

PTC-Resistor Relay Type MS220KA

Single PTC-Circuit, ATEX-Approval according to Directive 2014/34/EU

MS220KA



UK
CA cRU[®] US

Part numbers:

1 change-over
T228116 AC 220-240 V

2 change-over
T228115 AC 220-240 V
T228114 AC/DC 24 V

Replaces the following items:

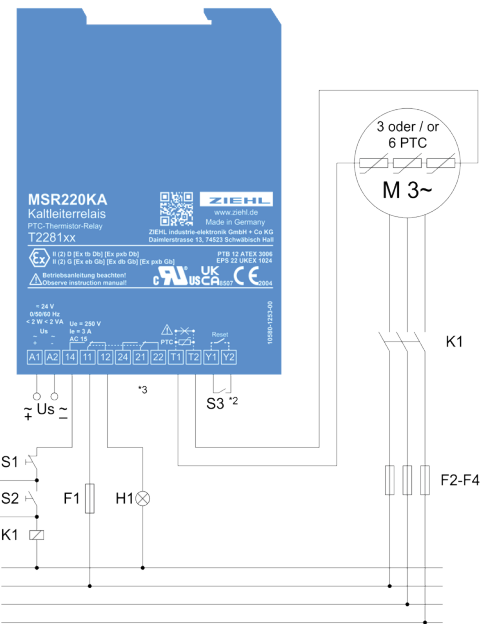
T222445 AC 220-240 V, 1CO
T222455 AC 220-240 V, 2CO
T222451 AC/DC 24 V, 2CO

PTC-relay for the application as a protection device against inadmissible heating up at electrical equipment in areas with explosive gases (zones 1 and 2) and areas with combustible dust (21 and 22), e.g. for direct temperature-monitoring of explosion-proof motors EEx e and EEx d.

- ATEX-approval according to directive 2014/34/EU
- SIL 1 according to IEC 61508
- PL c according to ISO 13849
- 1 PTC-resistor (thermistor) set, each 3 or 6 PTC-sensors
- short-circuit monitoring of sensor-circuit
- output-relay with 1 or 2 change-over contacts (co)
- 2 LEDs for ON and ALARM
- assembly on DIN-rail or with 2 screws M4 (option)
- UL Recognized Component
- Option:
 - other supply-voltages



II (2) D [Ex tb Db] [Ex pxb Db]
II (2) G [Ex eb Gb] [Ex db Gb]
[Ex pxb Gb]



Technical Data

Power supply (A1, A2)	
Power supply U_s (see type plate)	AC 110V...120V, AC 220V...240V, AC 380V...415V
Voltage tolerance	AC / DC 24 V (without galvanic isolation) AC 0.9 U_s ... 1.1 U_s
Frequency	DC 21V... 30V
Frequency tolerance	50 / 60 Hz
Power consumption	45 Hz ... 65 Hz
Voltage dip buffer time	< 2 W max. 20 ms
PTC thermistor input (T1, T2)	
Number	according to DIN VDE V 0898-1-401 or equivalent
Rated response temperature TFS	1, 3 or 6 in series
Response tolerance	60 °C ... 180 °C
Collective resistance cold thermistor	± 6 °C
Terminal voltage (PTC thermistor)	≤ 1.65 kΩ
Open-circuit voltage	≤ 2.5 VDC at $R \leq 3.65$ kΩ, ≤ 2 VDC at $R \leq 1.65$ kΩ
Terminal current (PTC thermistor)	≤ 9 VDC at $R = \infty$
Power consumption	≤ 1 mA
Line capacity max.	≤ 2 mW
Temperature monitor cut-out-point	0.2 μF
Temperature monitor reclosing point	3.3 kΩ ... 3.65 kΩ ... 3.85 kΩ
Short circuit monitor cut-out-point	1.7 kΩ ... 1.8 kΩ ... 1.95 kΩ
Short circuit monitor reclosing point	≤ 20 Ω
	≤ 40 Ω
Reset input (Y1, Y2)	
Current	Potential free contact (no)
Voltage	1 mA
	< 30 VDC

Relay output (11, 12, 14 - 21, 22, 24)	EN 60947-5-1
Contacts	1 or 2 change-over contacts (co)
Switching voltage	max. AC 400 V
Switch-on current (NO)	AC 15 A 4s 10% ED
min. voltage / current	12 V 10 mA
Conventional thermal current Ith	max. 5 A
Switching power max. AC cos φ = 1	2000 VA
Switching power max. DC (ohm)	0.25 A 300 V; 0.35 A 150 V; 1 A 60 V; 8 A 30 V
Contact life electrical cos φ = 1	2 x 10 ⁵ operating cycles at 250 V / 2 A 1 x 10 ⁵ operating cycles at 250 V / 5 A
Contact life mechanical	3 x 10 ⁷ operating cycles
Recommended fuse (NO)	4 A time-lag or miniature circuit-breaker MCB B4
Recommended fuse (NC)	3,15 A time-lag
Utilization category	AC-15 Ie = 3 A Ue = 250 V DC-13 Ie = 2 A Ue = 24 V
Rated operational current	DC-13 Ie = 0.4 A Ue = 120 V
Rated operational voltage	DC-13 Ie = 0.2 A Ue = 250 V
UL electrical ratings	250 VAC, 3 A, general use C300
Test conditions	IEC / EN 60947-8
Rated impulse voltage	4000 V
Overvoltage category	III
Pollution degree	2
Rated insulation voltage Ui	320V
Transformer	EN 61558-2-6 (VDE 0570)
Proof Test Voltage	2500 VAC 50 Hz
EMC - Immunity	EN 61000-6-2
EMC - Emission	n.a., f _{mainosc} < 9kHz
On-period	100 %
Reliability – failure rate	EN 61709 / SN29500
Ambient conditions	Local operation in dry rooms
Operation time 24/7/365	8760 h/y Tu = 40 °C Tu = 60°C T u = 80°C
Failure rate (FIT)	198 FIT 363 FIT 798 FIT
Tu = Tref (component not in operation)	100 (577) years 100 (314) years 100 (143) years
Ambient conditions	
Fitting position	any
Rated ambient temperature	-20 °C ... +55 °C
Rated storage Temperature	-20 °C ...+70 °C (1K21 EN 60721-3-1)
Altitude	≤ 2000 m above sea level.
Climatic conditions	5 - 85 % rel. F., no condensation (3K22 EN60721-3-3)
Vibration DIN EN 60068-2-6	2...25 Hz ±1.6 mm 25 ... 150 Hz 5 g
Vibration DIN EN 60947-8	2 ... 13.2 Hz ± 1 mm 13.2 ... 100 Hz ± 0.7 g
Shock DIN EN 60947-8	half sine, 10 g, 11 ms
Contact termination	Push-In spring-type terminal
Protection class terminals	IP20
Actuation type	Push-Button
Number of levels	1
Solid conductor	1 x 0,14 mm ² ... 1,5 mm ² / AWG 28 ... 16
Fine-stranded conductor	1 x 0,14 mm ² ... 1,5 mm ² / AWG 26 ... 14
Fine-stranded with insulated ferrule	1 x 0,25 mm ² ... 0,75 mm ²
Fine-stranded with uninsulated ferrule	1 x 0,25 mm ² ... 1,5 mm ²
Strip length	8 ... 9 mm / 0.31 ... 0.35 inches
Housing	Type K
Dimensions (B x H x T)	22,5 x 75 x 115 mm
Width	1 M
Protection class housing	IP40
IK-Code	IK06 (1 J impact energy)
Mounting	Snap mounting on 35 mm standard rail EN60715 or M4 screws (additional bar not included)
Mounting position	any
Weight	app. 150 g

Subject to technical changes