

Monitoring Relays

Motor temperature

Types DTA01, PTA01, DTA02, PTA02

CARLO GAVAZZI



DTA01, DTA02



PTA01, PTA02

- Motor temperature monitoring relay
- Measuring ranges: PTC according to EN 44081
- Remote and local alarm reset (DTA02, PTA02)
- Output: 8 A SPDT relay normally energized
- For mounting on DIN-rail in accordance with DIN/EN 50 022 (DTA01, DTA02) or plug-in module (PTA01, PTA02)
- 22.5 mm Euronorm housing (DTA01, DTA02) or 36 mm plug-in module (PTA01, PTA02)
- LED indication for relay and power supply ON (DTA02, PTA02)
- Galvanically separated power supply

Product Description

DTA01, DTA02, PTA01 and PTA02 are precise thermistor monitoring relays. They can be used to monitor the temperature of the coils of a motor with built-in PTC's. The alarm status of the relay can be reset by either an

external contact or an internal button (DTA02, PTA02). The test button allows the simulation of the fault condition (DTA02, PTA02). The red LED indicates the alarm status.

Ordering Key

DTA 01 C 230

Housing _____
 Function _____
 Type _____
 Item number _____
 Output _____
 Power supply _____

Type Selection

Mounting	Output	Supply: 24 VDC	Supply: 24 VAC	Supply: 115 VAC	Supply: 230 VAC
DIN-rail	SPST	DTA 01 C 724	DTA 01 C 024	DTA 01 C 115	DTA 01 C 230
Plug-in	SPDT	PTA 01 C 724	PTA 01 C 024	PTA 01 C 115	PTA 01 C 230
DIN-rail	SPDT	DTA 02 C 724	DTA 02 C 024	DTA 02 C 115	DTA 02 C 230
Plug-in	SPDT	PTA 02 C 724	PTA 02 C 024	PTA 02 C 115	PTA 02 C 230

Input Specifications

Input (PTC)	DTA01, DTA02: PTA01, PTA02:	Terminals T1, T2 Terminals 5, 6
Measuring ranges		
Max cold PTC resistance		1500 Ω
Alarm setpoint		3100 $\Omega \pm 10\%$
Return setpoint		1650 $\Omega \pm 10\%$
Short-circuit detection		0 to 10 Ω
Measurement voltage		$\leq 2.5V$ (acc. to IEC 60034-11)
Contact input		
DTA02		Terminals Z1, Z2
PTA02		Terminals 8, 9
Disabled		> 10 k Ω
Enabled		< 500 Ω
Alarm reset		> 500 ms

Output Specifications

Output	SPST or SPDT relay
Rated insulation voltage	250 VAC
Contact ratings (AgSnO₂)	μ
Resistive loads	8 A @ 250 VAC
	5 A @ 24 VDC
Small inductive loads	2.5 A @ 250 VAC
	2.5 A @ 24 VDC
Mechanical life	$\geq 30 \times 10^6$ operations
Electrical life	$\geq 10^5$ operations (at 8 A, 250 V, $\cos \varphi = 1$)
Operating frequency	≤ 7200 operations/h
Dielectric strength	
Dielectric voltage	≥ 2 kVAC (rms)
Rated impulse withstand volt.	4 kV (1.2/50 μs)



Supply Specifications

Power supply Rated operational voltage through terminals: A1, A2 (DTA01, DTA02) 2, 10 (PTA01, PTA02)		Overvoltage cat. III (IEC 60664, IEC 60038)	
724:	24 VDC ± 20%, insulated		
024:	24 VAC ± 15%		
	45 to 65 Hz, insulated		
115:	115 VAC ± 15%		
	45 to 65 Hz, insulated		
230:	230 VAC ± 15%		
	45 to 65 Hz, insulated		
Dielectric voltage (1.2/50 µs)		DC supply	AC supply
Supply to input		2 kV	4 kV
Supply to output		4 kV	4 kV
Input to output		4 kV	4 kV
Rated operational power			
AC		2.5VA	
DC		1.5W	

Mode of Operation

DTA01, DTA02, PTA01 and PTA02 monitor the resistance value of the PTC resistors connected to the terminals T1 and T2 (or 5 and 6). This value is related with their temperature (often the three coils of a motor) so to offer a prompt reaction to over temperature.

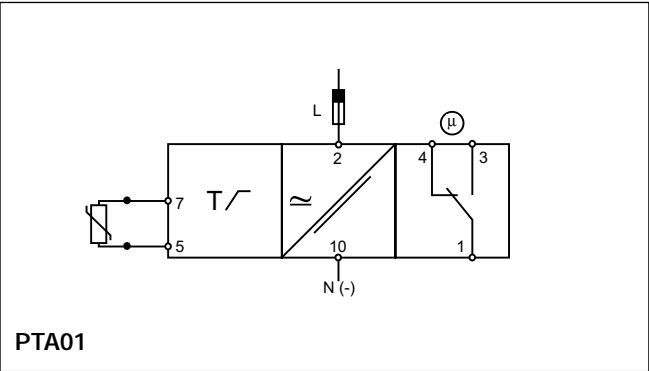
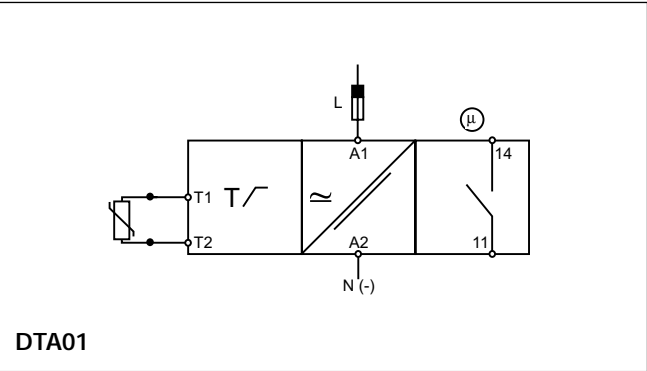
Example 1 - DTA01 or PTA01
The relay operates as long as the measured resistance is below the rated value. The relay releases if the measured resistance (i.e. the temperature of the motor coils) exceeds the rated value.

Example 2 - DTA02 or PTA02
The relay operates and the yellow LED is ON as long as the measured resistance is below the rated value. The relay releases and the yellow LED is OFF if the measured resistance (i.e. the temperature of the motor coils) exceeds the rated value. Provided that the resistance has dropped below the rated value (i.e. the temperature of the motor coils has returned cold), the relay operates when the interconnection between terminals Z1, Z2 or 8, 9 is interrupted or the reset button on the front of the unit is pressed.

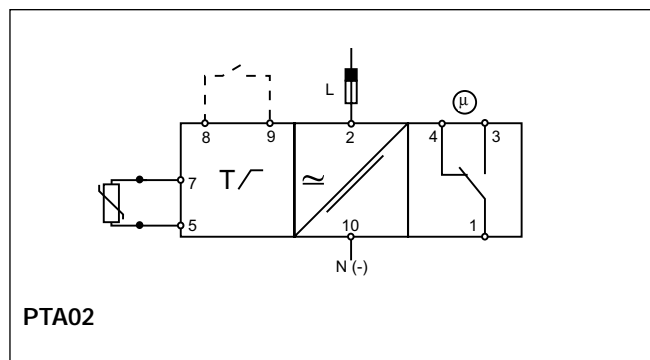
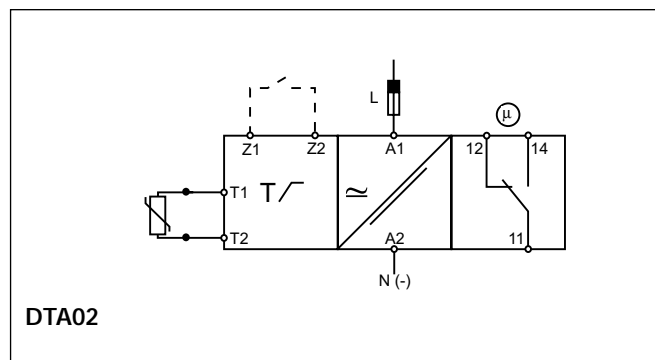
General Specifications

Reaction time Alarm ON delay		< 150 ms (resistance rising from -20% to +20% set value)
Reset delay		< 500 ms (resistance decreasing from +20% to -20% set value)
Accuracy Temperature drift Repeatability		(15 min warm-up time) ± 1000 ppm/°C ± 0.5% on full-scale
Indication for Power supply ON Relay ON		LED, green LED, yellow
Environment Degree of protection Pollution degree		(EN 60529) IP 20 3 (DTA01, DTA02), 2 (PTA01, PTA02)
Operating temperature Storage temperature		-20 to 60°C, R.H. < 95% -30 to 80°C, R.H. < 95%
Housing dimensions DIN-rail version Plug-in version		22.5 x 80 x 99.5 mm 36 x 80 x 87 mm
Weight		Approx. 150g
Screw terminals Tightening torque		Max. 0.5 Nm acc. to IEC 60947
Approvals		UL, CSA
CE Marking		Yes
EMC Immunity Emission		Electromagnetic Compatibility According to EN 61000-6-2 According to EN 50081-1

Wiring Diagrams

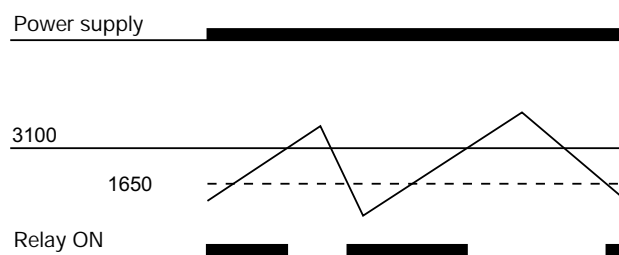


Wiring Diagrams (cont.)

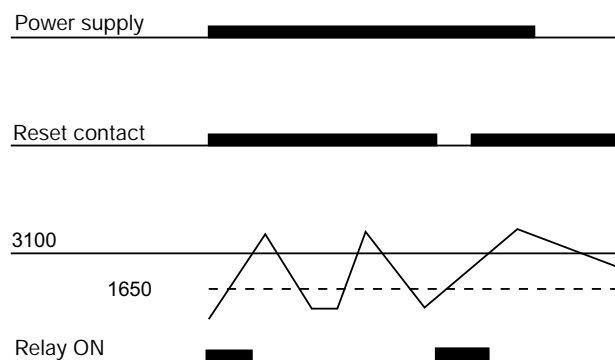


Operation Diagrams

DTA01, PTA01



DTA02, PTA02



Dimensions

