

# Product data sheet

Specifications



## logic controller, Modicon M241, 24 IO, transistor, PNP, Ethernet

TM241CE24T

### Main

Range of Product	Modicon M241
Product or Component Type	Logic controller
[Us] rated supply voltage	24 V DC
Discrete input number	14, discrete input 8 fast input IEC 61131-2 Type 1
Discrete output type	Transistor
Discrete output number	10 transistor 4 fast output
Discrete output voltage	24 V DC transistor output
Discrete output current	0.5 A transistor output Q0...Q9 0.1 A fast output (PTO mode) Q0...Q3)

### Complementary

Discrete I/O number	24
Maximum number of I/O expansion module	7 (local I/O-Architecture) 14 (remote I/O-Architecture)
Supply voltage limits	20.4...28.8 V
Inrush current	50 A
Power consumption in W	32.6...40.4 W with max number of I/O expansion module)
Discrete input logic	Sink or source
Discrete input voltage	24 V
Discrete input voltage type	DC
Voltage state 1 guaranteed	$\geq 15$ V input
Voltage state 0 guaranteed	$\leq 5$ V input
Discrete input current	5 mA input 10.7 mA fast input
Input impedance	4.7 kOhm input 2.81 kOhm fast input
Response time	50 $\mu$ s turn-on, I0...I13 input 50 $\mu$ s turn-off, I0...I13 input $\leq 2$ $\mu$ s turn-on, I0...I7 fast input $\leq 2$ $\mu$ s turn-off, I0...I7 fast input $\leq 34$ $\mu$ s turn-on, Q0...Q9 output $\leq 250$ $\mu$ s turn-off, Q0...Q9 output $\leq 2$ $\mu$ s turn-on, Q0...Q3 fast output $\leq 2$ $\mu$ s turn-off, Q0...Q3 fast output

<b>Configurable filtering time</b>	1 µs fast input 12 ms fast input 0 ms input 1 ms input 4 ms input 12 ms input
<b>Discrete output logic</b>	Positive logic (source)
<b>Output voltage limits</b>	30 V DC
<b>Maximum current per output common</b>	2 A Q0...Q3 fast output 2 A Q4...Q7 output 1 A Q8...Q9 output
<b>Maximum output frequency</b>	20 kHz fast output (PWM mode) 100 kHz fast output (PLS mode) 1 kHz output
<b>Accuracy</b>	+/- 0.1 % 0.02...0.1 kHz fast output +/- 1 % 0.1...1 kHz fast output
<b>Maximum leakage current</b>	5 µA output
<b>Maximum voltage drop</b>	<1 V
<b>Maximum tungsten load</b>	<2.4 W
<b>Protection type</b>	Short-circuit protection Short-circuit and overload protection with automatic reset Reverse polarity protection fast output
<b>Reset time</b>	10 ms automatic reset output 12 s automatic reset fast output
<b>Memory capacity</b>	64 MB system memory RAM
<b>Data backed up</b>	128 MB built-in flash memory backup of user programs
<b>Data storage equipment</b>	<= 16 GB SD card optional)
<b>Battery type</b>	BR2032 lithium non-rechargeable 4 year(s)
<b>Backup time</b>	2 years 77 °F (25 °C)
<b>Execution time for 1 KInstruction</b>	0.3 ms event and periodic task 0.7 ms other instruction
<b>Application structure</b>	8 external event tasks 8 event tasks 3 cyclic master tasks + 1 freewheeling task 4 cyclic master tasks
<b>Realtime clock</b>	With
<b>Clock drift</b>	<= 60 s/month 77 °F (25 °C)
<b>Positioning functions</b>	PTO 4 100 kHz) PTO 4 transistor output 1 kHz)
<b>Counting input number</b>	4 fast input (HSC mode) 200 kHz 14 standard input 1 kHz
<b>Control signal type</b>	A/B 100 kHz fast input (HSC mode) Pulse/direction 200 kHz fast input (HSC mode) Single phase 200 kHz fast input (HSC mode)
<b>Integrated connection type</b>	Non isolated serial link serial 1 RJ45 RS232/RS485 Non isolated serial link serial 2 removable screw terminal block RS485 USB port mini B USB 2.0 Ethernet RJ45
<b>Supply</b>	Serial 1)serial link supply 5 V, <200 mA
<b>Transmission rate</b>	1.2...115.2 kbit/s (115.2 kbit/s by default) 49.21 ft (15 m) RS485 1.2...115.2 kbit/s (115.2 kbit/s by default) 9.84 ft (3 m) RS232 480 Mbit/s 9.84 ft (3 m) USB 10/100 Mbit/s Ethernet
<b>Communication port protocol</b>	Non isolated serial link Modbus master/slave
<b>Port Ethernet</b>	10BASE-T/100BASE-TX - 1 copper cable
<b>Ethernet services</b>	FDR DHCP server via TM4 Ethernet switch network module DHCP client embedded Ethernet port SMS notifications Updating firmware SNMP client/server

Programming  
 NGVL  
 Monitoring  
 IEC VAR ACCESS  
 FTP client/server  
 Downloading  
 SQL client  
 Modbus TCP client I/O scanner  
 Ethernet/IP originator I/O scanner embedded Ethernet port  
 Ethernet/IP target, Modbus TCP server and Modbus TCP slave  
 Send and receive email from the controller based on TCP/UDP library  
 Web server (WebVisu & XWeb system)  
 OPC UA server  
 DNS client

<b>Local signalling</b>	for PWR 1 LED (green) for RUN 1 LED (green) for module error (ERR) 1 LED (red) for I/O error (I/O) 1 LED (red) for SD card access (SD) 1 LED (green) for BAT 1 LED (red) for SL1 1 LED (green) for SL2 1 LED (green) for bus fault on TM4 (TM4) 1 LED (red) for I/O state 1 LED per channel (green) for Ethernet port activity 1 LED (green)
<b>Electrical connection</b>	removable screw terminal block for inputs and outputs pitch 5.08 mm) removable screw terminal block for connecting the 24 V DC power supply pitch 5.08 mm)
<b>Maximum cable distance between devices</b>	Unshielded cable <164.04 ft (50 m) input Shielded cable <32.81 ft (10 m) fast input Unshielded cable <164.04 ft (50 m) output Shielded cable <9.84 ft (3 m) fast output
<b>Insulation</b>	Between supply and internal logic 500 V AC Non-insulated between supply and ground Between input and internal logic 500 V AC Non-insulated between inputs Between fast input and internal logic 500 V AC Between output and internal logic 500 V AC Non-insulated between outputs Between fast output and internal logic 500 V AC Between output groups 500 V AC
<b>Marking</b>	CE
<b>Surge withstand</b>	1 kV power lines (DC) common mode EN/IEC 61000-4-5 1 kV shielded cable common mode EN/IEC 61000-4-5 0.5 kV power lines (DC) differential mode EN/IEC 61000-4-5 1 kV relay output differential mode EN/IEC 61000-4-5 1 kV input common mode EN/IEC 61000-4-5 1 kV transistor output common mode EN/IEC 61000-4-5
<b>Web services</b>	Web server
<b>Maximum number of connections</b>	8 Modbus server 8 SoMachine protocol 10 web server 4 FTP server 16 Ethernet/IP target 8 Modbus client
<b>Number of slave</b>	64 Modbus TCP 16 EtherNet/IP
<b>Cycle time</b>	10 ms 16 EtherNet/IP 64 ms 64 Modbus TCP
<b>Mounting support</b>	Top hat type TH35-15 rail IEC 60715 Top hat type TH35-7.5 rail IEC 60715 plate or panel with fixing kit
<b>Height</b>	3.54 in (90 mm)
<b>Depth</b>	3.74 in (95 mm)
<b>Width</b>	5.91 in (150 mm)
<b>Net Weight</b>	1.17 lb(US) (0.53 kg)

## Environment

<b>Standards</b>	ANSI/ISA 12-12-01 CSA C22.2 No 142 CSA C22.2 No 213 EN/IEC 61131-2:2007 Marine specification (LR, ABS, DNV, GL) UL 508
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<b>Product Certifications</b>	RCM cULus CE UKCA DNV-GL ABS LR
<b>Resistance to electrostatic discharge</b>	8 kV in air EN/IEC 61000-4-2 4 kV on contact EN/IEC 61000-4-2
<b>Resistance to electromagnetic fields</b>	9.14 V/m (10 V/m) 80 MHz...1 GHz EN/IEC 61000-4-3 2.74 V/m (3 V/m) 1.4 GHz...2 GHz EN/IEC 61000-4-3 0.91 V/m (1 V/m) 2 GHz...3 GHz EN/IEC 61000-4-3
<b>Resistance to fast transients</b>	2 kV EN/IEC 61000-4-4 power lines) 1 kV EN/IEC 61000-4-4 Ethernet line) 1 kV EN/IEC 61000-4-4 serial link) 1 kV EN/IEC 61000-4-4 input) 1 kV EN/IEC 61000-4-4 transistor output)
<b>Resistance to conducted disturbances</b>	10 V 0.15...80 MHz EN/IEC 61000-4-6 3 V 0.1...80 MHz Marine specification (LR, ABS, DNV, GL) 10 V spot frequency (2, 3, 4, 6.2, 8.2, 12.6, 16.5, 18.8, 22, 25 MHz) Marine specification (LR, ABS, DNV, GL)
<b>Electromagnetic emission</b>	Conducted emissions 120...69 dB $\mu$ V/m QP power lines)10...150 kHz EN/IEC 55011 Conducted emissions 63 dB $\mu$ V/m QP power lines)1.5...30 MHz EN/IEC 55011 Radiated emissions 40 dB $\mu$ V/m QP class A30...230 MHz EN/IEC 55011 Conducted emissions 79...63 dB $\mu$ V/m QP power lines)150...1500 kHz EN/IEC 55011 Radiated emissions 47 dB $\mu$ V/m QP class A230...1000 MHz EN/IEC 55011
<b>Immunity to microbreaks</b>	10 ms
<b>Ambient air temperature for operation</b>	14...122 °F (-10...50 °C) vertical installation) 14...131 °F (-10...55 °C) horizontal installation)
<b>Ambient Air Temperature for Storage</b>	-13...158 °F (-25...70 °C)
<b>Relative humidity</b>	10...95 %, without condensation in operation) 10...95 %, without condensation in storage)
<b>IP degree of protection</b>	IP20 with protective cover in place
<b>Pollution degree</b>	2
<b>Operating altitude</b>	0...6561.68 ft (0...2000 m)
<b>Storage altitude</b>	0.00...9842.52 ft (0...3000 m)
<b>Vibration resistance</b>	3.5 mm 5...8.4 Hz symmetrical rail 3 gn 8.4...150 Hz symmetrical rail 3.5 mm 5...8.4 Hz panel mounting 3 gn 8.4...150 Hz panel mounting
<b>Shock resistance</b>	15 gn 11 ms

## Ordering and shipping details

<b>Category</b>	22533-M2XX PLC & ACCESSORIES
<b>Discount Schedule</b>	MSX
<b>GTIN</b>	3606480611193
<b>Returnability</b>	Yes
<b>Country of origin</b>	ID

## Packing Units

<b>Unit Type of Package 1</b>	PCE
<b>Number of Units in Package 1</b>	1
<b>Package 1 Height</b>	4.46 in (11.33 cm)
<b>Package 1 Width</b>	5.16 in (13.095 cm)
<b>Package 1 Length</b>	7.36 in (18.689 cm)
<b>Package 1 Weight</b>	22.57 oz (640.0 g)

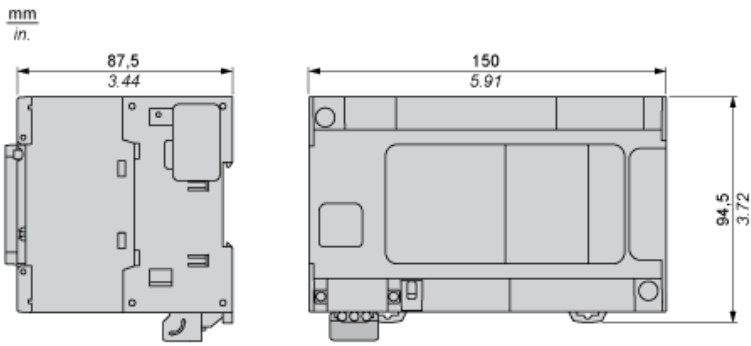
<b>Unit Type of Package 2</b>	S03
<b>Number of Units in Package 2</b>	8
<b>Package 2 Height</b>	11.81 in (30 cm)
<b>Package 2 Width</b>	11.81 in (30 cm)
<b>Package 2 Length</b>	15.75 in (40 cm)
<b>Package 2 Weight</b>	12.79 lb(US) (5.801 kg)
<b>Unit Type of Package 3</b>	P06
<b>Number of Units in Package 3</b>	64
<b>Package 3 Height</b>	29.53 in (75.0 cm)
<b>Package 3 Width</b>	15.75 in (40.0 cm)
<b>Package 3 Length</b>	31.50 in (80.0 cm)
<b>Package 3 Weight</b>	128.75 lb(US) (58.4 kg)

## Offer Sustainability

<b>Sustainable offer status</b>	Green Premium product
<b>California proposition 65</b>	WARNING: This product can expose you to chemicals including: Lead and lead compounds, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to <a href="http://www.P65Warnings.ca.gov">www.P65Warnings.ca.gov</a>
<b>REACH Regulation</b>	<a href="#">REACH Declaration</a>
<b>EU RoHS Directive</b>	Pro-active compliance (Product out of EU RoHS legal scope) <a href="#">EU RoHS Declaration</a>
<b>Mercury free</b>	Yes
<b>China RoHS Regulation</b>	<a href="#">China RoHS declaration</a>
<b>RoHS exemption information</b>	<a href="#">Yes</a>
<b>Environmental Disclosure</b>	<a href="#">Product Environmental Profile</a>
<b>Circularity Profile</b>	<a href="#">End of Life Information</a>
<b>WEEE</b>	The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins.
<b>PVC free</b>	Yes

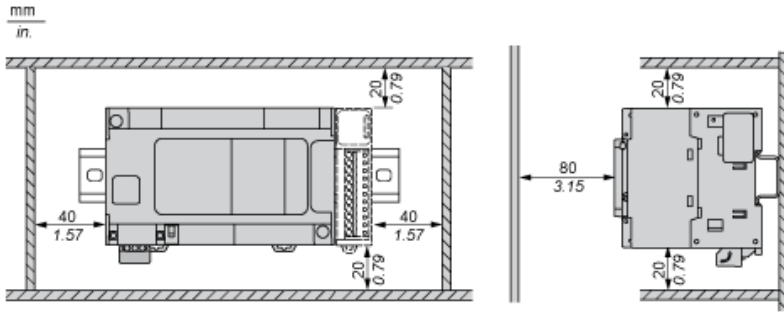
Dimensions

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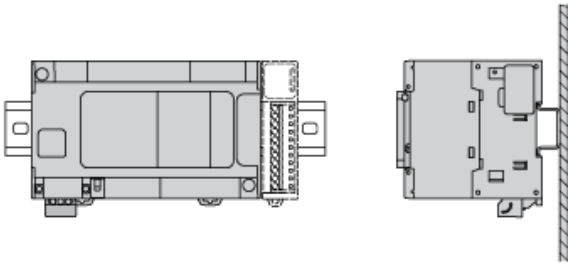
Clearance

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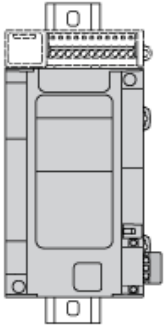


**Mounting Position**

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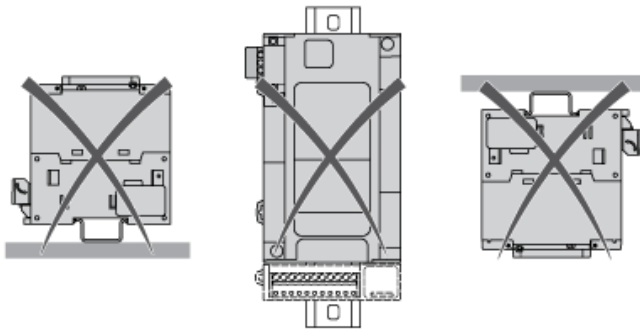


**Acceptable Mounting**



**NOTE:** Expansion modules must be mounted above the logic controller.

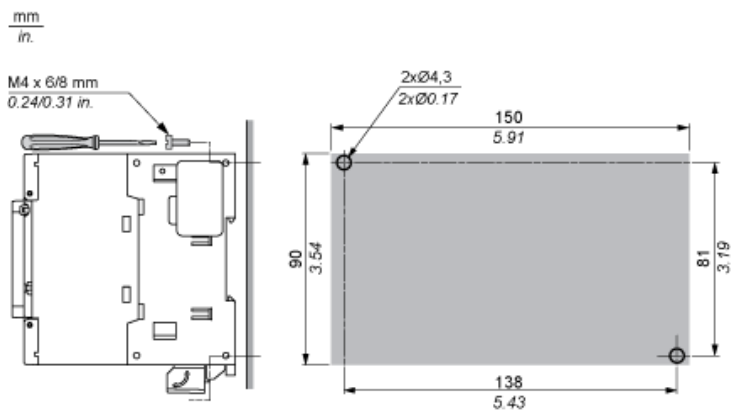
**Incorrect Mounting**



Direct Mounting On a Panel Surface

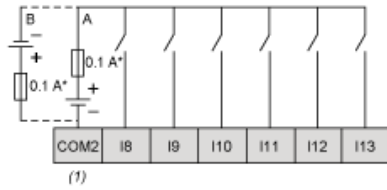
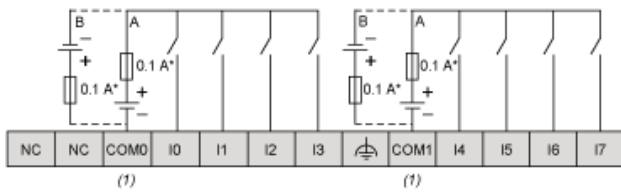
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Mounting Hole Layout



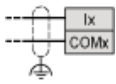
**Digital Inputs**

**Wiring Diagram**



- (\*) : Type T fuse
- (1) : The COM0, COM1 and COM2 terminals are not connected internally
- (A) : Sink wiring (positive logic)
- (B) : Source wiring (negative logic)

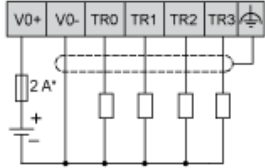
**Fast Input Wiring (I0...I7)**



**Fast Transistor Outputs**

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**Wiring Diagram**

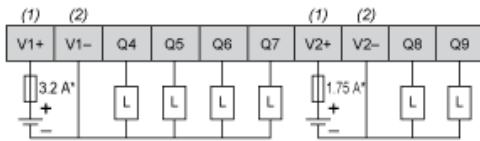


(\*) : 2 A fast-blow fuse

**Transistor Outputs**

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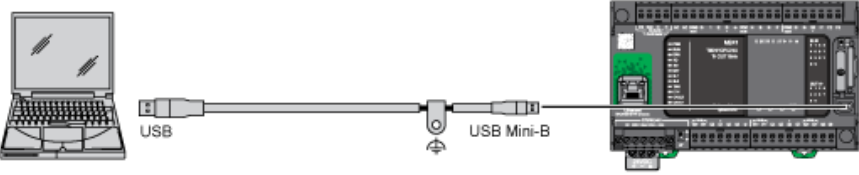
**Wiring Diagram**



- (\*) : Type T fuse
- (1) : The V1+ and V2+ terminals are not connected internally.
- (2) : The V1- and V2- terminals are not connected internally.

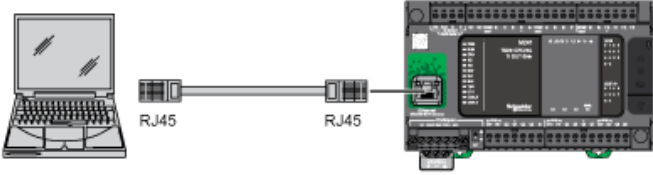
**USB Mini-B Connection**

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**Ethernet Connection to a PC**

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**Recommended replacement(s)**