

EMD-BL-PTC(-PT)

Electronic monitoring relay for temperature monitoring



Data sheet
107385_en_00

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1 Description

Safety and system availability requirements are constantly on the increase – across all industries. Processes are becoming more and more complex, not only in machine building and the chemical industry but also in building technology. The demands placed on energy technology are also constantly on the rise.

It is only by continuously monitoring key network and system parameters that error-free and therefore cost-effective operation can be achieved. Electronic monitoring relays from the EMD series are available for a wide range of monitoring tasks so that the consequences of errors can be avoided or kept within limits.

The operating states are signaled via color LEDs and any errors that occur can be sent to a controller via a floating contact or can shut down a section of the system. All device versions are equipped with response delays so that measured values outside the set monitoring range can be briefly tolerated.

Features

- Winding temperature monitoring



WARNING: Risk of electric shock

Never carry out work when voltage is present.



Make sure you always use the latest documentation.

It can be downloaded from the product at phoenixcontact.net/products.

2 Ordering data

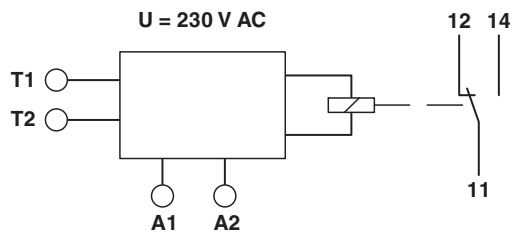
Description	Type	Order No.	Pcs./Pkt.
Electronic monitoring relay for temperature monitoring	EMD-BL-PTC-PT	2906253	1
Electronic monitoring relay for temperature monitoring	EMD-BL-PTC	2906252	1

3 Technical data

Input data	
Input name	Measuring input
Maximum input voltage	≤ 4 V DC (connection terminal blocks: T1 and T2)
Maximum temperature coefficient	< 0.05 %/K
Function	Winding temperature monitoring
Basic accuracy	± 10 % (of scale end value)
Total cold resistance	≤ 1.5 kΩ
Response value	≥ 3.6 kΩ (Relay drops out)
Release value	≤ 1.6 kΩ (Relay picks up)
Short-circuit detection	< 20 Ω
Recovery time	> 300 ms
Output data	
Contact type	1 floating PDT
Maximum switching voltage	250 V AC (in acc. with IEC 60947-5-1)
Interrupting rating (ohmic load) max.	1250 VA (5 A/250 V AC)
Output fuse	5 A (fast-blow)
Supply	
Supply voltage	230 V AC (-15 % ... +10 %)
Frequency range	50 Hz ... 60 Hz
Nominal power consumption	3.5 VA (0.5 W)
General data	
Mechanical service life	15 x 10 ⁶ cycles
Service life, electrical	1 x 10 ⁵ cycles
Switching frequency	≤ 6
Voltage drop	> 30 % (Relative to the supply voltage)
Operating mode	100% operating factor
Degree of protection	IP40 (housing) / IP20 (connection terminal blocks)
Degree of pollution	2 (IEC 60947-5-1)
Overvoltage category	III (IEC 60947-5-1)
Mounting	on standard DIN rail NS 35 in accordance with EN 60715
Mounting position	any
Width	17.5 mm
Height	88 mm
Depth	65.5 mm
Type of housing	Polyamide PA66, self-extinguishing
Color	gray

Connection data	Push-in-/Spring-cage connection	Screw connection
Conductor cross section, solid	0.14 mm ² ... 2.5 mm ²	0.5 mm ² ... 2.5 mm ²
Conductor cross section, flexible	0.14 mm ² ... 2.5 mm ²	0.5 mm ² ... 2.5 mm ²
AWG	26 ... 14	20 ... 14
Stripping length	8 mm	8 mm
Tightening torque		1 Nm
Ambient conditions		
Ambient temperature (operation)	-25 °C ... 55 °C	
Ambient temperature (storage/transport)	-25 °C ... 70 °C	
Permissible humidity (operation)	15 % ... 85 %	
Climatic class		
Conformance / approvals		
Conformance	CE-compliant	
UL, USA / Canada	EAC	
Conformance with EMC Directive 2004/108/EC (valid until April 19, 2016) / 2014/30/EU (valid from April 20, 2016)		
Noise immunity according to	EN 61000-6-2	
Noise emission according to	EN 61000-6-3	
Conformance with Low Voltage Directive 2006/95/EC (valid until April 19, 2016) / 2014/35/EU (valid from April 20, 2016)		
Low voltage switchgear according to	EN 60947-5-1	

4 Block diagram



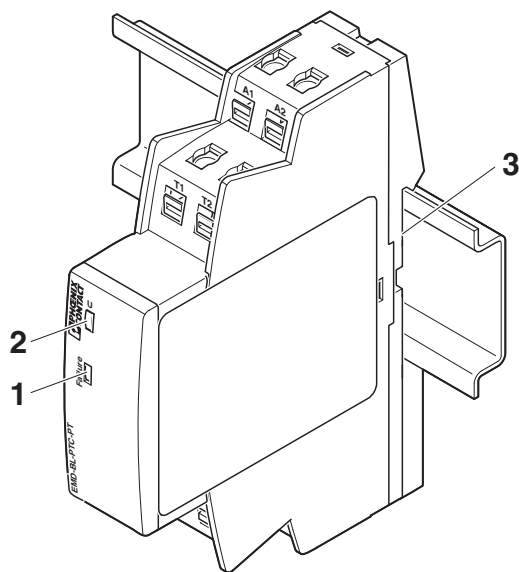
5 Safety notes



WARNING: Risk of electric shock

Never carry out work when voltage is present.

6 Structure



- 1 LED: failure
- 2 LED: supply U
- 3 Snap-on foot for DIN rail mounting

7 Installation



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The module can be snapped onto all 35 mm DIN rails according to EN 60715.

8 Diagnostics

The LEDs indicate the following error states:

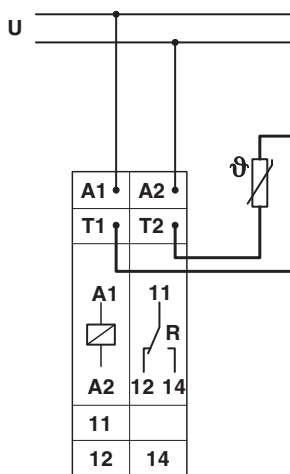
"U" LED (Green)

- LED ON: Supply voltage present

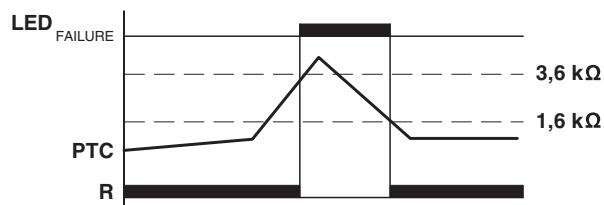
"Failure" LED (red):

- LED ON: indicates error

9 Connection examples



10 Function



Temperature Monitoring of the Motor Winding

If the PTC total resistance is less than $3.6 \text{ k}\Omega$ (normal temperature of the motor) when the supply voltage is applied, the output relay R activates. If the total resistance rises over $3.6 \text{ k}\Omega$, the output relay R deactivates. The output relay R reactivates when the PTC total resistance has fallen below $1.6 \text{ k}\Omega$.