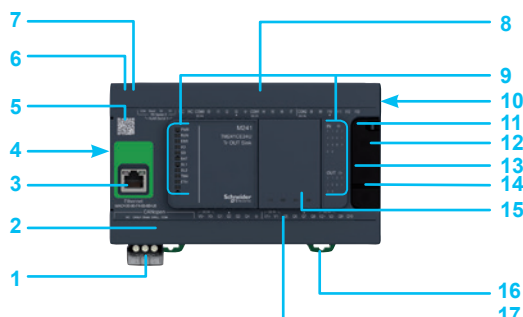
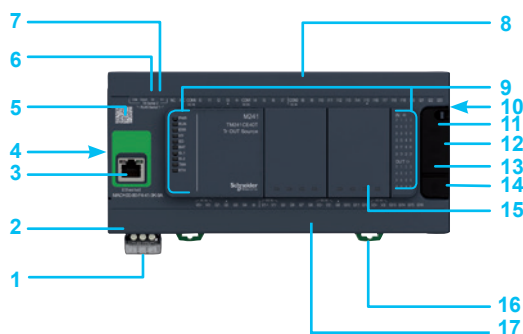




M241 controllers with 24 I/O



M241 controllers with 40 I/O

Description

M241 controllers

- 1 Removable screw terminal block, 3 terminals for connecting the 24 V $\square$ or 100-240 V $\sim$ supply (depending on the model).
- 2 On TM241CEC24● controllers: a connector for linking to the CANopen and SAE J1939 machine bus (screw terminal block).
- 3 On TM241CE●●● controllers: RJ 45 connector for Ethernet network connection, with exchange and activity speed LED indicator.
- 4 TM4 bus connector: communication bus for linking to TM4●●● communication modules.
- 5 QR code for access to the controller technical documentation.
- 6 SL1 serial link port (RS 232 or RS 485): RJ 45 connector.
- 7 SL2 serial link port (RS 485): screw terminal block.
- 8 Connection of 24 V $\square$ logic inputs: removable screw terminal blocks (1).
- 9 LED display block showing:
 - the status of the controller and its components (battery, industrial SD memory card)
 - the status of the embedded communication ports (CAN, serial links, Ethernet)
 - the status of the embedded I/O
- 10 TM3 bus connector for linking to a Modicon TM3 expansion module.

Behind the removable cover: 11, 12, 13, 14, 15

- 11 Run/Stop switch.
- 12 Slot for the industrial SD memory card.
- 13 Backup battery slot.
- 14 A USB mini-B connector for a programming terminal.
- 15 Slot(s) for I/O cartridge(s) or application cartridge(s):
 - one slot on TM241C●24
 - two slots on TM241C●40
- 16 Clip for locking on $\perp$ symmetrical rail.
- 17 Connection of relay/transistor logic outputs: on removable screw terminal blocks (1).

(1) Removable terminal blocks equipped with screw terminals. Terminal blocks supplied with controller.

Characteristics of M241 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), UL 508 (UL 61010-2-201), 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/0.14 in.); 8.4...150 Hz (acceleration 1 g)
 - For merchant navy: 5...13.2 Hz (amplitude 1.0 mm/0.04 in.); 13.2...100 Hz (acceleration 0.7 g)

Supply characteristics

2 power supply types are available depending on the M241 controller model: 24 V $\square$ or 100-240 V $\sim$ 50/60 Hz.

- ☐ Voltage limit (including ripple): 19.2...28.8 V $\square$ /85...264 V $\sim$
- ☐ Immunity to micro-cuts (class PS-2): 10 ms
- ☐ Max. consumption: 45 W



TM241C24R



TM241C40R



TM241CEC24U



TM241CE24R



TM241CE40T



TM241CE40U



TMC4AI2



TMC4AQ2



TMC4TI2



TMC4HOIS01



TMC4PACK01



TMASD1

References

Modicon M241 logic controllers (1)

No. of logic inputs/ outputs	Logic inputs	Logic outputs	Embedded communication ports (2)			Reference	Weight kg <i>lb</i>
			Ethernet (RJ 45)	CANopen (screw terminal block): CANopen/ SAE J1939	Serial links (RJ 45 and screw terminal block)		
■ 100-240 V ~ power supply							
24 inputs/ outputs	14 sink/source 24 V ~ inputs, inc. 8 high-speed inputs	10 outputs: with 4 source transistor high-speed outputs and 6 relay outputs	—	—	1 + 1	TM241C24R	0.530 1.168
			1	—	1 + 1	TM241CE24R	0.530 1.168
			1	1	1 + 1	TM241CEC24R	0.530 1.168
40 inputs/ outputs	24 x 24 V ~ inputs, inc. 8 high-speed inputs	16 outputs: with 4 source transistor high-speed outputs and 12 relay outputs	—	—	1 + 1	TM241C40R	0.620 1.367
			1	—	1 + 1	TM241CE40R	0.620 1.367
■ 24 V ~ power supply							
24 inputs/ outputs	14 sink/source 24 V ~ inputs, inc. 8 high-speed inputs	10 source transistor outputs, inc. 4 high-speed outputs	—	—	1 + 1	TM241C24T	0.530 1.168
			1	—	1 + 1	TM241CE24T	0.530 1.168
			1	1	1 + 1	TM241CEC24T	0.530 1.168
	14 sink/source 24 V ~ inputs, inc. 8 high-speed inputs	10 sink transistor outputs, inc. 4 high-speed outputs	—	—	1 + 1	TM241C24U	0.530 1.168
			1	—	1 + 1	TM241CE24U	0.530 1.168
			1	1	1 + 1	TM241CEC24U	0.530 1.168
40 inputs/ outputs	24 sink/source 24 V ~ inputs, inc. 8 high-speed inputs	16 source transistor outputs, inc. 4 high-speed outputs	—	—	1 + 1	TM241C40T	0.620 1.367
			1	—	1 + 1	TM241CE40T	0.620 1.367
	24 sink/source 24 V ~ inputs, inc. 8 high-speed inputs	16 sink transistor outputs inc. 4 high-speed outputs	—	—	1 + 1	TM241C40U	0.620 1.367
			1	—	1 + 1	TM241CE40U	0.620 1.367

Options for Modicon M241 logic controllers

Designation	Description	Reference	Weight kg lb
I/O cartridges	2 analog inputs (12-bit resolution) configurable as: - 0...10 V voltage - 0...20 mA/4...20 mA current Screw terminal version	TMC4AI2	0.025 0.055
	2 analog outputs (12-bit resolution) configurable as: - 0...10 V voltage - 0...20 mA/4...20 mA current Screw terminal version	TMC4AQ2	0.025 0.055
	2 inputs (14-bit resolution) configurable for RTD, TC temperature probes Screw terminal version	TMC4TI2	0.025 0.055
Cartridges for specific application	Hoisting application: 2 analog inputs for a load cell Screw terminal version	TMC4HOIS01	0.025 0.055
	Packaging application: 2 analog inputs Screw terminal version	TMC4PACK01	0.025 0.055
Industrial SD memory card	Application backup and program transfer Capacity: 256 MB	TMASD1	0.004 0.009

(1) M241 controllers are supplied with:

- removable terminal blocks (screw terminals) for connecting the I/O at intervals of 3.81 mm (0.15 in.)
- a removable terminal block for connecting the power supply at intervals of 5.08 mm (0.2 in.)
- a button cell backup battery (BR2032)

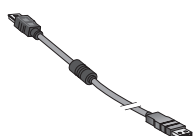
(2) Every M241 logic controller has an embedded USB mini-B programming port.

Modicon M241 logic controllers

Options, separate parts, programming software, connection cables

References			
Replacement parts			
Designation	Description	Unit reference	Weight kg lb
Set of connectors for connecting the I/O	Removable connectors with screw terminals: 8 different connectors for equipping an M241 logic controller (1 x SL2, 6 x I/O, 1 x CANopen)	TMAT4CSET	0.127 0.280
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 catalog. If a replacement part is needed, only use a Panasonic battery type BR2032.



TCSXCNAMUM3P

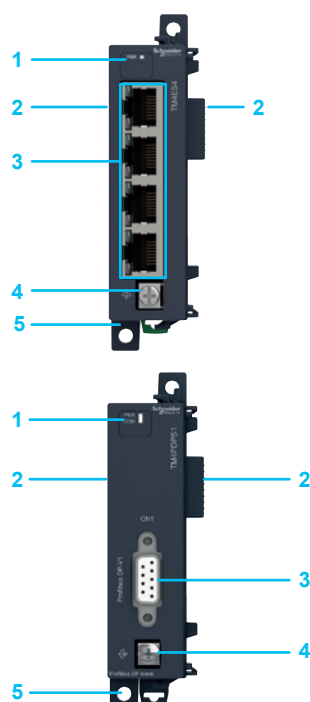
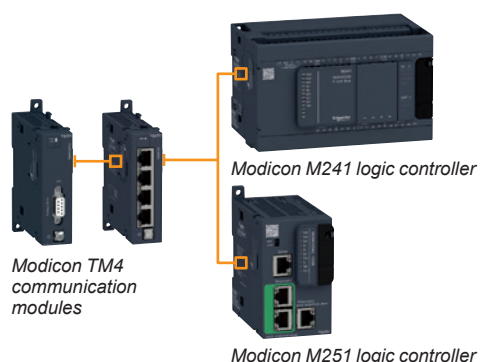
Programming software			
Designation	Use	Version	Reference
EcoStruxure Machine Expert software	For M241 logic controllers	V1.1	Please consult our catalog DIA3ED2180701EN

Expansion modules		
Designation	Use	Reference
Modicon TM3 expansion modules	For M241 logic controllers	Please consult our catalog DIA3ED2140109EN

Communication modules		
Designation	Use	Reference
Modicon TM4 communication modules	Ethernet port module, slave Profibus DP module	See page 19

Connection cables					
Designation	Use from	to	Length	Reference	Weight kg lb
Programming cables	PC USB port	USB mini-B port on M221, M241, M251 and M258 controllers	3 m (0.98 ft)	TCSXCNAMUM3P (1)	0.065 0.143
			1.8 m (5.90 ft)	BMXXCAUSBH018	0.065 0.143

(1) 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  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  symmetrical rail.

References



TM4ES4



TM4PDPS1

Options for M241 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.

Compatibility

Ethernet services of embedded Ethernet ports

Configuration	Ethernet port embedded on M241 controllers											Ethernet ports embedded on TM4ES4 module (without modifying the firmware)									
	EtherNet/IP Originator I/O Scanner	EtherNet/IP Adapter	Modbus TCP Client I/O Scanner	Modbus TCP Server	Slave Modbus TCP	OPC UA Server	FTP Server	Viewer Web	NGVL	Web system	DHCP Server	EtherNet/IP Adapter	Modbus TCP Server	Slave Modbus TCP	OPC UA Server	FTP Server	Viewer Web	NGVL	Web system	Switch function only	
TM241C controllers + TM4ES4 module configured with EcoStruxure Machine Expert																					
TM241C24 controllers + TM4ES4 module not configured with EcoStruxure Machine Expert																					
TM241CE controllers + TM4ES4 module configured with EcoStruxure Machine Expert																					
TM241CE controllers + TM4ES4 module not configured with EcoStruxure Machine Expert																					
		Service offered																			



Service offered