

Modicon TM5

High-Performance and Safe IP20 Modular I/O System

24 V $\overline{\text{---}}$ digital modules
and 24 V $\overline{\text{---}}$ digital/analog module

Applications
Compatibility
Local and remote I/O
Distributed I/O

4 to 16 digital input channels
■ Modicon M258 logic controller ■ Modicon LMC058 motion controller
■ Ethernet network interface module ■ CANopen bus interface module ■ Sercos bus interface module



Channel connection
Digital inputs
Number and type
Nominal input voltage
IEC/EN 61131-2 conformity
Type of signal (1)
Type of wiring
Limit values
Nominal input current
Input impedance
State 0
State 1
Digital outputs
Number
Nominal output voltage
Output current per channel
Output current per group of channels
Type of signal (1)
Type of wiring
Limit values
Short-circuit and overload protection
Analog inputs
Number
Type
Range
Resolution
Sampling period
Without filtering
With filtering
Analog outputs
Number
Type
Range
Resolution
Response time
Electronic expansion modules
Compatible bus bases (2)
Compatible removable terminal block (2)
Page

Via removable spring terminal blocks (to be ordered separately)					
4	6	12	16	4	6
24 V $\overline{\text{---}}$				100/240 V $\sim$	
Type 1				Type 1	
Sink				–	
1-, 2-, or 3-wire	1 or 2-wire	1-wire		1-, 2-, or 3-wire	
20.4...28.8 V $\overline{\text{---}}$				100...240 V $\sim$	100...120 V $\sim$
3.75 mA			2.68 mA	5 mA at 100 V $\sim$, 11 mA at 240 V $\sim$	10 mA at 120 V $\sim$
6.4 k Ω			8.9 k Ω	–	
5 V $\overline{\text{---}}$ max.				–	
15 V $\overline{\text{---}}$ min.				–	
TM5SDI4D	TM5SDI6D	TM5SDI12D	TM5SDI16D	TM5SDI4A	TM5SDI6U
TM5ACBM11, TM5ACBM15				TM5ACBM12	
TM5ACTB06, TM5ACTB12		TM5ACTB12	TM5ACTB16	TM5ACTB32	
13				15	

(1) Source output: PNP output; Sink output: NPN output
(2) To be ordered separately

4 digital input channels and 1 analog input channel 2 digital output channels and 1 analog output channel	4 digital input channels 4 transistor output channels with timestamping and oversampling functions	8 digital input channels 4 transistor output channels	2 to 16 transistor output channels	2 transistor output channels	2 to 4 relay output channels
–	■ Sercos bus interface module	■ Modicon M258 logic controller ■ Modicon LMC058 motion controller	■ Ethernet network interface module ■ CANopen bus interface module ■ Sercos bus interface module		



Via removable spring terminal blocks (to be ordered separately)												
4	4	8										
24 V $\overline{\text{---}}$	24 V $\overline{\text{---}}$	24 V $\overline{\text{---}}$										
Type 1	Type 1	Type 1										
Sink	Sink	Sink										
1-wire	1-wire	1-wire										
20.4...28.8 V $\overline{\text{---}}$	20.4...28.8 V $\overline{\text{---}}$	20.4...28.8 V $\overline{\text{---}}$										
3.3 mA	1.3 mA	3.75 mA										
7.2 k Ω	18.4 k Ω	6.4 k Ω										
5 V $\overline{\text{---}}$ max.	5 V $\overline{\text{---}}$ max.	5 V $\overline{\text{---}}$ max.										
15 V $\overline{\text{---}}$ min.	15 V $\overline{\text{---}}$ min.	15 V $\overline{\text{---}}$ min.										
2	4	4	4	4	6	8	12	16	2	2	4	
24 V $\overline{\text{---}}$	24 V $\overline{\text{---}}$	24 V $\overline{\text{---}}$	24 V $\overline{\text{---}}$						100/ 240 V $\sim$	30 V $\overline{\text{---}}$ /230 V $\sim$		
0.5 A	0.1 A	0.5 A	0.5 A	2 A	0.5 A	2 A	0.5 A		1 A	5 A		
1 A max.	0.4 A	2 A max.	2 A max.	4 A max.	3 A max.	8 A max.	6 A max.		1 A	10 A max.		
Source	Source	Source	Source						Solid state relay	Relay		
1-wire	1-wire	1-wire	1-, 2-, or 3-wire		1 or 2-wire			1-wire		3-wire	NO/NC contact	
20.4...28.8 V $\overline{\text{---}}$	20.4...28.8 V $\overline{\text{---}}$	20.4...28.8 V $\overline{\text{---}}$	20.4...28.8 V $\overline{\text{---}}$						80...264 V $\sim$	24...36 V $\overline{\text{---}}$, 184...276 V $\sim$		
Yes	Yes	Yes	Yes						Yes	No		
1												
Voltage/current												
-10...+10 V DC												
0...20 mA/4...20 mA												
12 bits + sign												
400 ms												
1 ms max.												
1												
Voltage/current												
-10...+10 V DC												
0...20 mA												
12 bits												
1 ms max.												
TM5SMM6D2L	TM5SDM8DTS	TM5SDM12DT	TM5S DO4T	TM5 SDO4TA	TM5 SDO6T	TM5 SDO8TA	TM5 SDO12T	TM5 SDO16T	TM5 SDO2S	TM5 SDO2R	TM5 SDO4R	
TM5ACBM11, TM5ACBM15									TM5ACBM12			
TM5ACTB12			TM5ACTB06, TM5ACTB12			TM5ACTB12		TM5ACTB16	TM5ACTB32			
13												
15												

(1) Source output: PNP output; Sink output: NPN output
(2) To be ordered separately

Modicon TM5

High-Performance and Safe IP20 Modular I/O System
24 V $\square$ digital modules and 24 V $\square$ digital/analog
module

Presentation

The digital module offer comprises:

- Input, mixed I/O, and output electronic modules (24 V $\square$ sensor and preactuator power supply): **TM5SDI●●●**, **TM5SDO●●●**
- A mixed I/O module with timestamping and oversampling functions: **TM5SDM8DTS**. The timestamping function is used to associate a date and time with an event, and to record the time the operation was performed. The **TM5SDM8DTS** electronic module was designed to be used with the PacDrive system and the **TM5NS31** Sercos bus interface (1) only.
- A mixed digital/analog I/O electronic module: **TM5SMM6D2L**

These modules are used to adapt as closely as possible to the application requirements to reduce installation and wiring costs.

Each digital and digital/analog module comprises three parts to be ordered separately (2):

- An I/O electronic module
- A bus base
- A terminal block

These modules can be mechanically assembled before mounting on a symmetrical rail. They offer the following advantages:

- Removable terminal block
- Spring terminals that can be used for quick, tool-free connection of the sensors and preactuators (the quality of the spring terminals avoids the need for periodic retightening)
- Hot swapping capability

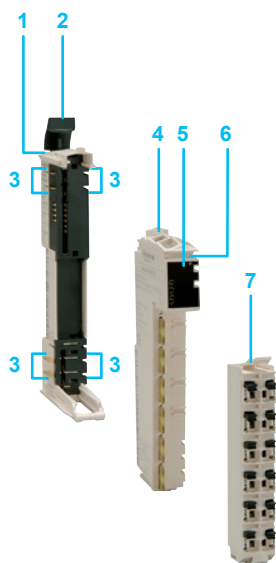
Description

TM5SD●●●● digital modules and the **TM5SMM6D2L** digital/analog module comprise:

- 1 A bus base
- 2 A mechanical clip 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 digital input, output, or I/O 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

(1) *TM5NS31 Sercos bus interface*, see [page 42](#)

(2) *Also sold as a complete kit*, see [page 13](#)



Modicon TM5

High-Performance and Safe IP20 Modular I/O System
24 V $\square$ digital modules and 24 V $\square$ digital/analog module



TM5SD...



TM5SMM6D2L



TM5ACBM...



TM5ACTB...



TM5SD...12DK

References			
Description	Number and type of channels (1)	Reference	Weight kg/lb
24 V $\square$ digital input electronic modules	4 sink inputs	TM5SDI4D	0.025/ 0.055
	6 sink inputs	TM5SDI6D	
	12 sink inputs	TM5SDI12D	
	16 sink inputs	TM5SDI16D	
Mixed I/O electronic modules	4 x 24 V $\square$ digital inputs 4 source transistor outputs, 0.1 A per channel, with timestamping and oversampling functions	TM5SDM8DTS For use with PacDrive system and TM5NS31 Sercos bus interface only	0.022/ 0.048
	8 sink inputs 4 source transistor outputs	TM5SDM12DT	0.025/ 0.055
Digital output electronic modules	4 source transistor outputs 0.5 A per channel	TM5SDO4T	0.025/ 0.055
	4 source transistor outputs 2 A per channel, 4 A per module	TM5SDO4TA	
	6 source transistor outputs 0.5 A per channel	TM5SDO6T	
	8 source transistor outputs 2 A per channel	TM5SDO8TA	
	12 source transistor outputs 0.5 A per channel	TM5SDO12T	
	16 source transistor outputs 0.5 A per channel	TM5SDO16T	
24 V $\square$ digital/analog I/O electronic module	- 4 digital sink inputs - 1 analog input, -10...+10 V DC, 0...20 mA/4...20 mA - 2 source transistor outputs, 0.5 A per channel - 1 analog output, 0...20 mA	TM5SMM6D2L	0.025/ 0.055
Description	Characteristics	Reference	Weight kg/lb
Bus bases	24 V $\square$	TM5ACBM11	0.020/ 0.044
	24 V $\square$ With address setting	TM5ACBM15	0.020/ 0.044
Terminal blocks	For electronic modules 6 spring terminals	TM5ACTB06	0.016/ 0.035
	For electronic modules 12 spring terminals	TM5ACTB12	0.020/ 0.044
	For electronic modules 16 spring terminals	TM5ACTB16	0.020/ 0.044
Digital I/O expansion module kits			
Description	Composition	Reference	Weight kg/lb
Kit comprising: - a digital input or output electronic module - a bus base - a terminal block	TM5SDI12D + TM5ACBM11 + TM5ACTB12	TM5SDI12DK	0.065/ 0.143
	TM5SDO12T + TM5ACBM11 + TM5ACTB12	TM5SDO12TK	

Accessories

See [page 44](#)

(1) Source output: PNP output; Sink output: NPN output

Modicon TM5

High-Performance and Safe IP20 Modular I/O System

100/240 V ~ digital modules

Presentation

The TM5SD●●● digital module offer comprises:

- Digital input electronic modules (100/240 V ~ sensor/preactuator power supply)
- Digital output electronic modules (100/240 V ~ sensor/preactuator power supply)

These modules are used to adapt as closely as possible to the application requirements to reduce installation and wiring costs.

Each digital module comprises three parts to be ordered separately (1):

- An I/O electronic module
- A bus base
- A terminal block

These modules can be mechanically assembled before mounting on a symmetrical rail.

They offer the following advantages:

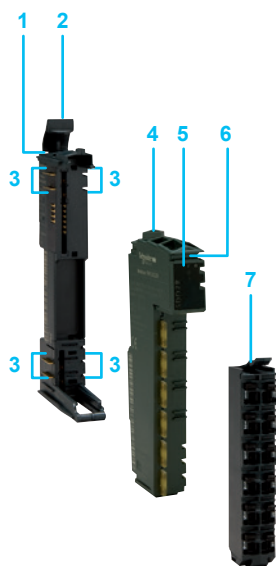
- Removable terminal block
- Spring terminals that can be used for quick, tool-free connection of the sensors and preactuators (the quality of the spring terminals avoids the need for periodic retightening)
- Hot swapping capability

Description

TM5SD●●● digital modules comprise:

- 1 A bus base
- 2 A mechanical clip 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 digital input or output 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

(1) Also sold as a complete kit, see [page 15](#)



Modicon TM5

High-Performance and Safe IP20 Modular I/O System

100/240 V ~ digital modules



TM5SDI●●
TM5SDO●●

TM5ACBM●●

TM5ACTB●●



TM5SDO4RK

References

Description	Number and type of channels (1)	Reference	Weight kg/lb
Multi-voltage digital input electronic modules	4 inputs, 100/240 V ~	TM5SDI4A	0.025/ 0.055
	6 inputs, 100/120 V ~	TM5SDI6U	0.025/ 0.055
Digital output electronic modules	2 transistor outputs, 1 A 100/240 V ~	TM5SDO2S	0.025/ 0.055
	2 relay outputs, 5 A, NO/NC contact 30 V ~/230 V ~	TM5SDO2R	0.025/ 0.055
	4 relay outputs, 5 A, NO/NC contact 30 V ~/230 V ~	TM5SDO4R	0.025/ 0.055
Bus bases	240 V ~	TM5ACBM12	0.020/ 0.044
Terminal blocks	For digital I/O electronic module 12 spring terminals	TM5ACTB32	0.025/ 0.055

Digital output expansion module kits

Description	Composition	Reference	Weight kg/lb
Kit comprising: - a digital output electronic module - a bus base - a terminal block	TM5SDO4R + TM5ACBM12 + TM5ACTB32	TM5SDO4RK	0.070/ 0.154

Accessories

See [page 44](#)

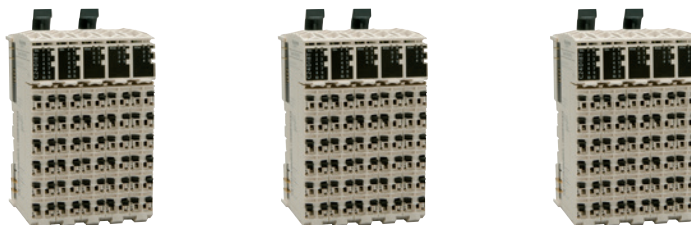
(1) Source output: PNP output; Sink output: NPN output

Applications

Compatibility	Local and remote I/O
	Distributed I/O

20 to 42 digital I/O

- Modicon M258 logic controller
- Modicon LMC058 motion controller
- **Ethernet network** interface module
- **CANopen** bus interface module
- **Sercos** bus interface module



Channel connection

Digital inputs	Number
	Nominal input voltage
	IEC/EN 61131-2 conformity
	Type of signal (1)
	Type of wiring
	Limit values
	Nominal input current
	Input impedance
	State 0
	State 1

Via removable spring terminal blocks supplied with the block

12	24	24
24 V $\square$	24 V $\square$	24 V $\square$
Type 1	Type 1	Type 1
Sink	Sink	Sink
3-wire	1-wire	1-wire
20.4...28.8 V $\square$	20.4...28.8 V $\square$	20.4...28.8 V $\square$
3.75 mA	3.75 mA	3.75 mA
6.4 k Ω	6.4 k Ω	6.4 k Ω
5 V $\square$ max.	5 V $\square$ max.	5 V $\square$ max.
15 V $\square$ min.	15 V $\square$ min.	15 V $\square$ min.

Digital outputs	Number
	Nominal output voltage
	Output current per channel
	Output current per group of channels
	Type of signal (1)
	Type of wiring
	Limit values
	Short-circuit and overload protection

8, transistor	12, relay with NO contact	18, transistor
24 V $\square$	24 V $\square$	24 V $\square$
0.5 A	0.5 A	0.5 A
1 A max.	5 A max.	2 A max.
Source	Source	Source
3-wire	1-, 2-, or 3-wire	2-wire
20.4...28.8 V $\square$	20.4...28.8 V $\square$	20.4...28.8 V $\square$
Yes	Yes	Yes

Modicon TM5 compact blocks

Page

(1) Source output: PNP output; Sink output: NPN output

TM5C12D8T

TM5C24D12R

TM5C24D18T

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Modicon TM5

High-Performance and Safe IP20 Modular I/O System
24 V $\square$ digital compact blocks

Presentation

Modicon **TM5C●●●●** compact blocks offer a cost-effective solution for expanding control system I/O configurations.

They consist of a block containing the circuit boards, bus bases, and **TM5ACTB12** removable terminal blocks.

- They are a cost-effective way of creating configurations that require a large number of digital channels.
- Regardless of which compact block is chosen, the format is the same and corresponds to five I/O expansion modules.

Description

TM5 compact blocks comprise:

- 1 A bus expansion connection on each side of the base to provide the link with the adjacent controller or block
- 2 Two mechanical clips for locking onto a symmetrical rail
- 3 Five LED display blocks for the compact block's channels and diagnostics
- 4 Five slots for the plain text cover holder (label-holder)
- 5 Five removable spring terminal blocks, each with locking clip and slots for colored ID markers (supplied with the compact blocks)

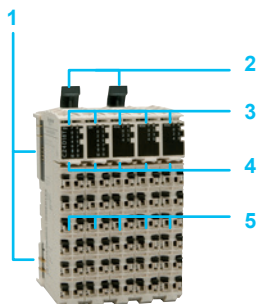
References

Description	Number of I/O	Inputs	Outputs (1)	Reference	Weight kg/lb
Digital I/O compact blocks	20 I/O	12 digital inputs, 24 V $\square$, Sink, 3-wire	8 digital outputs, transistor, 3-wire, 24 V $\square$, Source, 0.5 A	TM5C12D8T	0.037/ 0.082
	36 I/O	24 digital inputs, 24 V $\square$, Sink, 1-wire, 0.5 A max.	12 digital outputs, 5 A relay, with NO contact, 30 V $\square$ /230 V $\sim$	TM5C24D12R	0.037/ 0.082
	42 I/O	24 digital inputs, 24 V $\square$, Sink, 1-wire	18 digital outputs, transistor, 24 V $\square$, Source, 0.5 A, 2-wire	TM5C24D18T	0.037/ 0.082

Accessories

See [page 44](#)

(1) Source output: PNP output; Sink output: NPN output



TM5C12D8T



TM5C24D12R



TM5C24D18T