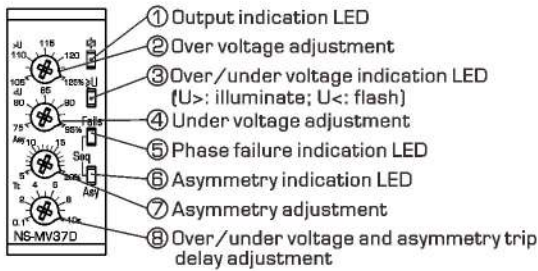
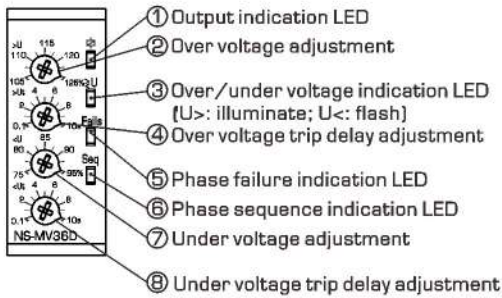
3phase 3wire		3phase 4wire	
Code	Supply voltage	Code	Supply voltage
NS-MV3□D/208	3*208V	NS-MV3□DN/120	3*208V/120V
NS-MV3□D/220	3*220V	NS-MV3□DN/127	3*220V/127V
NS-MV3□D/230	3*230V	NS-MV3□DN/132	3*230V/132V
NS-MV3□D/240	3*240V	NS-MV3□DN/138	3*240V/138V
NS-MV3□D/380	3*380V	NS-MV3□DN/220	3*380V/220V
NS-MV3□D/400	3*400V	NS-MV3□DN/230	3*400V/230V
NS-MV3□D/415	3*415V	NS-MV3□DN/240	3*415V/240V
NS-MV3□D/440	3*440V	NS-MV3□DN/254	3*440V/254V
NS-MV3□D/460	3*460V	NS-MV3□DN/265	3*460V/265V
NS-MV3□D/480	3*480V	NS-MV3□DN/277	3*480V/277V

Features

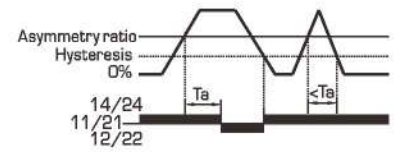
- Microcontroller based.
- True RMS monitoring
- Protection parameters setting by knobs
- 2x SPDT relay output 8A
- LED indication for supply and output state
- 1 module Din-rail mounting

Front-face panel





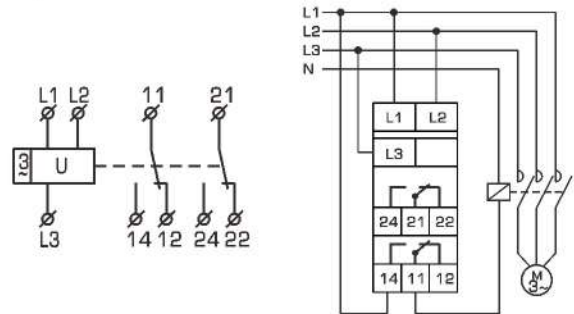
● Asymmetry



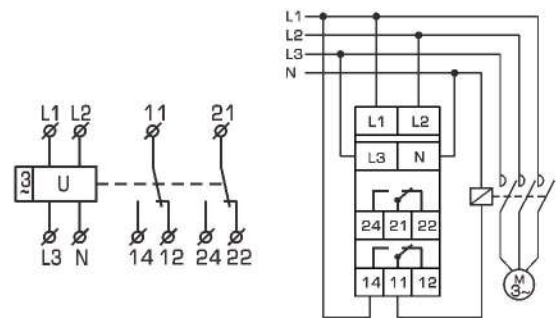
Ta: Asymmetry trip delay

□ Wiring diagrams

○ 3phase 3wire

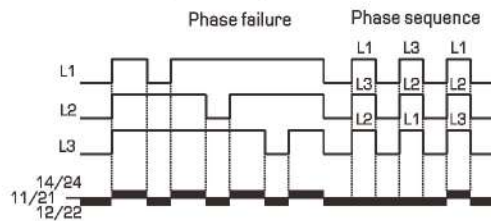


○ 3phase 4wire

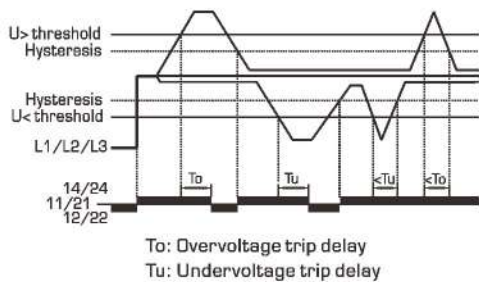


□ Function diagrams

● Phase failure and phase sequence



● Overvoltage and undervoltage





Technical data

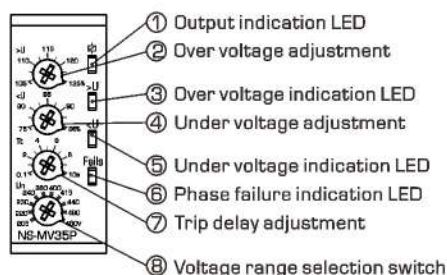
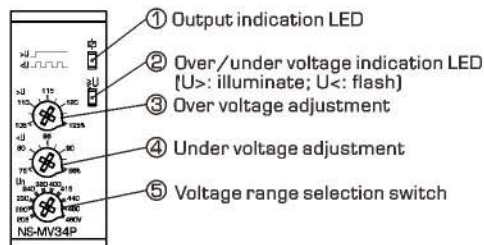
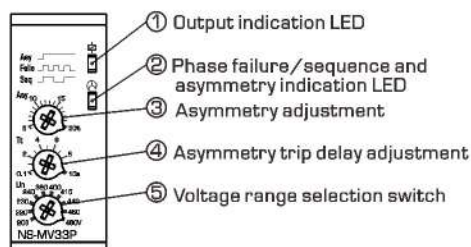
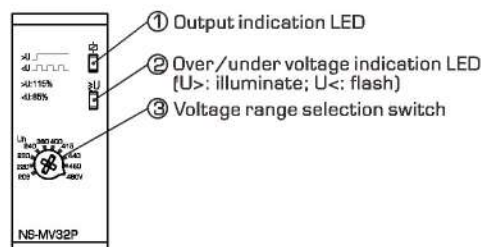
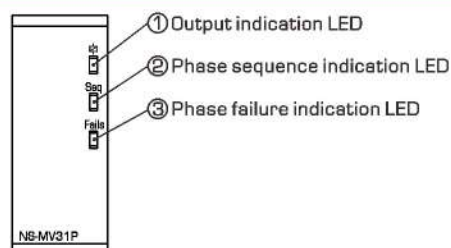
Parameters	3phase 3wire	3phase 4wire
Supply terminals	L1,L2,L3	L1,L2,L3,N
Rated voltage[Un]	208-480V	120-277V
Operation voltage range	165-528V	50-380V
Measurement range	150-552V	45-400V
Frequency	50/60Hz	
U> setting value	Adjustable:[105%-125%]xUn; Fixed:115%xUn	
U< setting value	Adjustable:[75%-95%]xUn; Fixed:85%xUn	
Asymmetry setting	Adjustable: 5%~20%; fixed: 8%	
U> trip delay	Adjustable: 0.1~10s; fixed: 2s	
U< trip delay	Adjustable: 0.1~10s; fixed: 2s	
Asymmetry trip delay	adjustable: 0.1~10s; fixed: 2s	
Hysteresis	2%	
Phase failure trip value	70%xUn	
Trip time for incorrect phase sequence and phase failure	<0.5s	
Measurement limit	<156V	<50V
Delay error	±10%+0.1s	
Knob setting error	1% x scale value	
Rated insulation voltage	480V	
Output contacts	1C/0	
Current rating	8A/250V AC1	
Mechanical life	10 ⁶	
Electrical life	10 ⁵	
Protection degree	IP20	
Pollution degree	3	
Altitude	≤2000m	
Ambient temperature	-20°C~+55°C	
Permissible relative humidity	≤50% at 40°C(without condensation)	
Storage temperature	-30°C~+70°C	
Wire size/Torque	0.5mm ² ~2.5mm ² /0.5Nm	
Mounting	TH-35 Rail(EN60715)	

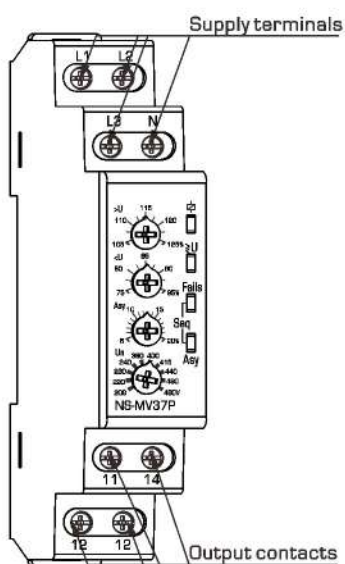
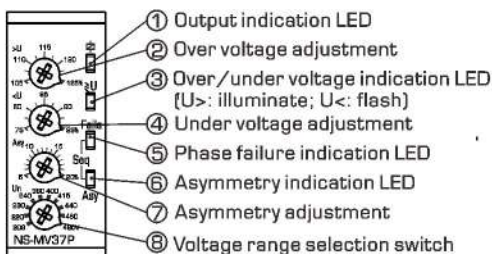
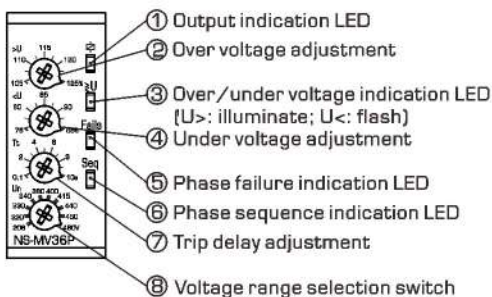
Models	U>	U<	Phase failure	Phase sequence	Asymmetry	Selectable Un
NS-MV31P (N)			●	●		
NS-MV32P (N)	●	●	●			●
NS-MV33P (N)			●	●	●	●
NS-MV34P (N)	●	●	●			●
NS-MV35P (N)	●	●	●			●
NS-MV36P (N)	●	●	●	●		●
NS-MV37P (N)	●	●	●	●	●	●

Features

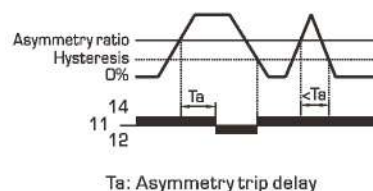
- Microcontroller based
- Supply voltage measurement (True RMS)
- Overvoltage, undervoltage, phase failure, asymmetry and phase sequence protection
- Protection parameters setting by knobs
- 10 operating voltage selectable:
208V-220V-230V-240V-380V-400V-415V-440V-460V-480V (3phase 3wire)
120-127-132-138-220-230-240-254-265-277V(3phase 4wire)
- 1 module DIN rail mounting.

Front-face panel



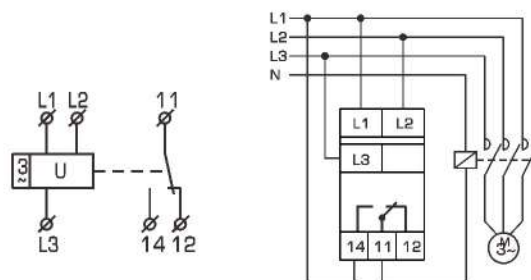


● Asymmetry

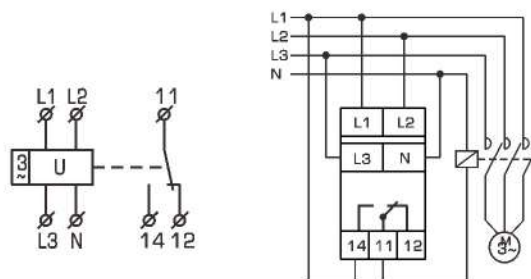


□ Wiring diagrams

● 3phase 3wire

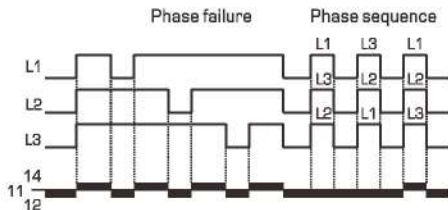


● 3phase 4wire

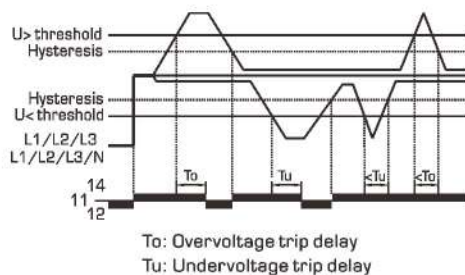


□ Function diagrams

● Phase failure and phase sequence



● Overvoltage and undervoltage





Technical data

Parameters	3phase 3wire	3phase 4wire
Monitoring terminals	L1,L2,L3	L1,L2,L3,N
Rated voltage(Un)	208-480V	120-277V
Operation voltage range	165-528V	50-380V
Measurement range	150-552V	45-400V
Frequency	50/60Hz	
U> setting value	Adjustable:(105%-125%)xUn; Fixed:115%xUn	
U< setting value	Adjustable:(75%-95%)xUn; Fixed:85%xUn	
Asymmetry setting	Adjustable: 5%~20%; fixed: 8%	
U> trip delay	Adjustable: 0.1~10s; fixed: 2s	
U< trip delay	Adjustable: 0.1~10s; fixed: 2s	
Asymmetry trip delay	adjustable: 0.1~10s; fixed: 2s	
Hysteresis	2%	
Phase failure trip value	70%xUn	
Trip time for incorrect phase sequence and phase failure	<0.5s	
Measurement limit	<156V	<50V
Delay error	±10%+0.1s	
Knob setting error	1% x scale value	
Rated insulation voltage	480V	
Output contacts	2C/0	
Current rating	8A/250V AC1	
Mechanical life	10 ⁶	
Electrical life	10 ⁵	
Protection degree	IP20	
Pollution degree	3	
Altitude	≤2000m	
Ambient temperature	-20°C~+55°C	
Permissible relative humidity	≤50% at 40°C(without condensation)	
Storage temperature	-30°C~+70°C	
Wire size/Torque	0.5mm ² ~2.5mm ² /0.5Nm	
Mounting	TH-35 Rail(EN60715)	

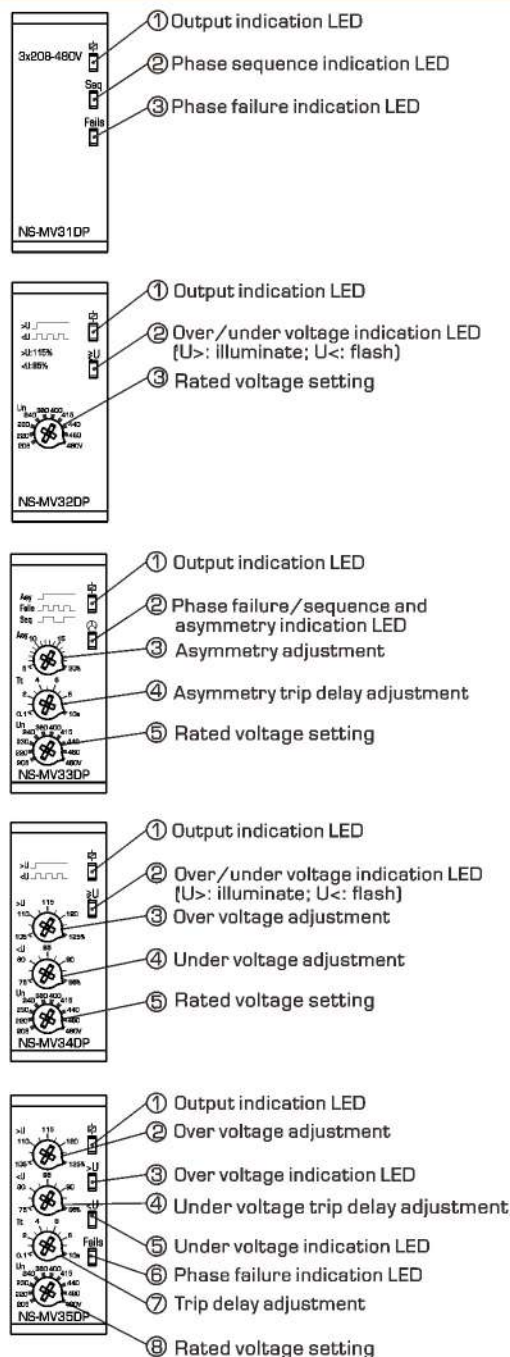
Function codes	U>	U<	Phase failure	Phase sequence	Asymmetry	Operation voltage selectable
31			•	•		
32	•	•	•			•
33			•	•	•	•
34	•	•	•			•
35	•	•	•			•
36	•	•	•	•		•
37	•	•	•	•	•	•

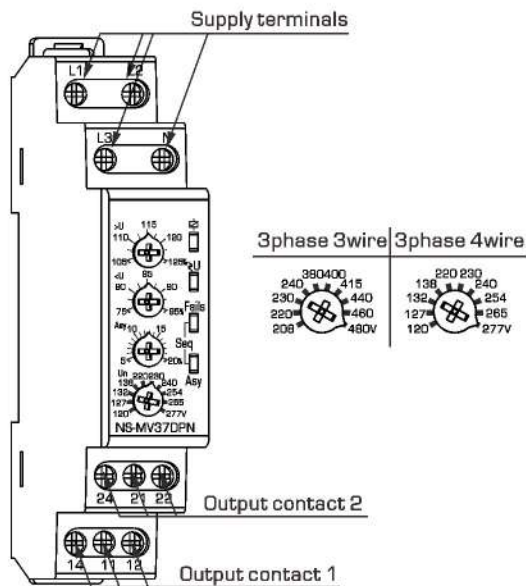
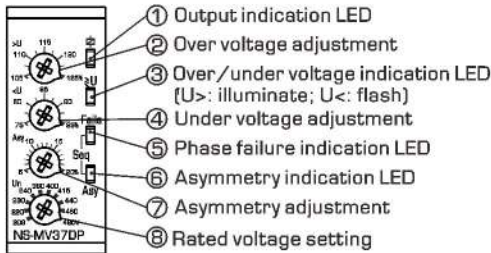
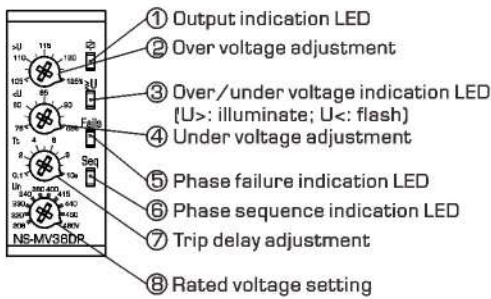
Note: •The function is available.

Features

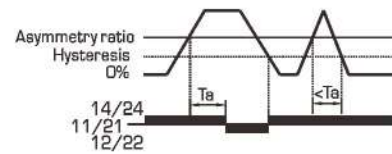
- Microcontroller based.
- Protection parameters setting by knobs
- 10 rated voltage selectable:
208-220-230-240-380-400-415-440-460-480V(3phase 3wire)
120-127-132-138-220-230-240-254-265-277V(3phase 4wire)
- 2C/0- 8A
- LED indication for supply and output state
- 1 module Din-rail mounting

Front-face panel





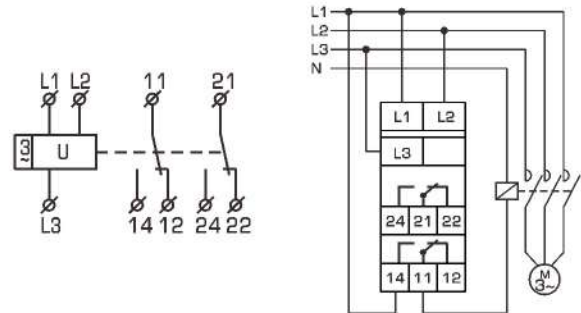
● Asymmetry



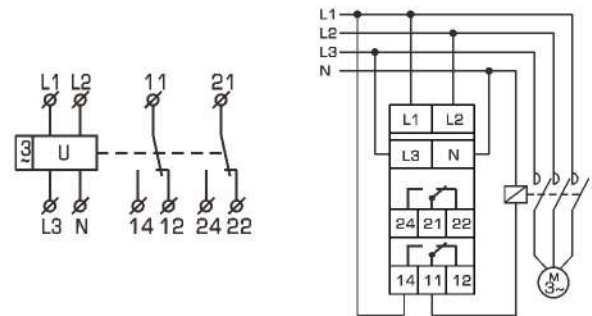
Ta: Asymmetry trip delay

□ Wiring diagrams

● 3phase 3wire

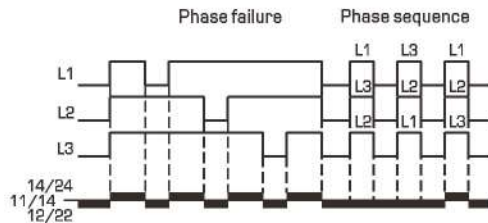


● 3phase 4wire

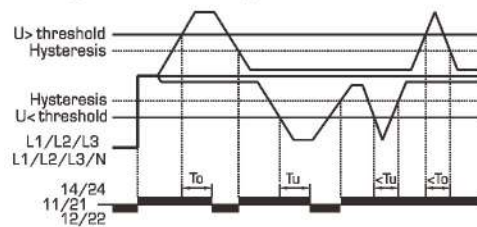


□ Function diagrams

● Phase failure and phase sequence



● Overvoltage and undervoltage



To: Over voltage trip delay
Tu: Under voltage trip delay



Technical data

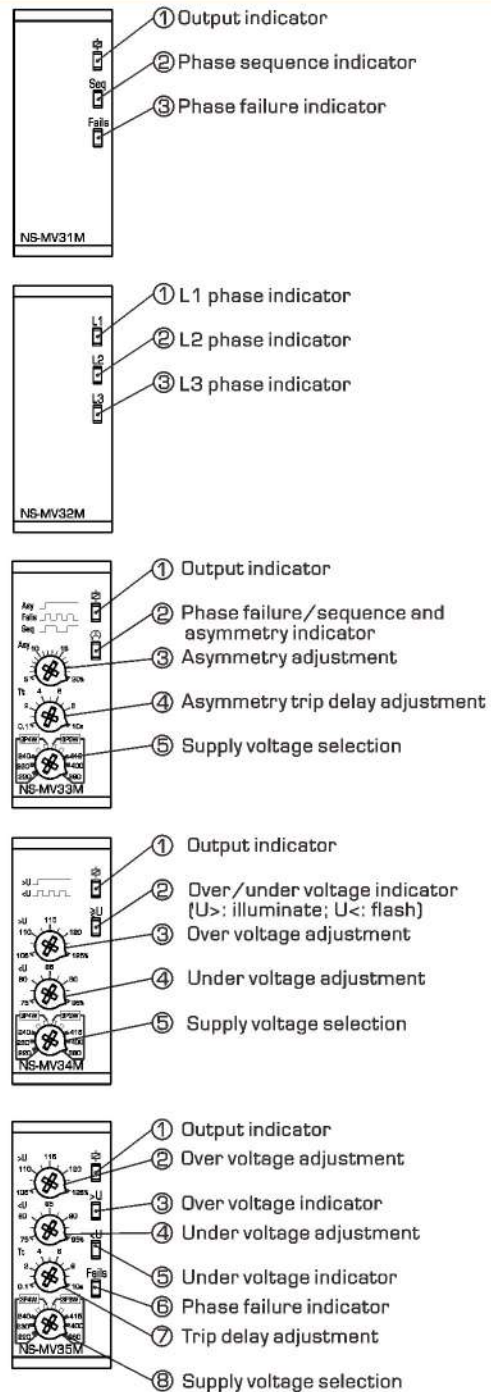
Modes	3phase 3wire	3phase 4wire
Supply terminals	L1,L2,L3	L1,L2,L3,N
Supply voltage	380V/400V/415V	220V/230V/240V
Operating voltage range	266V-540V	154V-312V
U> setting value	[105%-125%]xUn	
U< setting value	[75%-95%]xUn	
Asymmetry setting	adjustable: 5%~20%; fixed: 8%	
U> trip delay	adjustable: 0.1~10s; fixed: 2s	
U< trip delay	adjustable: 0.1~10s; fixed: 2s	
Asymmetry trip delay	adjustable: 0.1~10s; fixed: 2s	
Hysteresis	2% fixed	
Trip time for incorrect phase sequence and phase failure	<0.5s	
Delay error	±10%+0.1s	
Knob setting error	1% x scale value	
Rated insulation voltage	415V	
Output contacts	2C/0	
Current rating	8A/250V AC1	
Mechanical life	10 ⁵	
Electrical life	10 ⁵	
Protection degree	IP20	
Pollution degree	3	
Altitude	≤2000m	
Ambient temperature	-20°C~+55°C	
Permissible relative humidity	≤50% at 40°C(without condensation)	
Storage temperature	-30°C~+70°C	
Wire size/Torque	0.5mm ² ~2.5mm ² /0.5Nm	
Mounting	TH-35 Rail(EN60715)	

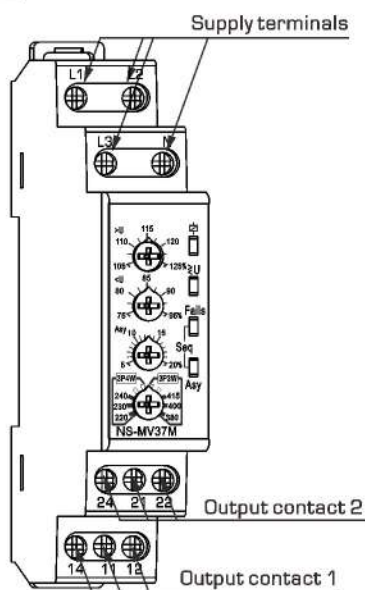
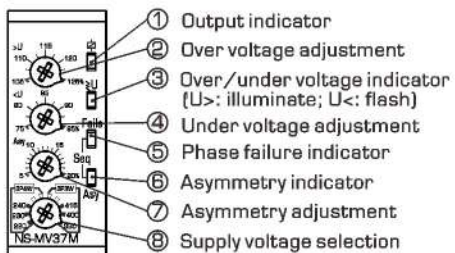
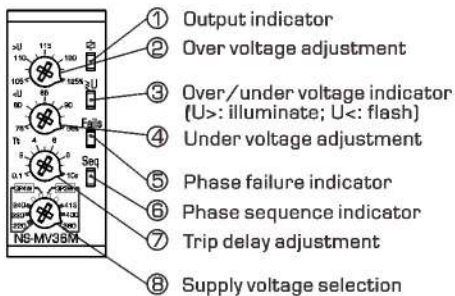
Models	U>	U<	Phase failure	Phase sequence	Asymmetry
NS-MV31M			●	●	
NS-MV32M			●	●	●
NS-MV33M			●	●	●
NS-MV34M	●	●	●		
NS-MV35M	●	●	●	●	
NS-MV36M	●	●	●	●	
NS-MV37M	●	●	●	●	●

Features

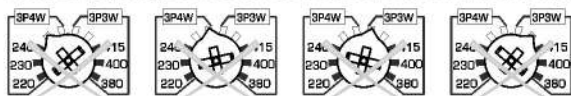
- Microcontroller based.
- True RMS measurement
- Select 3phase 3wire or 3phase 4wire mode by a knob.
- N phase failure protection for 3phase 4 wire
- 2C/0 output-8A
- LED indication for supply and output state
- 1 module Din-rail mounting

Front-face panel



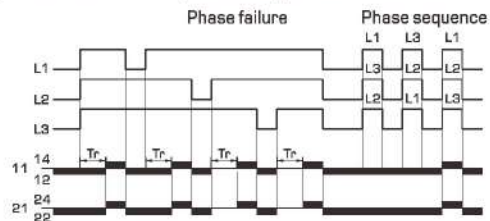


Note: supply voltage can't be set as below. Otherwise all indicator will flash.

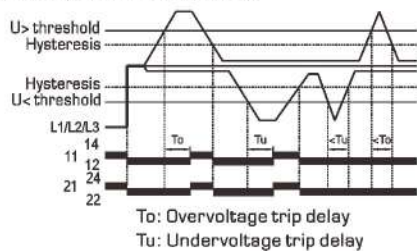


Function diagrams

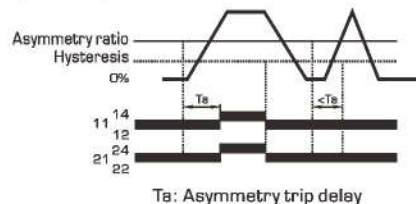
Phase failure and phase sequence



Overvoltage and undervoltage

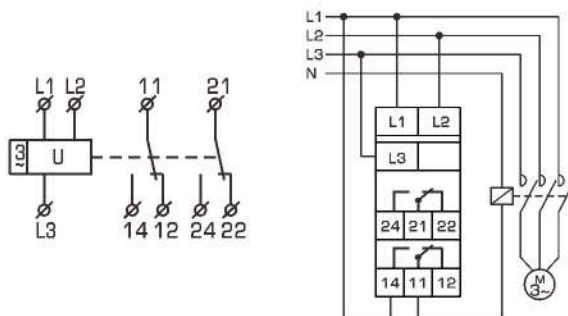


Asymmetry

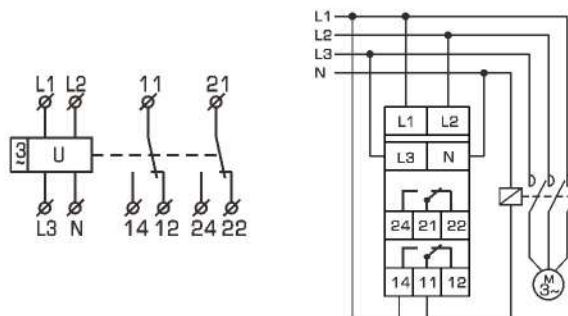


Wiring diagrams

3phase 3wire



3phase 4wire





Technical data

Models	ND-MV35/36/37	ND-MV35N/36N/37N
Supply terminals	L1, L2, L3	L3, N
U> setting value	(105%-125%)xUn	
U< setting value	(70%-95%)xUn	
Asymmetry setting	5%~20%	
U> trip delay	0.1~10s	
U< trip delay	0.1~10s	
Asymmetry trip delay	0.1~10s	
Voltage hysteresis	6V	5V
Asymmetry hysteresis	2%	
Trip time for incorrect phase sequence and phase failure	≤0.2s	
Voltage measurement error	≤1%	
Delay error	±5%±0.1s	
Knob setting error	1% x scale value	
Rated insulation voltage	480V	
Output contacts	1C/0, 1NO+1NC	
Current rating	8A/250V AC1	
Mechanical life	10 ⁵	
Electrical life	10 ⁵	
Protection degree	IP20	
Pollution degree	3	
Altitude	≤2000m	
Wire size/Torque	0.5mm ² ~2.5mm ² /0.5Nm	

Models

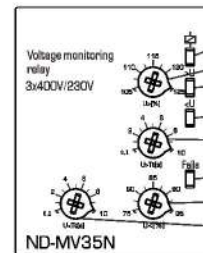
Models	U>	U<	Phase failure	Phase sequence	Asymmetry
ND-MV35	●	●	●		
ND-MV35N	●	●	●		
ND-MV36	●	●	●	●	
ND-MV36N	●	●	●	●	
ND-MV37	●	●	●	●	●
ND-MV37N	●	●	●	●	●

Models	Supply voltage (Un)
ND-MV35/208 ND-MV36/208 ND-MV37/208	3x208/50Hz
ND-MV35/220 ND-MV36/220 ND-MV37/220	3x220/50Hz
ND-MV35/240 ND-MV36/240 ND-MV37/240	3x240/50Hz
ND-MV35/380 ND-MV36/380 ND-MV37/380	3x380/50Hz
ND-MV35/400 ND-MV36/400 ND-MV37/400	3x400/50Hz
ND-MV35/415 ND-MV36/415 ND-MV37/415	3x415/50Hz
ND-MV35/480 ND-MV36/480 ND-MV37/480	3x480/50Hz
ND-MV35N/220 ND-MV36N/220 ND-MV37N/220	3x380/220/50Hz
ND-MV35N/230 ND-MV36N/230 ND-MV37N/230	3x400/230/50Hz
ND-MV35N/240 ND-MV36N/240 ND-MV37N/240	3x415/240/50Hz

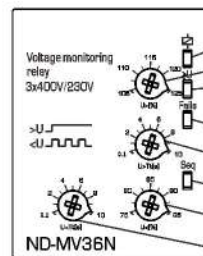
Features

- Microcontroller based
- Supply voltage measurement (True RMS)
- Overvoltage, undervoltage, phase failure, asymmetry and phase sequence protection
- Protection parameters setting by knobs
- Supply voltage:
ND-MV35,36,37 : 208V,220V,240V,380V,400V,415V,460V,480V
ND-MV35N,36N,37N : 220V,230V,240V.
- N phase failure protection for ND-MV35N/36N/37N
- 2 module DIN rail mounting

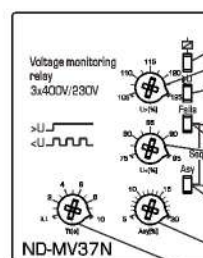
Front-face panel



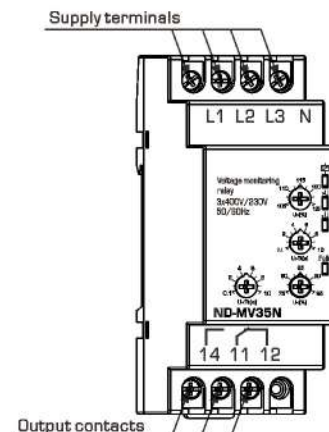
- ① Output indication LED
- ② Over voltage adjustment
- ③ Over voltage indication LED
- ④ Under voltage indication LED
- ⑤ Over voltage trip delay
- ⑥ Phase failure indication LED
- ⑦ Under voltage adjustment
- ⑧ Under voltage trip delay



- ① Output indication LED
- ② Over voltage adjustment
- ③ Over/under voltage indication LED (U>: illuminate; U<: flash)
- ④ Phase failure indication LED
- ⑤ Over voltage trip delay
- ⑥ Phase sequence indication LED
- ⑦ Under voltage adjustment
- ⑧ Under voltage trip delay

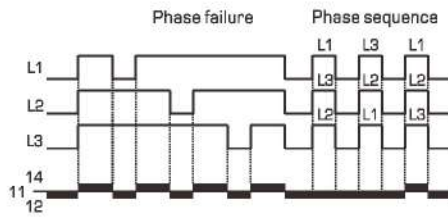


- ① Output indication LED
- ② Over voltage adjustment
- ③ Over/under voltage indication LED (U>: illuminate; U<: flash)
- ④ Phase failure indication LED
- ⑤ Under voltage adjustment
- ⑥ Phase sequence indication LED (Both LED Fails and LED Asy illuminate)
- ⑦ Asymmetry indication LED
- ⑧ Asymmetry adjustment
- ⑨ Over/under voltage and asymmetry trip delay

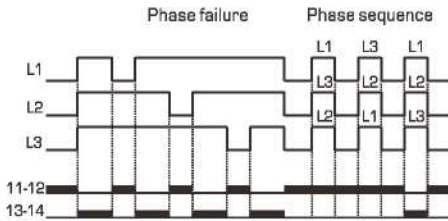


□ Function diagrams

● Phase failure and phase sequence

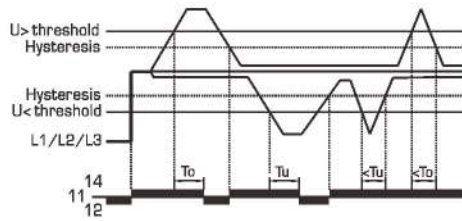


1C/O

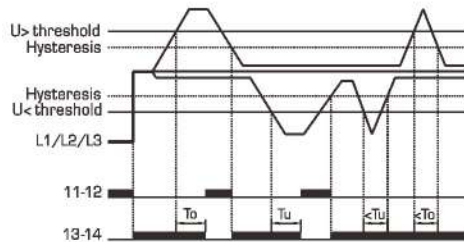


1NO+1NC

● Overvoltage and undervoltage



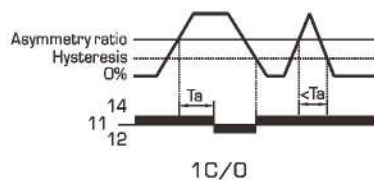
1C/O



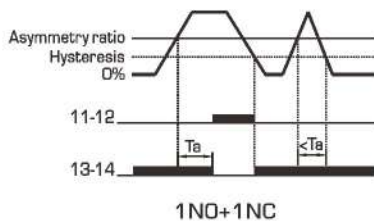
1NO+1NC

To: Overvoltage trip delay
Tu: Undervoltage trip delay

● Asymmetry



1C/O



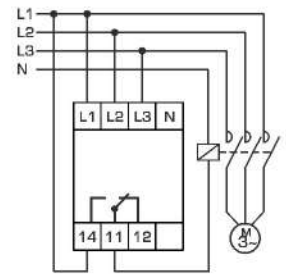
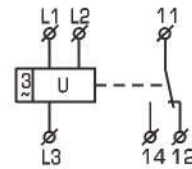
1NO+1NC

Ta: Asymmetry trip delay

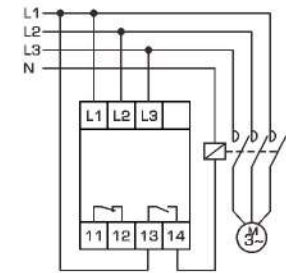
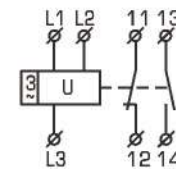
□ Wiring diagrams

● ND-MV35/36/37

1C/O

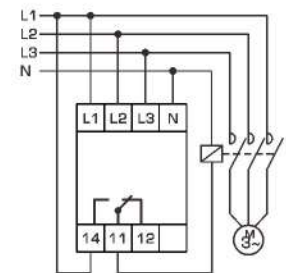
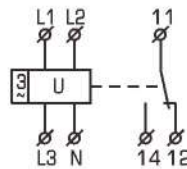


1NO+1NC

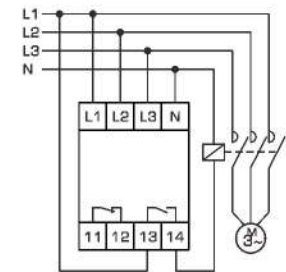
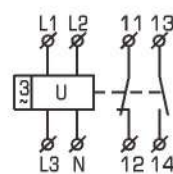


● ND-MV35N/36N/37N

1C/O



1NO+1NC





Technical data

Models	ND-MVS1(2)	ND-MVS1(2)N
Supply terminals	L1,L2,L3	L3,N
Supply voltage	AC 200~500V/50Hz	AC 125~300V/50Hz
U> setting value	OFF-381~500V	OFF-221~300V
U< setting value	280V~379V-OFF	150V~219V-OFF
Asymmetry setting	OFF-5%~20%	
U> trip delay	0.1~20s	
U< trip delay	0.1~20s	
Asymmetry trip delay	0.1~20s	
Start-up delay	0.1~30s	
Reset delay	0.1~30s	
Voltage hysteresis	6V	5V
Asymmetry hysteresis	2%	
Trip delay for phase failure	≤0.2s	
Voltage measurement error	≤1%	
Delay error	±5%+0.1s	
Rated insulation voltage	415V	
Output contacts	1C/0, 1NO+1NC	
Current rating	8A/250V AC1	
Mechanical life	10 ⁶	
Electrical life	10 ⁵	
Protection degree	IP20	
Pollution degree	3	
Altitude	≤2000m	
Ambient temperature	-20°C~+55°C	
Permissible relative humidity	≤50% at 40°C(without condensation)	
Storage temperature	-30°C~+70°C	
Wire size	0.5mm ² ~2.5mm ²	
Mounting	TH35 Rail(EN60715)	

Default setting parameters

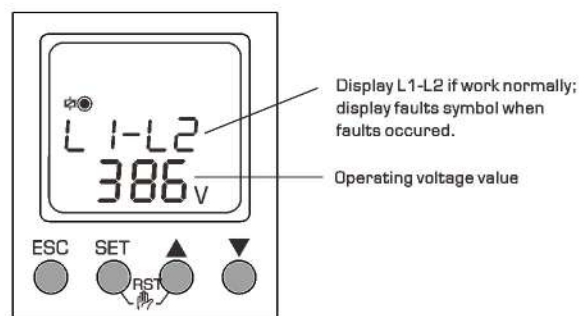
Technical parameters	ND-MVS1(2)	ND-MVS1(2)N
Overvoltage trip value	437V	253V
Overvoltage trip delay	2s	
Undervoltage trip value	323V	187V
Undervoltage trip delay	2s	
Asymmetry trip value	8%	
Asymmetry trip delay	2s	
Phase sequence protective function	ON	
Start-up delay	0.3s	
Reset delay	0.3s	
Auto-reset	ON	

Features

- Microcontroller based
- LCD indication for operating voltage and status
- Overvoltage, undervoltage, phase failure, asymmetry and phase sequence protection
- 45Hz~65Hz wide measuring frequency
- Supply voltage measurement (True RMS)
- Menu setting for protection parameters
- Test and manual reset by keys
- N phase failure protection for 3phase 4wire system
- 2 module DIN rail housing

Front-face panel and legend of symbol

Panel

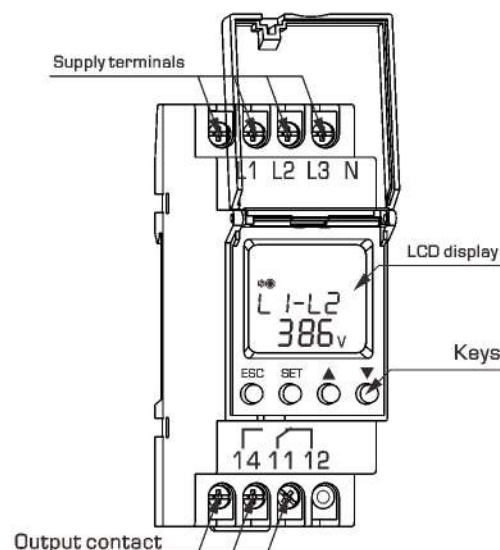


Symbol legend

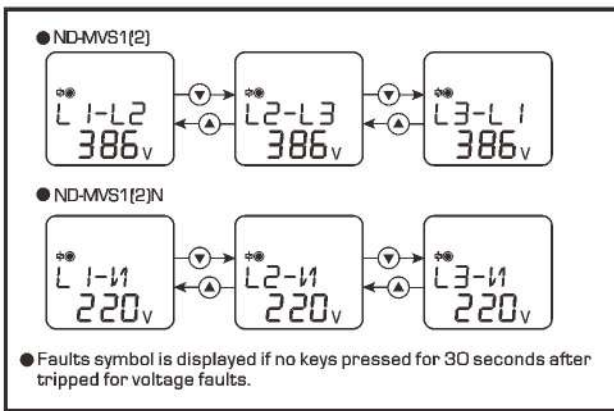
☉ — Relay ON	OV — Over voltage
☐ — Relay OFF	UV — Under voltage
SET — Parameters setting	ASY — Asymmetry
Error — Fault	PHSEQ — Phase sequence
start — Start-up delay	PHFAIL — Phase failure

Keys

ESC	○ Exit configuration menu	SET	○ Enter configuration menu
○	○ Back to last menu	○	○ Confirm settings
▲	○ Select menu	▼	○ Select menu
○	○ Digit -	○	○ Digit +
SET	○ Manual reset		

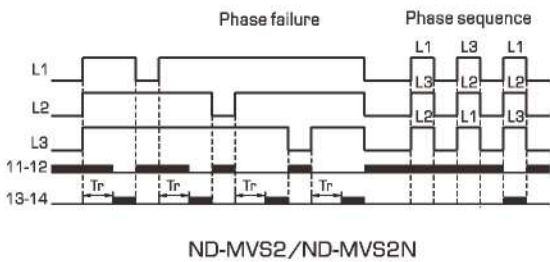
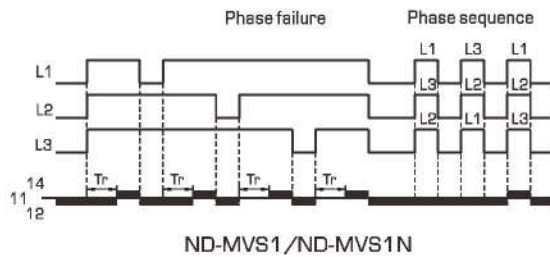


□ Inquiry of phase voltage value

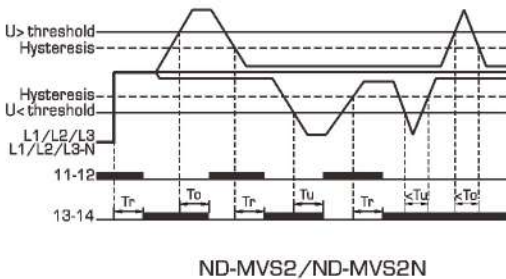
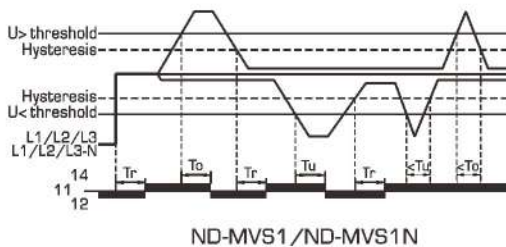


□ Function diagrams(auto-reset mode)

● Phase failure and phase sequence

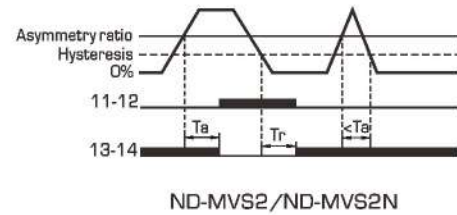
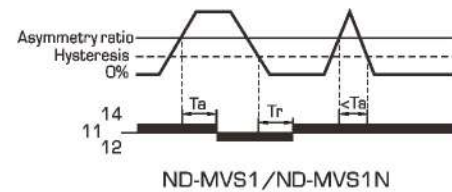


● Overvoltage and undervoltage



To: Overvoltage trip delay
Tu: Undervoltage trip delay
Tr: Reset/start delay

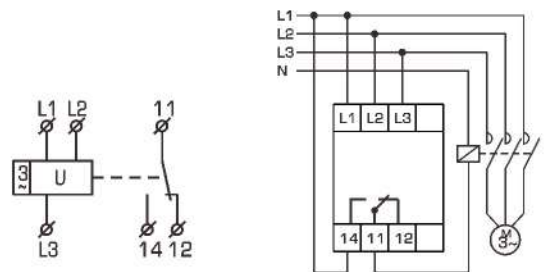
● Asymmetry



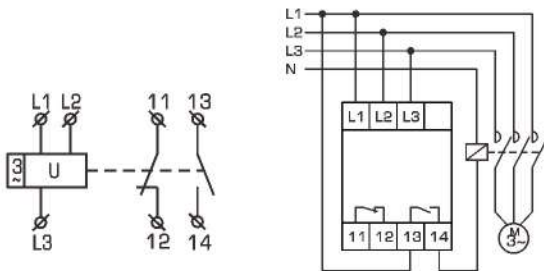
Ta: Asymmetry trip delay

□ Wiring diagrams

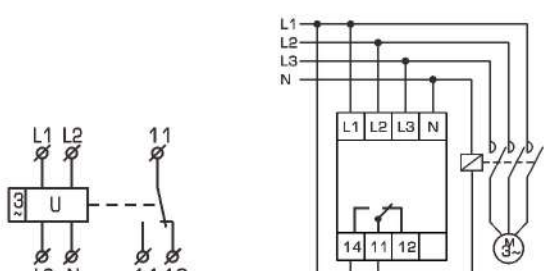
● ND-MVS1



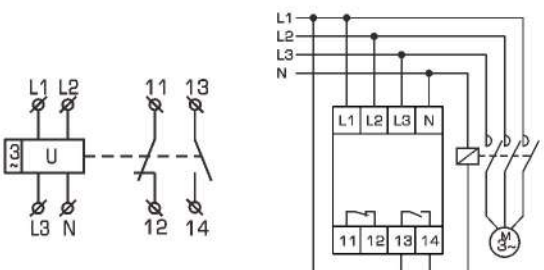
● ND-MVS2



● ND-MVS1N



● ND-MVS2N





Technical data

Models	ND-MVS3	ND-MVS3N
Supply terminals	L1,L2,L3	L3,N
Supply voltage	AC 200~500V/50Hz	AC 125~300V/50Hz
U> setting value	OFF-381~500V	OFF-221~300V
U< setting value	280V~379V-OFF	150V~219V-OFF
Asymmetry setting	OFF-5%~20%	
U> trip delay	0.1~20s	
U< trip delay	0.1~20s	
Asymmetry trip delay	0.1~20s	
Start-up delay	0.1~30s	
Reset delay	0.1~30s	
Voltage hysteresis	6V	5V
Asymmetry hysteresis	2%	
Trip delay for phase failure	≤0.2s	
Voltage measurement error	≤1%	
Delay error	±5%±0.1s	
Rated insulation voltage	415V	
Output contacts	2C/O	
Current rating	8A/250V AC1	
Mechanical life	10 ⁶	
Electrical life	10 ⁵	
Protection degree	IP20	
Pollution degree	3	
Altitude	≤2000m	
Ambient temperature	-20°C~+55°C	
Permissible relative humidity	≤50% at 40°C(without condensation)	
Storage temperature	-30°C~+70°C	
Wire size	0.5mm ² ~2.5mm ²	
Mounting	TH35 Rail(EN60715)	

Default setting parameters

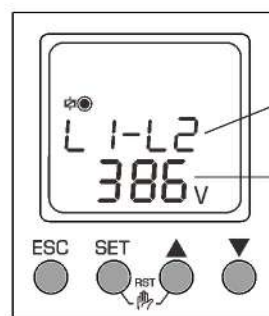
Technical parameters	ND-MVS3	ND-MVS3N
Overvoltage trip value	437V	253V
Overvoltage trip delay	2s	
Undervoltage trip value	323V	187V
Undervoltage trip delay	2s	
Asymmetry trip value	8%	
Asymmetry trip delay	2s	
Phase sequence protective function	ON	
Start-up delay	0.3s	
Reset delay	0.3s	
Auto-reset	ON	

Features

- Microcontroller based
- LCD indication for operating voltage and status
- Overvoltage, undervoltage, phase failure, asymmetry and phase sequence protection
- 45Hz~65Hz wide measuring frequency
- Supply voltage measurement (True RMS)
- Menu setting for protection parameters
- 2C/O output-8A
- Test and manual reset by keys
- N phase failure protection for 3phase 4wire system
- 2 module DIN rail housing

Front-face panel and legend of symbol

Panel



Display L1-L2 if work normally; display faults symbol when faults occurred.

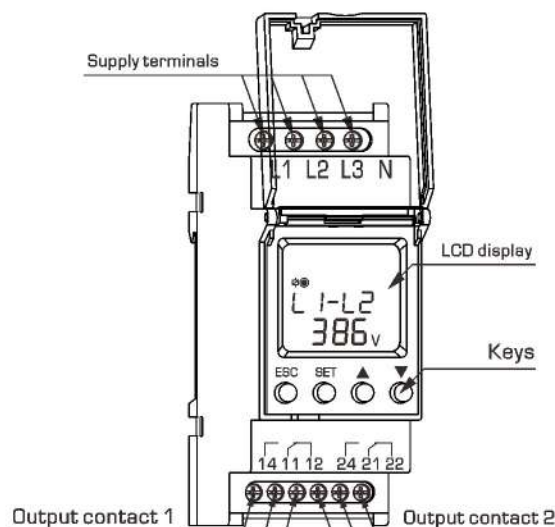
Operating voltage value

Symbol legend

● — Relay ON	OV — Over voltage
○ — Relay OFF	UV — Under voltage
SET — Parameters setting	ASY — Asymmetry
Error — Fault	PHSEQ — Phase sequence
start — Start-up delay	PHFAIL — Phase failure

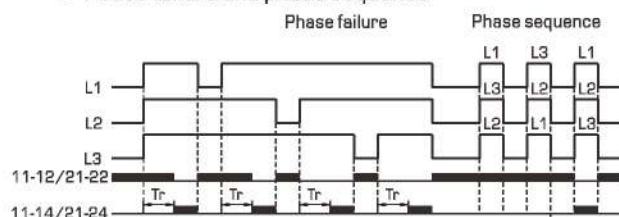
Keys

ESC	○ Exit configuration menu	SET	○ Enter configuration menu
●	○ Back to last menu	●	○ Confirm settings
▲	○ Select menu	▼	○ Select menu
●	○ Digit -	●	○ Digit +
SET	▲	●	○ Manual reset

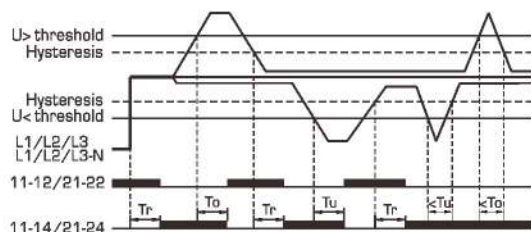


□ Function diagrams(auto-reset mode)

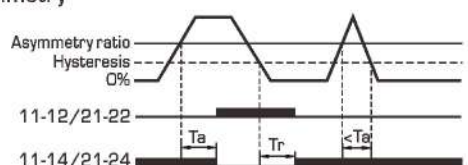
● Phase failure and phase sequence



● Overvoltage and undervoltage



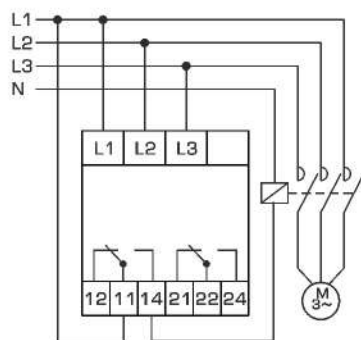
● Asymmetry



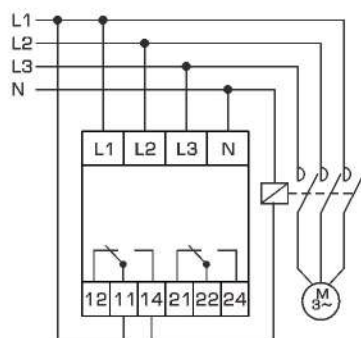
To: Overvoltage trip delay Tr: Reset/start delay
Tu: Undervoltage trip delay Ta: Asymmetry trip delay

□ Wiring diagrams

● ND-MVS3



● ND-MVS3N

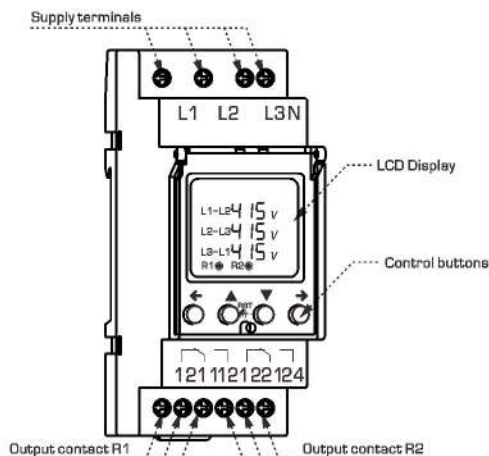




Technical data

Wiring method	3 Phase 3 wire	3 Phase 4 Wire
Supply terminals	L1,L2,L3	L1,L2,L3-N
Supply and monitored voltage	AC 85-530V	AC 50-300V
OV and UV setting voltage	AC 150-520V	AC 85-300V
OV and UV limit voltage	AC 550V/AC 120V	AC 320V/AC 70V
OF and UF setting frequency	45-65Hz	
Asymmetry setting	Percentage: 2%~30%; absolute: 5-99V	
OV and UV hysteresis	2~20V	
OF and UF hysteresis	0.2-2Hz	
Asymmetry hysteresis	Percentage: 1%~15%; absolute: 2-50V	
Power ON delay	0.5-300s	
Off delay	0.1~300s(OV,UV,OF,UF and asymmetry) 200ms(phase sequence and failure)	
On delay	0.1~300s	
Asymmetry hysteresis	2%	
Voltage measurement error	≤1%	
Frequency measurement error	≤0.3Hz	
Delay error	±5%+0.1s	
Output contact	1C/O+1C/O	
Current rating	3A/250V AC1	
Mechanical life	10 ⁶	
Electrical life	10 ⁵	
Protection degree	IP20	
Pollution degree	3	
Altitude	≤2000m	
Operating temperature	-20°C~55°C	
Permissible relative humidity	≤50% at 40°C(without condensation)	
Storage temperature	-30°C~70°C	
Wire size	0.5mm ² ~2.5mm ²	
Torque	0.5Nm	
Mounting	Th35 Rail(EN60715)	

Front-face panel and legend of symbol

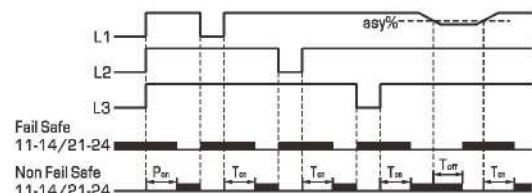


Features

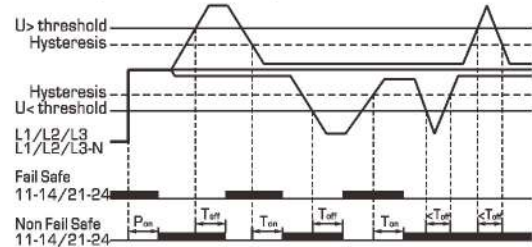
- Supply voltage measurement (True RMS)
- 3-wire or 4-wire connection (with or without neutral).
- Possibility of automatic or manual transition from fault state.
- Stores last five fault history.
- Digital backlight display for real time monitoring.
- Password protection.
- Both output contacts can be set individually.

Function diagrams(auto-reset mode)

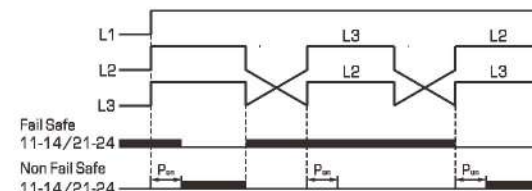
Phase failure and asymmetry



Overvoltage and undervoltage



Phase sequence



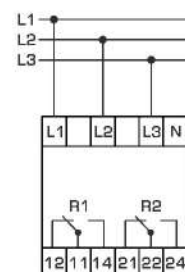
P_{on}: Power-on delay(delay after power supply connection)

T_{on}: ON delay(delay to OK state)

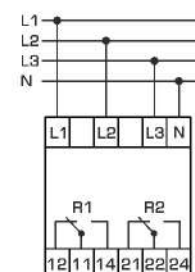
T_{off}: OFF delay(delay to fault state)

Wiring diagrams

3-wire connection



4-wire connection





Features

- Microcontroller based.
- Current actuation threshold adjustable
- Trip and start-up delay adjustable
- Possible to use for scanning of current from current transformer up to 600A
- 1C/O output-8A
- LED indication for power supply and relay status
- 1 module Din-rail mounting

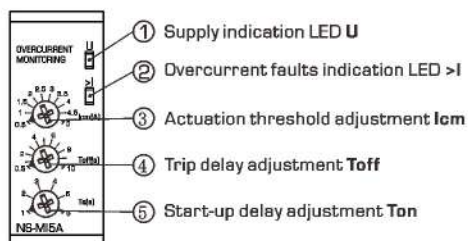
Technical data

Power supply terminals	L-N
Rated supply voltage[Un]	AC220V±20%, 50/60Hz
Current input terminals	B1-B2
Current actuation threshold	0.5A~10A
Hysteresis	5% * current setting value
Current setting error	5%
Measurement frequency	45~65Hz
Start-up delay	1s~6s
Trip delay	0.5s~10s
Delay error	±5%
Power consumption	0.85W
Current load	8A/AC1
Output contact	1C/O
Rated insulation voltage	250VAC
Max.fuse ratings	RT36-00 5A
Protection degree	IP20
Pollution degree	3
Electrical life	10 ⁵
Mechanical life	10 ⁶
Altitude	≤2000m
Ambient temperature	-20°C~+55°C
Permissible relative humidity	≤50% at 40°C(without condensation)
Storage temperature	-30°C~+70°C

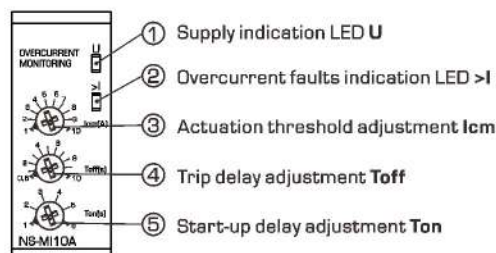
Models	Over current	Under current	Current range
NS-MI5A	●		0.5~5A
NS-MI10A	●		1~10A
NS-MI5B		●	0.5~5A
NS-MI10B		●	1~10A

Front-face panel

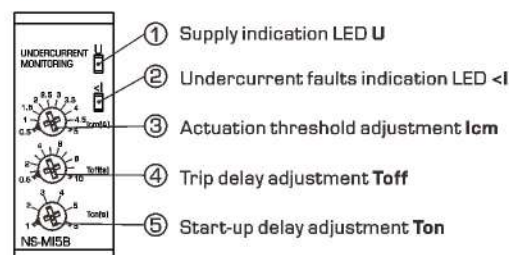
● NS-MI5A



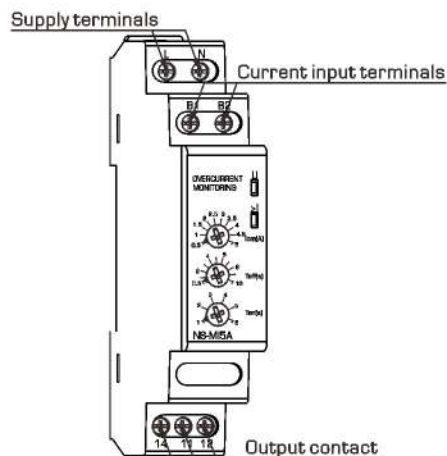
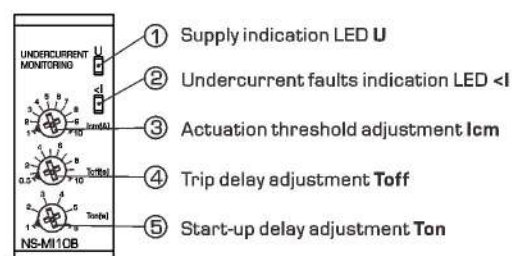
● NS-MI10A



● NS-MI5B

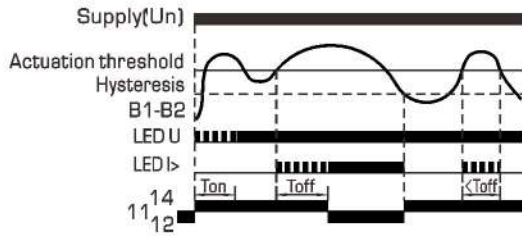


○ NS-MI10B

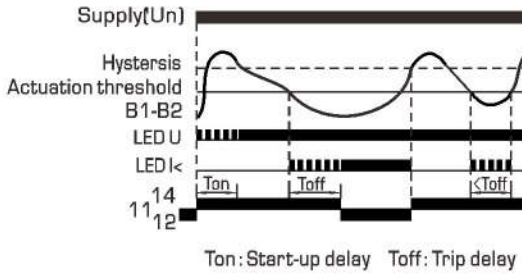


□ Function diagrams

● NS-MI5A/NS-MI10A

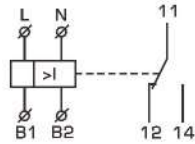


● NS-MI5B/NS-MI10B

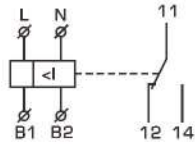


□ Symbols

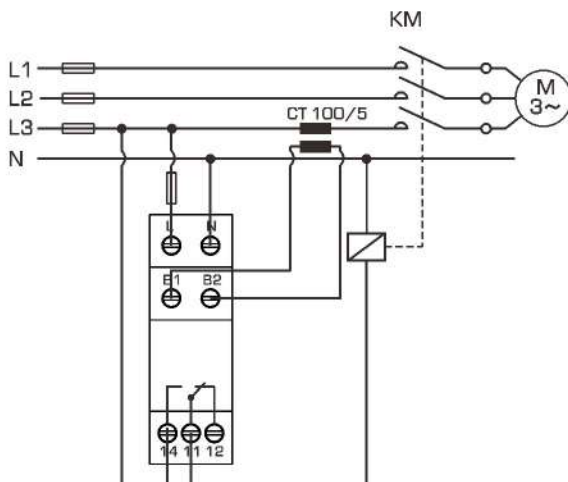
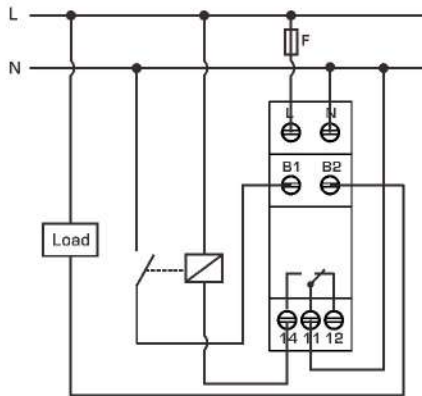
○ NS-MI5A/NS-MI10A



○ NS-MI5B/NS-MI10B



□ Wiring diagrams



Note: It is possible to increase the current range of NS-MI by using an external current transformer if measured current exceed 10A



Technical data

Power supply terminals	A1-A2
Rated supply voltage(Un)	AC/DC 24-240V, 50/60Hz
Current input terminals	B1-B2
Current measurement range	AC: 0.05A-0.5A; 0.1A-1A; 0.2A-2A; 0.5A-5A; 0.8A-8A; 1.6A-16A
Hysteresis	5% * current setting value
Current setting error	<5%
Measurement frequency	45~65Hz
Start-up delay	0.1~10s
Trip delay	0.5~10s
Delay error	±5%
Power consumption	0.85W
Current load	10A/AC1
Output contact	1C/O
Rated insulation voltage	250VAC
Max.fuse ratings	RT36-00 5A
Protection degree	IP20
Pollution degree	3
Electrical life	10 ⁵
Mechanical life	10 ⁶
Altitude	≤2000m
Ambient temperature	-20°C~+55°C
Permissible relative humidity	≤50% at 40°C(without condensation)
Storage temperature	-30°C~+70°C
Conductor size	0.5~2.5mm ²
Tightening torque	0.5Nm

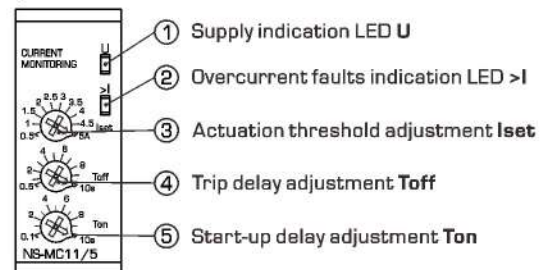
Models	Function
NS-MC11	Over current protection
NS-MC12	Under current protection
NS-MC13	Over or under current protection(seleable by knob)
NS-MC14	Over and under current protection

Features

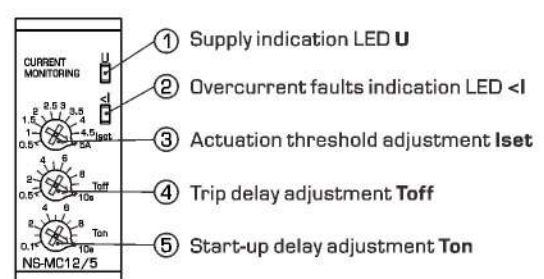
- Microcontroller based.
- Current actuation threshold adjustable
- Adjustable trip delay to eliminate short circuit peaks.
- Adjustable start delay to eliminate starting instantaneous peaks.
- 1C/O output-10A
- LED indication for power supply and relay status
- 1 module Din-rail mounting

Front-face panel

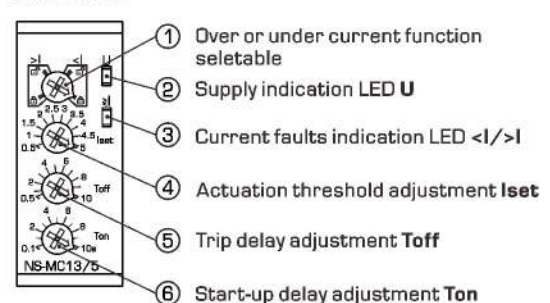
● NS-MC11



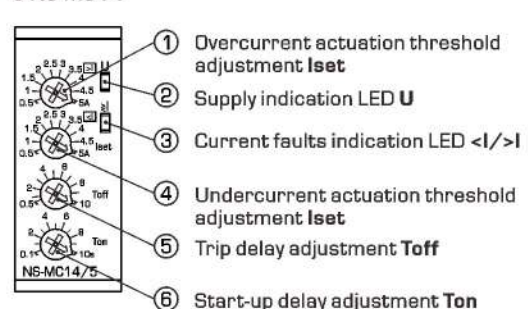
● NS-MC12

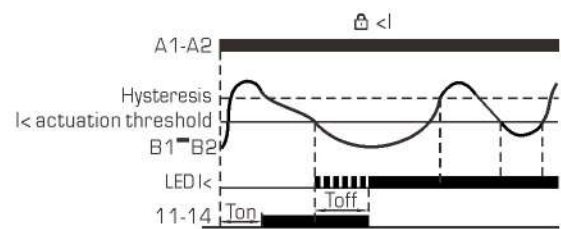
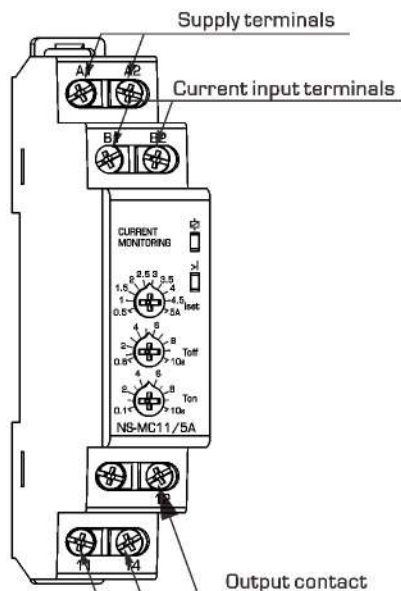


● NS-MC13

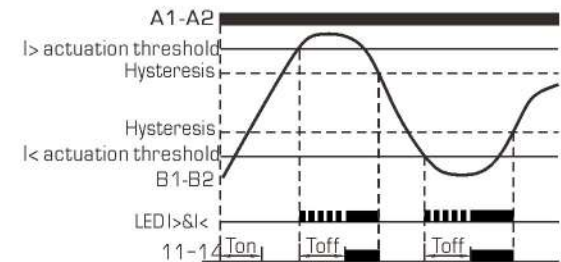


● NS-MC14





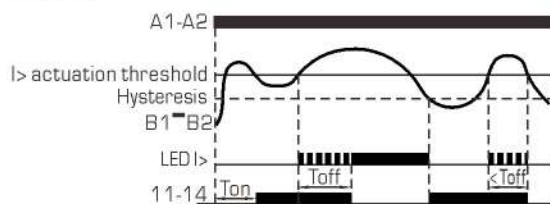
● NS-MC14



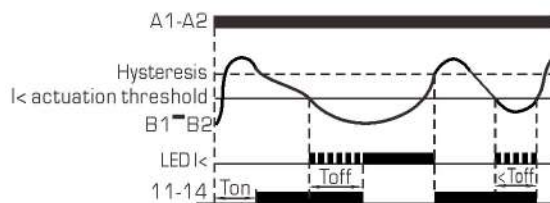
Ton: start-up delay
Toff: trip delay

□ Function diagrams

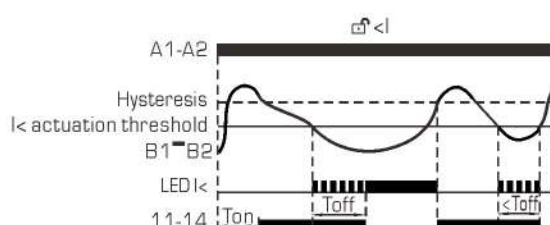
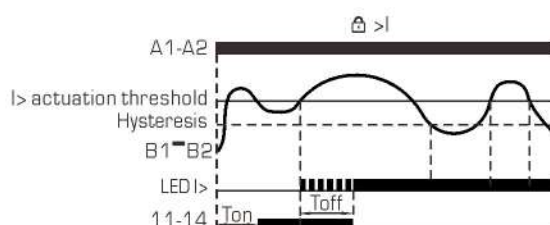
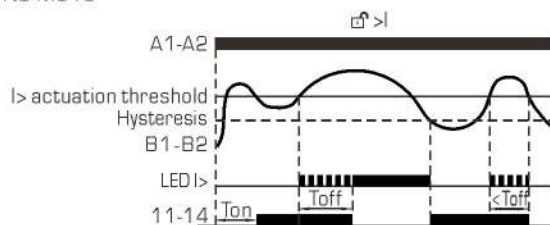
● NS-MC11



● NS-MC12

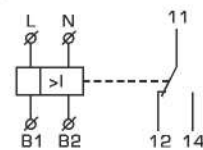


● NS-MC13

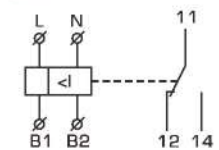


□ Symbols

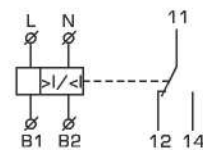
● NS-MC11



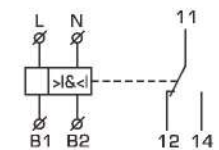
● NS-MC12



● NS-MC13

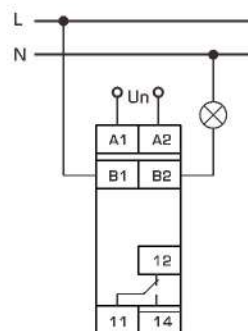


● NS-MC14

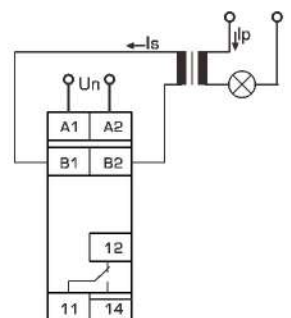


□ Wiring diagrams

● Direct connection



● Connection with current transformer

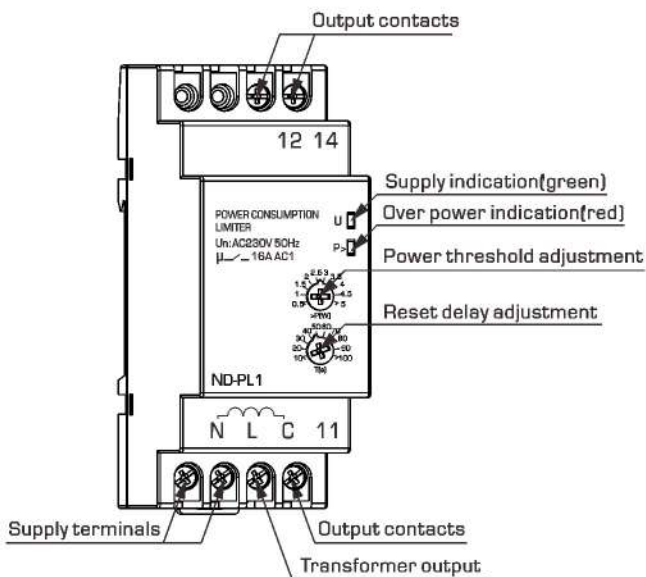




Technical data

Supply terminals	L, N
Supply voltage	AC 220V
Voltage tolerance	-15%~10%
Rated frequency	50Hz
Power threshold	0.2~2kW
Trip delay	1.5s
Reset delay	10-100s
Hysteresis	2%x set value
Output contact	1NO 16A/250V AC1
Protection degree	IP20
Pollution degree	3
Electrical life	10 ⁵
Mechanical life	10 ⁶
Altitude	≤2000m
Ambient temperature	-20°C~+55°C
Humidity	50% @40°C(without condensation)
Storage temperature	-30°C~+70°C
Wire size	0.5mm ² ~2.5mm ²
Mounting	TH-35 Rail(EN 60715)

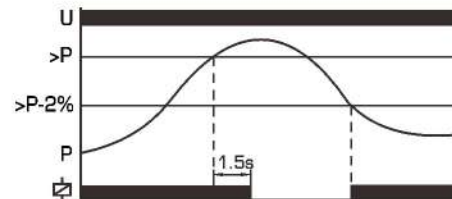
Operating instruction



Features

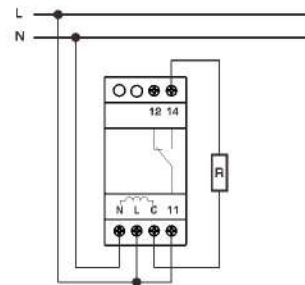
- Microcontroller based
- Power threshold adjustable range 0.5~2kW
- Reset delay 10~100s
- Maximum output current 16A
- Need to power-off reset after three continuous >P faults
- LED indication for power supply and output state
- 2 module Din-rail mounting

Function diagram

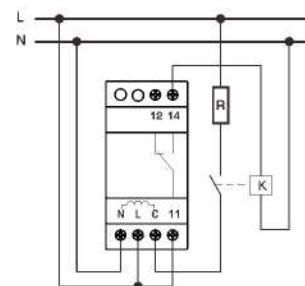


Wiring diagram

- Power consumption is not more than 2kW



- Power consumption is more than 2kW



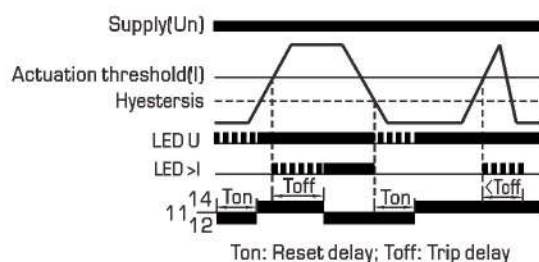


Technical data

Rated supply voltage(Un)	AC230V
Rated frequency	50/60Hz
Operation range	AC150~275V
Current actuation threshold	0.5~5A adjustable
Hysteresis	3% * actuation threshold value
Current measurement error	≤1%, True RMS measurement
Measurement frequency	50Hz
Max. input current	<10A
Trip delay	2s~40s
Reset delay	15s~300s
Trip delay error	±5%
U> trip value	260V
U> reset value	257V
U< trip value	160V
U< reset value	163V
Trip delay for voltage faults	0.5s
Power consumption	0.85W
Current load	8A/250V AC1
Output contact	1C/0
Contacts capacity	AC-15: 2A
Rated insulation voltage	250VAC
Max.fuse ratings	RT36-00 5A
Protection degree	IP20
Pollution degree	3
Electrical life	10 ⁵
Mechanical life	10 ⁶
Altitude	≤2000m
Ambient temperature	-20°C~+55°C
Permissible relative humidity	≤50% at 40°C(without condensation)

Function diagrams

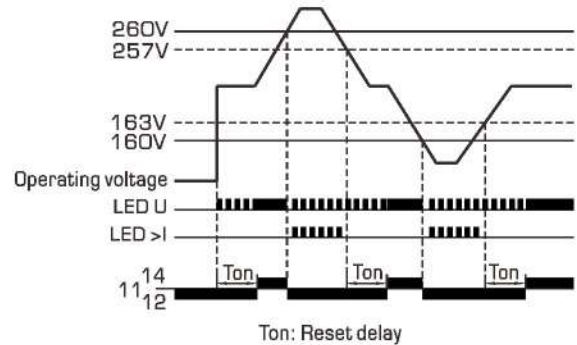
Current measurement



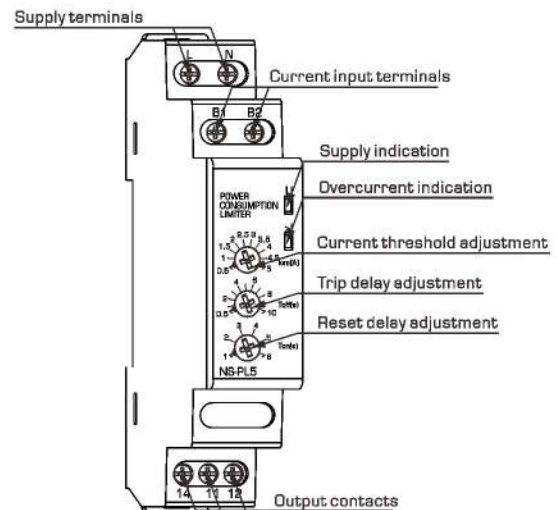
Features

- Microcontroller based
- Current actuation threshold adjustable
- Trip delay and Reset delay adjustable
- Overcurrent, overvoltage and undervoltage protection
- Output contact 1C/0-8A
- LED indication for power supply and output state
- 1 module Din-rail mounting

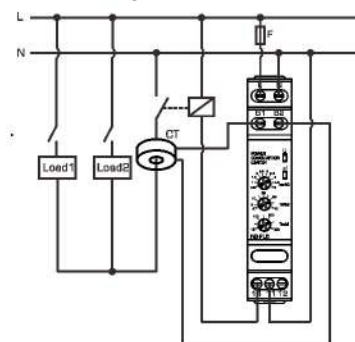
Voltage measurement



Appearance



Wiring diagram



Note: the limiter must cooperate with current transformers



NM-PL1 power consumption limiter is used for protecting devices against overpower, overvoltage and undervoltage faults. It calculates the power consumption of using device through detecting input voltage and current values.

The output relay of NM-PL1 will close after T_{on} delay. When power consumption detected is higher than $P>$ setting value, the output relay opens after T_{off} delay. When an input voltage fault was detected, the output relay opens. If continuous 5 times such faults, NM-PL1 begin a 10 minutes delay and enter output state after the delay is elapsed.

NM-PL1 can be widely applied for power consumption limiting of heating system, lighting, motor and generator etc.

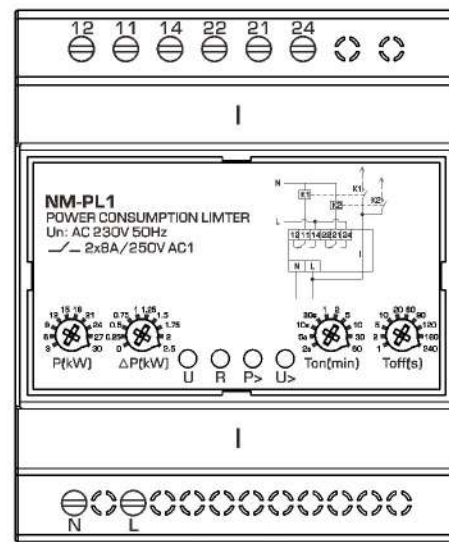
Technical data

Supply terminals	N, L
Rated supply voltage	AC 50~450V
Rated frequency	50Hz
Overpower setting range	3~30kW
Overpower rough step value	3kW
Overpower fine step value	0.25kW
$U>$ trip value	260V
$U>$ reset value	254V
$U>$ trip delay	0.1s
$U<$ trip value	160V
$U<$ reset value	166V
$U<$ trip delay	5s
Reset/start delay(T_{off})	1s~240s
Trip delay(T_{on})	2s~3600s
Voltage measurement error	$\leq 1\%$ (50~450V)
Current measurement error	$\leq 3\%$ (3~150A)
Current load	$< 8A/AC1$
Contacts capacity	AC-15: 2A
Output contact	2C/O
Rated insulation voltage	415VAC
Protection degree	IP20
Pollution degree	3
Electrical life	10^5
Mechanical life	10^6
Altitude	$\leq 2000m$
Ambient temperature	$-20^{\circ}C \sim +55^{\circ}C$
Permissible relative humidity	$\leq 50\%$ at $40^{\circ}C$ (without condensation)
Storage temperature	$-30^{\circ}C \sim +70^{\circ}C$
Conductor size	$0.5mm^2 \sim 2.5mm^2$
Torque	0.5Nm

Features

- Microcontroller based.
- Rated supply voltage 50-450VAC
- "Priority" control
- Overvoltage, undervoltage and overpower
- LED indication for control state
- DIN Rail mounting

Front-face panel



○ N, L: supply terminals.

○ 11, 12, 14: Output relay K1; 11, 12: NC contacts; 11, 14: NO contacts.

○ 21, 22, 24: Output relay K2; 21, 22: NC contacts; 21, 24: NO contacts.

○ I: Current input.

Functions description

1. Overpower protection

If operating power P is higher than $P>$ setting value, the load will be disconnected.

2. Select the operating mode of relays K1 and K2.

2.1. K1 operating mode and K2 alert mode, see the wiring diagram as diagram 2.

When operating power P is higher than $P>$ setting value, K relays opens and alert indication LED flash.

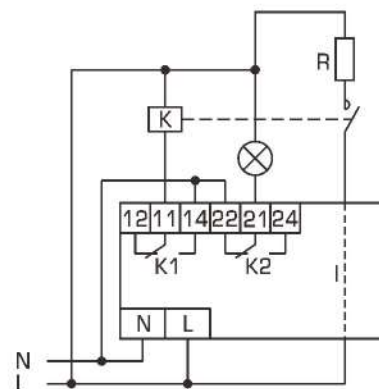


Diagram 2.

2.2. "Priority" operating mode. See diagram 3 for function diagram and diagram 4 for wiring diagram.

When power $P_n + P_h > P>$, K2 relay opens after 0.1 s delay.

If $P_n > P>$, K1 relay opens after Toff delay.

If $P_n < P>$, K2 relay closes

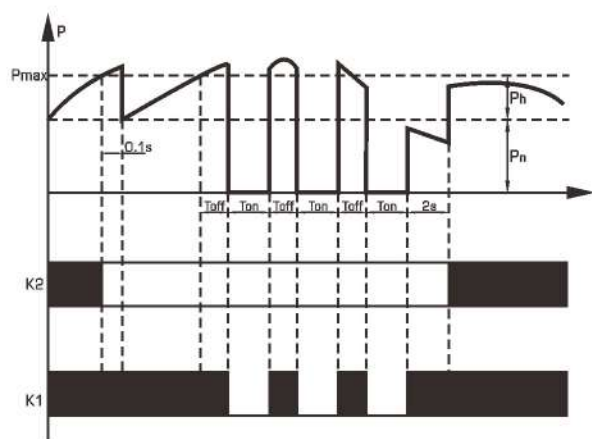


Diagram 3.

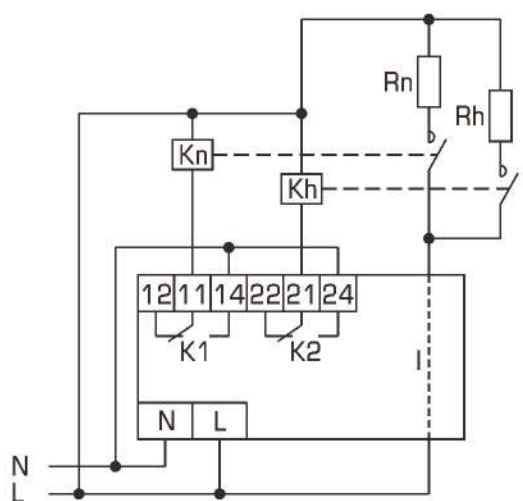


Diagram 4.

3. Continuous 5 times faults.

When operating power P is higher than $P>$ setting value, the faults will plus one times, the limiter will begin a 10minutes delay after 5 times such faults.

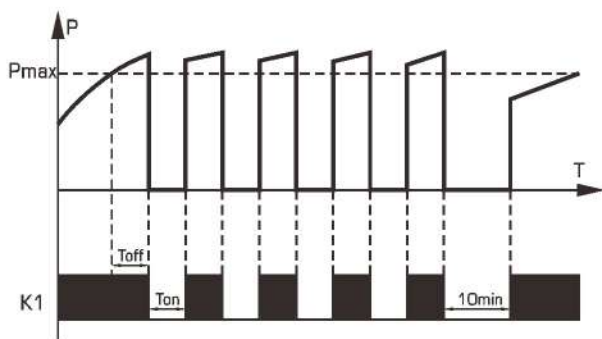


Diagram 5.

4. Overcurrent protection.

When operating current reached 150A, K1/K2 relays open after Toff delay.

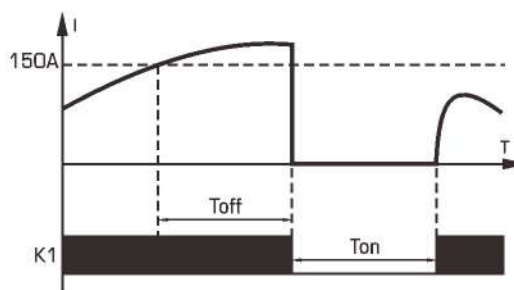


Diagram 6.



NM-PL3 power consumption limiter is used for protecting devices against overpower, overvoltage and undervoltage faults. It calculates the power consumption of using device through detecting input voltage and current values.

The output relay of NM-PL3 will close after T_{on} delay. When power consumption detected is higher than $P>$ setting value, the output relay opens after T_{off} delay. When an input voltage fault was detected, the output relay opens. If continuous 5 times such faults, NM-PL3 begin a 10minutes delay and enter output state after the delay is elapsed.

NM-PL3 can be widely applied for power consumption limiting of heating system, lighting, motor and generator etc.

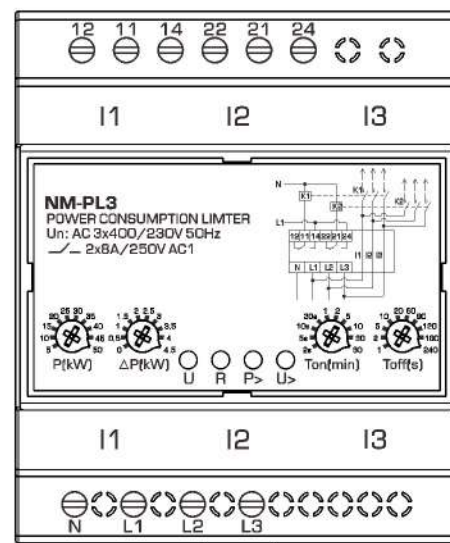
Technical data

Supply terminals	N, L1, L2, L3
Rated supply voltage	AC 3*50~450V(N-L1/L2/L3)
Rated frequency	50Hz
Pmax setting range	5~50kW
Pmax rough step value	5kW
Pmax fine step value	0.5kW
$U>$ trip value	260V
$U>$ reset value	254V
$U>$ trip delay	0.1s
$U<$ trip value	160V
$U<$ reset value	166V
$U<$ trip delay	5s
Toff delay	1s~240s
Ton delay	2s~3600s
Voltage measurement error	$\leq 1\%$ (50~450V)
Current measurement error	$\leq 3\%$ (3~200A)
Current load	$< 8A/AC1$
Contacts capacity	AC-15: 2A
Output contact	2C/0
Rated insulation voltage	415VAC
Protection degree	IP20
Pollution degree	3
Electrical life	10^5
Mechanical life	10^6
Altitude	$\leq 2000m$
Ambient temperature	$-20^{\circ}C \sim +55^{\circ}C$
Permissible relative humidity	$\leq 50\%$ at $40^{\circ}C$ (without condensation)
Storage temperature	$-30^{\circ}C \sim +70^{\circ}C$
Conductor size	$0.5mm^2 \sim 2.5mm^2$
Torque	0.5Nm

Features

- Microcontroller based.
- Rated supply voltage 3x50-450VAC
- "Priority" control
- Overvoltage, undervoltage and overpower
- LED indication for control state
- N phase failure protection
- Din-rail mounting

Front-face panel

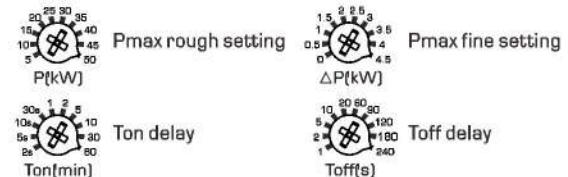


○ N, L1, L2, L3: supply terminals.

○ 11, 12, 14: Output relay K1; 11, 12: NC contacts; 11, 14: NO contacts.

○ 21, 22, 24: Output relay K2; 21, 22: NC contacts; 21, 24: NO contacts.

○ I1, I2, I3: Current input.



$P_{max} = P + \Delta P$, Max. power value is 50kW.

For example: Set P_{max} value at 32.5kW, P set at 30kW, ΔP set at 2.5.

Functions description

1. Calculation of operating power and overpower protection

If operating power P is higher than P_{max} , the load will be disconnected.

$P = P_a + P_b + P_c$. For example: $P_{max} = 16kW$, $P_a = 11kW$, $P_b = 5kW$, $P_c = 0kW$. $P = 11 + 5 + 0 = 16kW$. $P > P_{max}$. The load will be disconnected.

2. Select the operating mode of relays K1 and K2.

2.1. K1 operating mode and K2 alert mode, see the wiring diagram as diagram 2.

When operating power P is higher than P_{max} , K relays open and alert indication LED flashes.

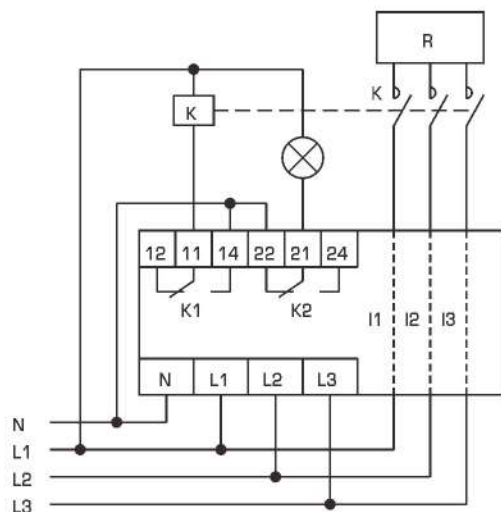


Diagram 2.

2.2. "Priority" operating mode. See diagram 3 for function diagram and diagram 4 for wiring diagram.

When power $P_n + P_h > P_{max}$, K2 relay opens after 0.1 s delay.

If $P_n > P_{max}$, K1 relay opens after Toff delay.

If $P_n < P_{max}$, K2 relay closes.

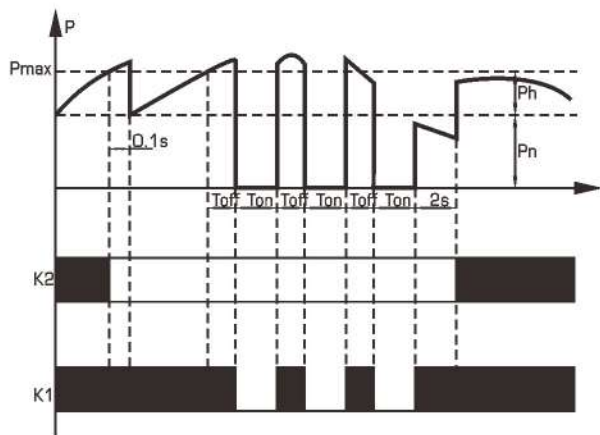


Diagram 3.

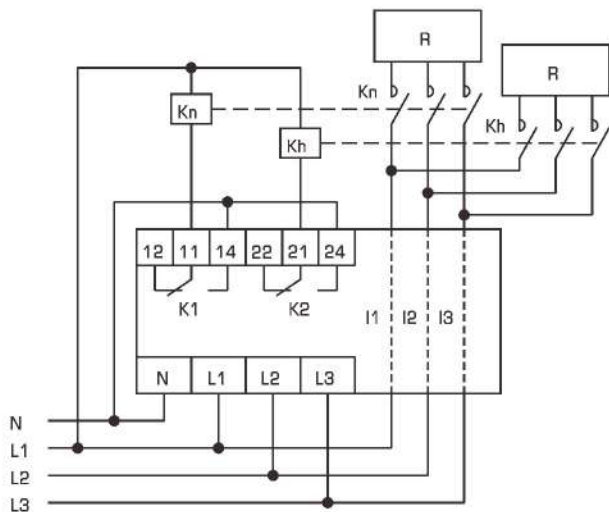


Diagram 4.

3. Continuous 5 times faults.

When operating power P is higher than P_{max} , the faults will plus one time, the limiter will begin a 10 minutes delay after 5 times such faults.

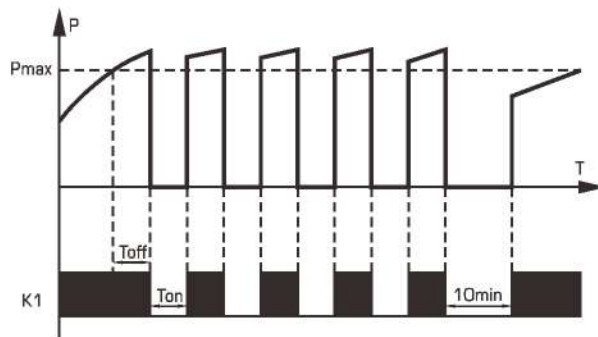


Diagram 5.

4. Overcurrent protection.

When operating current of any phases reached 230A, K1/K2 relays open after Toff delay.

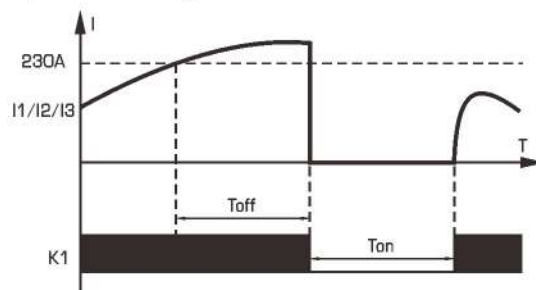


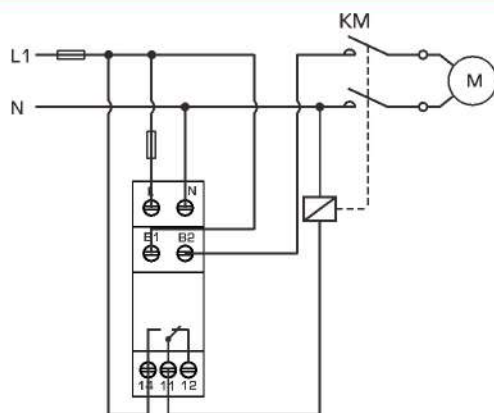
Diagram 6.



Technical data

Power supply terminals	L-N
Rated supply voltage(Un)	AC220V±20%, 50/60Hz
Current input terminals	B1-B2
Current setting	0.5A~5A
Undercurrent setting	(0.4-0.9)x current setting value
Overvoltage trip value	265V
Undercurrent reset time	2~60min
Undercurrent trip delay	4s
Overvoltage trip delay	1s
Reset mode	Manual, automatic
Trip class	10
Current load	<8A/AC1
Output contact	1C/O
Rated insulation voltage	250VAC
Max. fuse ratings	RT36-00 5A
Protection degree	IP20
Pollution degree	3
Electrical life	10 ⁵
Mechanical life	10 ⁶
Altitude	≤2000m
Ambient temperature	-20°C~+55°C
Permissible relative humidity	≤50% at 40°C (without condensation)
Storage temperature	-30°C~+70°C
Conductor size	0.5~2.5mm ²
Tightening torque	0.5Nm

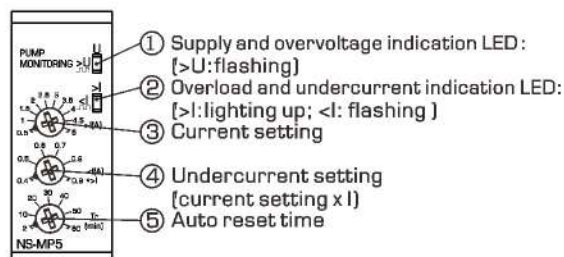
Wiring diagram



Features

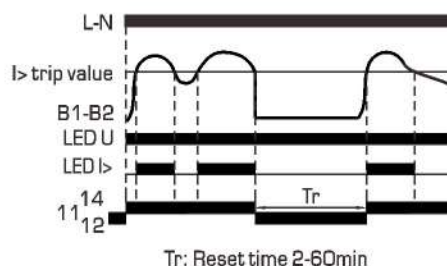
- Microcontroller based.
- Overload, undercurrent and overvoltage protection.
- 1 C/O output-8A
- Possible to use for scanning of current from current transformer up to 600A
- LED indication for trip cause
- 1 module Din-rail mounting

Front-face panel

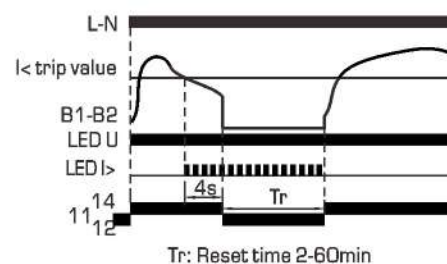


Function diagrams

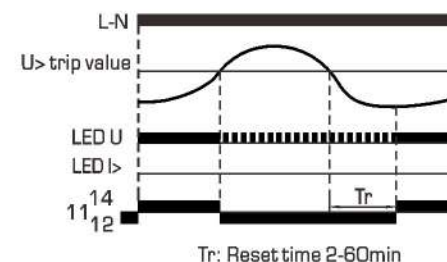
Overcurrent



Undercurrent



Overvoltage

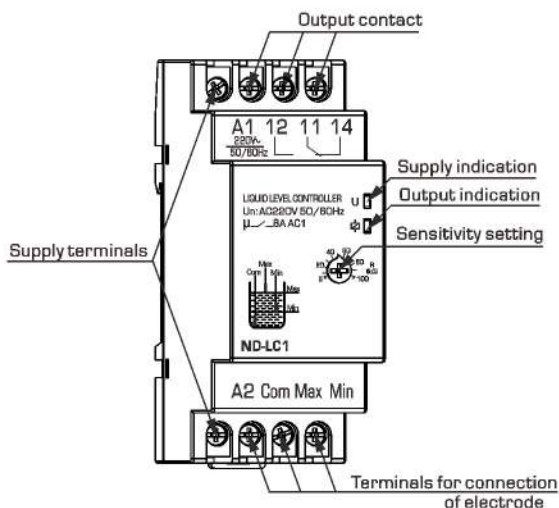




Technical data

Power supply terminals	A1-A2
Rated supply voltage(Un)	AC220V, AC380V
Rated frequency	50/60Hz
Power consumption	<1W
Sensitivity	5kΩ~100kΩ adjustable
Trip delay	2s
Supply indication	Green LED
Output indication	Red LED
Output contact	1C/O
Current rating	8A/250V AC1
Rated insulation voltage	415V
Protection degree	IP20
Pollution degree	3
Electrical life	10 ⁵
Mechanical life	10 ⁶
Altitude	≤2000m
Ambient temperature	-20°C~+55°C
Permissible relative humidity	≤50% at 40°C(without condensation)
Storage temperature	-30°C~+70°C
Conductor size	0.5~2.5mm ²
Tightening torque	0.5Nm
Mounting	TH35 Rail (EN60715)

Front-face panel

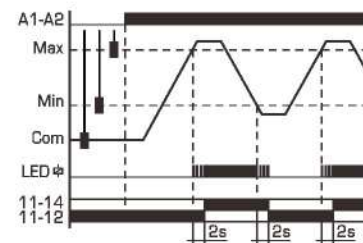


Features

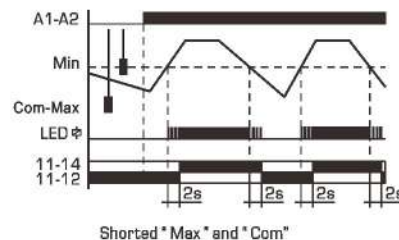
- Microcontroller based.
- Sensitivity 5kΩ~100kΩ adjustable
- 1 C/O output-8A
- Work with 2 or 3 electrodes mode
- LED indication for supply and output state
- 2 module Din-rail mounting

Function diagrams

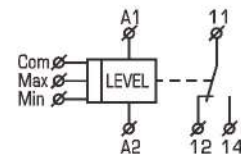
3 electrodes mode



2 electrodes mode

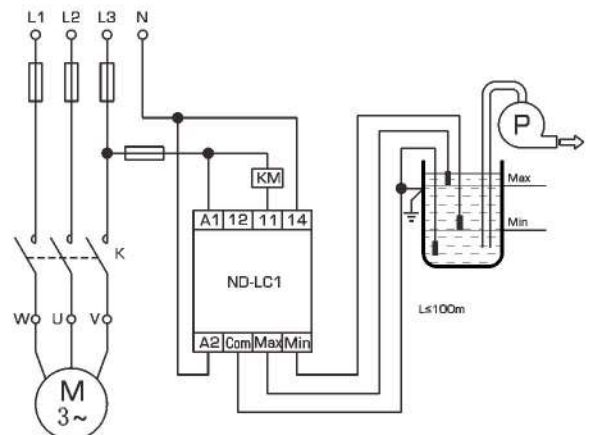


Symbol

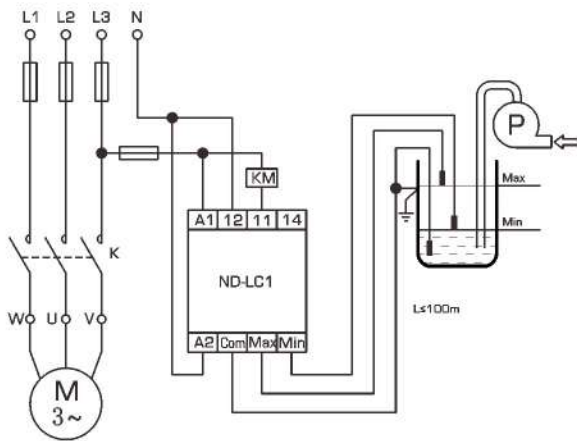


Wiring diagrams

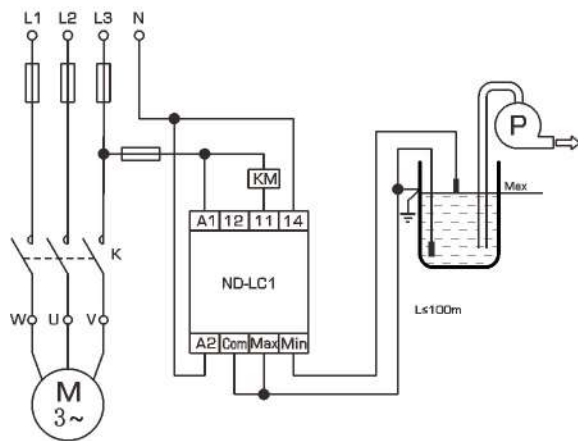
3 electrodes mode(drainage)



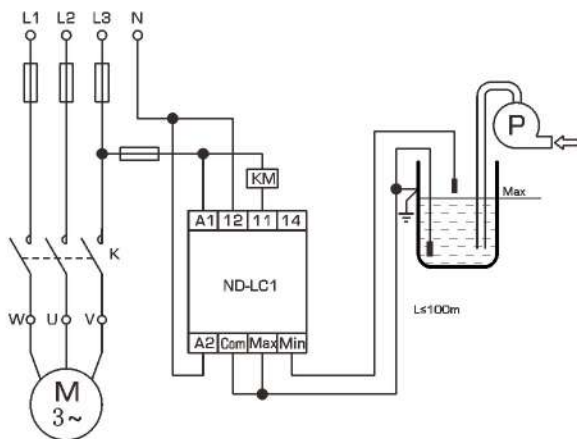
● 3 electrodes mode(filling)



● 2 electrodes mode(drainage)



● 2 electrodes mode(filling)

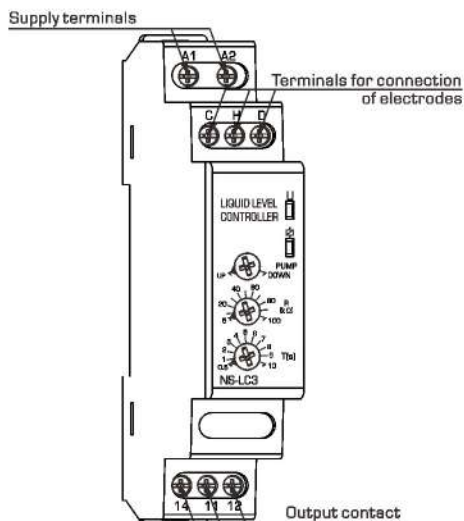




Technical data

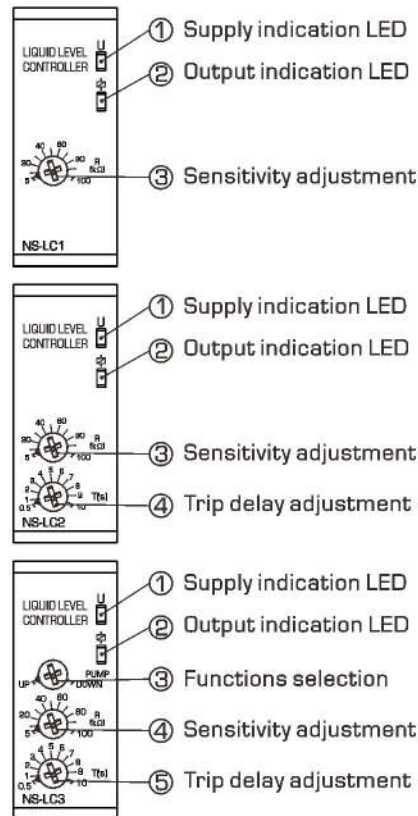
Power supply terminals	A1-A2
Rated supply voltage(Un)	AC/DC 24-240V
Rated frequency	50/60Hz
Power consumption	<1W
Sensitivity	5kΩ~100kΩ adjustable
Trip delay	NS-LC1: 2s; NS-LC2/LC3: 0.5-10s
Supply indication	Green LED
Output indication	Red LED
Output contact	1C/O
Current rating	16A/250V AC1
Rated insulation voltage	415V
Protection degree	IP20
Pollution degree	3
Electrical life	10 ⁵
Mechanical life	10 ⁶
Altitude	≤2000m
Ambient temperature	-20°C~+55°C
Permissible relative humidity	≤50% at 40°C(without condensation)
Storage temperature	-30°C~+70°C
Conductor size	0.5~2.5mm ²
Tightening torque	0.5Nm
Mounting	TH35 RAIL (EN60715)

Front-face panel



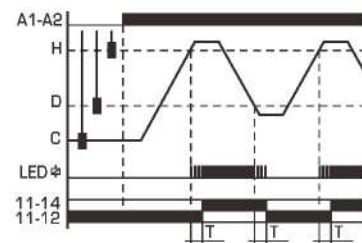
Features

- Microcontroller based.
- Sensitivity 5kΩ~100kΩ adjustable
- 1 C/O output-8A
- Work with 2 or 3 electrodes mode
- 24-240VAC/DC
- Draining or filling function is selectable
- LED indication for supply and output state(NS-LC3)
- 1 module Din-rail mounting

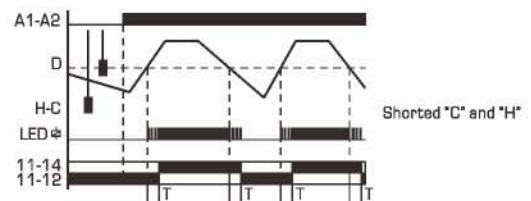


Function diagrams

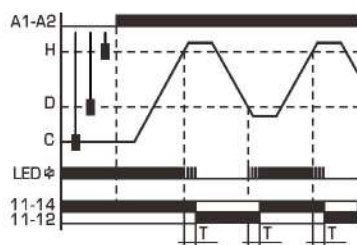
- NS-LC1, NS-LC2, NS-LC3: 3electrodes mode(down)



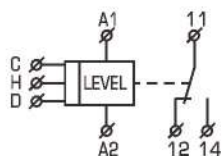
- NS-LC1, NS-LC2: 2electrodes mode



● NS-LC3: 3electrodes mode(up)

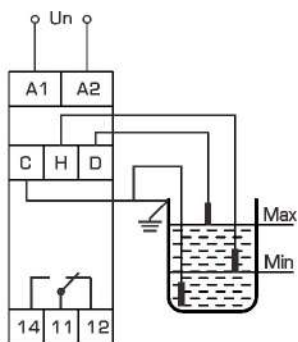


□ Symbol

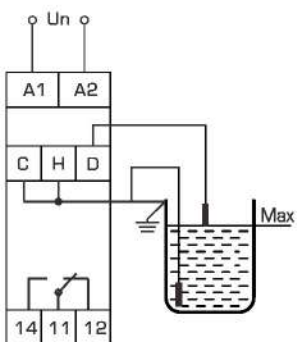


□ Wiring diagrams

● 3 electrodes mode



● 2 electrodes mode

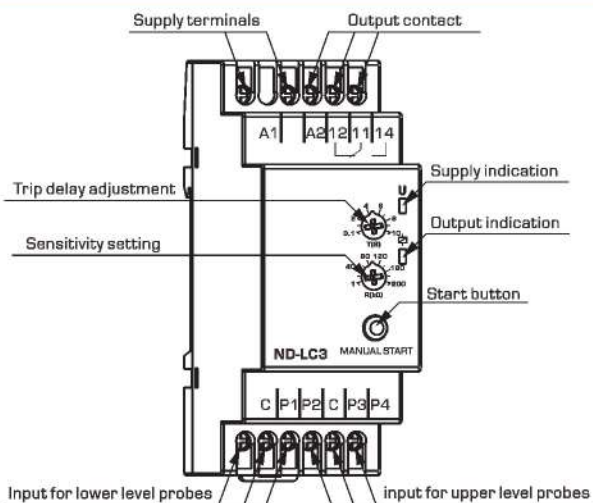




Technical data

Power supply terminals	A1-A2
Rated supply voltage(U_n)	AC220V
Rated frequency	50/60Hz
Power consumption	<1W
Sensitivity	5k Ω ~100k Ω adjustable
Trip delay	0.1s
Supply indication	Green LED
Output indication	Red LED
Output contact	1C/O
Current rating	8A/250V AC1
Rated insulation voltage	415V
Protection degree	IP20
Pollution degree	3
Electrical life	10 ⁵
Mechanical life	10 ⁶
Altitude	≤2000m
Ambient temperature	-20°C~+55°C
Permissible relative humidity	≤50% at 40°C(without condensation)
Storage temperature	-30°C~+70°C
Conductor size	0.5~2.5mm ²
Tightening torque	0.5Nm
Mounting	TH35 Rail (EN60715)

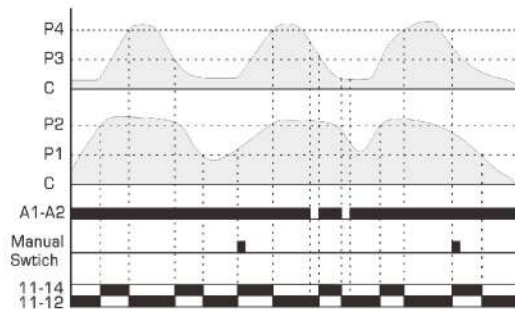
Front-face panel



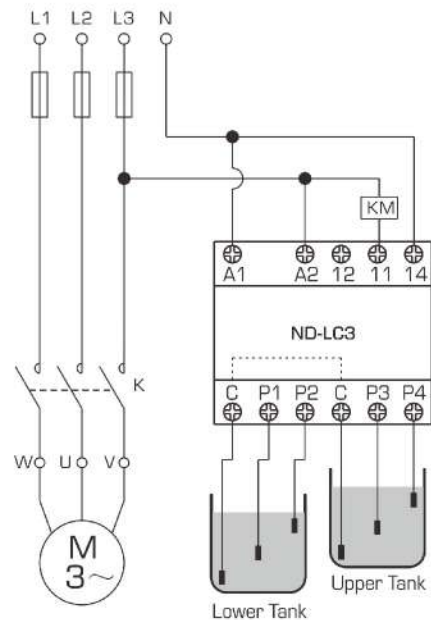
Features

- Microcontroller based.
- Sensitivity 5k Ω ~100k Ω adjustable
- 1 C/O output-8A
- One/two tank monitoring for draining and(or) filling.
- LED indication for supply and output state
- 2 module Din-rail mounting

Function diagram



Wiring diagram





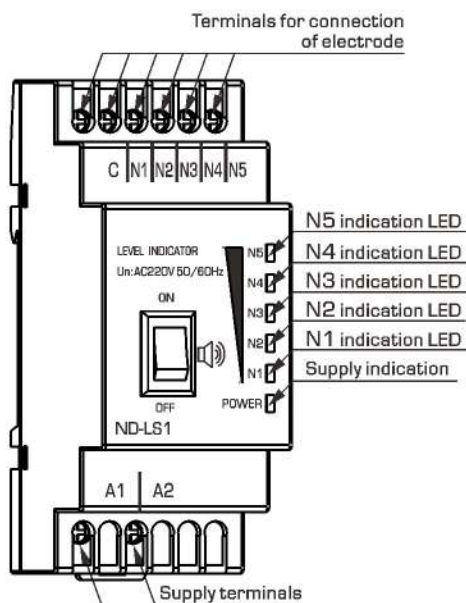
Features

- Modular design, 36mm wide housing.
- LED indication for level state.
- Alarm for high and low level.
- Alarm function can be switch off.
- 2 module Din-rail mounting

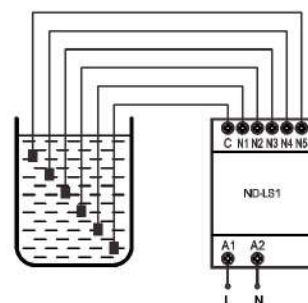
Technical data

Power supply terminals	A1-A2
Rated supply voltage(Un)	AC 220-240V
Rated frequency	50/60Hz
Max. power consumption	0.5W
Supply indication	Green LED
Output indication	Red LED
Rated insulation voltage	240V
Protection degree	IP20
Pollution degree	3
Electrical life	10 ⁵
Mechanical life	10 ⁶
Altitude	≤2000m
Ambient temperature	-20°C~+55°C
Permissible relative humidity	≤50% at 40°C(without condensation)
Storage temperature	-30°C~+70°C
Conductor size	0.5~2.5mm ²
Tightening torque	0.5Nm
Mounting	TH35 rail (EN60715)

Front-face panel



Wiring diagram

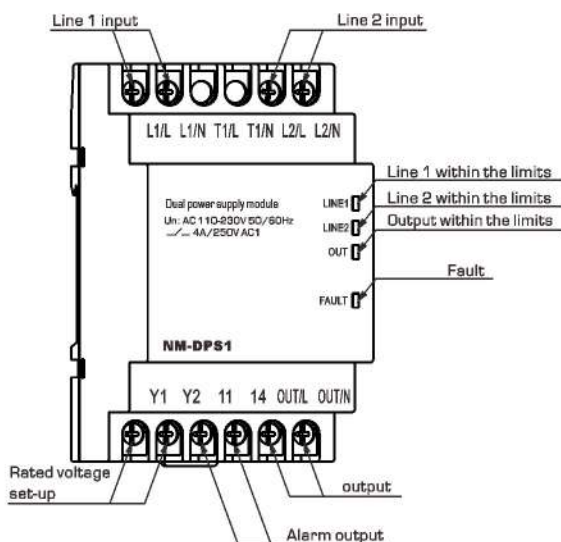




Technical data

Supply terminals	LINE1(L1/L, L1/N), LINE2(L2/L, L2/N)
Rated supply voltage	110~230V
Operating limit	AC 80V~300V
Rated frequency	50/60Hz
Power consumption	2.4W
Voltage measurement accuracy	±1%
Recommended fuse	4A FAST
Output contact	OUT/L, OUT/N
Output contact type	2x2NO(line 1 and 2), 1C/O(relay)
Max output current	4A/250V[AC1], 1.5A/250V[AC15]
Alarm contact	11, 14
Alarm contact type	1NO
Rated current	3A/250V[AC1]
Electrical life	10 ⁵
Mechanical life	10 ⁶
Protection degree	IP20
Pollution degree	3
Altitude	≤2000m
Ambient temperature	-20°C~+55°C
Humidity	≤50% at 40°C(without condensation)
Storage temperature	-30°C~+70°C

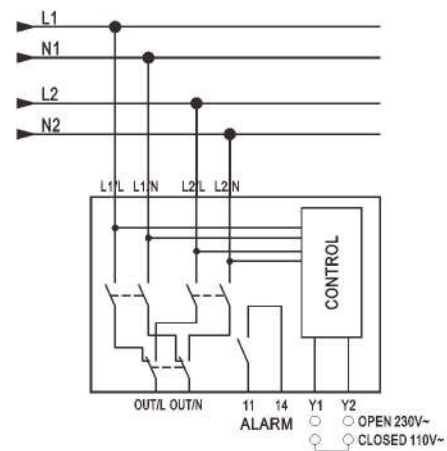
Front-face panel



Features

- Microcontroller based
- Transfer between line 1 and line 2
- Priority line 1
- Overvoltage and undervoltage protection
- Rated voltage set to 110V or 230V via a jumper
- LEDs indication for control state
- 3 module Din-rail mounting

Wiring diagram

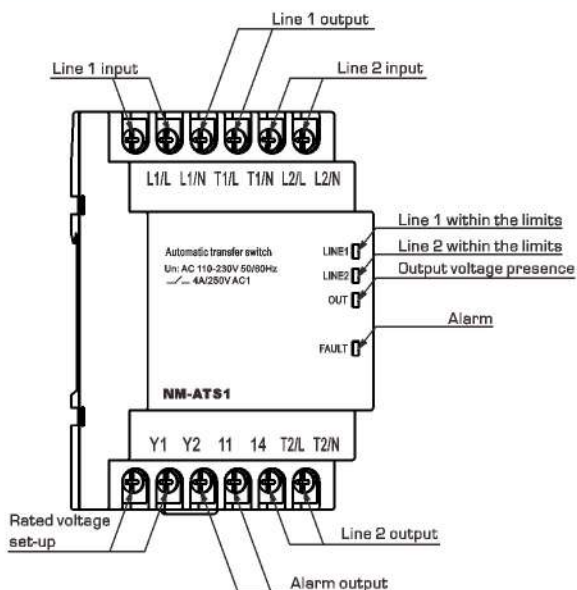




Technical data

Supply terminals	LINE1(L1/L, L1/N), LINE2(L2/L, L2/N)
Rated supply voltage	110~230V
Operating limit	AC 80V~300V
Rated frequency	50/60Hz
Power consumption	2.4W
Voltage measurement accuracy	±1%
Recommended fuse	4A FAST
Output contact	OUT1(T1/L, T1/N), OUT2(T2/L, T2/N)
Output contact type	2x2NO
Max output current	4A/250V(AC1), 1.5A/250V(AC15)
Alarm contact	11, 14
Alarm contact type	1NO
Rated current	3A/250V(AC1)
Electrical life	10 ⁵
Mechanical life	10 ⁶
Protection degree	IP20
Pollution degree	3
Altitude	≤2000m
Ambient temperature	-20°C~+55°C
Humidity	≤50% at 40°C(without condensation)
Storage temperature	-30°C~+70°C

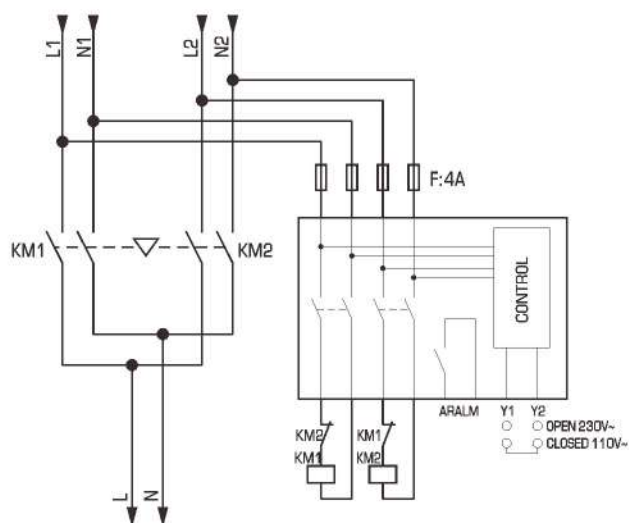
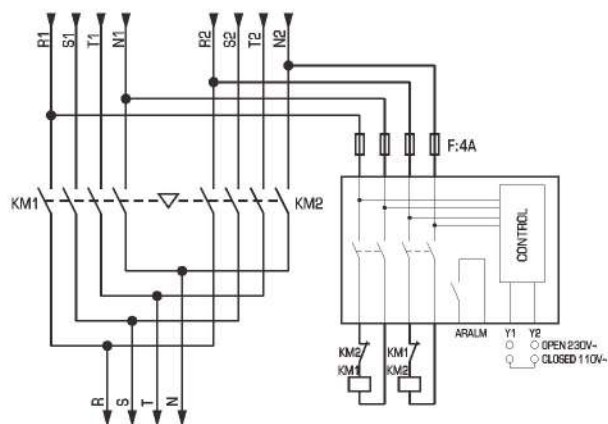
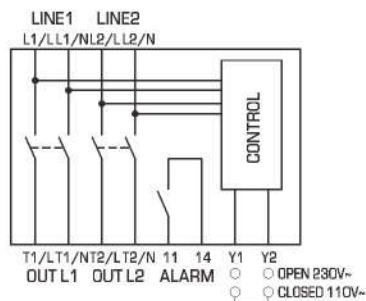
Front-face panel



Features

- Microcontroller based
- Transfer between line 1 and line 2
- Overvoltage and undervoltage protection
- Rated voltage set to 110V or 230V via a jumper
- LEDs indication for control state
- 3 module Din-rail mounting

Wiring diagrams





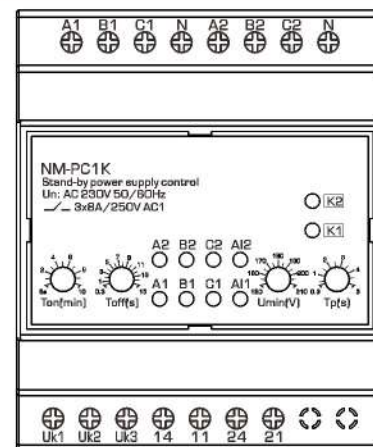
Features

- Microcontroller based
- Transfer between 2 three phase supplies
- Overvoltage and undervoltage protection
- Parameters setting by knobs
- LEDs indication for overvoltage and undervoltage faults
- Mounting on DIN-Rail

Technical data

Supply terminals	N,A1,B1,C1/N,A2,B2,C2
Rated supply voltage	AC 3*230V
Operation voltage range	AC 50V~400V
Rated frequency	50/60Hz
Overvoltage(>U) value	270V fixed
Undervoltage(<U) setting range	150~210V
Switch on delay Ton	5s~10min
Switch off delay Toff	0.3s~15s
Transfer delay	0.3s~5s
Voltage hysteresis	5V
Asymmetric voltage	80V
Voltage measurement accuracy	≤1%(over the whole range)
Trip delay for >U, <U and asym	0.3s
Max Output current	8A(AC1)
Electrical life	10 ⁵
Mechanical life	10 ⁶
Protection degree	IP20
Pollution degree	3
Altitude	≤2000m
Ambient temperature	-20°C~+55°C
Humidity	≤50% at 40°C(without condensation)

Front-face panel



- N,A1,B1,C1: Three phase input terminals for supply 1
- N, A2, B2,C2: Three phase input terminals for supply 2
- Uk1,Uk2,Uk3: Measurement terminals for output voltage
- 11,14: Output contact of Relay 1
- 21, 24: Output contact of Relay 2



Switch on delay
setting



Switch off delay
setting

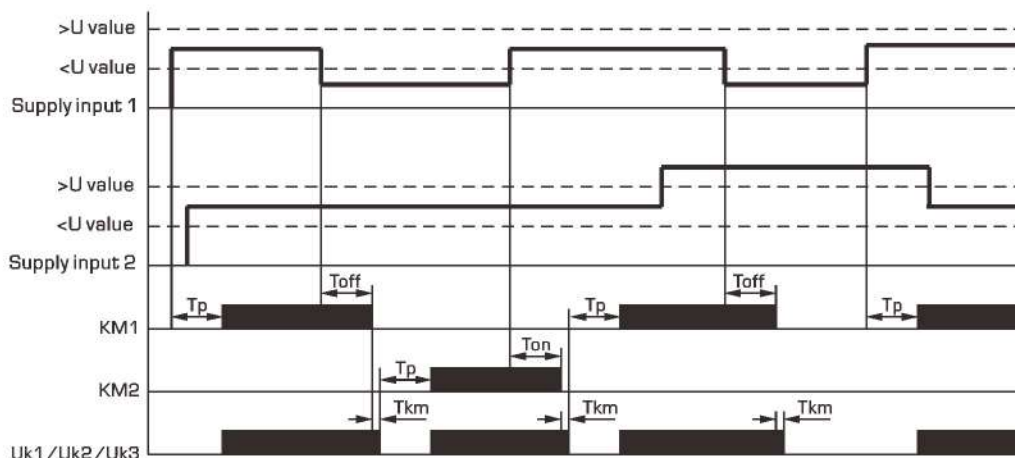


Transfer delay
setting



Umin threshold
setting

Function diagrams





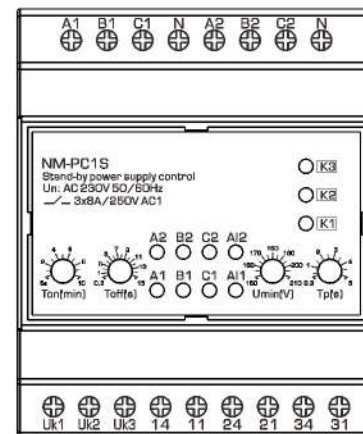
Features

- Microcontroller based
- Transfer between 2 three phase supplies
- Overvoltage and undervoltage protection
- Parameters setting by knobs
- LEDs indication for overvoltage and undervoltage faults
- Mounting on DIN-Rail

Technical data

Supply terminals	N, A1, B1, C1 / N, A2, B2, C2
Rated supply voltage	AC 3 * 230V
Operation voltage range	AC 50V~400V
Rated frequency	50/60Hz
Overvoltage(>U) value	270V fixed
Undervoltage(<U) setting range	150~210V
Switch on delay Ton	5s~10min
Switch off delay Toff	0.3s~15s
Transfer delay	0.3s~5s
Voltage hysteresis	5V
Asymmetric voltage	80V
Voltage measurement accuracy	±1% (over the whole range)
Trip delay for >U, <U and asym	0.3s
Max Output current	8A(AC1)
Electrical life	10 ⁵
Mechanical life	10 ⁶
Protection degree	IP20
Pollution degree	3
Altitude	≤2000m
Ambient temperature	-20°C~+55°C
Humidity	≤50% at 40°C (without condensation)
Storage temperature	-30°C~+70°C

Front-face panel



- N, A1, B1, C1: Three phase input terminals for supply 1
- N, A2, B2, C2: Three phase input terminals for supply 2
- Uk1, Uk2, Uk3: Measurement terminals for output voltage
- 11, 14: Output contact of Relay 1
- 21, 24: Output contact of Relay 2
- 31, 34: Output contact of Relay 3



Switch on delay setting



Switch off delay setting

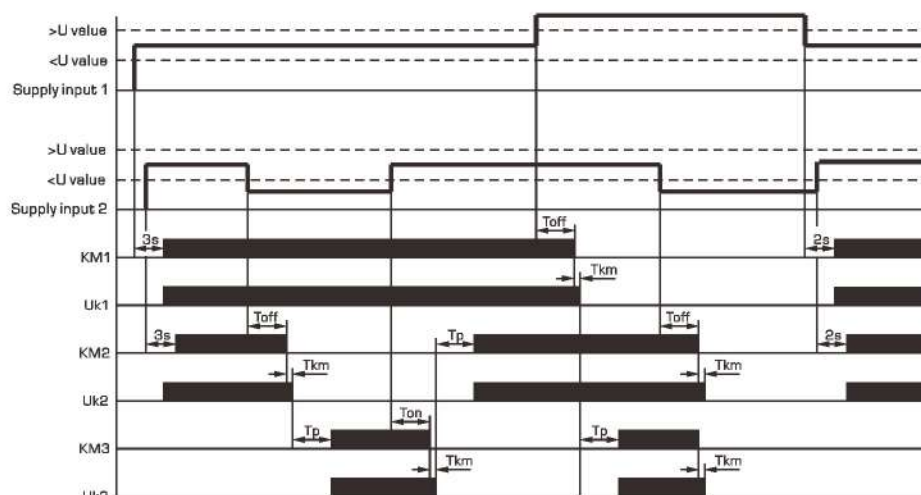


Transfer delay setting



Umin threshold setting

Function diagrams





Technical data

Models	NSR1	NSR2	NSR4	NSR8
Supply terminals	A1-A2			
Rated supply voltage	AC/DC 85-265V			
Rated frequency	47-63Hz			
Max. power consumption (AC 265V)	2.5VA	3VA	3.8VA	5.6VA
Output contact	1C/O	2C/O	4C/O	8C/O
Current rating	8A(resistive) @250 VAC/30 VDC			
Rated insulation voltage	250V			
Protection degree	IP20			
Pollution degree	3			
Electrical life	10 ⁵			
Mechanical life	10 ⁶			
Altitude	≤2000m			
Operating temperature	-20°C~55°C			
Humidity	≤50% at 40°C(without condensation)			
Storage temperature	-30°C~70°C			
Wire size	0.5mm ² ~2.5mm ²			
Torque	0.5Nm			
Rail	TH-35 (IEC/EN60715)			

Safety

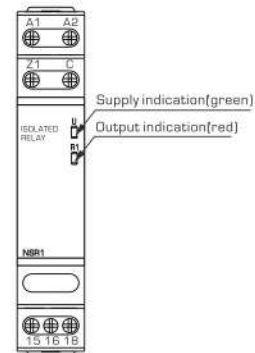
Test Voltage Between	Supply I/P to I/P Switch	4 KVAC	
IEC 60947-5-1	Supply I/P to Relay O/P	4 KVAC	
ED.3.0 (2003-11)	I/P Switch to Relay O/P	4 KVAC	2.5 KVAC
Impulse Voltage Between I/P & O/P		IEC 60947-5-1 Ed. 3.0 (2009-07) 4 KV	
Single Fault		IEC 61010-1 Ed. 3.0 (2010-06)	
Insulation Resistance		UL 508 Ed. 17 (1999-01) >50 kΩ	
Leakage Current		UL 508 Ed. 17 (1999-01) <3.5mA	

Features

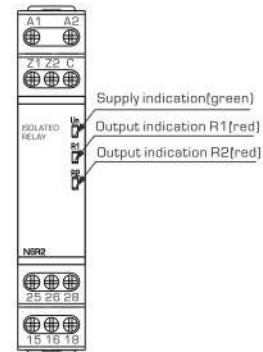
- Microcontroller based
- Provides effective 3 way Isolation between supply, input switch & relay output
- LED indication for supply and control state
- Provides isolation of dissimilar circuits
- Enables control of multiple loads when only one relay output is available
- Din rail mounting

Front-face panel

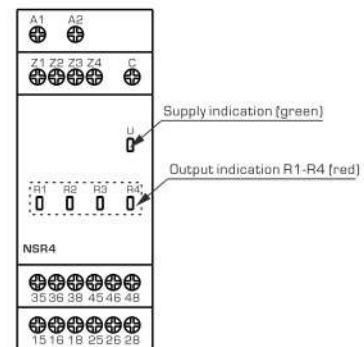
● NSR1



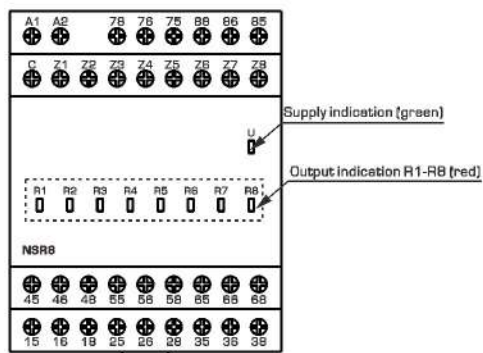
● NSR2



● NSR4

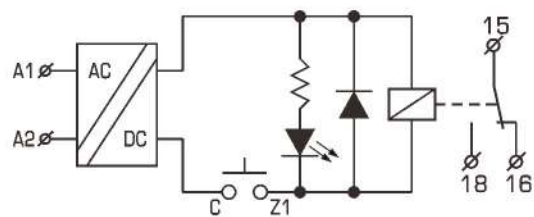


● NSR8

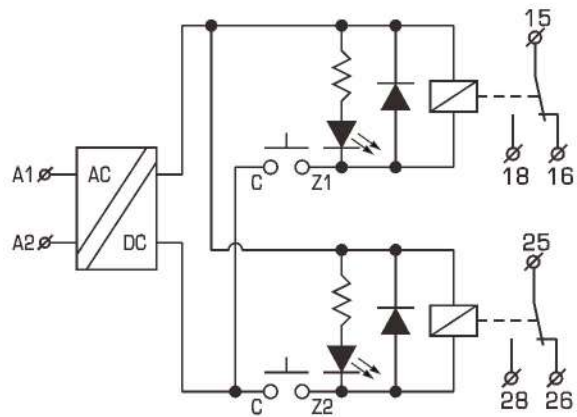


□ Wiring diagrams

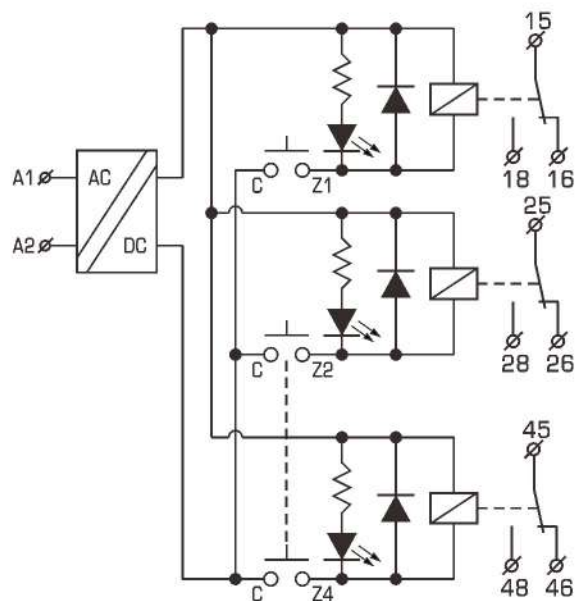
● NSR1



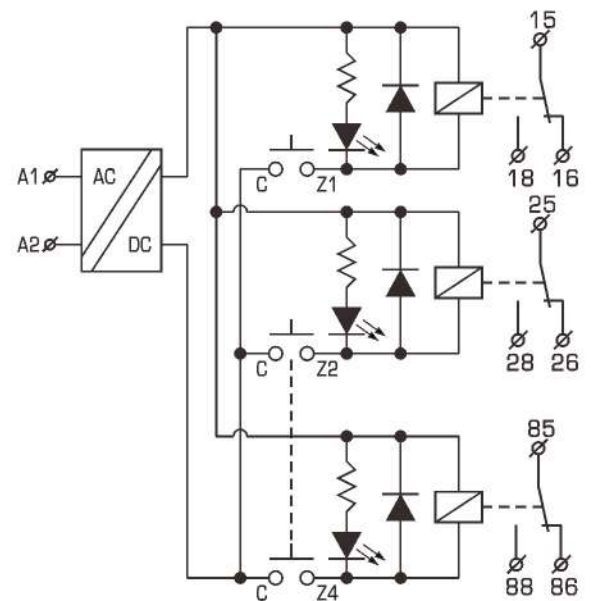
● NSR2



● NSR4



● NSR8

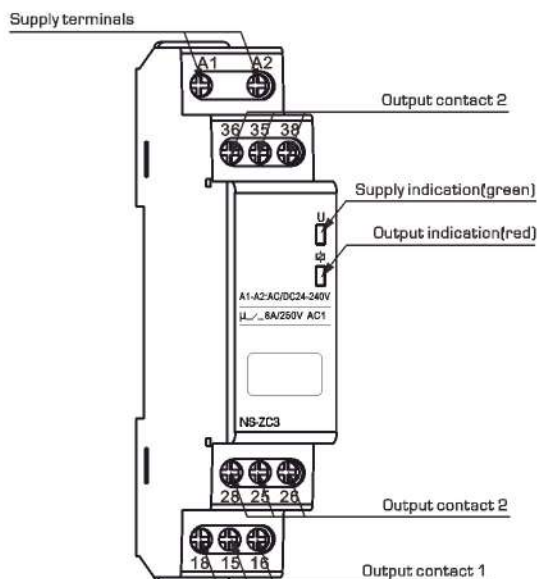




Technical data

Models	NS-ZC1	NS-ZC2	NS-ZC3
Supply terminals	A1,A2		
Supply voltage	AC/DC 24-240V		
Rated frequency	50/60Hz		
Power consumption	≤1,5 W		
Min. switching current	10 mA		
Max. breaking capacity	4000 VA	2000 VA	
Output contacts	1 C/O	2 C/O	3 C/O
Current rating(AC1)	16A	8A	
Rated surge voltage	4000V		
Insulation voltage	250V AC		
Protection degree	IP20		
Pollution degree	3		
Electrical life	10 ⁵		
Mechanical life	10 ⁶		
Altitude	≤2000m		
Ambient temperature	-20℃~+55℃		
Storage temperature	-30℃~+70℃		
Wire size	0.5mm ² ~2.5mm ²		
Torque	0.5Nm		
Mounting	TH-35 DIN-Rail		

Front-face panel

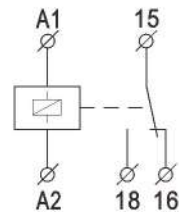


Features

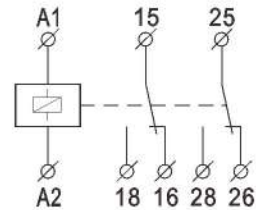
- Microcontroller based
- Installation relays
- Wide input voltage: 24-240Vac/dc
- LED indication for power supply and relay status
- 1 Module Din-rail mounting

Wiring diagrams

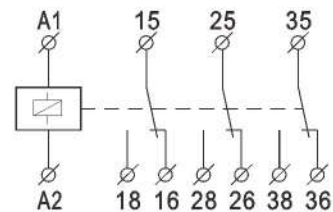
NS-ZC1



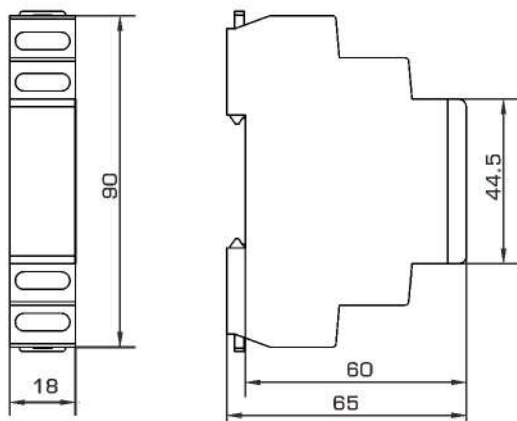
NS-ZC2



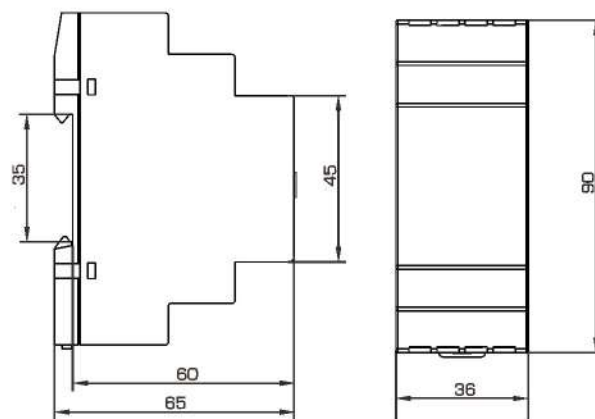
NS-ZC3



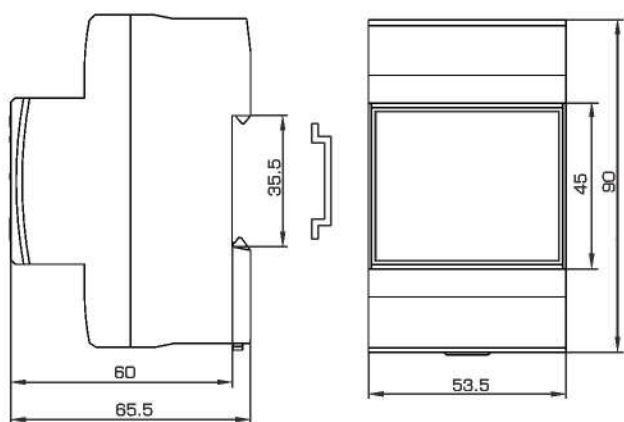
Dimensions



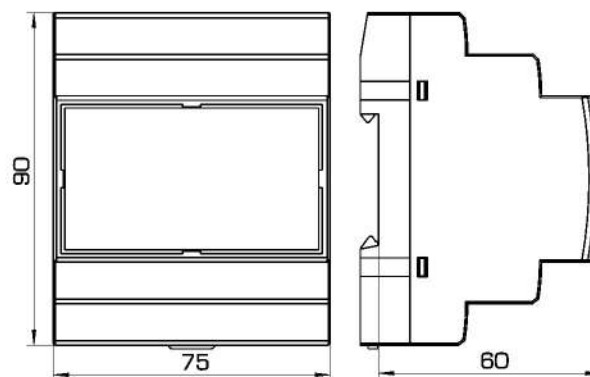
1 MODULE DESIGN



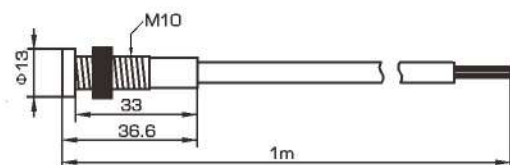
2 MODULE DESIGN



3 MODULE DESIGN



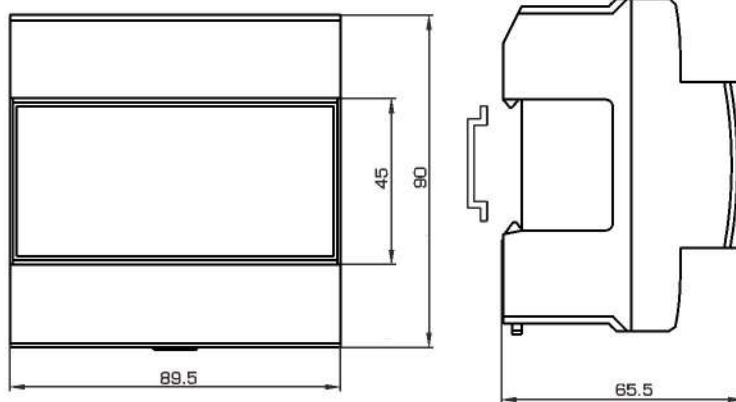
4 MODULE DESIGN



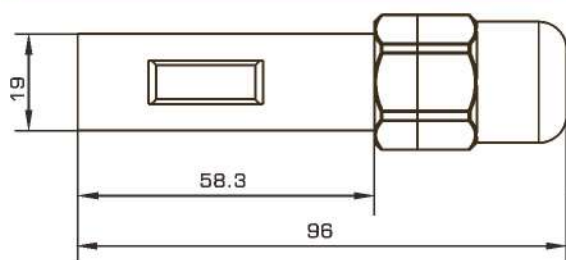
TWILIGHT SENSOR



TEMPERATURE SENSOR

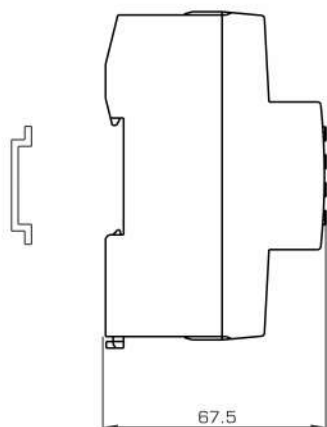
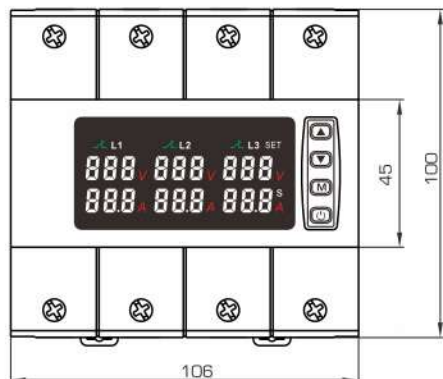


5 MODULE DESIGN

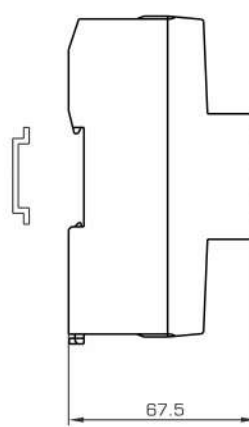
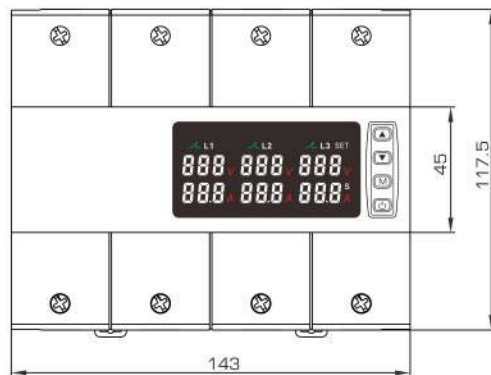


LIQUID LEVEL SENSOR

Dimensions



6 MODULES DESIGN



8 MODULES DESIGN

NiSTRO