TSR19
11 pin plug-in thermal motor protection relay
according to IEC 67-1-18a

Type: TSR19/…V
Plug-in monitoring relay for temperature of coils of motors, transformers etc.
1 CO contact for OK state, 1 CO contact for alarm state.

Monitoring function
The TSR19 monitors the temperature of motor coils, generators and transformers.
It detects the temperature of the windings by the change of the PTC thermistor resistance \( O \) or by the state of the thermo switches \( O \). The circuit detects a sensor line interruption or a ground fault of the sensor lines.
Reset after failure detection: Press reset button or interrupt the supply voltage for > 200 ms.

Measuring circuit data
Sensor resistance, OK range 100 … 1800 Ω
Thermo switch, OK range 0 … 1800 Ω
Fail ranges ≤ 50 Ω, ≥ 2250 Ω, ≤ 1 kΩ ground fault
Max. sensor conductor resistance 20 Ω
Sensor supply voltage, idle state 15 V \( R \) \( R_{\text{fus}} = \infty \)

Time data
Constant alarm delay time 2.5 s ± 20 %
Voltage failure buffering 100 ms

Contacts
Type / material 2 CO, micro disconnection / Ag Ni
Rated operational current 5 A
Inrush current (10 ms) 30 A
Max. switching voltage AC-1, DC-1 250 V
Max. AC load AC-1 (Fig 1.) 1250 VA
Max. DC load 30 V / 250 V (Fig 2.) 120 W / 50 W
Recommended min. contact load 10 mA / 12 V

Power supply
Nominal voltage (UC = AC / DC) \( UC \) 24 – 48 V \( AC \) 230 V
Operating voltage range \( UC \) 19 … 60 V \( AC \) 190 … 250 V
Power consumption 1.5 W 1.5 W
Frequency range 50 / 60 Hz 50 / 60 Hz

Insulation
Test voltage between contacts and other circuits 2 kVrms 1 minute
Test voltage between Power supply inputs and other circuits 2 kVrms 1 minute

General specifications
Ambient temperature storage /operation -40 … 85 °C / -10 … 60 °C
Mechanical life of contacts ≥ 30 x 10⁶
Ingress protection degree IP 40 when plugged in
Housing material Lexan, alu front plate
Weight 210 g

Standard types
AC 230 (50/60Hz) TSR19/AC230V
UC 24-48 TSR19/UC24-48V

Accessories
Socket: S-3B
Retention clip: HF-24
Front panel mounting set: FZ-23

Connection diagram

Fig.1 AC voltage endurance

Fig. 2 DC load limit curve

Dimensions [mm]

Technical approvals, conformities
EN 61010; EN 60947