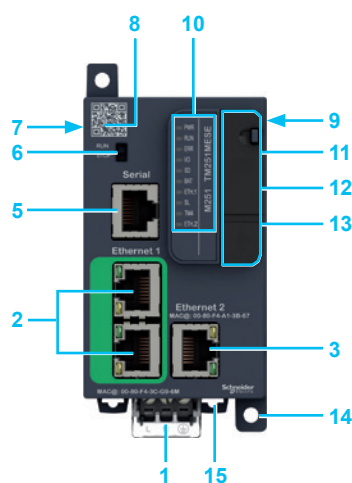
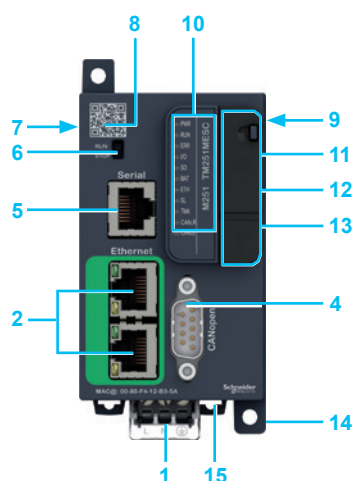




TM251MESE controller



TM251MESC controller

Description

M251 controllers

- 1 Removable screw terminal block, 3 terminals for connecting the 24 V $\square$ supply.
- 2 2 RJ 45 connectors connected by an internal switch for "Machine" or "Factory" Ethernet network, with exchange and activity speed LED indicator.
- 3 On **TM251MESE** controller: RJ 45 connector for "fieldbus" Ethernet 2 network with exchange and activity speed LED indicator.
- 4 On **TM251MESC** controller: a connector for linking to the CANopen and SAE J1939 machine bus (9-way SUB-D).
- 5 SL serial link port (RS 232 or RS 485): RJ 45 connector.
- 6 Run/Stop switch.
- 7 TM4 bus connector: communication bus for linking to TM4... communication modules.
- 8 QR code for access to the controller technical documentation.
- 9 Modicon TM3 bus connector for linking to a Modicon TM3 expansion module.
- 10 LED display block showing: the status of the controller and its components (battery, industrial SD memory card), the status of the embedded communication ports (Ethernet 1 and 2, CANopen, serial link).

Behind the removable cover 11, 12, 13

- 11 Slot for the industrial SD memory card.
- 12 Backup battery slot.
- 13 A USB mini-B connector for a programming terminal.
- 14 Lugs for panel mounting, with screws.
- 15 Clip for locking on $\sqcap$ symmetrical rail.

Characteristics of M251 logic controllers

Conformity

■ Certifications

- ☐ CE, cULus Listing Mark, C-Tick, EAC, LR, ABS, DNV and GL.
- ☐ ODVA and Achilles.

■ Standards

- ☐ IEC/EN 61131-2 (Edition 2 2007), UL508 (UL61010-2-201), ANSI/ISA 12.12.01-2007, CSA C22.2 No. 213, No. 142, E61131-2 and IACS E10.

Environmental characteristics

- ☐ Ambient operating temperature: - 10...+ 55°C (+14...+ 131°F)
- ☐ Storage temperature: - 40...+ 70°C (- 40...+ 158°F)
- ☐ Relative humidity: 5...95% (non-condensing)

Operating altitude:

- ☐ 0...2,000 m (0...6,562 ft): complete specification for temperature and exposure
- ☐ 2,000...4,000 m (6,562...13,123 ft):
 - temperature derating: + 1°C/400 m (+ 1.8°F/1,312 ft)
 - insulation losses: 150 V $\square$ /1,000 m (150 V $\square$ /3,280 ft)

- ☐ Storage altitude: 0...3,000 m (0...9,842 ft)

Immunity to mechanical stress:

- For 1131: 5...8.4 Hz (amplitude 3.5 mm/0.138 in.); 8.4...150 Hz (acceleration 1 g)
- For merchant navy: 5...13.2 Hz (amplitude 1.0 mm/0.039 in.); 13.2...100 Hz (acceleration 0.7g)

Supply characteristics

- ☐ 24 V $\square$ power supply
- ☐ Voltage limit (including ripple): 19.2...28.8 V $\square$
- ☐ Immunity to micro-cuts (class PS-2): 10 ms
- ☐ Max. consumption: 45 W

Modicon M251 logic controllers

M251 logic controllers, options, separate parts, programming software, connection cables



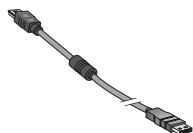
TM251MESE



TM251MESC



TMA5D1



TCSXCNAMUM3P

References

Modicon M251 logic controllers (1)

Designation	Embedded communication ports				Reference	Weight kg lb
	Ethernet 1 “Machine” or “Factory” (RJ 45)	Ethernet 2 “Fieldbus” (RJ 45)	CANopen (9-way SUB-D): CANopen and SAE J1939	Serial link (RJ 45)		
24 V  power supply						
M251 logic controllers	2 (connected by a switch)	1	—	1	TM251MESE	0.220 0.485
	2 (connected by a switch)	—	1	1	TM251MESC	0.220 0.485

Options for Modicon M251 logic controllers

Designation	Description	Reference	Weight kg lb
Industrial SD memory card	Application backup and program transfer Capacity: 256 MB	TMA5D1	0.004 0.009

Replacement parts

Designation	Description	Reference	Weight kg lb
Set of power supply terminal blocks	8 removable terminal blocks with screw terminals	TMAT2PSET	0.127 0.280

Backup battery The battery supplied with each controller is not available as a separate part in the Schneider Electric catalog. If a replacement part is needed, only use a Panasonic battery type BR2032.

Programming software

Designation	Use	Version	Reference
EcoStruxure Machine Expert software	For Modicon M251 logic controllers	V1.1	Please consult our catalog DIA3ED2180701EN

Expansion modules

Designation	Use	Reference
Modicon TM3 expansion modules	For Modicon M251 logic controllers	Please consult our catalogue DIA3ED2140109EN

Communication modules

Designation	Use	Reference
Modicon TM4 communication modules	Ethernet switch module, slave Profibus DP module	See page 18

Connection cables

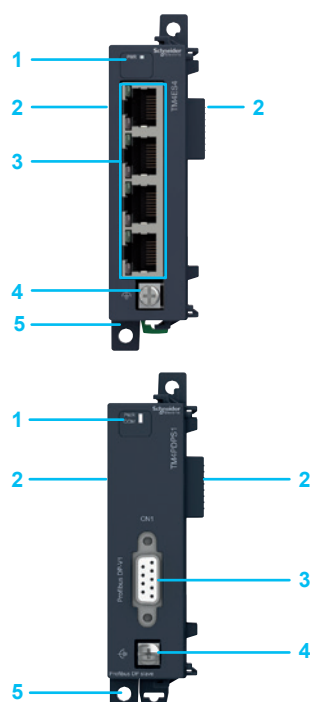
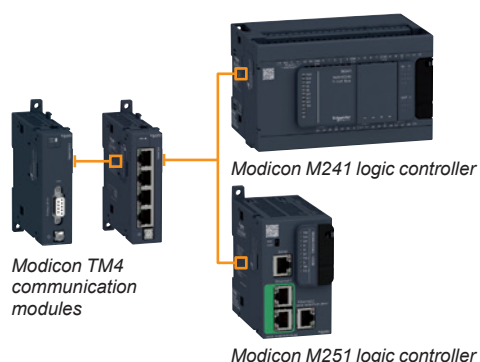
Designation	Use		Length	Reference	Weight kg lb
	from	to			
Programming cables	PC USB port	USB mini-B port on M251 controllers	3 m (0.98 ft)	TCSXCNAMUM3P (3)	0.065 0.143
			1.8 m (5.90 ft)	BMXXCAUSBH018	0.065 0.143

(1) M251 controllers are supplied with:

- a removable screw terminal block for connecting the power supply
- a BR2032 button cell backup battery

(2) Every M251 logic controller has an embedded USB mini-B programming port.

(3) Unshielded, non-grounded cable. Only for use on temporary connections. For permanent connections, use cable reference BMXXCAUSBH018.



Presentation

Applications

The Modicon TM4 communication module offer is dedicated to Modicon M241 and Modicon M251 logic controllers, increasing the options for connection.

Two communication module models are available:

- The TM4ES4 Ethernet switch module, offering an Ethernet connection with 4 ports
- The TM4PDPS1 Profibus DP slave module

■ Ethernet switch module

The TM4ES4 module is a 4-port Ethernet interface (10/100 Mbps, MDI/MDIX) with the following protocols: Ethernet Modbus TCP Client/Server, Ethernet/IP Adapter, UDP, TCP, SNMP, OPC UA Server and EcoStruxure Machine.

- The TM4ES4 module is ready for use as soon as it is connected to the communication bus of M241 and M251 controllers.
- This module is used to add the Ethernet function to TM241C24● and TM241C40● controllers without an embedded Ethernet port, while offering an additional Ethernet switch function.
- Connected on controllers with embedded Ethernet port type TM241CE24●●● or TM241CE40●●●, it can constitute a second Ethernet link for the "Machine" or "Factory" network.
- Connected on controllers with an embedded Ethernet port type TM241CE●●● or on a TM251MES● controller, it can also constitute an autonomous switch with four ports: communication between the TM4ES4 module and the Modicon M241 and M251 controllers is not automatically enabled by the bus connector.

■ Slave Profibus DP module

The TM4PDPS1 communication module can be used to configure a slave connection on the Profibus DP bus.

Rules for combination

Up to 3 communication modules (in total) can be added on the left of M241 and M251 logic controllers, in order to increase their options for connection to the Ethernet and Profibus networks.

- TM241C24●●●, TM241C40●●●, TM241CE24●●● and TM241CE40●●● controllers can all be provided with a TM4ES4 module with the Ethernet port function and 2 TM4ES4 modules with the autonomous switch function while complying with the maximum number of 3 TM4 modules in total.
- TM241CEC24● and TM251●●● controllers can be provided with 3 TM4ES4 modules with the autonomous switch function while complying with the maximum number of 3 TM4 modules in total.
- TM4 communication modules are assembled by simply clipping them onto the left-hand side of M241 and M251 controllers, and a bus expansion connector is used to distribute data and power.

Description

■ TM4ES4 Ethernet switch module

- 1 Power on LED indicator.
- 2 Bus connector (1 on each side).
- 3 4 RJ 45 connectors for Ethernet network, with exchange and activity speed LED indicator.
- 4 Screw terminal for the functional ground (FG) connection.
- 5 Locking clip on $\perp$ symmetrical rail.

■ TM4PDPS1 slave Profibus DP module

- 1 Power on LED indicator.
- 2 Bus connector (1 on each side).
- 3 9-way SUB-D connector for connection to the Profibus DP bus.
- 4 Screw terminal for the functional ground (FG) connection.
- 5 Locking clip on $\perp$ symmetrical rail.

References



TM4ES4



TM4PDPS1

Options for M251 logic controllers

Designation	Description	Reference	Weight kg lb
Communication modules	Ethernet switch module with switch function and 4 embedded ports Equipped with 4 RJ 45 connectors (10/100 Mbps, MDI/MDIX)	TM4ES4 (1)	0.110 0.243
	Slave Profibus DP module Equipped with a 9-way SUB-D connector	TM4PDPS1	0.110 0.243

(1) Can be used as an Ethernet port or an autonomous switch depending on the controller model and configuration.