

# Product data sheet

Specifications



## Safety module, Modicon TM3 Safety, 1 Function, Cat 3 PL d/SIL CL2 (screw) 24 VDC

TM3SAC5R

### Main

<b>Range of product</b>	Modicon TM3 Safety
<b>Product or component type</b>	Safety module
<b>Device short name</b>	TM3SAC
<b>Safety module application</b>	For emergency stop and switch monitoring
<b>Function of module</b>	Emergency stop monitoring 1-channel wiring Emergency stop monitoring 2-channel wiring Monitoring of a movable guard with 2 switches and automatic start
<b>Safety level</b>	Can reach PL d/category 3 conforming to EN/ISO 13849-1: 2008 Can reach PL d/category 3 conforming to EN/ISO 13849-2: 2012 Can reach SILCL 2 conforming to EN/IEC 62061: 2005 Can reach SIL 2 conforming to EN/IEC 61508: 2010

### Complementary

<b>Safety reliability data</b>	DC = 95 % conforming to EN/ISO 13849-1 PFHd = 5E-9 1/h conforming to IEC 61508-1 1 operation/hour DC-13 24 V DC, <4 A PFHd = 30E-9 1/h conforming to IEC 61508-1 60 operations/hour DC-13 24 V DC, <1 A MTTFd = 500 years conforming to EN/ISO 13849-1 1 operation/hour DC-13 24 V DC, <4 A MTTFd = 85 years conforming to EN/ISO 13849-1 60 operations/hour DC-13 24 V DC, <1 A SFF = 95 % conforming to IEC 61508-1 HFT = 1 conforming to IEC 61508-1 Type = A conforming to IEC 61508-1
<b>Synchronisation time between inputs</b>	Unlimited
<b>Connections - terminals</b>	Captive screw clamp 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 Captive screw clamp 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 Captive screw clamp 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 Captive screw clamp 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 Captive screw clamp terminals, removable terminal block 2 x 0.2...2 x 1.5 mm <sup>2</sup> flexible without cable end 13-14, 23-24, 33-34 Captive screw clamp terminals, removable terminal block 2 x 0.2...2 x 1.5 mm <sup>2</sup> solid without cable end 13-14, 23-24, 33-34 Captive screw clamp terminals, removable terminal block 2 x 0.25...2 x 1 mm <sup>2</sup> flexible with cable end, without bezel 13-14, 23-24, 33-34 Captive screw clamp 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 Captive screw clamp terminals, removable terminal block 1 x 0.14...1 x 1.5 mm <sup>2</sup> flexible without cable end other terminals Captive screw clamp terminals, removable terminal block 1 x 0.14...1 x 1.5 mm <sup>2</sup> solid without cable end other terminals Captive screw clamp terminals, removable terminal block 1 x 0.25...1 x 0.5 mm <sup>2</sup> flexible with cable end, with bezel other terminals Captive screw clamp terminals, removable terminal block 1 x 0.25...1 x 1.5 mm <sup>2</sup> flexible with cable end, without bezel other terminals Captive screw clamp terminals, removable terminal block 2 x 0.14...2 x 0.5 mm <sup>2</sup> flexible without cable end other terminals Captive screw clamp terminals, removable terminal block 2 x 0.14...2 x 0.75 mm <sup>2</sup> solid without cable end other terminals

Captive screw clamp terminals, removable terminal block 2 x 0.25...2 x 0.34 mm<sup>2</sup> flexible with cable end, without bezel other terminals  
 Captive screw clamp terminals, removable terminal block 2 x 0.5 mm<sup>2</sup> flexible with cable end, with double bezel other terminals

<b>Output type</b>	Relay instantaneous opening, 3 NO circuit(s), potential free
<b>Number of safety circuits</b>	3 NO for relay instantaneous opening
<b>Maximum switching voltage</b>	230 V utilisation category AC-15 at 50 Hz (relay instantaneous opening) 24 V utilisation category DC-13 (relay instantaneous opening)
<b>[Us] rated supply voltage</b>	24 V - 15...20 % DC
<b>Power consumption in W</b>	0.2 W at 5 V DC 3.6 W at 24 V DC
<b>Input protection type</b>	Internal, electronic
<b>[Uc] control circuit voltage</b>	24 V DC
<b>Maximum cable distance between devices</b>	30 m
<b>Breaking capacity</b>	360 VA holding AC-15 B300 relay output 3600 VA inrush AC-15 B300 relay output  4 A 24 V 50 ms DC-13 relay output
<b>Output thermal current</b>	6 A per relay for relay output
<b>[Ith] conventional free air thermal current</b>	18 A
<b>Associated fuse rating</b>	4 A gG or gL for relay output conforming to EN/IEC 60947-5-1 6 A fast blow for relay output conforming to EN/IEC 60947-5-1
<b>Minimum output current</b>	10 mA for relay output
<b>Output voltage</b>	10 V relay output
<b>Maximum response time on input open</b>	40 ms
<b>[Ui] rated insulation voltage</b>	300 V (pollution degree 2) conforming to IEC 60647-5-1
<b>[Uimp] rated impulse withstand voltage</b>	4 kV overvoltage category III conforming to IEC 60647-5-1
<b>Current consumption</b>	100 mA at 24 V DC external supply (at state on)
<b>Local signalling</b>	6 LEDs (green/red) for user
<b>Electrical connection</b>	Screw terminal
<b>Standards</b>	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
<b>Product certifications</b>	TÜV CSA 61010-2-201 (pending) CSA Haz Loc Class 1 Division 2 (pending) RCM ANSI Haz Loc Class 1 Division 2 (pending) EAC UL 61010-2-201
<b>Marking</b>	EFUP 10 RCM CSA UL TÜV CE EAC
<b>Electromagnetic compatibility</b>	Electrostatic discharge immunity test - test level: 8 kV (air discharge) conforming to EN/IEC 61000-4-2 Electrostatic discharge immunity test - test level: 6 kV (contact discharge) conforming to EN/IEC 61000-4-2 Susceptibility to electromagnetic fields - test level: 10 V/m (80 MHz to 1 GHz) conforming to EN/IEC 61000-4-3 Susceptibility to electromagnetic fields - test level: 3 V/m (1.4 GHz...2 GHz) conforming to EN/IEC 61000-4-3

Susceptibility to electromagnetic fields - test level: 1 V/m (2 GHz...3 GHz) conforming to EN/IEC 61000-4-3  
Magnetic field at power frequency - test level: 30 A/m (50...60 Hz) conforming to EN/IEC 61000-4-8  
Electrical fast transient/burst immunity test - test level: 3 kV (power lines (DC)) conforming to EN/IEC 61000-4-4  
Electrical fast transient/burst immunity test - test level: 2 kV (I/O) conforming to EN/IEC 61000-4-4  
1.2/50 µs shock waves immunity test - test level: 1 kV (power lines (DC)) conforming to EN/IEC 61000-4-5  
Conducted RF disturbances - test level: 10 V (0.15...80 MHz) conforming to EN/IEC 61000-4-6  
Radiated emission - test level: 40 dBµV/m class A (24 V) conforming to EN 55011  
Radiated emission - test level: 47 dBµV/m class A (24 V) conforming to EN 55011

<b>Mounting support</b>	Top hat type TH35-7.5 rail conforming to IEC 60715 Top hat type TH35-15 rail conforming to IEC 60715 wall mount using attached fasteners
<b>Height</b>	94 mm
<b>Depth</b>	73 mm
<b>Width</b>	43.7 mm
<b>Net weight</b>	0.19 kg

## Environment

EN 1088/ISO 14119  
EN/ISO 13850  
EN/IEC 60947-1  
EN 60204-1  
EN/IEC 60947-5-1

<b>Resistance to electrostatic discharge</b>	8 kV in air conforming to EN/IEC 61000-4-2 6 kV on contact conforming to EN/IEC 61000-4-2
<b>Resistance to electromagnetic fields</b>	10 V/m 80 MHz...1 GHz conforming to EN/IEC 61000-4-3 3 V/m 1.4 GHz...2 GHz conforming to EN/IEC 61000-4-3 1 V/m 2 GHz...3 GHz conforming to EN/IEC 61000-4-3
<b>Resistance to magnetic fields</b>	30 A/m 50/60 Hz conforming to EN/IEC 61000-4-8
<b>Resistance to fast transients</b>	3 kV for power lines (DC) (DC) conforming to EN/IEC 61000-4-4 2 kV for I/O lines conforming to EN/IEC 61000-4-4
<b>Surge withstand</b>	1 kV power lines (DC) differential mode conforming to EN/IEC 61000-4-5 DC 1 kV power lines (DC) common mode conforming to EN/IEC 61000-4-5 DC
<b>Resistance to conducted disturbances</b>	10 V 0.15...80 MHz conforming to EN/IEC 61000-4-6
<b>Electromagnetic emission</b>	Radiated emissions - test level: 50 dBµV/m class A ( 24 V DC) at 30...230 Hz conforming to IEC 61131-3 Radiated emissions - test level: 57 dBµV/m class A ( 24 V DC) at 230...1000 Hz conforming to IEC 61131-3
<b>Ambient air temperature for operation</b>	-10...55 °C horizontal installation
<b>Ambient air temperature for storage</b>	-25...70 °C
<b>Relative humidity</b>	10...95 %, without condensation (in operation) 10...95 %, without condensation (in storage)
<b>IP degree of protection</b>	IP20 (terminals) conforming to EN/IEC 60529
<b>Pollution degree</b>	2
<b>Operating altitude</b>	0...2000 m
<b>Storage altitude</b>	0...3000 m
<b>Vibration resistance</b>	+/- 3.5 mm (f= 5...150 Hz) conforming to IEC 60068-2-6
<b>Shock resistance</b>	15 gn for 11 ms conforming to IEC 60068-2-27
<b>Mechanical robustness</b>	Bumps 6 ms 300 shocks (25 gn) conforming to IEC 60068-2-27

## Packing Units

<b>Unit Type of Package 1</b>	PCE
<b>Number of Units in Package 1</b>	1
<b>Package 1 Height</b>	7.5 cm

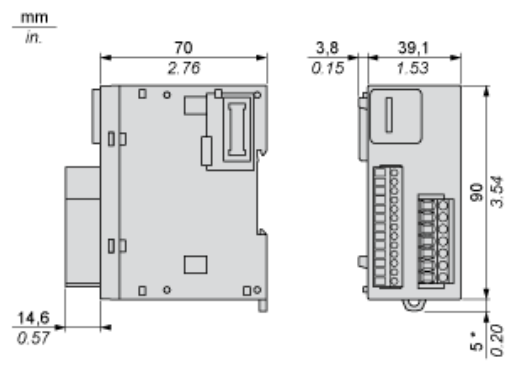
Package 1 Width	10.6 cm
Package 1 Length	12.5 cm
Package 1 Weight	279.0 g
Unit Type of Package 2	S03
Number of Units in Package 2	18
Package 2 Height	30.0 cm
Package 2 Width	30.0 cm
Package 2 Length	40.0 cm
Package 2 Weight	5.522 kg

## Offer Sustainability

Sustainable offer status	Green Premium product
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
China RoHS Regulation	<a href="#">China RoHS declaration</a>
RoHS exemption information	<a href="#">Yes</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
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>

Dimensions

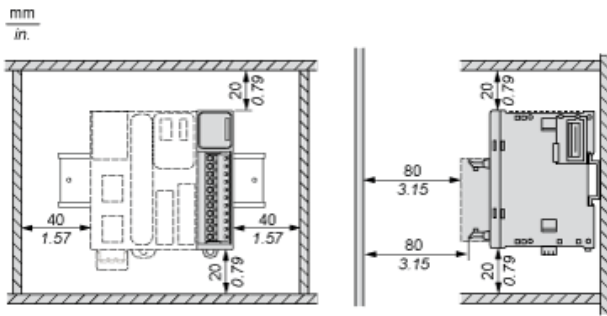
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(\*) 8.5 mm/0.33 in when the clamp is pulled out.

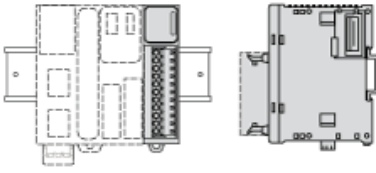
Spacing Requirements

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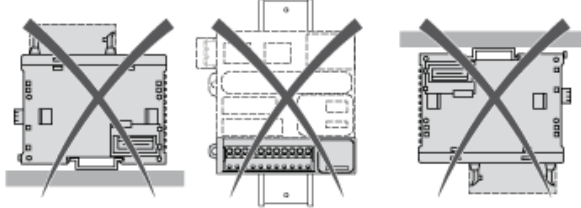


**Mounting on a Rail**

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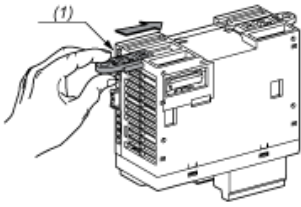


**Incorrect Mounting**



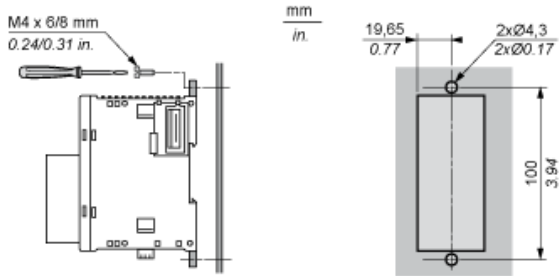
**Mounting on a Panel Surface**

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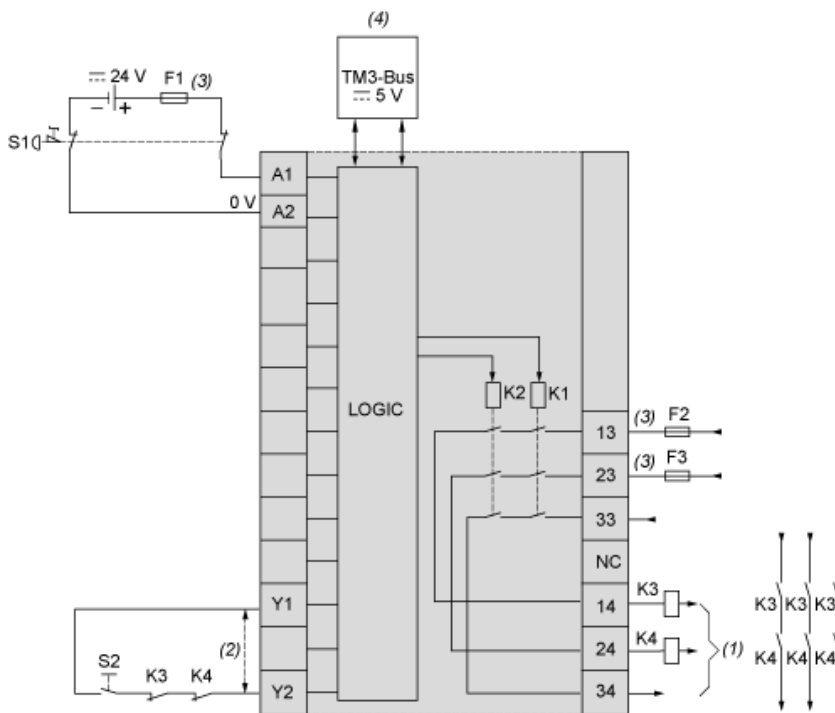
(1) Install a mounting strip

**Mounting Hole Layout**





**Emergency Stop Wiring Diagram**



- S1 : Emergency stop switch
- S2 : Start switch
- (1) Safety outputs
- (2) For automatic start, directly connect [Y1] and [Y2] terminals
- (3) Fuses. Refer to technical specifications for fuse values
- (4) Non-safety related TM3 Bus communication with logic controller

**Recommended replacement(s)**