



## Main

|                           |   |
|---------------------------|---|
| 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<br>Monitoring of a movable guard with 2 switches and automatic start<br>Monitoring of a movable guard<br>Multiple emergency stop monitoring 2-channel wiring<br>Proximity sensor monitoring PNP/PNP<br>Monitoring of electro-sensitive protection equipment (ESPE) PNP/PNP |
| Safety level              | Can reach PL d/category 3 EN/ISO 13849-1 2008<br>Can reach PL d/category 3 EN/ISO 13849-2 2012<br>Can reach SILCL 2 EN/IEC 62061 2005<br>Can reach SIL 2 EN/IEC 61508 2010  |

## Complementary

|  |   |
|--|---|
| Safety reliability data                | DC = 95 % EN/ISO 13849-1<br>PFHd = 5E-9 1/h IEC 61508-1 1 operation/hour DC-13 24 V DC, <4 A<br>PFHd = 30E-9 1/h IEC 61508-1 60 operations/hour DC-13 24 V DC, <1 A<br>MTTFd = 500 years EN/ISO 13849-1 1 operation/hour DC-13 24 V DC, <4 A<br>MTTFd = 85 years EN/ISO 13849-1 60 operations/hour DC-13 24 V DC, <1 A<br>SFF = 95 % IEC 61508-1<br>HFT = 1 IEC 61508-1<br>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 <sup>2</sup> flexible without cable end 13-14, 23-24, 33-34<br>Captive spring terminals, removable terminal block 1 x 0.2...1 x 2.5 mm <sup>2</sup> solid without cable end 13-14, 23-24, 33-34<br>Captive spring terminals, removable terminal block 1 x 0.25...1 x 2.5 mm <sup>2</sup> flexible with cable end, with bezel 13-14, 23-24, 33-34<br>Captive spring terminals, removable terminal block 1 x 0.25...1 x 2.5 mm <sup>2</sup> flexible with cable end, without bezel 13-14, 23-24, 33-34<br>Captive spring terminals, removable terminal block 2 x 0.5...2 x 1.5 mm <sup>2</sup> flexible with cable end, with double bezel 13-14, 23-24, 33-34<br>Captive spring terminals, removable terminal block 1 x 0.14...1 x 1.5 mm <sup>2</sup> flexible without cable end other terminals<br>Captive spring terminals, removable terminal block 1 x 0.14...1 x 1.5 mm <sup>2</sup> solid without cable end other terminals<br>Captive spring terminals, removable terminal block 1 x 0.25...1 x 0.5 mm <sup>2</sup> flexible with cable end, with bezel other terminals<br>Captive spring terminals, removable terminal block 1 x 0.25...1 x 1.5 mm <sup>2</sup> 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 AC-15 50 Hz relay instantaneous opening)<br>24 V DC-13 relay instantaneous opening)   |
| [Us] rated supply voltage              | 24 V - 15...20 % DC   |
| Power consumption in W                 | 0.2 W 5 V DC<br>3.6 W 24 V DC   |
| Input protection type                  | Internal, electronic  |
| [Uc] control circuit voltage           | 24 V DC   |
| Maximum cable distance between devices | 98.43 ft (30 m)   |

The information provided in this documentation contains general descriptions and/or technical characteristics of the performance 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.

|  |  |
|--|--|
| Breaking capacity  | 360 VA holding AC-15 B300 relay output<br>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   |
| [I <sub>th</sub> ] conventional free air thermal current | 18 A   |
| Associated fuse rating                                   | 4 A gG or gL relay output EN/IEC 60947-5-1<br>6 A fast blow relay output EN/IEC 60947-5-1  |
| Minimum output current                                   | 10 mA relay output   |
| Output voltage   | 10 V relay output  |
| Maximum response time on input open                      | 40 ms  |
| [U <sub>i</sub> ] rated insulation voltage               | 300 V 2)IEC 60647-5-1  |
| [U <sub>imp</sub> ] rated impulse withstand voltage      | 4 kV III IEC 60647-5-1   |
| Current consumption                                      | 100 mA 24 V DC external supply   |
| Local signalling   | For user 8 LEDs (green/red)  |
| Electrical Connection                                    | Spring terminal  |
| Product compatibility                                    | Safety light curtains EN/IEC 61496-1 (type 4)  |
| Standards  | EN/ISO 13849-1:2008<br>EN/ISO 13849-2:2012<br>EN/IEC 62061:2005<br>EN/IEC 61508:2010<br>EN/IEC 60947-5-1:2010<br>EN/IEC 61131-2:2007<br>EN/IEC 60204-1:2005<br>EN/IEC 60204-1:2009/A1<br>IEC 61010-1:2010<br>EN 50581:2012   |
| Product Certifications                                   | CSA 61010-2-201 (pending)<br>RCM<br>UL 61010-2-201<br>EAC<br>ANSI Haz Loc Class 1 Division 2 (pending)<br>CSA Haz Loc Class 1 Division 2 (pending)<br>TÜV  |
| Marking  | RCM<br>UL<br>CSA<br>EAC<br>CE<br>TÜV<br>EFUP 10  |
| Electromagnetic compatibility                            | Electrostatic discharge immunity test 8 kV air discharge) EN/IEC 61000-4-2<br>Electrostatic discharge immunity test 6 kV contact discharge) EN/IEC 61000-4-2<br>Susceptibility to electromagnetic fields 10 V/m 80 MHz to 1 GHz) EN/IEC 61000-4-3<br>Susceptibility to electromagnetic fields 3 V/m 1.4 GHz...2 GHz) EN/IEC 61000-4-3<br>Susceptibility to electromagnetic fields 1 V/m 2 GHz...3 GHz) EN/IEC 61000-4-3<br>Magnetic field at power frequency 30 A/m 50...60 Hz) EN/IEC 61000-4-8<br>Electrical fast transient/burst immunity test 3 kV power lines (DC)) EN/IEC 61000-4-4<br>Electrical fast transient/burst immunity test 2 kV I/O) EN/IEC 61000-4-4<br>1.2/50 µs shock waves immunity test 1 kV power lines (DC)) EN/IEC 61000-4-5<br>Conducted RF disturbances 10 V 0.15...80 MHz) EN/IEC 61000-4-6<br>Radiated emission 40 dBµV/m 24 V)class A EN 55011<br>Radiated emission 47 dBµV/m 24 V)class A EN 55011 |
| Mounting support   | Top hat type TH35-7.5 rail IEC 60715<br>Top hat type TH35-15 rail IEC 60715<br>Wall mount using attached fasteners   |
| Height   | 3.70 in (94 mm)  |
| Depth  | 2.87 in (73 mm)  |
| Width  | 1.72 in (43.7 mm)  |
| Net Weight   | 0.42 lb(US) (0.19 kg)  |

## Environment

|                                       |   |
|---------------------------------------|---|
| Standards                             | EN 60204-1<br>EN 1088/ISO 14119<br>EN/ISO 13850<br>EN/IEC 60947-1<br>EN/IEC 60947-5-1   |
| Resistance to electrostatic discharge | 8 kV in air EN/IEC 61000-4-2<br>6 kV on contact EN/IEC 61000-4-2  |
| Resistance to electromagnetic fields  | 9.14 V/m (10 V/m) 80 MHz...1 GHz EN/IEC 61000-4-3<br>2.74 V/m (3 V/m) 1.4 GHz...2 GHz EN/IEC 61000-4-3<br>0.91 V/m (1 V/m) 2 GHz...3 GHz EN/IEC 61000-4-3 |
| Resistance to magnetic fields         | 98.43 A/m (30 A/m) 50/60 Hz EN/IEC 61000-4-8  |
| Resistance to fast transients         | 3 kV power lines (DC) DC)EN/IEC 61000-4-4<br>2 kV I/O linesEN/IEC 61000-4-4   |
| Surge withstand                       | 1 kV power lines (DC) differential mode EN/IEC 61000-4-5 DC<br>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 dBµV/m class A 24 V DC)30...230 Hz IEC 61131-3<br>Radiated emissions 57 dBµV/m class A 24 V DC)230...1000 Hz IEC 61131-3            |
| Ambient Air Temperature for Operation | 14...131 °F (-10...55 °C) horizontal installation   |
| Ambient Air Temperature for Storage   | -13...158 °F (-25...70 °C)  |
| Relative humidity                     | 10...95 %, without condensation in operation)<br>10...95 %, without condensation in storage)  |
| IP degree of protection               | IP20 terminals)EN/IEC 60529   |
| Pollution degree                      | 2   |
| Operating altitude                    | 0...6561.68 ft (0...2000 m)   |
| Storage altitude                      | 0.00...9842.52 ft (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   |

## Ordering and shipping details

|                       |                                |
|-----------------------|--------------------------------|
| Category              | 22533 - M2XX PLC & ACCESSORIES |
| Discount Schedule     | MSX                            |
| GTIN                  | 3606485393025                  |
| Nbr. of units in pkg. | 1                              |
| Package weight(Lbs)   | 9.31 oz (264 g)                |
| Returnability         | No                             |
| Country of origin     | DE                             |

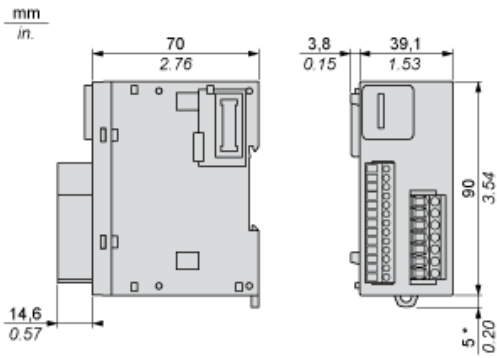
## Packing Units

|                              |                         |
|------------------------------|-------------------------|
| Unit Type of Package 1       | PCE                     |
| Package 1 Height             | 2.95 in (7.5 cm)        |
| Package 1 width              | 4.13 in (10.5 cm)       |
| Package 1 Length             | 4.92 in (12.5 cm)       |
| Unit Type of Package 2       | S03                     |
| Number of Units in Package 2 | 18                      |
| Package 2 Weight             | 11.65 lb(US) (5.284 kg) |
| Package 2 Height             | 11.81 in (30 cm)        |
| Package 2 width              | 11.81 in (30 cm)        |
| Package 2 Length             | 15.75 in (40 cm)        |

## Offer Sustainability

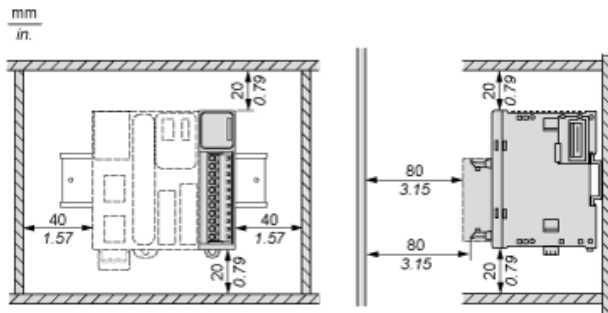
|                            |   |
|----------------------------|---|
| Sustainable offer status   | Green Premium product   |
| California proposition 65  | WARNING: This product can expose you to chemicals including: Lead and lead compounds, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to <a href="http://www.P65Warnings.ca.gov">www.P65Warnings.ca.gov</a> |
| REACH Regulation           | <a href="#">REACH Declaration</a>   |
| EU RoHS Directive          | Pro-active compliance (Product out of EU RoHS legal scope) <a href="#">EU RoHS Declaration</a>  |
| Mercury free               | Yes   |
| RoHS exemption information | <a href="#">Yes</a>   |
| China RoHS Regulation      | <a href="#">China RoHS Declaration</a>  |
| Environmental Disclosure   | <a href="#">Product Environmental Profile</a>   |
| Circularity Profile        | <a href="#">End Of Life Information</a>   |
| WEEE                       | The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins.  |
| PVC free                   | Yes   |

Dimensions

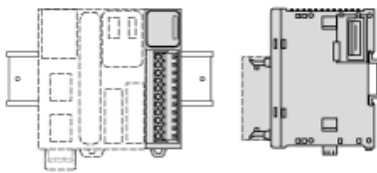


(\*) 8.5 mm/0.33 in when the clamp is pulled out.

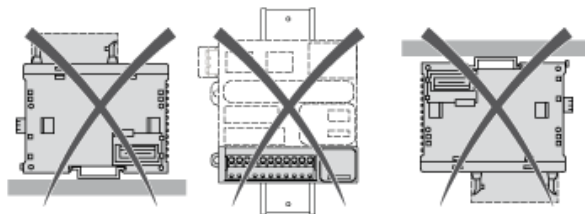
Spacing Requirements



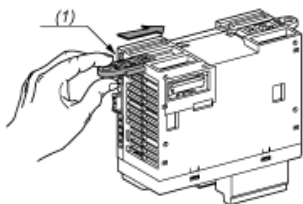
Mounting on a Rail



Incorrect Mounting

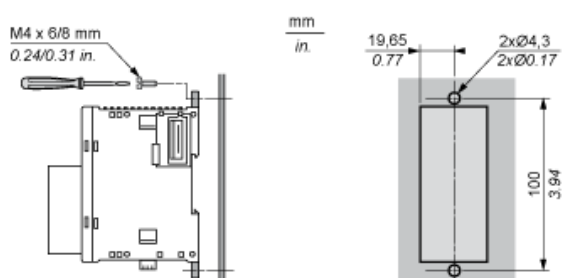


Mounting on a Panel Surface

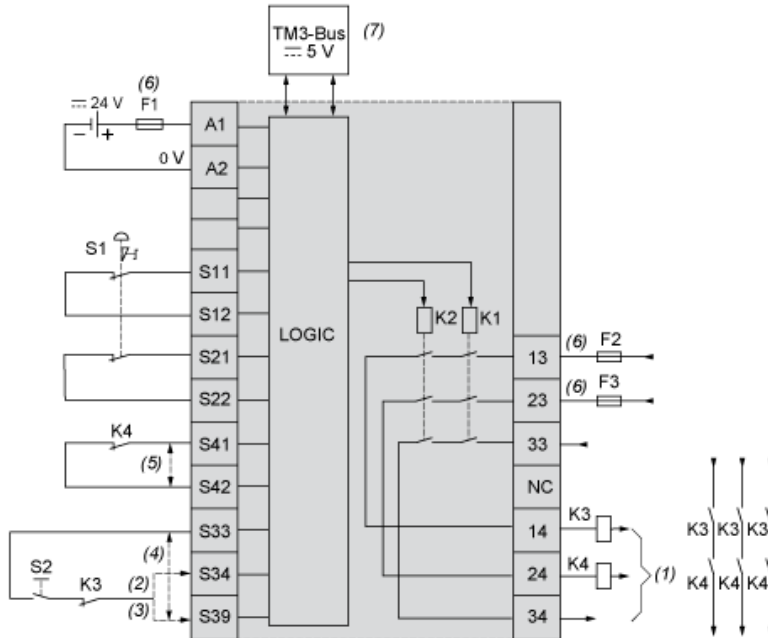


- (1) Install a mounting strip

Mounting Hole Layout

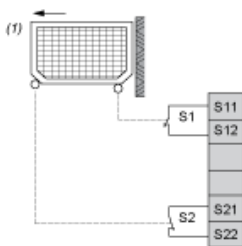


Emergency Stop Wiring Diagram



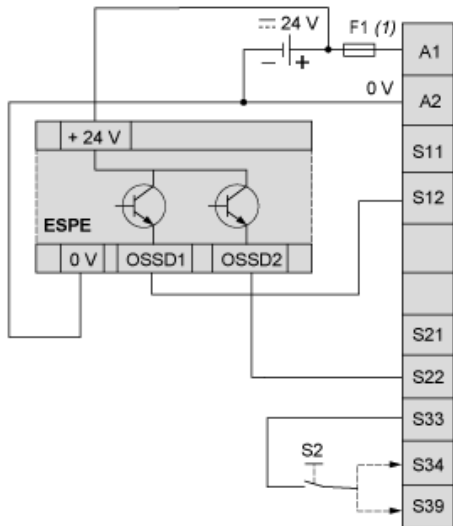
- S1 : Emergency stop switch
- S2 : Start switch
- (1) Safety outputs
- (2) Monitored start
- (3) Non-monitored start
- (4) For automatic start, directly connect [S33] and [S39] terminals
- (5) Second external device monitoring channel. Connect [S41] and [S42] terminals if not used
- (6) Fuses. Refer 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