

RPN-1AT-A230

monitoring relays



RPN-1AT-A230



- Fault latch mode **with self-reset**

- **Single-functions monitoring relays (motor temperature monitoring)** • Short circuit monitoring of the thermistor line
- Switching/tripping delay
- Cadmium - free contacts 1 CO • AC input voltages
- Cover - modular, width 17,5 mm
- Direct mounting on 35 mm rail mount acc. to EN 60715
- Compliance with standard EN 60947-8
- Recognitions, certifications, directives: RoHS,

Output circuit - contact data

Number and type of contacts		1 CO
Contact material		AgSnO ₂
Max. switching voltage		300 V AC
Rated load	AC1	12 A / 250 V AC
	DC1	12 A / 24 V DC
	DC1	0,3 A / 250 V DC
Rated current		12 A / 250 V AC
Max. breaking capacity	AC1	3 000 VA
Min. breaking capacity		1 W 10 mA
Contact resistance		≤ 100 mΩ
Max. operating frequency		600 cycles/hour at rated load AC1

Input circuit

Supply voltage	AC	230 V
Rated voltage	50/60 Hz AC	230 V terminals A1-A2
Must release voltage		AC: ≥ 0,1 U _n
Operating range of supply voltage		0,85...1,15 U _n
Rated power consumption		0,6 W
Range of supply frequency	AC	48...63 Hz

Measuring circuit

• measured value	resistance ❶
• measuring sensor	max. 6 PTC thermistor sensors, connected in series
• measuring terminals	T1, T2
• input resistance	≤ 4 kΩ
• measuring voltage	≤ 7,5 V EN 60947-8
• rated resistance of the measuring sensor	≤ 1,5 kΩ
• switching thresholds	MIN: 1,65 kΩ WARNING: 3,3 kΩ MAX: 3,6 kΩ
• short-circuit detection	≤ 10 Ω
• the ability to self-reset after a short-circuit	≥ 20 Ω
• correct operation range	20 Ω ≤ R ≤ 3,6 kΩ
• measurement accuracy for threshold limits	± 5% in the range of 1,5...4 kΩ
• sensor galvanic separation	no

Insulation according to EN 60664-1

Insulation rated voltage		250 V AC
Rated surge voltage		4 000 V 1,2 / 50 μs
Overvoltage category		III
Insulation pollution degree		2
Flammability class		V-0 for modular cover, UL 94
Dielectric strength	• input - output	4 000 V AC type of insulation: basic
	• contact clearance	1 000 V AC type of clearance: micro-disconnection

General data

Electrical life	• resistive AC1	> 0,5 x 10 ⁵ 12 A, 250 V AC
Mechanical life (cycles)		> 3 x 10 ⁷
Dimensions (L x W x H)		90 ② x 17,5 x 64,6 mm
Weight		70 g
Ambient temperature	• storage	-40...+70 °C
(non-condensation and/or icing)	• operating	-20...+60 °C
Cover protection category		IP 20 EN 60529
Relative humidity		up to 85%
Shock resistance		15 g
Vibration resistance		0,35 mm DA 10...55 Hz

❶ The indirect measurement of the motor winding temperature through resistance measurement of the standardised measurement sensor (acc. to DIN 44081, characteristics acc. to EN 60947-8). ② Length with 35 mm rail catches: 98,8 mm.

Measuring circuit data

Functions	TEMP(RESET) - temperature monitoring of the motor winding fault latch mode with self-reset
Switching/tripping delay	1 s
Recovery time	250 ms
LED indicator ③	green LED U - indication of supply voltage U, fault latch red LED °C - indication of error yellow LED R - output relay status

③ LED indication - see "Additional functions", page 2.

Functions

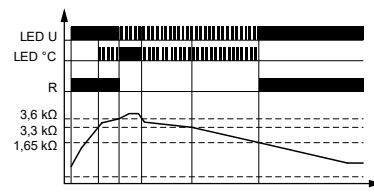
TEMP(RESET) - Temperature monitoring of the motor winding with fault latch with self-reset (with delayed connection/disconnection of contact R).

If the supply voltage U is switched on and the total resistance of the PTC sensor circuit is less than 3,6 kΩ (standard motor temperature), the operational relay R switches on.

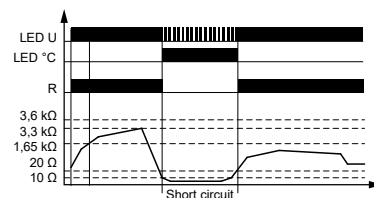
When the total resistance of the PTC circuit exceeds 3,6 kΩ (temperature increases), the operational relay R will be disconnected. The operational relay R will be switched back on when the total resistance of the sensors falls below 1,65 kΩ (the system is cooled).

In case of a sensor short-circuit, when the resistance of the connected sensors falls below 10 Ω, the operational relay R will be disconnected. The operational relay R will be switched back on the moment the sensor resistance increases back above 20 Ω.

Self-reset.



Sensor short-circuit.



Additional functions

LEDs: green U, red °C - are lit permanently or flashes at 250 ms period where it is lit for 50% of the time, and off for 50% of the time. Yellow R is lit permanently.

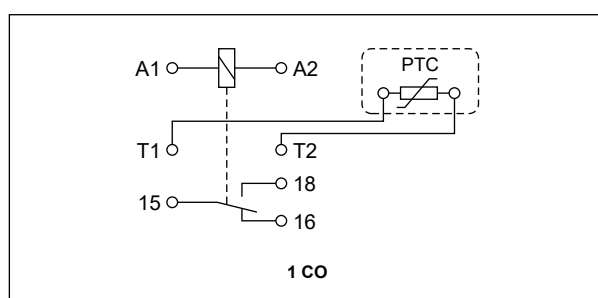
Supply: the relay may be supplied with AC voltage 48...63 Hz of 195,5...264,5 V.

LED indication	U	°C	R
green does not light up	power supply turned off	—	—
green lights up all the time	correct power supply	—	—
green flashes	self-reset of fault latch	—	—
red does not light up	—	no error ④	—
red lights up all the time	—	temperature above the MAX threshold	—
red flashes	—	temperature close to MAX threshold ⑤ or self-reset of fault latch is in progress	—
yellow does not light up	—	—	contact R disconnected
yellow lights up all the time	—	—	contact R connected

④ Total resistance of the PTC circuit below a value of 3,6 kΩ.

⑤ Total resistance of the PTC circuit between 3,3 kΩ and 3,6 kΩ (WARNING threshold - increased temperature condition).

Connection diagram



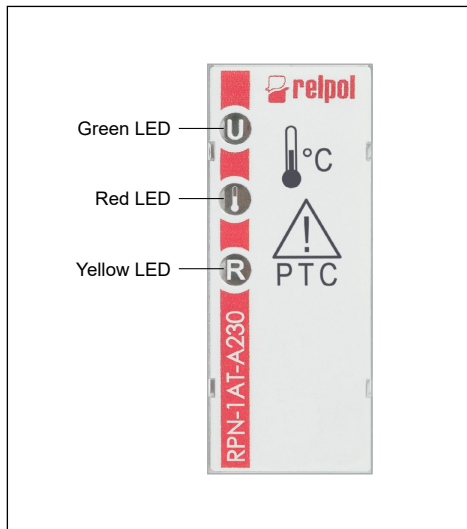
PRECAUTIONS:

1. Ensure that the parameters of the product described in its specification provide a safety margin for the appropriate operation of the device or system and never use the product in circumstances which exceed the parameters of the product. 2. Never touch any live parts of the device. 3. Ensure that the product has been connected correctly. An incorrect connection may cause malfunction, excessive heating or risk of fire. 4. In case of any risk of any serious material loss or death or injuries of humans or animals, the devices or systems shall be designed so to equip them with double safety system to guarantee their reliable operation.

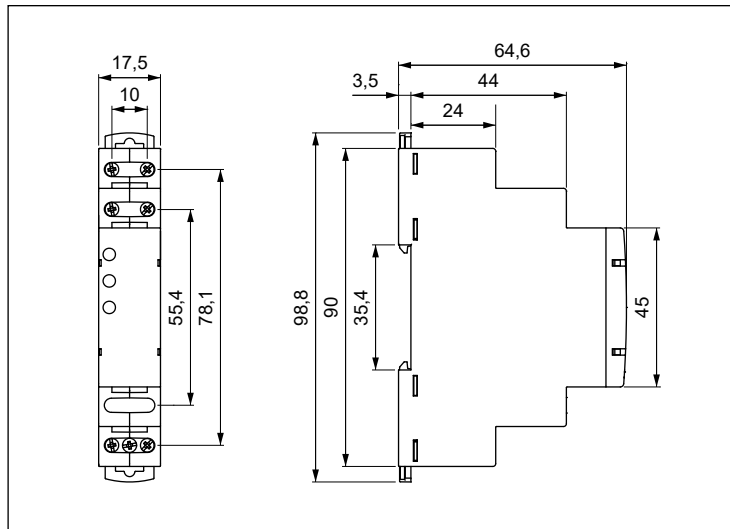
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Front panel description

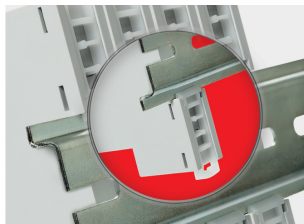


Dimensions

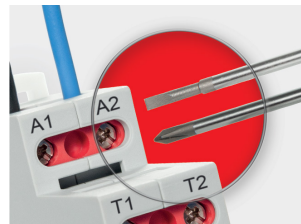


Mounting

Relays **RPN-1AT-A230** are designed for direct mounting on 35 mm rail mount acc. to EN 60715. Operational position - any. **Connections:** max. cross section of the cables: 1 x 2,5 mm² (1 x 14 AWG), stripping length: 6,5 mm, max. tightening moment for the terminal: 0,5 Nm.

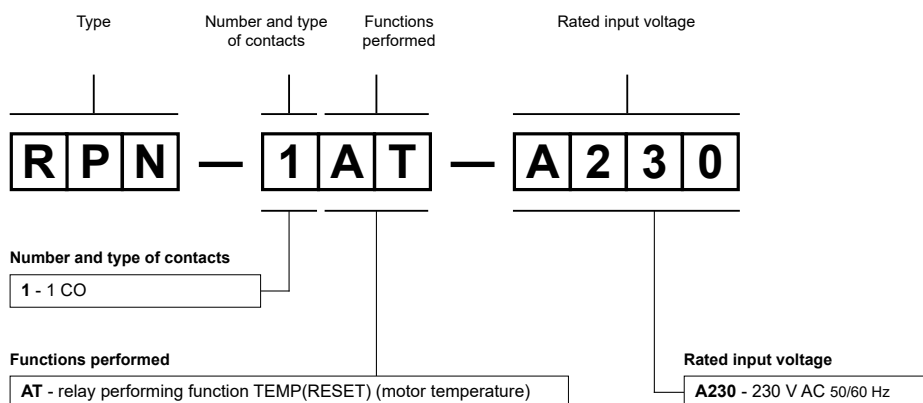


Two catches:
easy mounting
on 35 mm rail,
firm hold
(top and bottom).



**Mounting wires
in clamps:**
universal screw
(cross-recessed
or slotted head).

Ordering codes



Example of ordering codes:

RPN-1AT-A230

monitoring relay **RPN-1AT-A230**, single-function (relay perform function TEMP(RESET)), cover - modular, width 17,5 mm, one changeover contact, contact material AgSnO₂, rated input voltage 230 V AC 50/60 Hz