

Modicon TM5

High-Performance and Safe IP20 Modular I/O System
Safety logic controllers and safety I/O modules

Certification

The Modicon TM5 embedded safety offer is certified by TÜV Nord Group up to performance level PLe according to EN ISO 13849-1, and SIL cl 3 according to IEC 61508 and IEC 62061.

Characteristics of Modicon TM5CSLC safety logic controllers

Criteria	Characteristic value
Category according to EN ISO 13849	Cat 4
Maximum performance level according to EN ISO 13849	PL e
Maximum safety integrity level according to IEC 62061	SIL 3
Maximum safety integrity level according to IEC 61508	SIL 3
PFH	$< 1 * 10^{-10}$
PFD	- $< 1 * 10^{-5}$ for a proof test interval of 10 years - $< 2 * 10^{-5}$ for a proof test interval of 20 years
PT	20 years max.
SFF	> 90%
Service life	20 years max.
DC	> 90%
MTTFd	> 2,500 years

References

Designation	Description	Reference	Weight kg/lb
Safety logic controllers	20 safety nodes	TM5CSLC100FS	0.290/ 0.64
	100 safety nodes	TM5CSLC200FS	0.290/ 0.64

Accessory

Memory key for TM5 safety system

The TM5CSLC safety logic controller requires a memory key in order to operate. This is used to save the program, parameters, and system configuration. The memory key is designed with a mechanical locking mechanism to prevent unintended removal.

Designation	Description	Reference	Weight kg/lb
Memory key with locking mechanism	8 MB	TM5ACSLCM8FS	0.003/ 0.007

Programming software

EcoStruxure Machine Expert – Safety
Programming software for TM5CSLC safety logic controllers
Please refer to catalog ref. [DIA3ED2180701EN](#)



TM5CSLC100FS

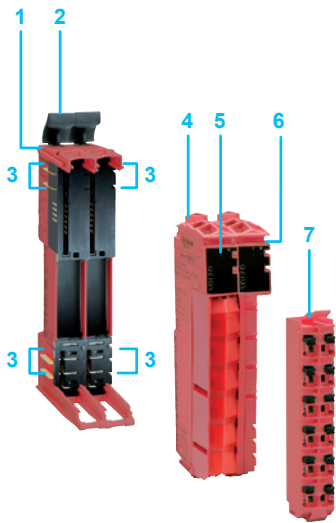


TM5ACSLCM8FS

Modicon TM5 safety I/O expansion modules (IP20)

- The range of safety digital I/O expansion modules comprises:
- safety digital input and output modules
 - safety analog and temperature input modules
 - safety counter input modules
- Each safety I/O expansion module comprises three parts to be ordered separately:
- A safety I/O electronic module
 - A safety bus base
 - A safety removable spring terminal block

Safety I/O module compatibility	
	TM5CSLC●●●●●
Local and remote I/O	–
Distributed I/O	Sercos bus interface module (with PacDrive logic controllers or M262 logic/motion controller)



Description

- Safety I/O modules comprise:
- 1 A bus base
 - 2 Two mechanical clips for locking onto a symmetrical rail
 - 3 A bus expansion connection on each side of the base to provide the link with the adjacent controller or module
 - 4 A power distribution electronic module
 - 5 An LED display block for the module channels and diagnostics
 - 6 A slot for the plain text cover holder (label holder)
 - 7 A removable spring terminal block with locking clip and slots for colored ID markers



TM5SDI2DFS

TM5SAI4AFS
TM5STI4ATCFS

TM5SDC1FS



TM5ACBM3FS

TM5ACTB52FS
TM5ACTB5FFS

TM5SPS10FS



TM5ACBM4FS



TM5NS31



TM5SPS3



TM5ACBN1



TM5ACTB12PS

References			
Designation	Description	Reference	Weight kg/lb
Safety digital I/O electronic modules			
Safety digital input modules	2 safety digital inputs, 24 V DC, sink	TM5SDI2DFS	0.025/ 0.055
	4 safety digital inputs, 24 V DC, sink	TM5SDI4DFS	0.025/ 0.055
	20 safety digital inputs, 24 V DC, sink	TM5SDI20DFS	0.059/ 0.013
Safety mixed digital I/O modules	2 safety digital inputs, 24 V DC, sink 2 NO safety relay outputs	TM5SDM4DTRFS	0.025/ 0.055
	6 safety digital inputs, 24 V DC, sink 2 safety digital outputs, 24 V DC, 500 mA	TM5SDM8TBFS	0.066/ 0.146
Safety digital output modules	2 safety digital outputs, 24 V DC, transistor 0.5 A	TM5SDO2TFS	0.025/ 0.055
	2 safety digital outputs, 24 V DC, transistor 2 A	TM5SDO2TAFS	0.025/ 0.055
	4 safety digital outputs, 24 V DC, transistor 0.5 A	TM5SDO4TFS	0.025/ 0.055
	4 safety digital outputs, 24 V DC, transistor 2 A	TM5SDO4TAFS	0.025/ 0.055
	6 safety digital outputs, 24 V DC, transistor 0.2 A	TM5SDO6TBFS	0.025/ 0.055
	2 NO safety relay outputs, 230 V AC 6 A	TM5SDO2DTRFS	0.101/ 0.223
Safety analog input electronic modules			
Safety analog input modules	4 safety analog inputs, 0..20 mA/4..20 mA 24-bit resolution	TM5SAI4AFS	0.068/ 0.150
	4 safety thermocouple inputs: PT100/PT1000 inputs, 24-bit resolution	TM5STI4ATCFS	0.066/ 0.146
Safety counter electronic module			
Safety counter module	1 safety counter input, 24 V DC, sink, A-A, A-B, A-A'-B-B' wiring modes, 7 kHz maximum frequency	TM5SDC1FS	0.052/ 0.115
Safety bus base for safety I/O electronic modules			
Safety bus base for safety I/O electronic modules	Internal interconnected I/O power supply; 0.13 W power consumption	TM5ACBM3FS	0.020/ 0.044
Safety terminal blocks			
Safety terminal blocks	For use with TM5SDI2DFS, TM5SDO2TFS, TM5SDM4DTRFS and TM5SDC1FS safety modules (24 V DC power supply connected, 12-pin spring terminals, 10 A nominal current per contact)	TM5ACTB52FS	0.020/ 0.044
	For use with PT1000 sensors on TM5STI4ATCFS module (24 V DC, 16-pin spring terminals, 10 A nominal current per contact)	TM5ACTB5EFS	0.040/ 0.088
	For use with 4-20 mA analog inputs on TM5SAI4AFS module, digital mixed I/O TM5SDM8TBFS module and thermocouple inputs without compensation on TM5STI4ATCFS module (24 V DC, 16-pin spring terminals, 10 A nominal current per contact)	TM5ACTB5FFS	0.037/ 0.082
Safety power distribution module			
Safety power distribution module (SPDM)	Power source for specified non-safety-related I/O modules, for use with dedicated TM5ACBM4FS safety bus base (with isolation on left) This supports the predefined safe power-off state for the connected I/O modules (24 V DC, 10 A with integrated safe cut-off function)	TM5SPS10FS	0.080/ 0.176
Safety bus base	For use with the TM5SPS10FS safety power distribution module (the internal I/O power supply is isolated on the left)	TM5ACBM4FS	0.059/ 0.130
Interface module for distributed safety I/O on Sercos bus			
Sercos bus interface module	Communication module for Sercos III bus	TM5NS31	0.050/ 0.110
Power distribution electronic module	Input power supply: 24 V $\overline{\text{---}}$ for Sercos bus, interface, and I/O expansion modules	TM5SPS3 (1)	0.025/ 0.055
Bus base	For TM5NS31 and TM5SPS3 electronic modules Supplied with 2 protective plates, TM5ACPL10 and TM5ACPR10	TM5ACBN1	0.020/ 0.044
Terminal block	12 spring terminals	TM5ACTB12PS	0.016/ 0.035
	For TM5SPS3 electronic module		

(1) Supplied with 2 protective plates, TM5ACPL10 and TM5ACPR10