Modicon M241
Logic controllers

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### Modicon M241 logic controllers

#### Control of simple movements
- Control of control loops

#### Controls
- PID
- 8 high-speed position control outputs, 100 kHz frequency and 4 transistor standard position control outputs, 1 kHz frequency: - pulse train (PTO), PWM, CCW, and CW
- 4 high-speed position control outputs, 100 kHz frequency and 4 transistor standard position control outputs, 1 kHz frequency: - pulse train (PTO), PWM, CCW, and CW
- 4 high-speed control outputs, 1 kHz frequency: - pulse train (PTO), PWM, CCW, and CW
- 4 high-speed control outputs, 1 kHz frequency: - pulse train (PTO), PWM, CCW, and CW

#### Applications
- Control of simple movements
- Control of control loops

#### Input/output modules
- 40 logic inputs/outputs
- 4 high-speed counter (HSC) inputs, 200 kHz frequency and 6 to 8 standard counter inputs, 1 kHz frequency
- 16 outputs: with 4 source transistor high-speed outputs and 12 relay outputs

#### Supply voltage
- 100-240 V ~, 24 V ~

#### Options
- 3 analog I/O expansion cartridges:
  - with 2 voltage/current analog inputs
  - with 2 inputs for temperature probes

#### Communication modules
- 1 Ethernet port Modicon TM4 module with switch function and 4 embedded ports

#### Mounting
- Mounting on symmetrical rail or panel

#### Software programming
- With SoMachine software (please consult our website www.schneider-electric.com)

#### Controller types
- TM241C24R
- TM241C24T
- TM241C24U
- TM241CE24R
- TM241CE24T
- TM241CE24U

#### More technical information on www.schneider-electric.com
Modicon M241 logic controllers

General presentation

Compatibility of offers

- Modicon M241 logic controllers
- Modicon TM3 expansion modules
- Modicon TM2 expansion modules
- Modicon TM4 communication modules
- SoMachine software

Applications

Modicon M241 logic controllers are designed for high-performance compact machines incorporating speed and position control functions. They have an embedded Ethernet port offering FTP Client/Server, Web Server and SQL Client and OPC UA Server services, meaning they can easily be integrated in control system architectures for remote monitoring and maintenance of machines by means of applications for smartphones, tablets and PCs.

- The wealth of embedded functions minimizes the cost of the machine:
  - Functions embedded in the controller: Modbus serial link, USB port dedicated to programming, Ethernet I/O Scanner, CANopen and SAE J1939 fieldbus for distributed architectures and advanced position control functions (high-speed counters and pulse train outputs for controlling servo motors).
  - Functions embedded in Modicon TM3 extensions: functional safety modules, motor-starter control module and remote expansion system.
  - Functions embedded in Modicon TM4 communication modules.

- The processing power and the memory size of M241 controllers are ideal for targeting high-performance applications.

- SoMachine’s programming software is powerful and intuitive, making it quick to create applications. Existing applications in Modicon M221, M238 and M258 ranges can also be retrieved easily, thus protecting the investment already made.

Presentation

Main functions

M241 logic controllers come in 2 formats (w x h x d):
- controllers with 24 I/O: 150 x 90 x 95 mm (5.90 x 3.54 x 3.74 in.)
- controllers with 40 I/O: 190 x 90 x 95 mm (7.48 x 3.54 x 3.74 in.)
- Inputs and outputs embedded in M241 controllers are connected on removable screw terminal blocks, supplied with the controllers.
- A Run/Stop switch is available on every M241 controller.
- A slot for an industrial SD memory card (Secure Digital card) is available on every M241 controller.

A slot integrated in every M241 controller can take up to 2 cartridges of the following types:
- Analog input or output expansion cartridges
- Application cartridges: hoisting or packaging

Every M241 logic controller has a QR code for direct access to its technical documentation.

Embedded communication

M241 logic controllers incorporate up to 5 communication ports:
- Ethernet with embedded Web server function
- CANopen: CANopen (master) and SAE J1939 (Request Manager)
- 2 serial links
- USB mini-B programming port

Embedded functions

- PID control
- 8 high-speed counter (HSC) inputs, 200 kHz frequency and 6 to 8 standard counter inputs, 1 kHz frequency
- 4 high-speed position control outputs, 100 kHz frequency and 4 standard position control outputs, 1 kHz frequency for:
  - pulse train (PTO) P/D, CW and CCW
  - pulse width modulation (PWM)
  - frequency generator (FG)
- 4 PTO/HSC configurable expert channels and up to 14 or 16 single HSC channels depending on the chosen configuration and the controller type (for more details, see the user guide for Modicon M241 logic controllers)

Processing power

- Execution speed: 22 ns/Boolean instruction with 128 Boolean Kinstructions in the program
- DualCore processor
- Program size: 10 MB for application and symbols.
- RAM: 64 MB
- Flash memory: 128 MB

Programming

Modicon M241 logic controllers are programmed with SoMachine software
Modicon M241 logic controllers
Options for Modicon M241 controllers

Options for Modicon M241 controllers

Memory card
The **TMASD1** industrial SD memory card, 256 MB capacity, is available for:
- backing up and transferring applications
- data logging
- firmware updates

Cartridges for Modicon M241 controller
Up to 2 cartridges (depending on controller model) can be inserted on the M241 controller front panel without increasing its dimensions.

- **I/O cartridges**
  Three input or output cartridges are available:
  - **TMC4AI2** cartridge for 2 analog inputs which can be configured as voltage or current
  - **TMC4AQ2** cartridge for 2 analog outputs which can be configured as voltage or current
  - **TMC4TI2** cartridge for 2 inputs which can be configured for temperature probes

- **Application cartridges**
  2 cartridges are available:
  - The **TMC4HO1S01** hoisting application cartridge has 2 dedicated analog inputs for control of a load cell.
  - The **TMC4PACK01** packaging application cartridge has 2 analog inputs dedicated to temperature control on packaging machines.
  Use of an Application cartridge provides direct access to Application Function Blocks via the SoMachine software.

Communication modules (1)
2 communication module models are dedicated to Modicon M241 logic controllers:
- **TM4ES4** Ethernet switch module:
  - provides an Ethernet connection with 4 ports on controllers without embedded Ethernet
  - provides a second Ethernet connection with 4 ports on controllers with embedded Ethernet (except on TM241CEC24)
- **TM4PDP51** Profibus DP slave module

Modicon TM4 communication modules are assembled by simple interlocking on the left-hand side of the controllers and a bus expansion connector is used to distribute data and the power supply.
Up to 3 communication modules can be added on the left of M241 logic controllers. See page 12.

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(1) For rules for combining Modicon TM4 communication modules and Modicon M241 logic controllers, see page 12.
**Modicon M241 logic controllers**

**Embedded communication**

M241 logic controllers have up to 5 embedded communication ports:

- 2 serial links: SL1 (RJ 45) and SL2 (screw terminal block) and a programming port (USB mini-B) on each controller.
- An Ethernet port (RJ 45) or an Ethernet port (RJ 45) and a CANopen port depending on the controller model.

**Communication on Ethernet network**

TM241CE controllers have an embedded RJ 45 Ethernet port (10/100 Mbps, MDI/MDIX) with Modbus TCP Client/Server, EtherNet/IP Adapter/Originator, I/O Scanner, UDP, TCP, SN TP Client, DNS Client and SoMachine protocols.

- Every M241 controller has an embedded web server and FTP Client/Server server. As well as the default address based on the MAC address, a controller IP address can be assigned via a DHCP server or via a BOOTP server.
- The Ethernet port also offers the same uploading, updating and debugging functions as the programming port (USB mini-B) when the controller is supplied with power.
- A firewall is used to filter the IP addresses that are authorized to access the controller and to lock each communication protocol.
- The embedded Ethernet port is optimized for connecting field devices (variable speed drives, distributed I/O, etc.), RJ 45 type, with EtherNet/IP Scanner, Modbus TCP I/O Scanner, EtherNet Modbus TCP Client/Server, EtherNet/IP Originator and Adapter, UDP, TCP, SNMP Client/Server V1 and V2, OPC UA Server, SNTP Client, DNS Client and SoMachine services.
- EtherNet/IP Scanner can be used to connect up to 16 slave devices managed by the controller in 10 ms (1024 input words + 1024 output words).
- Modbus TCP I/O Scanner can be used to connect up to 64 slave devices managed by the controller in 64 ms.

- On TM241CE controllers an optional second Ethernet link is possible by using the TM4ES4 module optimized for “Machine” or “Factory” network connection (4 RJ 45 connectors).

**Connection cables and accessories for Ethernet network:** please consult our website www.schneider-electric.com.

**Communication on CANopen**

TM241CE controllers have an embedded CANopen port for master CANopen communication. The link can be configured between 20 Kbps and 1 Mbps and supports up to 63 slaves.

- Architectures based on CANopen are used to distribute I/O modules as close to the sensors and actuators as possible, thus reducing wiring costs and times, and to communicate with different devices such as variable speed drives, servo drives, etc.
- The CANopen configurator is integrated in the SoMachine software and can also be used to import standard description files in EDS format.

**CANopen connection cables and accessories:** please consult our website www.schneider-electric.com.

**Communication on SAE J1939 network**

The SAE J1939 protocol is available on the CANopen port of TM241CE logic controllers. The SAE J1939 protocol is mainly used in the commercial vehicles sector to communicate with the various electronic control units embedded in the same vehicle such as the engine, transmission, braking system, retarder and dashboard, etc.
Modicon M241 logic controllers
Embedded communication
Communication via modem and router

Embedded communication
Serial links

Every M241 controller has 2 embedded serial links.
- The SL1 serial link can be configured as RS 232 or RS 485. In addition, a 5 V/200 mA voltage is available on the RJ 45 connector, which can therefore power a Magelis XBTN or XBTRT HMI or the TCSWAAC13FB Bluetooth® communication adapter, or other devices.
- The SL2 serial link is configured as RS 485.
These 2 links incorporate the 2 most commonly used protocols on the market:
- Master or Slave Modbus ASCII/RTU
- Character string (ASCII)

Connection cables and accessories for serial link: please consult our website www.schneider-electric.com.

Programming port with power off charging function

The programming port, equipped with a USB mini-B connector, is embedded in every M241 controller; it is dedicated to communication with a PC equipped with SoMachine for:
- programming
- debugging
- maintenance

In addition, it offers the ability to load an application program or update the firmware without the controller being powered by another source.

Communication via modem and router

The communication via modem and router offer is dedicated to the following applications:
- Synchronization between remote machines; direct data exchange between controllers.
- Remote maintenance; access to the controller via the SoMachine programming software.
- Remote control and monitoring of machines; receipt of information and sending commands on GSM/UMTS phone (1).

This offer comprises a Schneider Electric modem, GSM/UMTS modem and a VPN router made by eWon.

For the modem and router, please consult our website www.schneider-electric.com.

(1) Global System Mobile (2G)/Universal Mobile Telecommunications System (3G).
I/O expansion with Modicon TM3 modules

The capacity of M241 logic controllers can be enhanced with the Modicon TM3 expansion module offer:

- Digital I/O modules which can be used to create configurations with up to 488 digital I/O. These modules are available with the same connections as the controllers.

- Analog I/O modules which can be used to create configurations with up to 114 analog I/O and are designed to receive, amongst other things, position, temperature, and speed sensor signals. They are also capable of controlling variable speed drives or any other device equipped with a current or voltage input.

- Expert modules for controlling TeSys motor starters which simplify wiring up the control section due to connection with RJ 45 cables.

- Functional safety modules which simplify wiring and can be configured in the SoMachine software.

In addition, the TM3 expansion system is flexible due to the possibility of remotely locating some of the TM3 modules in the enclosure or another cabinet, up to 5 meters (16.404 ft) away, using a bus expansion system.

The Modicon TM3 expansion system is common to the whole range of Modicon M221, M241 and M251 logic controllers, meaning that the controller model can be upgraded without changing expansion module.

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1. M241 logic controller.
3. Modicon TM3 analog I/O modules (1).
5. Modicon TM3 functional safety modules.
6. Modicon TM3 bus expansion modules (transmitter and receiver).
7. TM3 bus expansion cable.

(1) Compatibility of expansion module offers: the majority of Modicon TM2 expansion modules can be used with M241 logic controllers. Nonetheless, adding a Modicon TM2 expansion module to a configuration can increase the expansion module execution times by as much as a few milliseconds. The compatibility of Modicon TM2 expansion modules with M241 logic controllers is described in detail on our website www.schneider-electric.com.
Description, characteristics

Modicon M241 logic controllers

**Description**

**M241 controllers**

1. Removable screw terminal block, 3 terminals for connecting the 24 V \(\sim\) or 100-240 V \(\sim\) supply (depending on the model).
2. On TM241C\(\text{CE}24\) controllers: a connector for linking to the CANopen and SAE J1939 machine bus (screw terminal block).
3. On TM241C\(\text{CE}40\) 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\(\text{CE}40\) 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 \(\sim\) 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

- Run/Stop switch.
- Slot for the industrial SD memory card.
- Backup battery slot.
- A USB mini-B connector for a programming terminal.
- Slot(s) for I/O cartridge(s) or application cartridge(s):
  - one slot on TM241C\(\text{CE}24\)
  - two slots on TM241C\(\text{CE}40\)

16. Clip for locking on \(\sim\) 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, \(\)cUL\(\)us Listing Mark, C-Tick, EAC, LR, ABS, DNV and GL.
  - ODVA and Achilles.

- **Standards**

**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\(\sim\)/1,000 m (150 V\(\sim\)/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 \(\sim\) or 100-240 V \(\sim\) 50/60 Hz.

- **Voltage limit (including ripple):** 19.2...28.8 V \(\sim\)/85...264 V \(~\)
- **Immunity to micro-cuts (class PS-2):** 10 ms
- **Max. consumption:** 45 W
## Modicon M241 logic controllers

### M241 logic controllers, options

#### References

<table>
<thead>
<tr>
<th>Modicon M241 logic controllers (1)</th>
<th>Embedded communication ports (3)</th>
<th>Reference</th>
<th>Weight</th>
<th>kg</th>
<th>lb</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of logic inputs/outputs</td>
<td>Ethernet (RJ 45)</td>
<td>CANopen (screw terminal block): CANopen/SAE J1939</td>
<td>Serial links (RJ 45 and screw terminal block)</td>
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<td></td>
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<tr>
<td>100-240 V ~ power supply</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24 inputs/outputs</td>
<td>14 sink/source 24 V inputs, inc. 8 high-speed inputs</td>
<td>10 outputs: with 4 source transistor high-speed outputs and 6 relay outputs</td>
<td>–</td>
<td>-</td>
<td>1 + 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1</td>
<td>–</td>
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<td>1 + 1</td>
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<td></td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1 + 1</td>
</tr>
<tr>
<td>40 inputs/outputs</td>
<td>24 x 24 V inputs, inc. 8 high-speed inputs</td>
<td>16 outputs: with 4 source transistor high-speed outputs and 12 relay outputs</td>
<td>–</td>
<td>-</td>
<td>1 + 1</td>
</tr>
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<td></td>
<td></td>
<td>1</td>
<td>–</td>
<td>-</td>
<td>1 + 1</td>
</tr>
<tr>
<td>24 V ~ power supply</td>
<td>14 sink/source 24 V inputs, inc. 8 high-speed inputs</td>
<td>10 source transistor outputs, inc. 4 high-speed outputs</td>
<td>–</td>
<td>-</td>
<td>1 + 1</td>
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<td>1</td>
<td>1</td>
<td>1 + 1</td>
</tr>
<tr>
<td></td>
<td>14 sink/source 24 V inputs, inc. 8 high-speed inputs</td>
<td>10 sink transistor outputs, inc. 4 high-speed outputs</td>
<td>–</td>
<td>-</td>
<td>1 + 1</td>
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<tr>
<td>40 inputs/outputs</td>
<td>24 sink/source 24 V inputs, inc. 8 high-speed inputs</td>
<td>16 source transistor outputs, inc. 4 high-speed outputs</td>
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<td>1 + 1</td>
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<td>–</td>
<td>-</td>
<td>1 + 1</td>
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<tr>
<td></td>
<td>24 sink/source 24 V inputs, inc. 8 high-speed inputs</td>
<td>16 sink transistor outputs inc. 4 high-speed outputs</td>
<td>–</td>
<td>-</td>
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<td></td>
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<td>1</td>
<td>–</td>
<td>-</td>
<td>1 + 1</td>
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#### Options for Modicon M241 logic controllers

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

(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.

[Images of Modicon M241 logic controllers]
Modicon M241 logic controllers
Options, separate parts, programming software, connection cables

<table>
<thead>
<tr>
<th>References</th>
</tr>
</thead>
</table>

| Replacement parts | 
|---|---|
| Designation | Description | Unit reference | Weight |
| 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 kg 0.280 lb |
| Set of power supply terminal blocks | 8 removable terminal blocks with screw terminals | TMAT2PSET | 0.127 kg 0.280 lb |

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.

Programming software
<table>
<thead>
<tr>
<th>Designation</th>
<th>Use</th>
<th>Reference</th>
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<tbody>
<tr>
<td>SoMachine software</td>
<td>For M241 logic controllers</td>
<td>Please consult our website <a href="http://www.schneider-electric.com">www.schneider-electric.com</a></td>
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Expansion modules
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<thead>
<tr>
<th>Designation</th>
<th>Use</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modicon TM3 expansion modules</td>
<td>For M241 logic controllers</td>
<td>Please consult our website <a href="http://www.schneider-electric.com">www.schneider-electric.com</a></td>
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Communication modules
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<tr>
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<th>Use</th>
<th>Reference</th>
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<tbody>
<tr>
<td>Modicon TM4 communication modules</td>
<td>Ethernet port module, slave Profibus DP module</td>
<td>See page 13</td>
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</tbody>
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Connection cables
<table>
<thead>
<tr>
<th>Designation</th>
<th>Use from</th>
<th>to</th>
<th>Length</th>
<th>Reference</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Programming cables</td>
<td>PC USB port</td>
<td>USB mini-B port on M221, M241, M251 and M258 controllers</td>
<td>3 m (0.98 ft)</td>
<td>TCSXCNAMUM3P (1)</td>
<td>0.065 kg 0.143 lb</td>
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<tr>
<td></td>
<td></td>
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<td></td>
<td>BMXXCAUSBH018</td>
<td>0.065 kg 0.143 lb</td>
</tr>
</tbody>
</table>

(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

<table>
<thead>
<tr>
<th>Ethernet switch module</th>
</tr>
</thead>
<tbody>
<tr>
<td>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 SoMachine.</td>
</tr>
<tr>
<td>□ The TM4ES4 module is ready for use as soon as it is connected to the communication bus of M241 and M251 controllers.</td>
</tr>
<tr>
<td>□ 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.</td>
</tr>
<tr>
<td>□ Connected on controllers with embedded Ethernet port type TM241CE24 or TM241CE40, it can constitute a second Ethernet link for the &quot;Machine&quot; or &quot;Factory&quot; network.</td>
</tr>
<tr>
<td>□ 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.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Slave Profibus DP module</th>
</tr>
</thead>
<tbody>
<tr>
<td>The TM4PDPS1 communication module can be used to configure a slave connection on the Profibus DP bus.</td>
</tr>
</tbody>
</table>

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.
Modicon M241 logic controllers
Modicon TM4 communication modules
For Modicon M241 logic controllers

References, compatibility

Options for Modicon M241 logic controllers

<table>
<thead>
<tr>
<th>Designation</th>
<th>Description</th>
<th>Reference</th>
<th>Weight kg</th>
<th>Weight lb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication modules</td>
<td>Ethernet switch module with switch function and 4 embedded ports Equipped with 4 RJ45 connectors (10/100 Mbps, MDI/MDIX)</td>
<td>TM4ES4 (1)</td>
<td>0.110</td>
<td>0.243</td>
</tr>
</tbody>
</table>

Options for Modicon M241 logic controllers

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</tr>
</thead>
<tbody>
<tr>
<td>Slave Profibus DP module</td>
<td>Equipped with a 9-way SUB-D connector</td>
<td>TM4PDPS1</td>
<td>0.110</td>
<td>0.243</td>
</tr>
</tbody>
</table>

(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

<table>
<thead>
<tr>
<th>Configuration</th>
<th>Ethernet port embedded on M241 controllers</th>
<th>Ethernet ports embedded on TM4ES4 module (without modifying the firmware)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TM241C controllers + TM4ES4 module configured with SoMachine</td>
<td></td>
<td></td>
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<tr>
<td>TM241C24 controllers + TM4ES4 module not configured with SoMachine</td>
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<td></td>
</tr>
<tr>
<td>TM241CE controllers + TM4ES4 module configured with SoMachine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TM241CE controllers + TM4ES4 module not configured with SoMachine</td>
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</tbody>
</table>

Switch function only

Service offered
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<tbody>
<tr>
<td><strong>B</strong></td>
<td></td>
</tr>
<tr>
<td>BMXXCAUSBH018</td>
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<tr>
<td><strong>T</strong></td>
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<tr>
<td>TCSXCNAMUM3P</td>
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<tr>
<td>TM4E54</td>
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<tr>
<td>TM4PDPS1</td>
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<tr>
<td>TM241C24R</td>
<td>10</td>
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<tr>
<td>TM241C24T</td>
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<tr>
<td>TM241C24U</td>
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<tr>
<td>TM241C40R</td>
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<td>TM241C40T</td>
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<td>TM241C40U</td>
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<tr>
<td>TM241CE24R</td>
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<tr>
<td>TMASD1</td>
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<tr>
<td>TMAT2PSET</td>
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<tr>
<td>TMAT4GSET</td>
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<tr>
<td>TMC4AI2</td>
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<tr>
<td>TMC4TI2</td>
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</table>
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