

Thermistor Motor Protection Relay

CE 7UG0
IEC 60947-5-1
IEC 60947-8 A



7UG0881-1BU20

Please read and understand these instructions before installing, operating, or maintaining the equipment.



DANGER

Hazardous voltage can cause death or serious injury. Disconnect power before working on equipment.



CAUTION

Reliable functioning of the equipment is only ensured with certified components. Overvoltage category II (Refer IEC 60947-1)



NOTICE

This product has been designed for environment A. Use of this product in environment B may cause unwanted electromagnetic disturbances in which case the user may require to take adequate mitigation measures.

Thermistor motor protection relay is used to monitor the winding temperature of motors / generators using PTC sensors and to protect them from abnormal overheating in accordance to the product standard IEC 60947-8, control units for built-in thermal protection (PTC) for rotating electrical machines.

PTC resistor sensors which are built-in into the motor windings, measures the motor heating. With increase of the temperature in the motor, the resistance of the PTC sensors will increase.

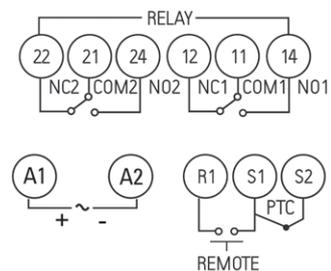
Operating modes :

1. **Sensor Short** : Sensor is short / damaged.
2. **Sensor Healthy** : The motor is running safely.
3. **Sensor Trip** : When the motor exceeds its temperature beyond its safety limit, it is in trip condition. It stays in trip condition until the motor cools down and reaches Cut-in.
4. **Sensor Open** : Sensor is open / break.
5. **Sensor Recovery / Cut-in / Reset** : After the motor cools down, it reaches Cut-in condition. The relay switches automatically, in Auto mode. Whereas in Manual mode, the user has to manually reset (PRG Key or Remote reset R1-S1) when in Cut-in condition.

Technical Data

Designation	7UG0881-1BU20
Type	Thermistor Motor Protection Relay
Control Supply (Uc)	110 - 240V AC/DC
Tolerance on Control supply	0.85x Uc... 1.1x Uc
Frequency	50/60Hz
Operating temperature	0 to 50°C , 95%RH (non-condensing)
Sensor operating mode (all values in ohms)	Sensor Short : ≤ 40 Sensor Healthy : ≥ 44 (±3) to < 3.8K (±150) Sensor Trip : ≥ 3.8K (±150) to < 5.5K (±150) Sensor Open : ≥ 5.5K (±150) & Above Sensor Recovery/ Cut-in / Reset : ≤ 1.5K (±60)
Trip Time	Instantaneous
Initialization time	3 sec
Relay modes	Failsafe and Non-Failsafe mode (Selectable)
Device Operating mode	Auto / Manual (Selectable)
Rated output relay current	5A (AC12)
Power consumption (@ 230V)	3 VA

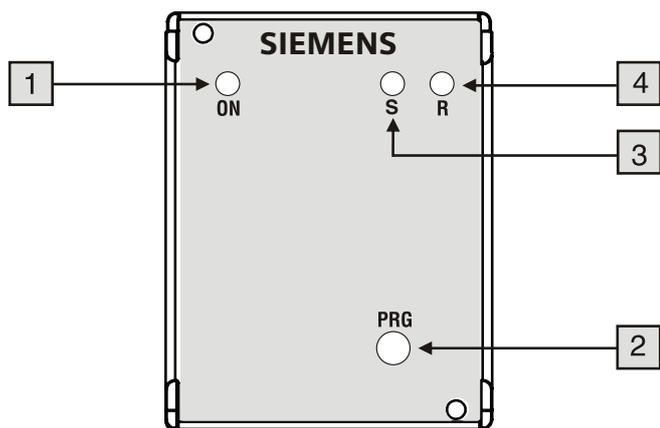
Terminal connections



	7UG0881 - 1BU20
	0.5 Nm
	1 x (0.75 to 2.5) mm ² 2 x 0.5 to 2 x 1.5 mm ²
	1 x (0.5 to 2.5) mm ² 2 x (0.5 to 1.5) mm ²

Note: 1. Compatible with both single and triple PTCs.
2. At ambient, when PTC sensors connected in series, total resistance value should not exceed more than 1.5kΩ i.e. (R1+R2+R3+...+Rn)Amb ≤ 1.5kΩ.

Front panel description



1	Power "ON" LED (Green)
2	Programming & Reset key
3	Sensor Condition (Yellow)
4	Relay indication (Red)

LED STATUS	
●	ON
○	OFF
	Slow Blink
	Fast Blink

PROGRAMMING SCHEME

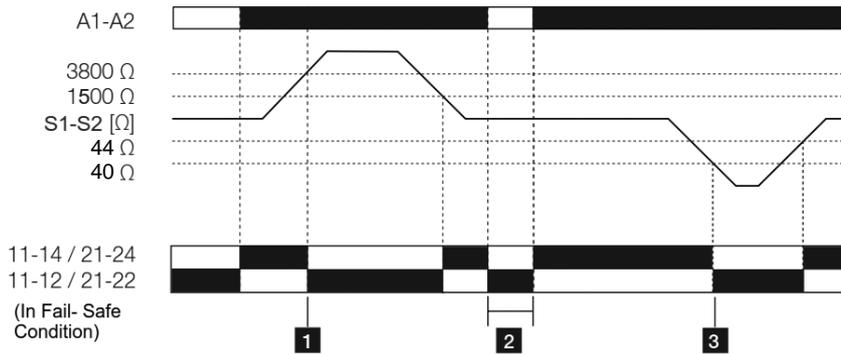
To enter programming mode, short terminals S1 and S2 to go to Sensor Short condition. Make sure to remove all connections done to the relay. Now, press the PRG key for 5 seconds. Once we enter programming mode, each mode has 10 seconds to be configured. To make changes press the front PRG key but in that time window only. After 10 seconds, it will directly go to the next mode which is indicated by fast blinking of both S & R LED's. The changes are auto-saved and retained.

Note: Remote key can also be used for programming.

Mode	PRG key	LED indication		DURATION
		S	R	
Enter configuration	Pressed for 5 seconds			3 seconds
Relay check mode	Press key to toggle relay	ON	●:Relay ON ○:Relay OFF	10 seconds
Next mode	NA			3 seconds
Auto / Manual selection	Press key to select mode •Auto •Manual	OFF	●:Auto ○:Manual	10 seconds
Next mode	NA			3 seconds
Failsafe & Non-failsafe selection	Press key to select mode •Failsafe •Non-Failsafe mode		●:Failsafe ○:Non-failsafe	10 seconds

Timing Diagrams and LED indications

Auto reset



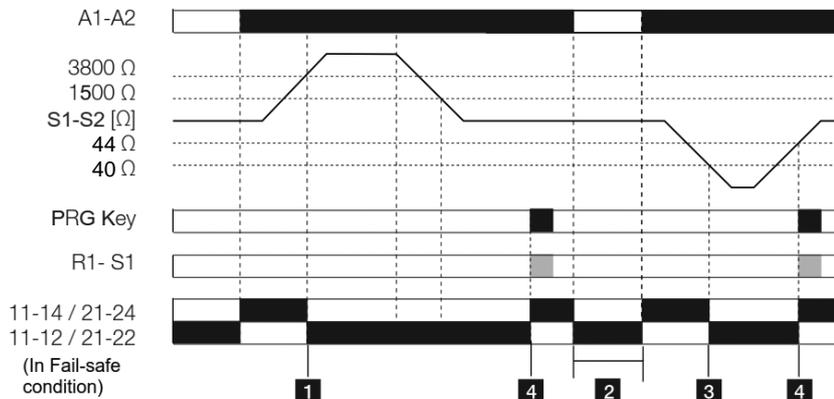
- 1 Tripping caused by overtemperature
- 2 Control supply voltage interrupted
- 3 Short-circuit in sensor circuit

1. AUTO MODE :

After cut-in, the relay switches its state automatically to Healthy condition

Sensor condition	R-LED (Failsafe)	R-LED (Non-Failsafe)	S-LED
Short	○	●	
Healthy	●	○	○
Trip	○	●	●
Open	○	●	

Manual or remote reset



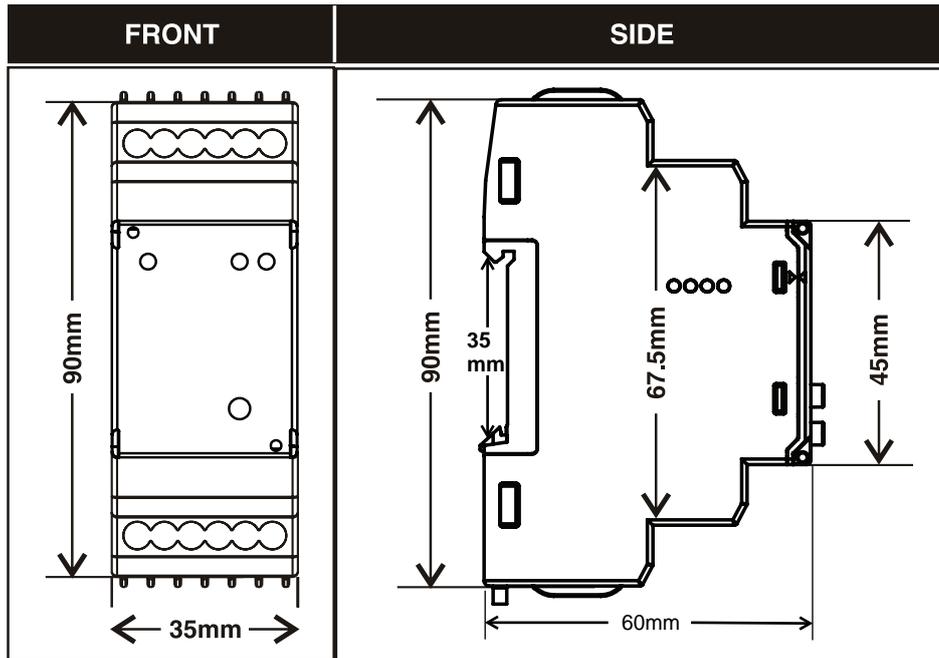
- 1 Tripping caused by overtemperature
- 2 Control supply voltage interrupted
- 3 Short-circuit in sensor circuit
- 4 Reset (resets fault)
 - manually with front PRG Key
 - externally by a remote reset between terminal R1-S1

2. MANUAL MODE :

With sensor in cut-in mode, R LED will be slow blinking. Press the "PRG" key to reset the relay and bring the operating mode to "Sensor Healthy condition"

Sensor condition	R-LED (Failsafe)	R-LED (Non-Failsafe)	S-LED
Short	○	●	
Healthy	●	○	○
Trip	○	●	●
Open	○	●	
Cut-in(Key not press)			●

Dimensional drawings



Disposal

Siemens products are environment friendly, which predominantly consist of recyclable materials.

For disposals we recommend disassembling and separation into following materials:

METALS: Segregate into Ferrous & Non Ferrous types for recycling through authorised dealer.

PLASTICS: Segregate as per material type for recycling through authorised dealer. Because of the long lifetime of Siemens products the disposal guidelines may be replaced by other national regulations when taking the product out of service.

The local customer care service is available at any time to answer disposal-related questions