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

Output Specifications

Output		SPST or SPDT relay
Rated insulation voltage		250 VAC
Contact ratings ($AgSnO_2$)		μ
Resistive loads	AC 1	8 A @ 250 VAC
	DC 12	5 A @ 24 VDC
Small inductive loads	AC 15	2.5 A @ 250 VAC
	DC 13	2.5 A @ 24 VDC
Mechanical life		≥ 30 x 10^6 operations
Electrical life		≥ 10^5 operations (at 8 A, 250 V, cos φ = 1)
Operating frequency		≤ 7200 operations/h
Dielectric strength		
Dielectric voltage		≥ 2 kVAC (rms)
Rated impulse withstand volt.		4 kV (1.2/50 μs)

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Supply Specifications

Power supply	Overvoltage cat. III	
Rated operational voltage through terminals:	(IEC 60664, IEC 60038)	
A1, A2 (DTA01, DTA02)		
2, 10 (PTA01, PTA02)		
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.

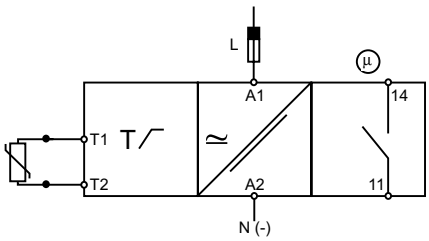
Example 1 - DTA01 or PTA01
The relay operates as long as the measured resistance is below the rated value. The relay releases if the measured resistance (i.e. the temperature of the motor coils) exceeds the rated value.

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.

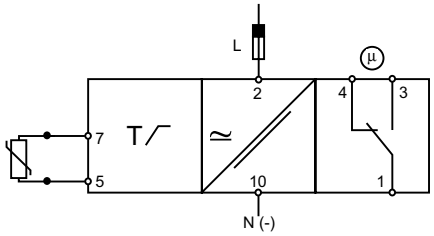
General Specifications

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	(15 min warm-up time)
Temperature drift	± 1000 ppm/°C
Repeatability	± 0.5% on full-scale
Indication for	
Power supply ON	LED, green
Relay ON	LED, yellow
Environment	(EN 60529)
Degree of protection	IP 20
Pollution degree	3 (DTA01, DTA02), 2 (PTA01, PTA02)
Operating temperature	-20 to 60°C, R.H. < 95%
Storage temperature	-30 to 80°C, R.H. < 95%
Housing dimensions	
DIN-rail version	22.5 x 80 x 99.5 mm
Plug-in version	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	Electromagnetic Compatibillity
Immunity	According to EN 61000-6-2
Emission	According to EN 50081-1

Wiring Diagrams



DTA01



PTA01

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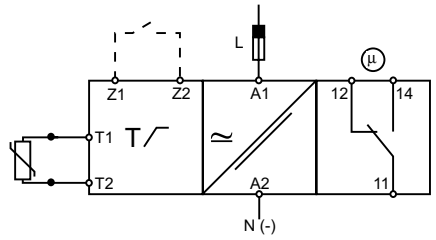
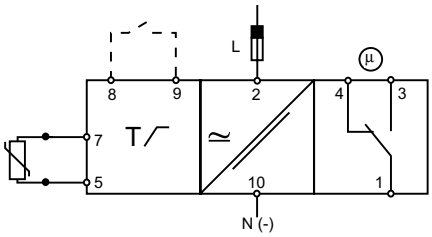
Wiring Diagrams (cont.)



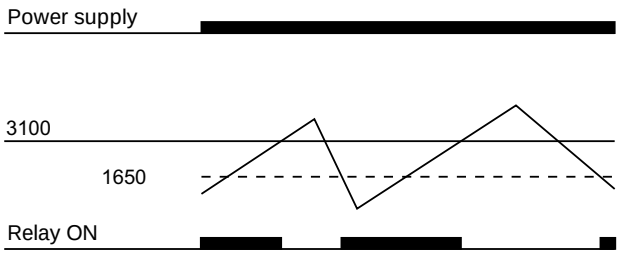
DTA02



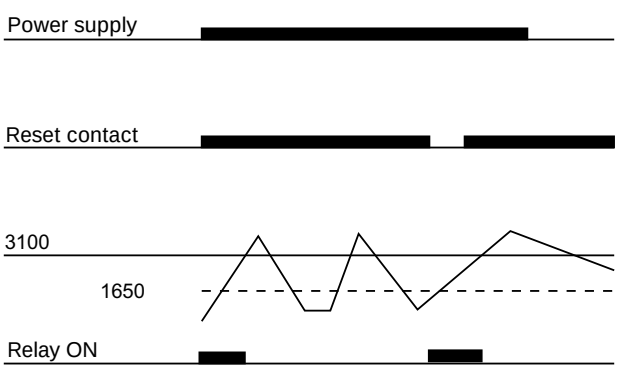
PTA02

Operation Diagrams

DTA01, PTA01

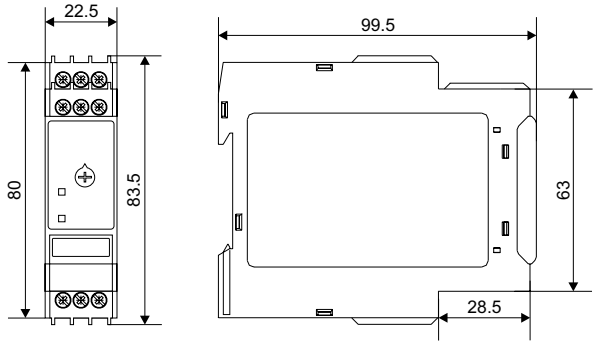


DTA02, PTA02



Dimensions

DIN-rail



Plug-in