

## Overtemperature Monitoring

### Features

- Connects upto six DIN 44081 PTC thermistors
- Short circuit protected signal input

Versions available:

- Manual / remote re-set
- Auto reset
- Selectable auto or manual / remote re-set
- Manual / remote re-set, no-voltage safe

### Description

The model **M130** monitors motor temperatures, with up to 6 PTC thermistors connected to the input in series. With thermistor/s connected to the input, and the power on, the M130's monitoring relay is normally energised when all thermistors are below safe limit temperature. If the temperature sensed by one or more of the thermistors exceeds the safe temperature limit, the relay is de-energised. The instrument thereby provides reliable protection against high temperature conditions. The temperature sensing circuit uses a current loop to monitor the aggregate resistance of the connected PTC thermistors. The relay is also de-energised if the input is open- or short-circuited, making the unit fail-safe.

A transformer coupled input circuit provides galvanic isolation between the signal input and the rest of the instrument, except the 24V<sub>AC/DC</sub> Version.

A green LED indicates power supply status, and a red LED indicates the status of the relay. The red LED is on when the monitoring relay is de-energised, thereby signalling a fault condition: overtemperature, input open-circuit, or input short-circuit.



### Functions

The **M130** is available in four versions, each operating in a different way, as described below:

#### Auto Re-Set:

In this version, the relay is de-energised as soon one or more of the connected thermistors is heated beyond the safe temperature limit. As soon temperature of all the thermistors fall below the limit point, the relay is energised again, automatically.

#### Manual / Remote Re-Set:

In this version, the relay is de-energised as soon as one or more thermistors is heated beyond the safe temperature limit. The relay remains de-energised, even after the PTC thermistors have cooled. The relay can be re-set to the energised state manually by pressing the front re-set key-switch, or by closing remote contacts connected to the re-set terminals.

The manual / remote re-set function is inhibited when the supply voltage is first switched on (or is switched on again after being switched off). If the thermistors are all within safe temperature limits, the output relay is energised immediately when power supply is switched on.

#### Selectable Re-Set Function:

In this version, either auto re-set or manual / remote re-set mode may be selected, by keeping terminals Y1-Y2 open or shorted, respectively. See Connection Diagrams.

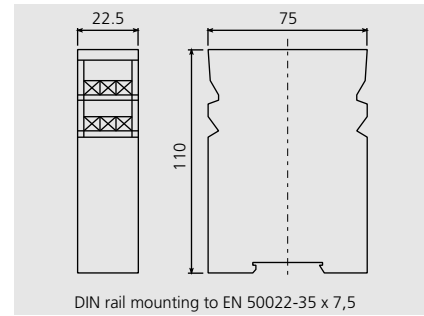
#### Manual / Remote Re-Set, No Voltage Safe:

The relay remains de-energised, even after the PTC thermistors have cooled. The relay can be re-set to the energised state manually by pressing the front re-set key-switch, or by closing remote contacts connected to the re-set terminals.

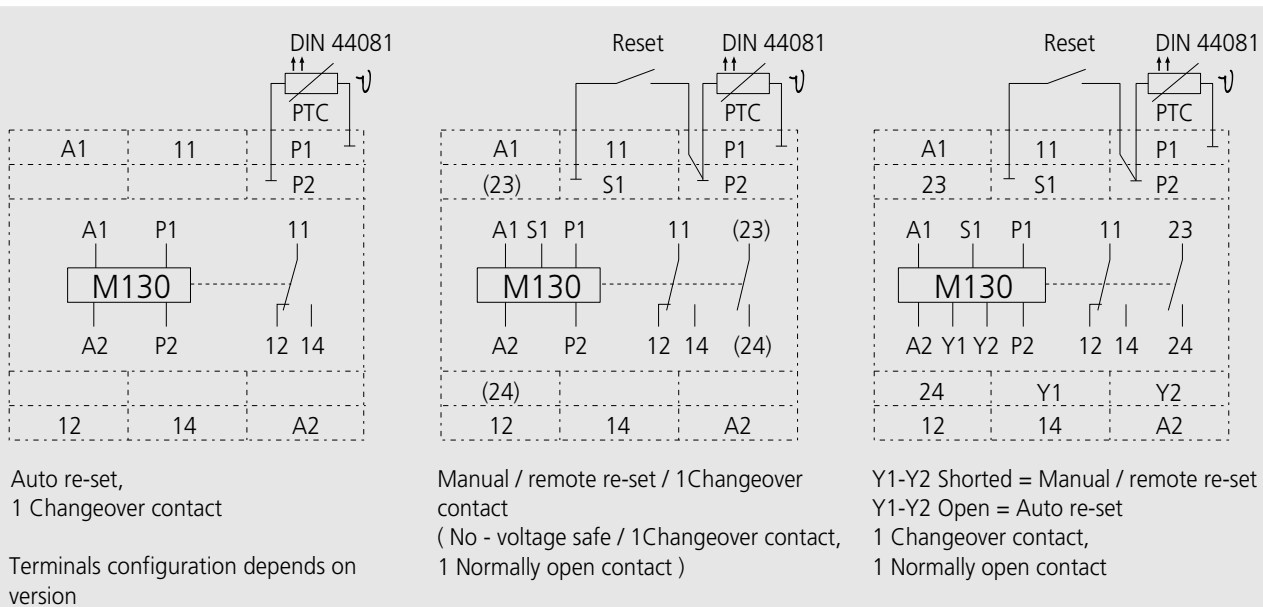
## Specifications

Voltage range	0.8 to 1.1 of rated voltage
Frequency range	50 /60 Hz
Power consumption	Approx. 1 VA
Relay mechanical life	10 <sup>7</sup> switching cycles
Temperature effect	< 0.01 % / K
Operating temperature	- 5 °C to 60 °C, (no condensation)
Response time	< 20 ms
Re-set time	< 20 ms
Isolation voltage	250 V
Creep and air paths	Overvoltage category III per VDE 0100 Pollution level 2
Test voltage	2000 V per VDE 0435
Mode of protection	IP 20 terminals, IP 40 casing Per DIN VDE 0470-1 (11/92)
Connecting terminals	Screw type with protective cover
Conductor size	2.5 mm <sup>2</sup> fine stranded wire, max. 7.0 mm stripped
Relay contacts rating	AC15 250 V 4 A, DC13 24 V 3 A
Switching thresholds:	
Relay de-energisation point	> 2,5 kΩ...3,6 kΩ and short circuit
Relay energisation point	< 1,5 kΩ ...2,3 kΩ
Weight	Approx. 125 g

## Dimensions



## Connection Diagram



## Models and Ordering Data

Operating Voltage	230 V <sub>AC</sub>	115 V <sub>AC</sub>	24 V <sub>AC</sub>	24 V <sub>AC/DC</sub>
<b>M130 with Short Circuit Protection</b>	<b>Order No.</b>			
Manual / remote re-set; 1 changeover contact	07200276	07200277	07200278	07200279
Auto re-set; 1 changeover contact	07200280	07200281	07200282	07200283
Manual / remote re-set, no-voltage safe, 1 changeover + 1 normally open contact	07200284	07200285	07200286	07200287
Selectable re-set function, 1 changeover + 1 normally open contact	07200288	07200289	07200290	07200291

Other than the versions listed here, special versions can also be supplied at short notice.

