

Modicon TM3 I/O expansion modules for Modicon controllers

Functional safety modules

Safety application	Local and remote I/O	     	     	     	     	     	     	     	     	     	   																																																	
																																																												
	     	     	     	     	     	     	     	     	     	   																																																		
																																																												
	     	     	     	     	     	     	     	     	     	   																																																		
																																																												
	     	     	     	     	     	     	     	     	     	   																																																		
																																																												
	     	     	     	     	     	     	     	     	     	   																																																		
																																																												
	     	     	     	     	     	     	     	     	   																																																			
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Modicon TM3

I/O expansion modules for Modicon controllers

Functional safety modules



Presentation

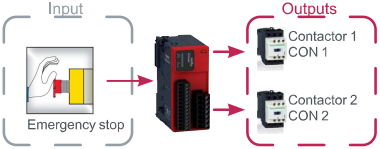
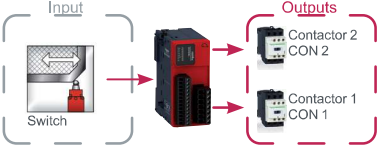
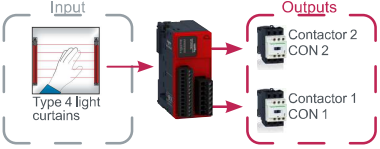
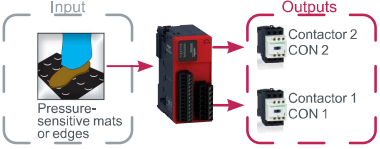
Modicon TM3 functional safety modules are designed using the latest technology. They can be used to incorporate machine safety into the overall machine control.

Data acquisition: control of safety products

- Emergency stop button: complementary protection measures
- Monitoring devices used in protection systems to control access to hazardous areas
- Light curtains and safety mats to detect intrusion into hazardous areas

Monitoring and processing

- Modicon TM3 functional safety modules control the input signals from monitoring devices and act as an interface with contactors and variable speed drives, causing the machine to stop.
- Modicon TM3 functional safety modules complement the embedded I/O on Modicon M221, M221 Book, M241, and M251 logic controllers and Modicon M262 logic/motion controller.

Functional safety modules	Safety system/Performance level reached
For control of Emergency stops 	Category 4/PL e, SIL3 architecture
For control of switches 	Category 4/PL e, SIL3 architecture
For control of type 4 light curtains 	Category 4/PL e, SIL3 architecture
For control of pressure-sensitive mats or edges 	Category 4/PL e, SIL3 architecture

- The safety outputs available on all 4 modules are relay type, guided by microprocessor technology.
- Diagnostic utilities use the LEDs on the front of the module, which provide information on the monitoring circuit status.
- The diagnostic information is shared via the TM3 bus.
- The Start button monitoring function is configurable depending on the wiring.

Connections

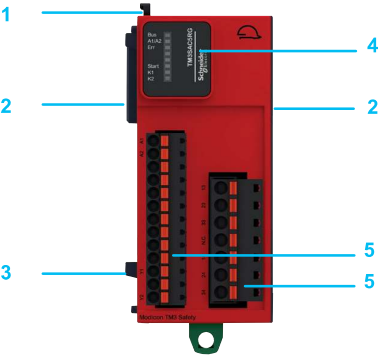
Equipped with removable screw or spring-type terminals (depending on the model) for connecting the safety channels.

Configuration

Modicon TM3 functional safety modules connect to Modicon M221, M221 Book, M241, and M251 logic controllers and Modicon M262 logic/motion controller according to the general rules for the TM3 system: 7 local modules max. plus 7 remote modules.

Mounting

- Modicon TM3 functional safety modules are mounted on a symmetrical DIN rail 15.75.
- For plate or panel mounting, use the **TMAM2** kit.



TM3SAC5R



TM3SAC5RG



TM3SAF5R



TM3SAF5RG



TM3SAFL5R



TM3SAFL5RG



TM3SAK6R



TM3SAK6RG

Description

Modicon TM3 functional safety modules

- 1 Locking catch for the adjacent module
- 2 TM3 bus connectors (one on each side). These are designed to provide continuity of the link between connected modules.
- 3 Clip for locking on symmetrical DIN rail
- 4 Display block (6 or 8 (1) green/red LEDs) for the module channel status and diagnostics
- 5 Removable spring or screw-type terminal blocks (depending on the model) for connecting the safety channels and the power supply

References

Designation	Maximum achievable safety level	Input terminal block (2)	Reference	Weight kg/ lb
24 V $\overline{\text{---}}$ power supply				
Functional safety modules for control of: Emergency stop switches	PL d/Category 3 conforming to EN/ISO 13849-1 SIL CL2 conforming to EN/IEC 62061	Screw	TM3SAC5R	0.190/ 0.420
		Spring	TM3SAC5RG	0.190/ 0.420
Functional safety modules for control of: Emergency stop switches	PL e/Category 4 conforming to EN/ISO 13849-1 SIL CL3 conforming to EN/IEC 62061	Screw	TM3SAF5R	0.190/ 0.420
		Spring	TM3SAF5RG	0.190/ 0.420
Functional safety modules for control of: Emergency stop switches safety light curtains with solid-state outputs	PL d/Category 3 conforming to EN/ISO 13849-1 SIL CL2 conforming to EN/IEC 62061	Screw	TM3SAFL5R	0.190/ 0.420
		Spring	TM3SAFL5RG	0.190/ 0.420
Functional safety modules for control of: Emergency stop switches safety light curtains with solid-state outputs pressure-sensitive mats or edges	PL e/Category 4 conforming to EN/ISO 13849-1 SIL CL3 conforming to EN/IEC 62061	Screw	TM3SAK6R	0.190/ 0.420
		Spring	TM3SAK6RG	0.190/ 0.420

Separate parts

Designation	Description	Reference	Weight kg/ lb
Mounting kit Sold in lots of 10	For mounting functional safety modules on a plate or panel	TMAM2	0.065/ 0.143

(1) Depending on the model.
(2) Removable screw or spring-type terminal blocks, supplied with the safety module.