

# Product data sheet

Specifications



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

TM241C24T

## 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 conforming to IEC 61131-2 Type 1
Discrete Output Type	Transistor
Discrete Output Number	10 transistor 4 fast output
Discrete Output Voltage	24 V DC for transistor output
Discrete Output Current	0.5 A for transistor output (Q0...Q9) 0.1 A for 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	>= 15 V for input
Voltage State 0 Guaranteed	<= 5 V for input
Discrete Input Current	5 mA for input 10.7 mA for fast input
Input Impedance	4.7 kOhm for input 2.81 kOhm for fast input
Response Time	50 µs turn-on, I0...I13 terminal(s) for input 50 µs turn-off, I0...I13 terminal(s) for input <= 2 µs turn-on, I0...I7 terminal(s) for fast input <= 2 µs turn-off, I0...I7 terminal(s) for fast input <= 34 µs turn-on, Q0...Q9 terminal(s) for output <= 250 µs turn-off, Q0...Q9 terminal(s) for output <= 2 µs turn-on, Q0...Q3 terminal(s) for fast output <= 2 µs turn-off, Q0...Q3 terminal(s) for fast output

Disclaimer: This documentation is not intended as a substitute for and is not to be used for determining suitability or reliability of these products for specific user applications

<b>Configurable Filtering Time</b>	1 µs for fast input 12 ms for fast input 0 ms for input 1 ms for input 4 ms for input 12 ms for 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 with Q0...Q3 for fast output 2 A with Q4...Q7 for output 1 A with Q8...Q9 for output
<b>Maximum Output Frequency</b>	20 kHz for fast output (PWM mode) 100 kHz for fast output (PLS mode) 1 kHz for output
<b>Accuracy</b>	+/- 0.1 % at 0.02...0.1 kHz for fast output +/- 1 % at 0.1...1 kHz for fast output
<b>Maximum Leakage Current</b>	5 µA for 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 for fast output
<b>Reset Time</b>	10 ms automatic reset output 12 s automatic reset fast output
<b>Memory Capacity</b>	64 MB for system memory RAM
<b>Data Backed Up</b>	128 MB built-in flash memory for backup of user programs
<b>Data Storage Equipment</b>	<= 16 GB SD card (optional)
<b>Battery Type</b>	BR2032 lithium non-rechargeable, battery life: 4 year(s)
<b>Backup Time</b>	2 years at 25 °C
<b>Execution Time For 1 Kinstruction</b>	0.3 ms for event and periodic task 0.7 ms for other instruction
<b>Application Structure</b>	4 cyclic master tasks 3 cyclic master tasks + 1 freewheeling task 8 external event tasks 8 event tasks
<b>Realtime Clock</b>	With
<b>Clock Drift</b>	<= 60 s/month at 25 °C
<b>Positioning Functions</b>	PTO function 4 channel(s) (positioning frequency: 100 kHz) PTO function 4 channel(s) for transistor output (positioning frequency: 1 kHz)
<b>Counting Input Number</b>	4 fast input (HSC mode) at 200 kHz 14 standard input at 1 kHz
<b>Control Signal Type</b>	A/B at 100 kHz for fast input (HSC mode) Pulse/direction at 200 kHz for fast input (HSC mode) Single phase at 200 kHz for fast input (HSC mode)
<b>Integrated Connection Type</b>	Non isolated serial link serial 1 with RJ45 connector and RS232/RS485 interface Non isolated serial link serial 2 with removable screw terminal block connector and RS485 interface USB port with mini B USB 2.0 connector
<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) for bus length of 15 m for RS485 1.2...115.2 kbit/s (115.2 kbit/s by default) for bus length of 3 m for RS232 480 Mbit/s for bus length of 3 m for USB
<b>Communication Port Protocol</b>	Non isolated serial link: Modbus master/slave

Local Signalling	1 LED (green) for PWR 1 LED (green) for RUN 1 LED (red) for module error (ERR) 1 LED (red) for I/O error (I/O) 1 LED (green) for SD card access (SD) 1 LED (red) for BAT 1 LED (green) for SL1 1 LED (green) for SL2 1 LED (red) for bus fault on TM4 (TM4) 1 LED per channel (green) for I/O state
Electrical Connection	removable screw terminal blockfor inputs and outputs (pitch 5.08 mm) removable screw terminal blockfor connecting the 24 V DC power supply (pitch 5.08 mm)
Maximum Cable Distance Between Devices	Unshielded cable: <50 m for input Shielded cable: <10 m for fast input Unshielded cable: <50 m for output Shielded cable: <3 m for fast output
Insulation	Between supply and internal logic at 500 V AC Non-insulated between supply and ground Between input and internal logic at 500 V AC Non-insulated between inputs Between fast input and internal logic at 500 V AC Between output and internal logic at 500 V AC Non-insulated between outputs Between fast output and internal logic at 500 V AC
Marking	CE
Surge Withstand	1 kV power lines (DC) common mode conforming to IEC 61000-4-5 1 kV shielded cable common mode conforming to IEC 61000-4-5 0.5 kV power lines (DC) differential mode conforming to IEC 61000-4-5 1 kV relay output differential mode conforming to IEC 61000-4-5 1 kV input common mode conforming to IEC 61000-4-5 1 kV transistor output common mode conforming to IEC 61000-4-5
Mounting Support	Top hat type TH35-15 rail conforming to IEC 60715 Top hat type TH35-7.5 rail conforming to IEC 60715 plate or panel with fixing kit
Height	90 mm
Depth	95 mm
Width	150 mm
Net Weight	0.53 kg

## Environment

Standards	ANSI/ISA 12-12-01 CSA C22.2 No 142 CSA C22.2 No 213 IEC 61131-2:2007 Marine specification (LR, ABS, DNV, GL) UL 508
Product Certifications	RCM cULus CE UKCA DNV-GL ABS LR
Resistance To Electrostatic Discharge	8 kV in air conforming to IEC 61000-4-2 4 kV on contact conforming to IEC 61000-4-2
Resistance To Electromagnetic Fields	10 V/m 80 MHz...1 GHz conforming to IEC 61000-4-3 3 V/m 1.4 GHz...2 GHz conforming to IEC 61000-4-3 1 V/m 2 GHz...3 GHz conforming to IEC 61000-4-3
Resistance To Fast Transients	2 kV (power lines) conforming to IEC 61000-4-4 1 kV (serial link) conforming to IEC 61000-4-4 1 kV (input) conforming to IEC 61000-4-4 1 kV (transistor output) conforming to IEC 61000-4-4

Resistance To Conducted Disturbances	10 V 0.15...80 MHz conforming to IEC 61000-4-6 3 V 0.1...80 MHz conforming to 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) conforming to Marine specification (LR, ABS, DNV, GL)
Electromagnetic Emission	Conducted emissions - test level: 120...69 dBµV/m QP ( power lines) at 10...150 kHz conforming to IEC 55011 Conducted emissions - test level: 63 dBµV/m QP ( power lines) at 1.5...30 MHz conforming to IEC 55011 Radiated emissions - test level: 40 dBµV/m QP class A at 30...230 MHz conforming to IEC 55011 Conducted emissions - test level: 79...63 dBµV/m QP ( power lines) at 150...1500 kHz conforming to IEC 55011 Radiated emissions - test level: 47 dBµV/m QP class A at 230...1000 MHz conforming to IEC 55011
Immunity To Microbreaks	10 ms
Ambient Air Temperature For Operation	-10...50 °C (vertical installation) -10...55 °C (horizontal installation)
Ambient Air Temperature For Storage	-25...70 °C
Relative Humidity	10...95 %, without condensation (in operation) 10...95 %, without condensation (in storage)
Ip Degree Of Protection	IP20 with protective cover in place
Pollution Degree	2
Operating Altitude	0...2000 m
Storage Altitude	0...3000 m
Vibration Resistance	3.5 mm at 5...8.4 Hz on symmetrical rail 3 gn at 8.4...150 Hz on symmetrical rail 3.5 mm at 5...8.4 Hz on panel mounting 3 gn at 8.4...150 Hz on panel mounting
Shock Resistance	15 gn for 11 ms

## Packing Units

Unit Type Of Package 1	PCE
Number Of Units In Package 1	1
Package 1 Height	11.367 cm
Package 1 Width	13.104 cm
Package 1 Length	18.744 cm
Package 1 Weight	640.0 g
Unit Type Of Package 2	S03
Number Of Units In Package 2	8
Package 2 Height	30 cm
Package 2 Width	30 cm
Package 2 Length	40 cm
Package 2 Weight	5.99 kg
Unit Type Of Package 3	P06
Number Of Units In Package 3	64
Package 3 Height	75.0 cm
Package 3 Width	60.0 cm
Package 3 Length	80.0 cm
Package 3 Weight	56 kg

## Sustainability

**Green Premium™** label is Schneider Electric's commitment to delivering products with best-in-class environmental performance. Green Premium promises compliance with the latest regulations, transparency on environmental impacts, as well as circular and low-CO<sub>2</sub> products.

**Guide to assessing product sustainability** is a white paper that clarifies global eco-label standards and how to interpret environmental declarations.

[Learn more about Green Premium >](#)

[Guide to assess a product's sustainability >](#)



Transparency   RoHS/REACH

## Well-being performance

✓ Mercury Free

✓ Rohs Exemption Information   [Yes](#)

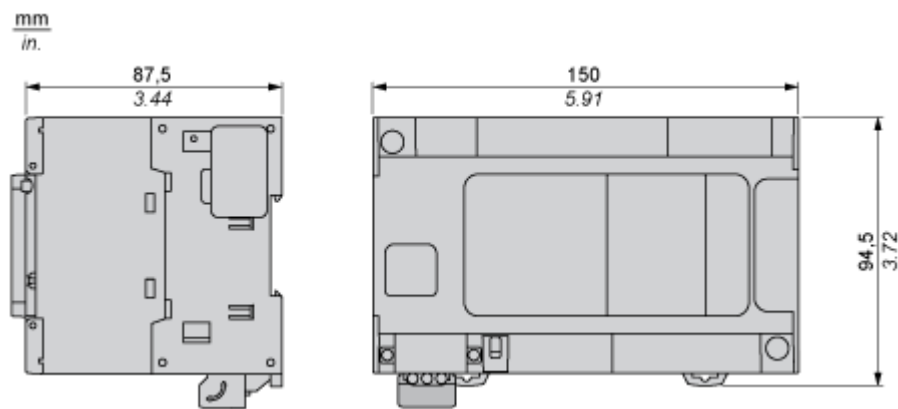
✓ Pvc Free

## Certifications & Standards

Reach Regulation	<a href="#">REACH Declaration</a>
Eu Rohs Directive	Pro-active compliance (Product out of EU RoHS legal scope)
China Rohs Regulation	<a href="#">China RoHS declaration</a>
Environmental Disclosure	<a href="#">Product Environmental Profile</a>
Weee	The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins
Circularity Profile	<a href="#">End of Life Information</a>
California Proposition 65	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>

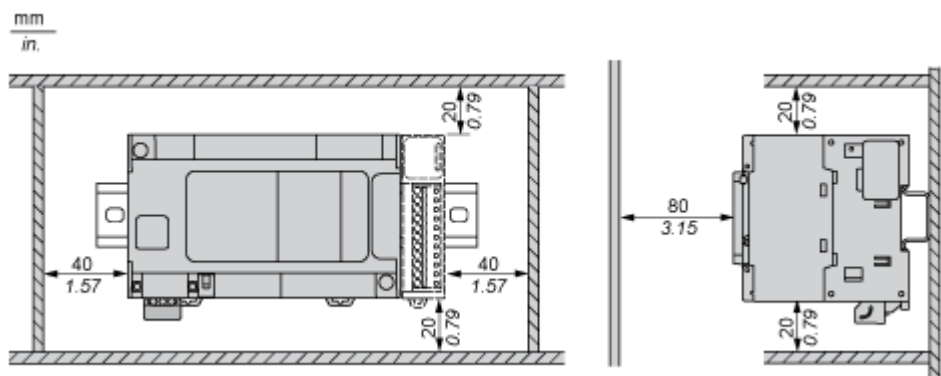
Dimensions Drawings

Dimensions



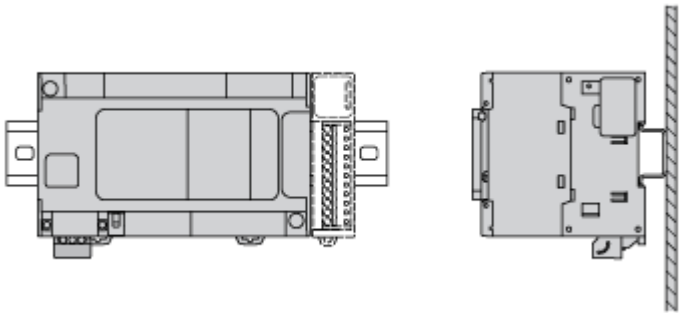
Mounting and Clearance

Clearance

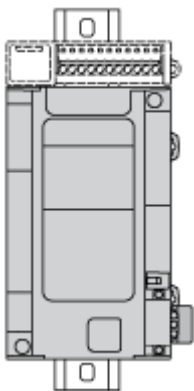


Mounting Position

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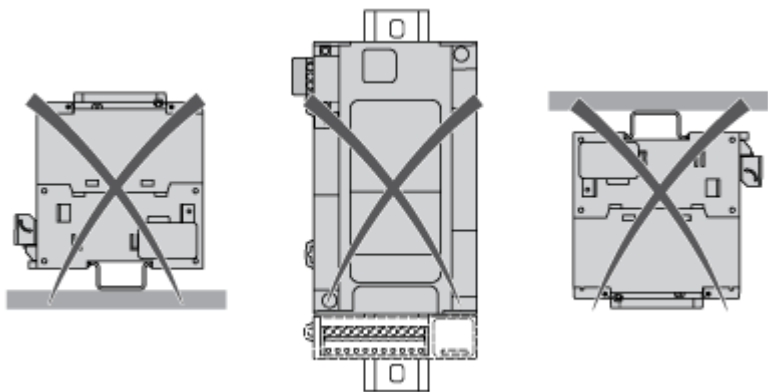


Acceptable Mounting



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

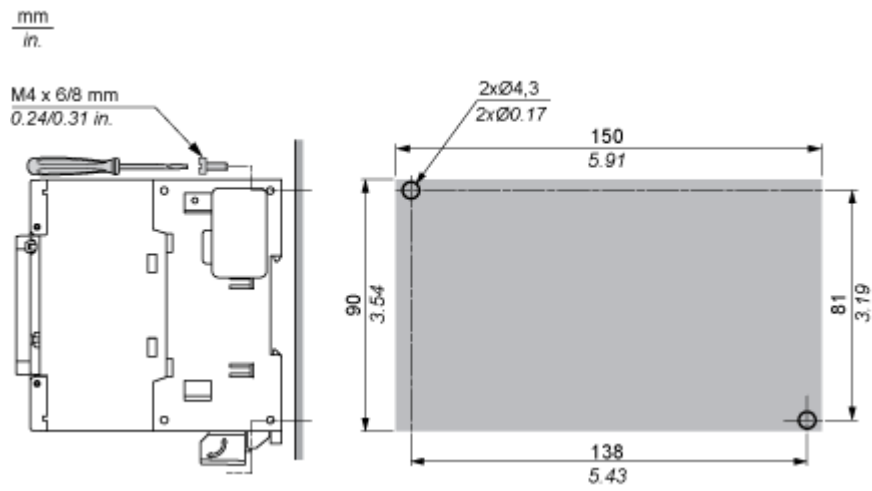
Incorrect Mounting





Direct Mounting On a Panel Surface

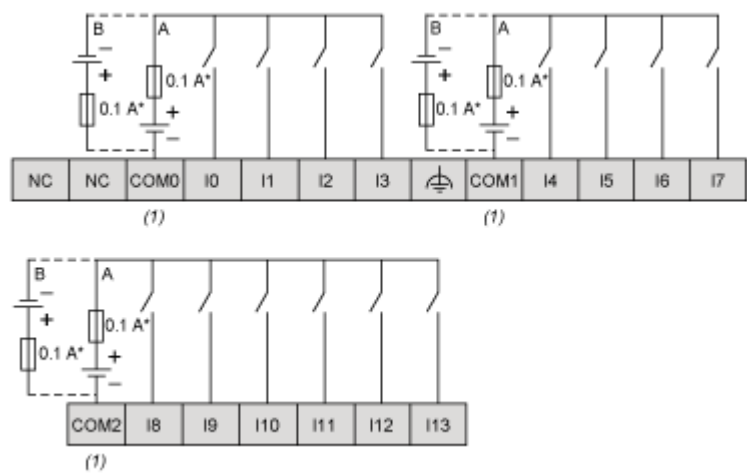
Mounting Hole Layout



Connections and Schema

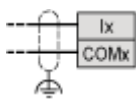
Digital Inputs

Wiring Diagram



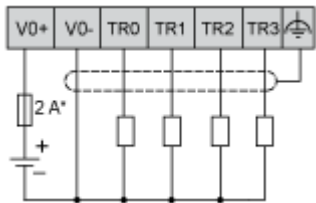
- (\*) : Type T fuse
- (1) : The COM0, COM1 and COM2 terminals are not connected internally
- (A) : Sink wiring (positive logic)
- (B) : Source wiring (negative logic)

Fast Input Wiring (I0...I7)



Fast Transistor Outputs

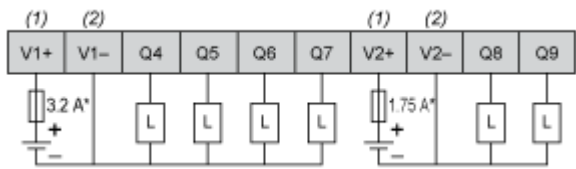
Wiring Diagram



(\*) : 2 A fast-blow fuse

Transistor Outputs

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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