



## 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
Configurable filtering time	1 $\mu$ s fast input 12 ms fast input 0 ms input 1 ms input 4 ms input 12 ms input
Discrete output logic	Positive logic (source)
Output voltage limits	30 V DC
Maximum current per output common	2 A Q0...Q3 fast output 2 A Q4...Q7 output 1 A Q8...Q9 output
Maximum output frequency	20 KHz fast output (PWM mode) 100 KHz fast output (PLS mode) 1 kHz output
Accuracy	$\pm 0.1$ % 0.02...0.1 kHz fast output $\pm 1$ % 0.1...1 kHz fast output
Maximum leakage current	5 $\mu$ A output

Maximum voltage drop	<1 V
Maximum tungsten load	<2.4 W
Protection type	Short-circuit protection Short-circuit and overload protection with automatic reset Reverse polarity protection fast output
Reset time	10 Ms automatic reset output 12 s automatic reset fast output
Memory capacity	8 MB program 64 MB system memory RAM
Data backed up	128 MB built-in flash memory backup of user programs
Data storage equipment	<= 16 GB SD card optional)
Battery type	BR2032 lithium non-rechargeable 4 year(s)
Backup time	2 years 77 °F (25 °C)
Execution time for 1 KInstruction	0.3 Ms event and periodic task 0.7 ms other instruction
Application structure	8 external event tasks 8 event tasks 3 cyclic master tasks + 1 freewheeling task 4 cyclic master tasks
Realtime clock	With
Clock drift	<= 60 s/month 77 °F (25 °C)
Positioning functions	PTO 4 100 kHz) PTO 4 transistor output 1 kHz)
Counting input number	4 fast input (HSC mode) 200 kHz 14 standard input 1 kHz
Control signal type	A/B 100 kHz fast input (HSC mode) Pulse/Direction 200 kHz fast input (HSC mode) Single phase 200 kHz fast input (HSC mode)
Integrated connection type	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
Supply	Serial 1)serial link supply 5 V, <200 mA
Transmission rate	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
Communication port protocol	Non isolated serial link Modbus master/slave
Port Ethernet	10BASE-T/100BASE-TX - 1 copper cable
Ethernet services	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
Local signalling	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)

Electrical connection	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)
Maximum cable distance between devices	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
Insulation	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
Marking	CE
Surge withstand	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
Web services	Web server
Maximum number of connections	8 Modbus server 8 SoMachine protocol 10 web server 4 FTP server 16 Ethernet/IP target 8 Modbus client
Number of slave	64 Modbus TCP 16 EtherNet/IP
Cycle time	10 Ms 16 EtherNet/IP 64 ms 64 Modbus TCP
Mounting support	Top hat type TH35-15 rail IEC 60715 Top hat type TH35-7.5 rail IEC 60715 Plate or panel with fixing kit
Height	3.54 in (90 mm)
Depth	3.74 in (95 mm)
Width	5.91 in (150 mm)
Net Weight	1.17 lb(US) (0.53 kg)

## Environment

Standards	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 1604 UL 508
Product Certifications	CULus IACS E10 RCM CSA
Resistance to electrostatic discharge	8 KV in air EN/IEC 61000-4-2 4 kV on contact EN/IEC 61000-4-2
Resistance to electromagnetic fields	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
Resistance to fast transients	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)
Resistance to conducted disturbances	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)

Electromagnetic emission	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
Immunity to microbreaks	10 ms
Ambient air temperature for operation	14...122 °F (-10...50 °C) vertical installation) 14...131 °F (-10...55 °C) horizontal installation)
Ambient Air Temperature for Storage	-13...158 °F (-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...6561.68 ft (0...2000 m)
Storage altitude	0.00...9842.52 ft (0...3000 m)
Vibration resistance	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
Shock resistance	15 gn 11 ms







## Ordering and shipping details

Category	22533 - M2XX PLC & ACCESSORIES
Discount Schedule	MSX
GTIN	3606480611193
Nbr. of units in pkg.	1
Package weight(Lbs)	22.57 oz (640 g)
Returnability	Yes
Country of origin	ID

## Packing Units

Unit Type of Package 1	PCE
Package 1 Height	4.46 in (11.33 cm)
Package 1 width	5.16 in (13.095 cm)
Package 1 Length	7.36 in (18.689 cm)
Unit Type of Package 2	S03
Number of Units in Package 2	8
Package 2 Weight	12.79 lb(US) (5.801 kg)
Package 2 Height	11.81 in (30 cm)
Package 2 width	11.81 in (30 cm)
Package 2 Length	15.75 in (40 cm)

## Offer Sustainability

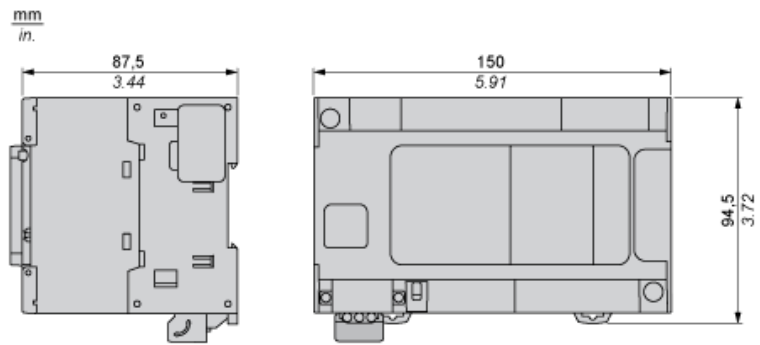
Sustainable offer status	Green Premium product
California proposition 65	WARNING: This product can expose you to chemicals including: Lead and lead compounds, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to <a href="http://www.P65Warnings.ca.gov">www.P65Warnings.ca.gov</a>
REACH Regulation	 <a href="#">REACH Declaration</a>
EU RoHS Directive	Pro-active compliance (Product out of EU RoHS legal scope)  <a href="#">EU RoHS Declaration</a>
Mercury free	Yes
RoHS exemption information	 Yes
China RoHS Regulation	 <a href="#">China RoHS Declaration</a>
Environmental Disclosure	 <a href="#">Product Environmental Profile</a>
Circularity Profile	 <a href="#">End Of Life Information</a>

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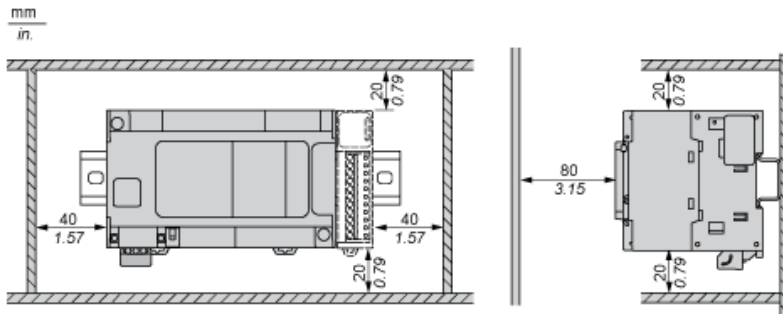
WEEE	The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins.
PVC free	Yes

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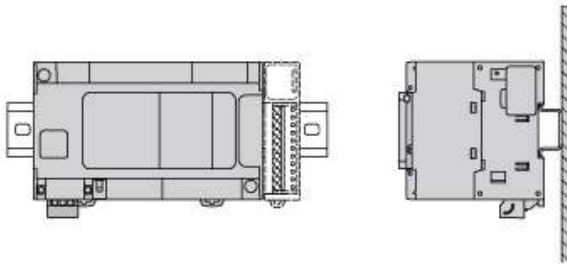
Dimensions



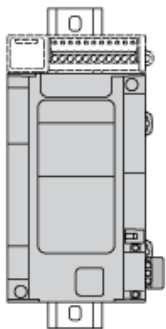
Clearance



Mounting Position

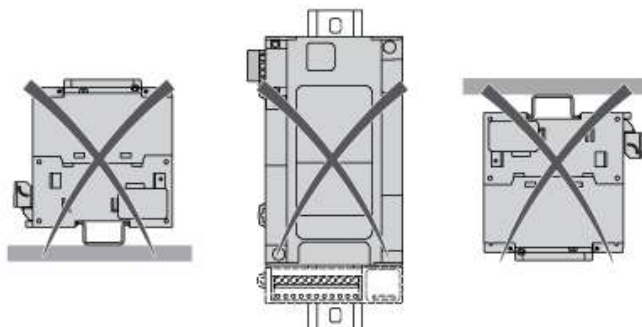


Acceptable Mounting



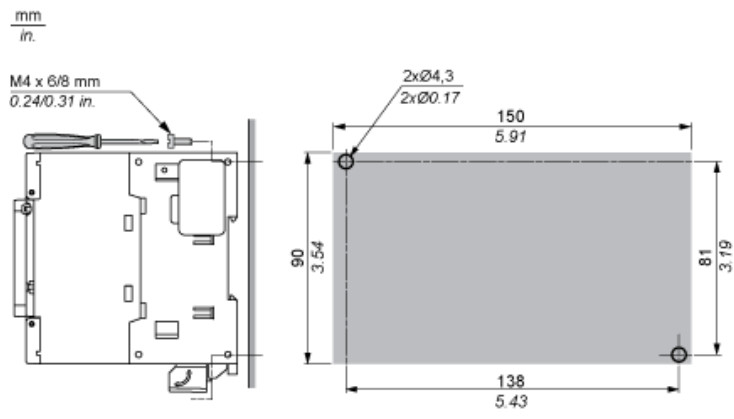
NOTE: Expansion modules must be mounted above the logic controller.

Incorrect Mounting



Direct Mounting On a Panel Surface

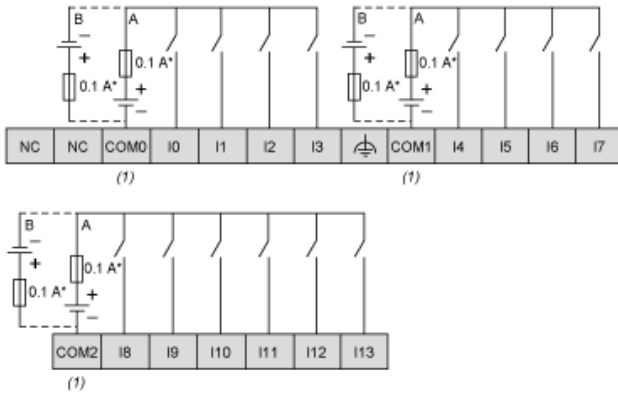
## Mounting Hole Layout





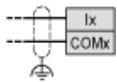
Digital Inputs

Wiring Diagram



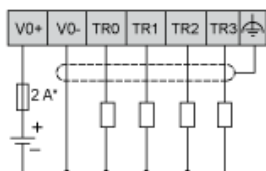
- (\*) : Type T fuse
- (1) : The COM0, COM1 and COM2 terminals are not connected internally
- (A) : Sink wiring (positive logic)
- (B) : Source wiring (negative logic)

Fast Input Wiring (I0...I7)



Fast Transistor Outputs

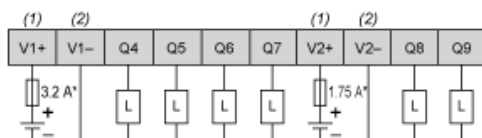
Wiring Diagram



- (\*) : 2 A fast-blow fuse

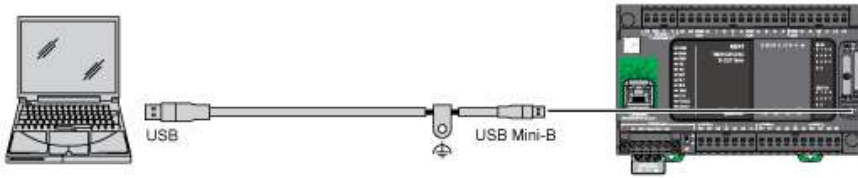
Transistor Outputs

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



## Ethernet Connection to a PC

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