

TM3SAFL5RG

SAFETY MODULE FOR PLC TM2xx, 2 FUNCTIONS, CAT3, SPRING TERMINALS



Main

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|---------------------------|---|
| Range of product | Modicon TM3 Safety |
| Product or component type | Safety module |
| Device short name | TM3SAFL |
| Safety module application | For emergency stop, switch and safety light curtain monitoring |
| Function of module | Emergency stop monitoring 2-channel wiring Monitoring of a movable guard Multiple emergency stop monitoring 2-channel wiring Monitoring of electro-sensitive protection equipment (ESPE) PNP/PNP Proximity sensor monitoring PNP/PNP Monitoring of a movable guard with 2 switches and automatic start |
| Safety level | Can reach PL d/category 3 EN/ISO 13849-1:2008 Can reach PL d/category 3 EN/ISO 13849-2:2012 Can reach SILCL 2 EN/IEC 62061:2005 Can reach SIL 2 EN/IEC 61508:2010 |

Complementary

| | |
|-------------------------------------|---|
| Safety reliability data | DC = 95 % EN/ISO 13849-1 PFHd = 5E-9 1/h IEC 61508-1 1 operation/hour DC-13 24 V DC 4 A PFHd = 30E-9 1/h IEC 61508-1 60 operations/hour DC-13 24 V DC 1 A MTTFd = 500 years EN/ISO 13849-1 1 operation/hour DC-13 24 V DC 4 A MTTFd = 85 years EN/ISO 13849-1 60 operations/hour DC-13 24 V DC 1 A SFF = 95 % IEC 61508-1 HFT = 1 IEC 61508-1 Type = A IEC 61508-1 |
| Synchronisation time between inputs | Unlimited |
| Connections - terminals | Captive spring terminals, removable terminal block 1 x 0.2...1 x 2.5 mm ² flexible without cable end 13-14, 23-24, 33-34 Captive spring terminals, removable terminal block 1 x 0.2...1 x 2.5 mm ² solid without cable end 13-14, 23-24, 33-34 Captive spring terminals, removable terminal block 1 x 0.25...1 x 2.5 mm ² flexible with cable end, with bezel 13-14, 23-24, 33-34 Captive spring terminals, removable terminal block 1 x 0.25...1 x 2.5 mm ² flexible with cable end, without bezel 13-14, 23-24, 33-34 Captive spring terminals, removable terminal block 2 x 0.5...2 x 1.5 mm ² flexible with cable end, with double bezel 13-14, 23-24, 33-34 Captive spring terminals, removable terminal block 1 x 0.14...1 x 1.5 mm ² flexible without cable end other terminals Captive spring terminals, removable terminal block 1 x 0.14...1 x 1.5 mm ² solid without cable end other terminals Captive spring terminals, removable terminal block 1 x 0.25...1 x 0.5 mm ² flexible with cable end, with bezel other terminals Captive spring terminals, removable terminal block 1 x 0.25...1 x 1.5 mm ² flexible with cable end, without bezel other terminals |
| Output type | Relay instantaneous opening 3 NO potential free |
| Number of safety circuits | 3 NO (relay instantaneous opening) |
| Maximum switching voltage | 230 V utilisation category AC-15 at 50 Hz (relay instantaneous opening) 24 V utilisation category DC-13 (relay instantaneous opening) |
| [Us] rated supply voltage | 24 V DC - 15...20 % |
| Power consumption in W | 0.2 W 5 V DC 3.6 W 24 V DC |
| Input protection type | Internal, electronic |
| [Uc] control circuit voltage | 24 V DC |
| Cable distance between devices | 30 m |

The information provided in this documentation contains general descriptions and/or technical characteristics of the products contained herein. This documentation is not intended as a substitute for and is not to be used for determining suitability or reliability of these products for specific user applications. It is the duty of any such user or integrator to perform the appropriate and complete risk analysis, evaluation and testing of the products with respect to the relevant specific application or use thereof. Neither Schneider Electric Industries SAS nor any of its affiliates or subsidiaries shall be responsible or liable for misuse of the information contained herein.

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| Breaking capacity | 360 VA holding AC-15 B300 relay output 3600 VA inrush AC-15 B300 relay output |
| Breaking capacity | 4 A 24 V 50 ms DC-13 relay output |
| Output thermal current | 6 A per relay relay output |
| [Ith] conventional free air thermal current | 18 A |
| Associated fuse rating | 4 A gG or gL relay output EN/IEC 60947-5-1 6 A fast blow relay output EN/IEC 60947-5-1 |
| Minimum output current | 10 mA relay output |
| Output voltage | 10 V relay output |
| Response time on input open | <= 40 ms |
| [Ui] rated insulation voltage | 300 V 2 IEC 60647-5-1 |
| [Uimp] rated impulse withstand voltage | 4 kV III IEC 60647-5-1 |
| Current consumption | 100 mA 24 V DC external supply |
| Local signalling | 8 LEDs green/red user |
| Electrical connection | Spring terminal |
| Product compatibility | Safety light curtains EN/IEC 61496-1 (type 4) |
| Standards | EN/ISO 13849-1:2008 EN/ISO 13849-2:2012 EN/IEC 62061:2005 EN/IEC 61508:2010 EN/IEC 60947-5-1:2010 EN/IEC 61131-2:2007 EN/IEC 60204-1:2005 EN/IEC 60204-1:2009/A1 IEC 61010-1:2010 EN 50581:2012 |
| Product certifications | TÜV RCM EAC UL 61010-2-201 CSA 61010-2-201 (pending) ANSI Haz Loc Class 1 Division 2 (pending) CSA Haz Loc Class 1 Division 2 (pending) |
| Marking | CE CSA UL EFUP 10 REACH TÜV EAC RCM |
| Electromagnetic compatibility | Electrostatic discharge immunity test 8 kV air discharge conforming to EN/IEC 61000-4-2 Electrostatic discharge immunity test 6 kV contact discharge conforming to EN/IEC 61000-4-2 Susceptibility to electromagnetic fields 10 V/m 80 MHz to 1 GHz conforming to EN/IEC 61000-4-3 Susceptibility to electromagnetic fields 3 V/m 1.4 GHz...2 GHz conforming to EN/IEC 61000-4-3 Susceptibility to electromagnetic fields 1 V/m 2 GHz...3 GHz conforming to EN/IEC 61000-4-3 Magnetic field at power frequency 30 A/m 50...60 Hz conforming to EN/IEC 61000-4-8 Electrical fast transient/burst immunity test 3 kV power lines (DC) conforming to EN/IEC 61000-4-4 Electrical fast transient/burst immunity test 2 kV I/O conforming to EN/IEC 61000-4-4 1.2/50 µs shock waves immunity test 1 kV power lines (DC) conforming to EN/IEC 61000-4-5 Conducted RF disturbances 10 V 0.15...80 MHz conforming to EN/IEC 61000-4-6 Radiated emission 40 dBµV/m class A 24 V conforming to EN 55011 Radiated emission 47 dBµV/m class A 24 V conforming to EN 55011 |
| Mounting support | Wall mount using attached fasteners Rail top hat type TH35-7.5 IEC 60715 Rail top hat type TH35-15 IEC 60715 |
| Height | 94 mm |
| Depth | 73 mm |
| Width | 43.7 mm |
| Product weight | 0.19 kg |

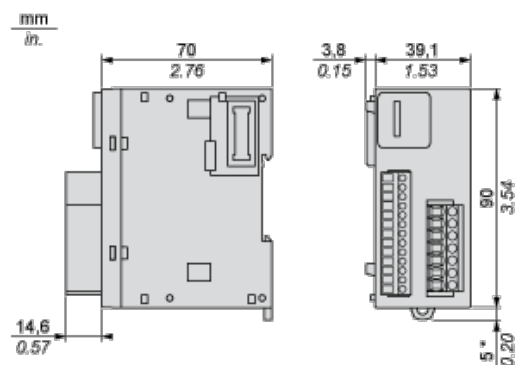
Environment

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|---------------------------------------|--|
| standards | EN 1088/ISO 14119 EN 60204-1 EN/IEC 60947-1 EN/IEC 60947-5-1 EN/ISO 13850 |
| resistance to electrostatic discharge | 8 kV in air EN/IEC 61000-4-2 6 kV on contact EN/IEC 61000-4-2 |
| resistance to electromagnetic fields | 10 V/m 80 MHz...1 GHz EN/IEC 61000-4-3 3 V/m 1.4 GHz...2 GHz EN/IEC 61000-4-3 1 V/m 2 GHz...3 GHz EN/IEC 61000-4-3 |
| resistance to magnetic fields | 30 A/m 50/60 Hz conforming to EN/IEC 61000-4-8 |
| resistance to fast transients | 3 kV power lines (DC) EN/IEC 61000-4-4 DC 2 kV I/O lines EN/IEC 61000-4-4 |
| surge withstand | 1 kV power lines (DC) differential mode EN/IEC 61000-4-5 DC 1 kV power lines (DC) common mode EN/IEC 61000-4-5 DC |
| resistance to conducted disturbances | 10 V 0.15...80 MHz EN/IEC 61000-4-6 |
| electromagnetic emission | Radiated emissions 50 dB μ V/m class A 24 V DC 30...230 Hz IEC 61131-3 Radiated emissions 57 dB μ V/m class A 24 V DC 230...1000 Hz IEC 61131-3 |
| ambient air temperature for operation | -10...55 °C horizontal installation |
| ambient air temperature for storage | -25...70 °C |
| relative humidity | 10...95 % without condensation in operation 10...95 % without condensation in storage |
| IP degree of protection | IP20 EN/IEC 60529 terminals |
| pollution degree | 2 |
| operating altitude | 0...2000 m |
| storage altitude | 0...3000 m |
| vibration resistance | +/- 3.5 mm 5...150 Hz IEC 60068-2-6 |
| shock resistance | 15 gn 11 ms IEC 60068-2-27 |
| mechanical robustness | Bumps 6 ms 300 shocks 25 gn IEC 60068-2-27 |

Offer Sustainability

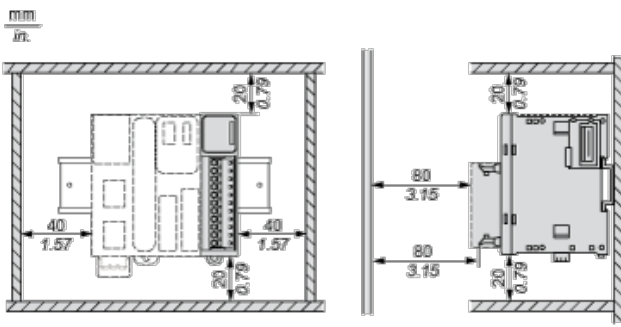
| | |
|----------------------------------|---|
| Sustainable offer status | Green Premium product |
| RoHS (date code: YYWW) | Compliant - since 1408 - Schneider Electric declaration of conformity |
| REACH | Reference not containing SVHC above the threshold |
| Product environmental profile | Available |
| Product end of life instructions | Available |

Dimensions

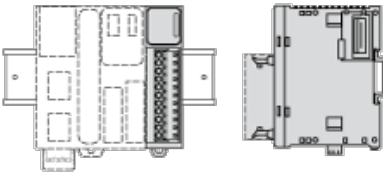


(*) 8.5 mm/0.33 in when the clamp is pulled out.

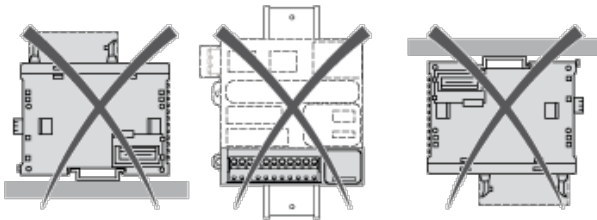
Spacing Requirements



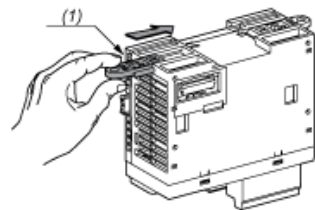
Mounting on a Rail



Incorrect Mounting

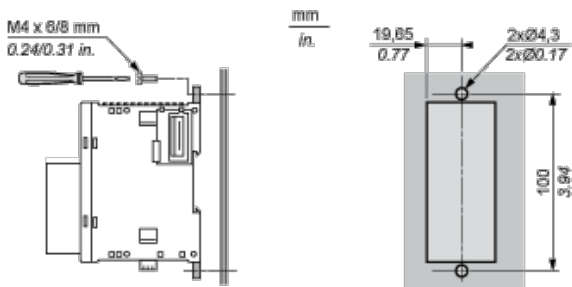


Mounting on a Panel Surface

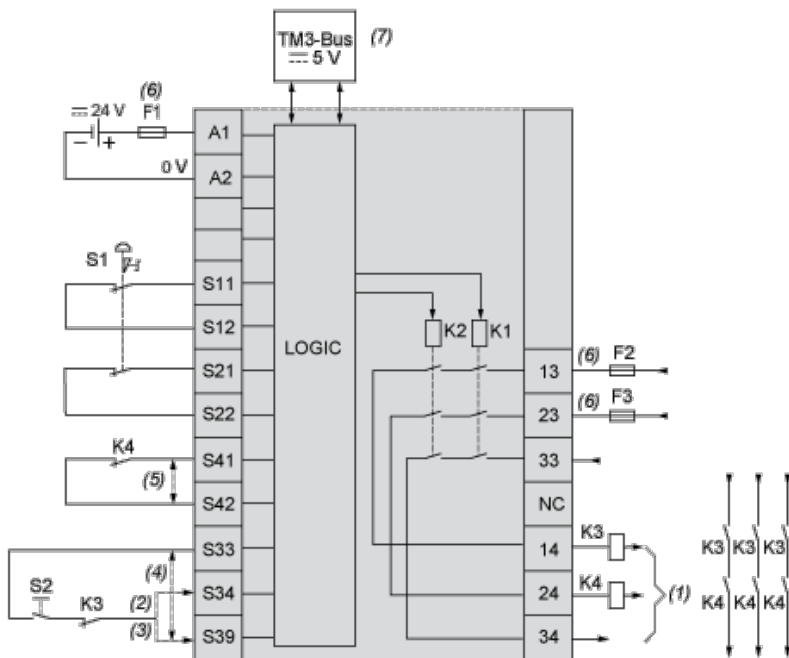


- (1) Install a mounting strip

Mounting Hole Layout



Emergency Stop Wiring Diagram



S1 : Emergency stop switch

S2 : Start switch

(1) Safety outputs

(2) Monitored start

(3) Non-monitored start

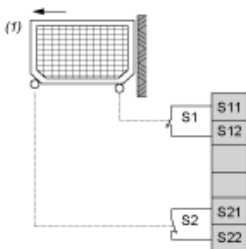
(4) For automatic start, directly connect [S33] and [S39] terminals

(5) Second external device monitoring channel. Connect [S41] and [S42] terminals if not used

(6) Fuses. Refer to technical specifications for fuse values

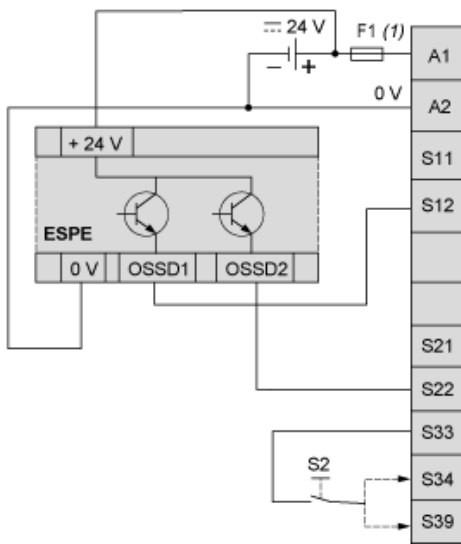
(7) Non-safety related TM3 Bus communication with logic controller

Protective Guard Wiring



(1) Protective guard

Electro-Sensitive Protective Equipment (ESPE) Wiring



(1) Fuses. Refer to electrical characteristics for fuse values

S2: Start switch

NOTE: The ESPE must be supplied by the same PELV/SELV power supply as the safety module