

Modicon TM3

I/O expansion modules for Modicon controllers

Digital I/O modules

Presentation

Breakdown of the offer

Digital I/O modules:

- Input modules: 24 V $\overline{\text{---}}$ or 120 V $\sim$
- Relay output modules: 24 V $\overline{\text{---}}$ source transistor or 24 V $\overline{\text{---}}$ sink transistor
- I/O modules: 24 V $\overline{\text{---}}$ inputs/relay outputs, or 24 V $\overline{\text{---}}$ transistor inputs/relay outputs

Configurable input options

TM3DI and TM3DM modules (except for TM3DIA8 modules) have two optional functions that can be configured using EcoStruxure™ Machine Expert software:

- An input filtering option: Integrating the filter value helps to improve input acquisition speed or reduce the effect of noise on the controller input (1).
- An input latching option: Latching is used to capture incoming pulses with shorter amplitude widths than the controller scan time (1).

Specific features

- If a hardware failure is detected, outputs TM3DO and TM3DM switch to fallback mode previously configured to 0, 1, or hold (1).
- Firmware updates are supported via the TM3 expansion bus, with any type of controller or the bus coupler (1).

Connections

- Screw-type connectors at intervals of 5.08 mm (0.2 in.) for ease of wiring: identical to the connectors on M221/M241 logic controllers
- Screw-type or spring-type connectors at intervals of 3.81 mm (0.15 in.) for compact dimensions: identical to the connectors on TM221M16●● and TM221ME16●● controllers
- HE10 connectors for lower wiring costs using the Telefast pre-wired system: identical to the connectors on TM221M32TK and TM221ME32TK controllers

I/O configuration

- Local I/O: A maximum of 7 I/O modules can be attached to the controller in accordance with the restrictions indicated in the table below.
- Distributed I/O with TM3 bus expansion system: 7 additional I/O modules can be used without restriction. These modules are attached to a TM3XREC1 receiver module.

		Number of TM3 expansion modules attached to the controller						
		1	2	3	4	5	6	7
Logic controllers	TM221C(E)16R							
	TM221C(E)16T, TM221C(E)16U							
	TM221C(E)24R							
	TM221C(E)24T, TM221C(E)24U							
	TM221C(E)40R							
	TM221C(E)40T, TM221C(E)40U							
	TM221M(E)16R(G)							
	TM221M(E)16T(G), TM221M(E)32TK							
	TM241, TM251							
Logic/motion controller	TM262							
Bus coupler modules	TM3BCEIP, TM3BCCO, TM3BCSL							

 Possible regardless of the TM3 module references

 Possible regardless of the TM3 module references but without a TM3DQ16R module in the configuration

 Possible for some configurations, to be checked in EcoStruxure Machine Expert or by calculating the total consumption

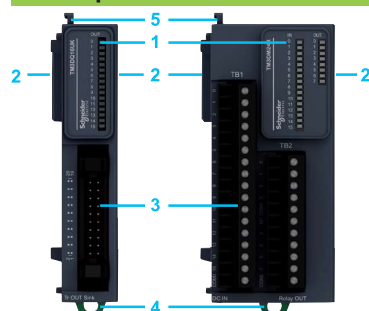
 Not possible; use a TM3XTRA1 module + a TM3REC1 module

TM3 expansion modules are powered by the logic controllers via the bus connector on the side of the products. This connector delivers two voltages, 5 V and 24 V. You should therefore calculate the total TM3 expansion module consumption and check that it is definitely compatible with the maximum current delivered by the controller. This information is available on each product data sheet or in the hardware reference guide. This can be checked in the Configuration page in the EcoStruxure Machine Expert programming software.

Mounting

- Digital I/O modules are mounted on a symmetrical DIN rail .
- For plate or panel mounting, use the TMAM2 kit.

Description



Modicon TM3 digital I/O modules

- 1 Display block with module channel status and diagnostics LEDs
- 2 TM3 bus connectors (one on each side). These are designed to provide continuity of the link between connected modules.
- 3 Input or output channel terminal blocks (depending on model: screw terminals, spring terminals, or HE 10 connector)
- 4 Clip for locking on symmetrical DIN rail .
- 5 Locking catch for the adjacent module

(1) Except on Modicon M221 and Modicon M221 Book logic controllers

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References

Modicon TM3 digital input modules

Number of logic inputs	Input type	Input terminal block (1) Interval (mm/in.)	References	Weight kg/ lb
8 inputs	24 V $\overline{\text{sink/source}}$	Screw 5.08/0.2	TM3DI8	0.110/ 0.243
		Spring 5.08/0.2	TM3DI8G	0.095/ 0.209
	120 V $\sim$	Screw 5.08/0.2	TM3DI8A	0.110/ 0.243
		—	—	—
16 inputs	24 V $\overline{\text{sink/source}}$	Screw 3.81/0.15	TM3DI16	0.105/ 0.231
		Spring 3.81/0.15	TM3DI16G	0.095/ 0.209
	—	HE 10 connector	TM3DI16K (2)	0.075/ 0.165
		—	TM3DI32K (2)	0.110/ 0.243

Modicon TM3 digital output modules

Number of logic outputs	Output type	Output current	Output terminal block (1) Interval (mm/in.)	References	Weight kg/ lb
8 outputs	Relay	2 A	Screw 5.08/0.2	TM3DQ8R	0.130/ 0.287
			Spring 5.08/0.2	TM3DQ8RG	0.115/ 0.254
	Transistor, source	0.5 A	Screw 5.08/0.2	TM3DQ8T	0.110/ 0.243
			Spring 5.08/0.2	TM3DQ8TG	0.095/ 0.209
	Transistor, sink	0.5 A	Screw 5.08/0.2	TM3DQ8U	0.110/ 0.243
			Spring 5.08/0.2	TM3DQ8UG	0.095/ 0.209
	Relay	2 A	Screw 3.81/0.15	TM3DQ16R	0.140/ 0.309
			Spring 3.81/0.15	TM3DQ16RG	0.130/ 0.287
	Transistor, source	0.5 A	Screw 3.81/0.15	TM3DQ16T	0.105/ 0.231
			Spring 3.81/0.15	TM3DQ16TG	0.095/ 0.209
	—	0.1 A	HE 10 connector	TM3DQ16TK (2)	0.075/ 0.165
			—	—	—
16 outputs	Relay	2 A	Screw 3.81/0.15	TM3DQ16R	0.140/ 0.309
			Spring 3.81/0.15	TM3DQ16RG	0.130/ 0.287
	Transistor, source	0.5 A	Screw 3.81/0.15	TM3DQ16T	0.105/ 0.231
			Spring 3.81/0.15	TM3DQ16TG	0.095/ 0.209
	Transistor, sink	0.5 A	Screw 3.81/0.15	TM3DQ16U	0.105/ 0.231
			Spring 3.81/0.15	TM3DQ16UG	0.095/ 0.209
	—	0.1 A	HE 10 connector	TM3DQ16TK (2)	0.075/ 0.165
			—	—	—
	Transistor, source	0.1 A	HE 10 connector	TM3DQ32TK (2)	0.115/ 0.254
			—	—	—
	Transistor, sink	0.1 A	HE 10 connector	TM3DQ32UK (2)	0.115/ 0.254
			—	—	—

Modicon TM3 mixed digital I/O modules

Number of logic I/O	Number and type of inputs	Number and type of outputs	I/O terminal block (1) Interval (mm/in.)	References	Weight kg/ lb
8 inputs/outputs	4 x 24 V $\overline{\text{sink/source}}$ inputs	4 relay outputs, 2 A	Screw 5.08/0.2	TM3DM8R	0.120/ 0.265
			Spring 5.08/0.2	TM3DM8RG	0.100/ 0.220
24 inputs/outputs	16 x 24 V $\overline{\text{sink/source}}$ inputs	8 relay outputs, 2 A	Screw 3.81/0.15	TM3DM24R	0.165/ 0.364
			Spring 3.81/0.15	TM3DM24RG	0.155/ 0.342

Separate parts

Designation	Description	Reference	Weight kg/ lb
Mounting kit Sold in lots of 10	For plate or panel mounting of digital I/O modules	TMAM2	0.065/ 0.143
Set of I/O terminal blocks	4 x 10-way and 4 x 11-way removable screw terminal blocks for TM3DI16, TM3DQ16R, TM3DQ16T, and TM3DQ16U modules	TMAT2MSET	0.127/ 0.280
	4 x 10-way and 4 x 11-way removable spring terminal blocks for TM3DI16G, TM3DQ16RG, TM3DQ16TG, and TM3DQ16UG modules	TMAT2MSETG	0.127/ 0.280

(1) Removable screw or spring-type terminal blocks, supplied.

(2) Modules compatible with the Modicon ABE7 Telefast pre-wired system (please refer to catalog ref. [DIA3ED2160602EN](#) (click link to open)).