# Product data sheet

Specifications



## safety module, Modicon TM3, 2 function, Cat 3 PL d, SIL CL2, screw, 24V DC

TM3SAFL5R

**Product availability: Non-Stock - Not normally stocked in distribution facility**

## 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 ISO 13849-1 2008<br>Can reach PL d/category 3 ISO 13849-2 2012<br>Can reach SILCL 2 IEC 62061 2005<br>Can reach SIL 2 IEC 61508 2010 |

## Complementary

| | |
|---|---|
| **Safety reliability data** | DC = 95 % 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 ISO 13849-1 1 operation/hour DC-13 24 V DC, <4 A<br>MTTFd = 85 years 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 |

Disclaimer: 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

Price is “List Price” and may be subject to a trade discount – check with your local distributor or retailer for actual price.

| | |
|---|---|
| **Connections - terminals** | Captive screw clamp terminals, removable terminal block 1 x 0.2...1 x 2.5 mm² flexible without cable end 13-14, 23-24, 33-34<br>Captive screw clamp terminals, removable terminal block 1 x 0.2...1 x 2.5 mm² solid without cable end 13-14, 23-24, 33-34<br>Captive screw clamp terminals, removable terminal block 1 x 0.25...1 x 2.5 mm² flexible with cable end, with bezel 13-14, 23-24, 33-34<br>Captive screw clamp terminals, removable terminal block 1 x 0.25...1 x 2.5 mm² flexible with cable end, without bezel 13-14, 23-24, 33-34<br>Captive screw clamp terminals, removable terminal block 2 x 0.2...2 x 1.5 mm² flexible without cable end 13-14, 23-24, 33-34<br>Captive screw clamp terminals, removable terminal block 2 x 0.2...2 x 1.5 mm² solid without cable end 13-14, 23-24, 33-34<br>Captive screw clamp terminals, removable terminal block 2 x 0.25...2 x 1 mm² flexible with cable end, without bezel 13-14, 23-24, 33-34<br>Captive screw clamp terminals, removable terminal block 2 x 0.5...2 x 1.5 mm² flexible with cable end, with double bezel 13-14, 23-24, 33-34<br>Captive screw clamp terminals, removable terminal block 1 x 0.14...1 x 1.5 mm² flexible without cable end other terminals<br>Captive screw clamp terminals, removable terminal block 1 x 0.14...1 x 1.5 mm² solid without cable end other terminals<br>Captive screw clamp terminals, removable terminal block 1 x 0.25...1 x 0.5 mm² flexible with cable end, with bezel other terminals<br>Captive screw clamp terminals, removable terminal block 1 x 0.25...1 x 1.5 mm² flexible with cable end, without bezel other terminals<br>Captive screw clamp terminals, removable terminal block 2 x 0.14...2 x 0.5 mm² flexible without cable end other terminals<br>Captive screw clamp terminals, removable terminal block 2 x 0.14...2 x 0.75 mm² solid without cable end other terminals<br>Captive screw clamp terminals, removable terminal block 2 x 0.25...2 x 0.34 mm² flexible with cable end, without bezel other terminals<br>Captive screw clamp terminals, removable terminal block 2 x 0.5 mm² flexible with cable end, with double 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** | 98.4 ft (30 m) |
| **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 |
| **[Ith] conventional free air thermal current** | 18 A |
| **Associated fuse rating** | 4 A gG or gL relay output IEC 60947-5-1<br>6 A fast blow relay output 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 |
| **[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) for user |
| **Electrical Connection** | Screw terminal |

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|---|---|
| **Product compatibility** | Safety light curtains EN/IEC 61496-1 (type 4) |
| **Standards** | ISO 13849-1:2008<br>ISO 13849-2:2012<br>IEC 62061:2005<br>IEC 61508:2010<br>IEC 60947-5-1:2010<br>IEC 61131-2:2007<br>IEC 60204-1:2005<br>IEC 60204-1:2009/A1<br>IEC 61010-1:2010<br>EN 50581:2012 |
| **Product Certifications** | TÜV<br>RCM<br>ANSI Haz Loc Class 1 Division 2 (pending)<br>CSA Haz Loc Class 1 Division 2 (pending)<br>EAC<br>CSA 61010-2-201 (pending)<br>UL 61010-2-201 |
| **Marking** | CE<br>EFUP 10<br>UL<br>CSA<br>EAC<br>RCM<br>TÜV |
| **Electromagnetic compatibility** | Electrostatic discharge immunity test - test level: 8 kV (air discharge) conforming to IEC 61000-4-2<br>Electrostatic discharge immunity test - test level: 6 kV (contact discharge) conforming to IEC 61000-4-2<br>Susceptibility to electromagnetic fields - test level: 10 V/m (80 MHz to 1 GHz) conforming to IEC 61000-4-3<br>Susceptibility to electromagnetic fields - test level: 3 V/m (1.4 GHz...2 GHz) conforming to IEC 61000-4-3<br>Susceptibility to electromagnetic fields - test level: 1 V/m (2 GHz...3 GHz) conforming to IEC 61000-4-3<br>Magnetic field at power frequency - test level: 30 A/m (50...60 Hz) conforming to IEC 61000-4-8<br>Electrical fast transient/burst immunity test - test level: 3 kV (power lines (DC)) conforming to IEC 61000-4-4<br>Electrical fast transient/burst immunity test - test level: 2 kV (I/O) conforming to IEC 61000-4-4<br>1.2/50 µs shock waves immunity test - test level: 1 kV (power lines (DC)) conforming to IEC 61000-4-5<br>Conducted RF disturbances - test level: 10 V (0.15...80 MHz) conforming to IEC 61000-4-6<br>Radiated emission - test level: 40 dBµV/m class A (24 V) conforming to IEC 55011<br>Radiated emission - test level: 47 dBµV/m class A (24 V) conforming to IEC 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** | 3.7 in (94 mm) |
| **Depth** | 2.9 in (73 mm) |
| **Width** | 1.7 in (43.7 mm) |
| **Product Weight** | 0.42 lb(US) (0.19 kg) |

# Environment

| | |
|---|---|
| **Standards** | IEC 60947-1<br>EN 1088/ISO 14119<br>ISO 13850<br>IEC 60947-5-1<br>IEC 60204-1 |
| **Resistance to electrostatic discharge** | 8 kV in air IEC 61000-4-2<br>6 kV on contact IEC 61000-4-2 |
| **Resistance to electromagnetic fields** | 9.1 V/m (10 V/m) 80 MHz...1 GHz IEC 61000-4-3<br>2.7 V/m (3 V/m) 1.4 GHz...2 GHz IEC 61000-4-3<br>0.9 V/m (1 V/m) 2 GHz...3 GHz IEC 61000-4-3 |

| | |
|---|---|
| **Resistance to magnetic fields** | 98.4 A/m (30 A/m) 50/60 Hz IEC 61000-4-8 |
| **Resistance to fast transients** | 3 kV power lines (DC) DC)IEC 61000-4-4<br>2 kV I/O linesIEC 61000-4-4 |
| **Surge withstand** | 1 kV power lines (DC) differential mode IEC 61000-4-5 DC<br>1 kV power lines (DC) common mode IEC 61000-4-5 DC |
| **Resistance to conducted disturbances** | 10 V 0.15...80 MHz 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)IEC 60529 |
| **Pollution degree** | 2 |
| **Operating altitude** | 0...6561.68 ft (0...2000 m) |
| **Storage altitude** | 0…9842.5 ft (0…3000 m) |
| **Vibration resistance** | +/- 3.5 mm (f= 5…150 Hz) conforming to 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** | US10MSX22533 |
| **Discount Schedule** | 0MSX |
| **GTIN** | 3606485393018 |
| **Returnability** | No |
| **Country of origin** | FR |

## Packing Units

| | |
|---|---|
| **Unit Type of Package 1** | PCE |
| **Nbr. of units in pkg.** | 1 |
| **Package 1 Height** | 2.953 in (7.500 cm) |
| **Package 1 Width** | 4.173 in (10.600 cm) |
| **Package 1 Length** | 4.921 in (12.500 cm) |
| **Package weight(Lbs)** | 10.053 oz (285.000 g) |
| **Unit Type of Package 2** | S03 |
| **Number of Units in Package 2** | 18 |
| **Package 2 Height** | 11.811 in (30.000 cm) |
| **Package 2 Width** | 11.811 in (30.000 cm) |
| **Package 2 Length** | 15.748 in (40.000 cm) |
| **Package 2 Weight** | 11.980 lb(US) (5.434 kg) |

## Contractual warranty

| | |
|---|---|
| **Warranty (in months)** | 18 |

## Environmental Data

Schneider Electric aims to achieve Net Zero status by 2050 through supply chain partnerships, lower impact materials, and circularity via our ongoing “Use Better, Use Longer, Use Again” campaign to extend product lifetimes and recyclability.

Environmental Data explained >

How we assess product sustainability >

### Environmental footprint

| | |
|---|---|
| Total lifecycle Carbon footprint | **159 kg CO2 eq.** |
| Carbon footprint of the manufacturing phase [A1 to A3] | **4 kg CO2 eq.** |
| Carbon footprint of the distribution phase [A4] | **0 kg CO2 eq.** |
| Carbon footprint of the installation phase [A5] | **0 kg CO2 eq.** |
| Carbon footprint of the use phase [B2, B3, B4, B6] | **155 kg CO2 eq.** |
| Carbon footprint of the end-of-life phase [C1 to C4] | **0.2 kg CO2 eq.** |
| Environmental Disclosure | Product Environmental Profile |

## Use Better

### Materials and Substances

| | |
|---|---|
| Packaging made with recycled cardboard | **Yes** |
| Packaging without single use plastic | **Yes** |
| SCIP Number | **99cae485-192a-4a91-bc99-8cce8f6405e4** |
| EU RoHS Directive | Compliant By Exemption |
| REACh Regulation | Reference contains Substances of Very High Concern above the threshold |
| 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 www.P65Warnings.ca.gov** |
| PVC free | **Yes** |

## Use Longer

### Lifetime extension

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|---|---|
| Repair | **No** |

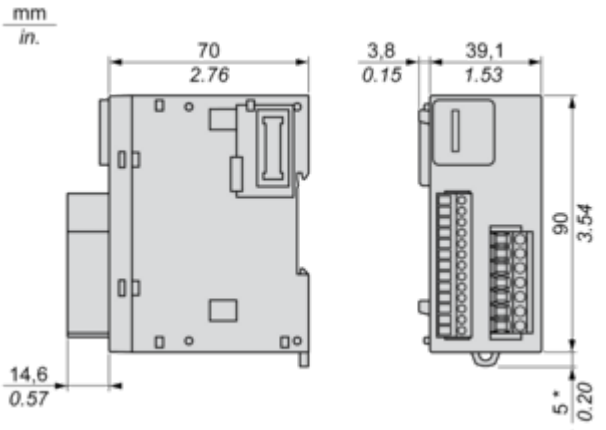
## Use Again

### Repack and remanufacture

| | |
|---|---|
| Circularity Profile | End of Life Information |
| Take-back | **No** |
| WEEE Label | **The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins.** |

Dimensions Drawings

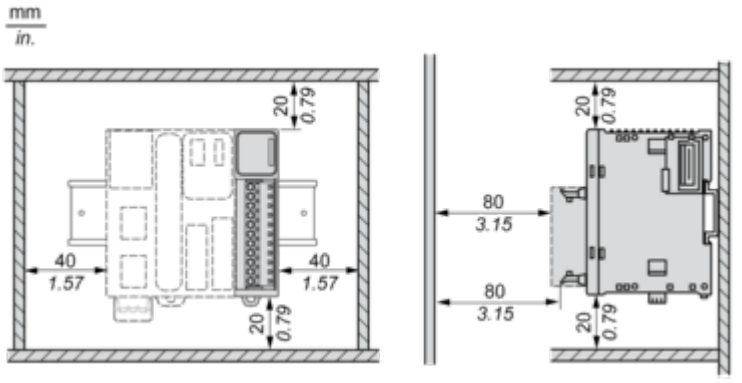
**Dimensions**



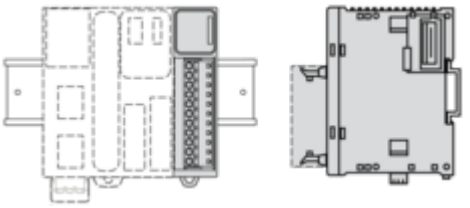

**(*)** 8.5 mm/0.33 in when the clamp is pulled out.

Mounting and Clearance

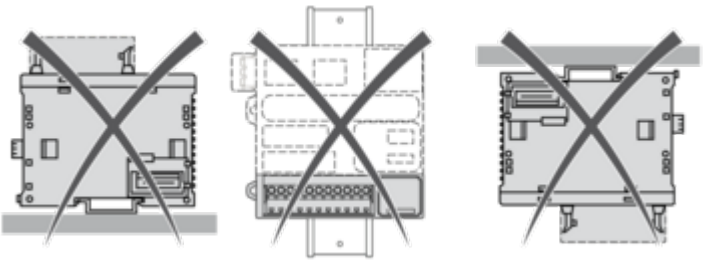
## Spacing Requirements



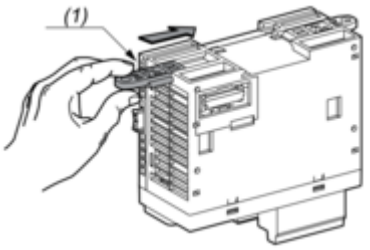
## Mounting on a Rail



## Incorrect Mounting

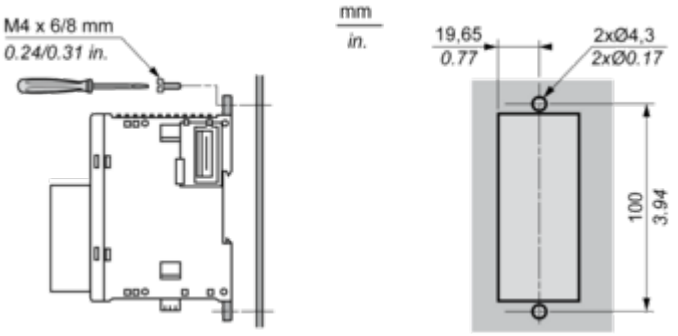


## Mounting on a Panel Surface



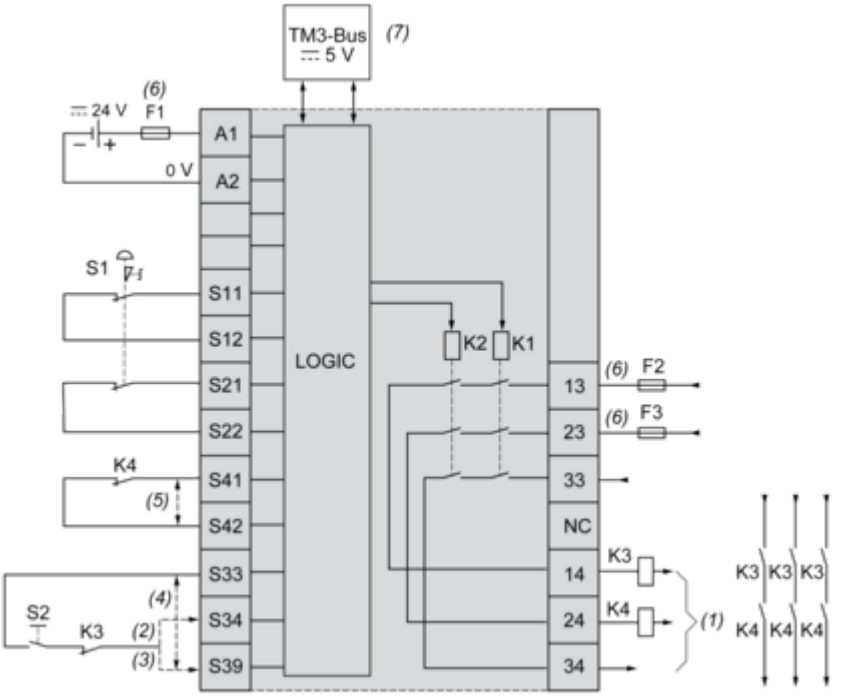

**(1)** Install a mounting strip

### Mounting Hole Layout



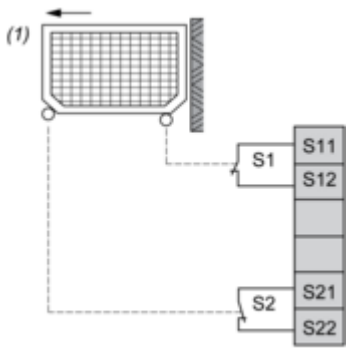
## Connections and Schema

### Emergency Stop Wiring Diagram



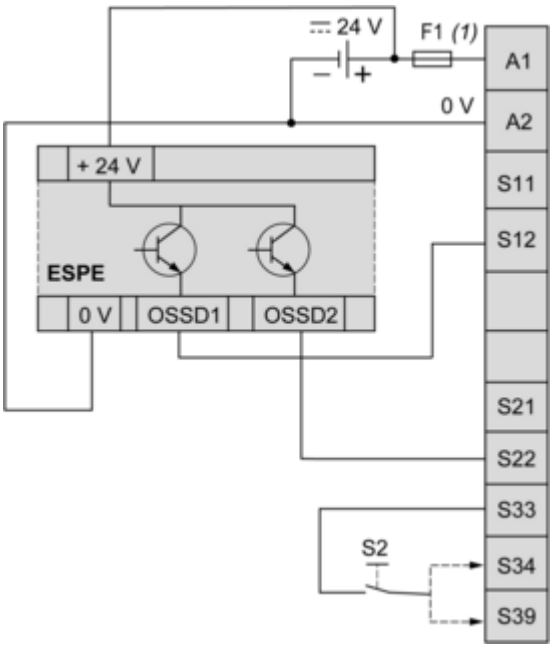

**S1 :** Emergency stop switch
**S2 :** Start switch
**(1)** Safety outputs
**(2)** Monitored start
**(3)** Non-monitored start
**(4)** For automatic start, directly connect [S33] and [S39] terminals
**(5)** Second external device monitoring channel. Connect [S41] and [S42] terminals if not used
**(6)**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

Image of product / Alternate images

**Alternative**

