



## 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)<br>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)<br>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<br>10.7 mA fast input  |
| Input impedance                        | 4.7 kOhm input<br>2.81 kOhm fast input  |
| Response time                          | 50 $\mu$ s turn-on, I0...I13 input<br>50 $\mu$ s turn-off, I0...I13 input<br>$\leq 2$ $\mu$ s turn-on, I0...I7 fast input<br>$\leq 2$ $\mu$ s turn-off, I0...I7 fast input<br>$\leq 34$ $\mu$ s turn-on, Q0...Q9 output<br>$\leq 250$ $\mu$ s turn-off, Q0...Q9 output<br>$\leq 2$ $\mu$ s turn-on, Q0...Q3 fast output<br>$\leq 2$ $\mu$ s turn-off, Q0...Q3 fast output |
| Configurable filtering time            | 1 $\mu$ s fast input<br>12 ms fast input<br>0 ms input<br>1 ms input<br>4 ms input<br>12 ms input   |
| Discrete output logic                  | Negative logic (sink)   |
| Output voltage limits                  | 30 V DC   |
| Maximum current per output common      | 2 A Q0...Q3 fast output<br>2 A Q4...Q7 output<br>1 A Q8...Q9 output   |
| Maximum output frequency               | 20 KHz fast output (PWM mode)<br>100 KHz fast output (PLS mode)<br>1 kHz output   |
| Accuracy                               | $\pm 0.1$ % 0.02...0.1 kHz fast output<br>$\pm 1$ % 0.1...1 kHz fast output   |
| Maximum leakage current                | 5 $\mu$ A output  |

The information provided in this documentation contains general descriptions and/or technical characteristics of the performance of the products contained herein. 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. It is the duty of any such user or integrator to perform the appropriate and complete risk analysis, evaluation and testing of the products with respect to the relevant specific application or use thereof. Neither Schneider Electric Industries SAS nor any of its affiliates or subsidiaries shall be responsible or liable for misuse of the information contained herein.

|                                   |  |
|-----------------------------------|--|
| Maximum voltage drop              | <1 V   |
| Maximum tungsten load             | <2.4 W   |
| Protection type                   | Short-circuit protection<br>Short-circuit and overload protection with automatic reset<br>Reverse polarity protection fast output  |
| Reset time                        | 10 Ms automatic reset output<br>12 s automatic reset fast output   |
| Memory capacity                   | 8 MB program<br>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<br>0.7 ms other instruction   |
| Application structure             | 8 external event tasks<br>4 cyclic master tasks<br>8 event tasks<br>3 cyclic master tasks + 1 freewheeling task  |
| Realtime clock                    | With   |
| Clock drift                       | <= 60 s/month 77 °F (25 °C)  |
| Positioning functions             | PTO 4 100 kHz)<br>PTO 4 transistor output 1 kHz)   |
| Counting input number             | 4 fast input (HSC mode) 200 kHz<br>14 standard input 1 kHz   |
| Control signal type               | A/B 100 kHz fast input (HSC mode)<br>Pulse/Direction 200 kHz fast input (HSC mode)<br>Single phase 200 kHz fast input (HSC mode)   |
| Integrated connection type        | Non isolated serial link serial 1 RJ45 RS232/RS485<br>Non isolated serial link serial 2 removable screw terminal block RS485<br>USB port mini B USB 2.0<br>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<br>1.2...115.2 kbit/s (115.2 kbit/s by default) 9.84 ft (3 m) RS232<br>480 Mbit/s 9.84 ft (3 m) USB<br>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<br>DHCP server via TM4 Ethernet switch network module<br>DHCP client embedded Ethernet port<br>SMS notifications<br>Updating firmware<br>SNMP client/server<br>Programming<br>NGVL<br>Monitoring<br>IEC VAR ACCESS<br>FTP client/server<br>Downloading<br>SQL client<br>Modbus TCP client I/O scanner<br>Ethernet/IP originator I/O scanner embedded Ethernet port<br>Ethernet/IP target, Modbus TCP server and Modbus TCP slave<br>Send and receive email from the controller based on TCP/UDP library<br>Web server (WebVisu & XWeb system)<br>OPC UA server<br>DNS client |
| Local signalling                  | For PWR 1 LED (green)<br>For RUN 1 LED (green)<br>For module error (ERR) 1 LED (red)<br>For I/O error (I/O) 1 LED (red)<br>For SD card access (SD) 1 LED (green)<br>For BAT 1 LED (red)<br>For SL1 1 LED (green)<br>For SL2 1 LED (green)<br>For bus fault on TM4 (TM4) 1 LED (red)<br>For I/O state 1 LED per channel (green)<br>For Ethernet port activity 1 LED (green)   |

|  |  |
|--|--|
| Electrical connection                  | Removable screw terminal block for inputs and outputs pitch 5.08 mm)<br>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<br>Shielded cable <32.81 ft (10 m) fast input<br>Unshielded cable <164.04 ft (50 m) output<br>Shielded cable <9.84 ft (3 m) fast output   |
| Insulation                             | Between supply and internal logic 500 V AC<br>Non-insulated between supply and ground<br>Between input and internal logic 500 V AC<br>Non-insulated between inputs<br>Between fast input and internal logic 500 V AC<br>Between output and internal logic 500 V AC<br>Non-insulated between outputs<br>Between fast output and internal logic 500 V AC<br>Between output groups 500 V AC |
| Marking                                | CE   |
| Surge withstand                        | 1 KV power lines (DC) common mode EN/IEC 61000-4-5<br>1 KV shielded cable common mode EN/IEC 61000-4-5<br>0.5 KV power lines (DC) differential mode EN/IEC 61000-4-5<br>1 KV relay output differential mode EN/IEC 61000-4-5<br>1 KV input common mode EN/IEC 61000-4-5<br>1 kV transistor output common mode EN/IEC 61000-4-5   |
| Web services                           | Web server   |
| Maximum number of connections          | 8 Modbus server<br>8 SoMachine protocol<br>10 web server<br>4 FTP server<br>16 Ethernet/IP target<br>8 Modbus client   |
| Number of slave                        | 64 Modbus TCP<br>16 EtherNet/IP  |
| Cycle time                             | 10 Ms 16 EtherNet/IP<br>64 ms 64 Modbus TCP  |
| Mounting support                       | Top hat type TH35-15 rail IEC 60715<br>Top hat type TH35-7.5 rail IEC 60715<br>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<br>CSA C22.2 No 142<br>CSA C22.2 No 213<br>EN/IEC 61131-2:2007<br>Marine specification (LR, ABS, DNV, GL)<br>UL 1604<br>UL 508   |
| Product Certifications                | IACS E10<br>CSA<br>CULus<br>RCM  |
| Resistance to electrostatic discharge | 8 KV in air EN/IEC 61000-4-2<br>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<br>2.74 V/M (3 V/m) 1.4 GHz...2 GHz EN/IEC 61000-4-3<br>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)<br>1 KV EN/IEC 61000-4-4 Ethernet line)<br>1 KV EN/IEC 61000-4-4 serial link)<br>1 KV EN/IEC 61000-4-4 input)<br>1 kV EN/IEC 61000-4-4 transistor output)                     |
| Resistance to conducted disturbances  | 10 V 0.15...80 MHz EN/IEC 61000-4-6<br>3 V 0.1...80 MHz Marine specification (LR, ABS, DNV, GL)<br>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<br>Conducted emissions 63 dB $\mu$ V/m QP power lines)1.5...30 MHz EN/IEC 55011<br>Radiated emissions 40 dB $\mu$ V/m QP class A30...230 MHz EN/IEC 55011<br>Conducted emissions 79...63 dB $\mu$ V/m QP power lines)150...1500 kHz EN/IEC 55011<br>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)<br>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)<br>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<br>3 gn 8.4...150 Hz symmetrical rail<br>3.5 mm 5...8.4 Hz panel mounting<br>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                  | 3606480611155                  |
| Nbr. of units in pkg. | 1                              |
| Package weight(Lbs)   | 22.93 oz (650 g)               |
| Returnability         | No                             |
| Country of origin     | ID                             |

## Packing Units

|                              |                        |
|------------------------------|------------------------|
| Unit Type of Package 1       | PCE                    |
| Package 1 Height             | 4.57 in (11.606 cm)    |
| Package 1 width              | 5.19 in (13.17 cm)     |
| Package 1 Length             | 7.39 in (18.76 cm)     |
| Unit Type of Package 2       | S03                    |
| Number of Units in Package 2 | 8                      |
| Package 2 Weight             | 13.36 lb(US) (6.06 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

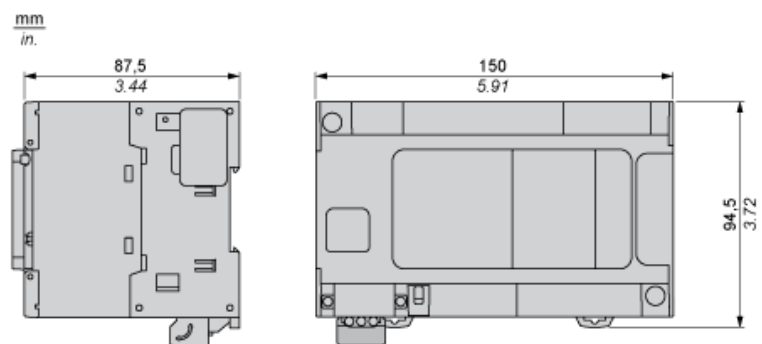
|                            |   |
|----------------------------|---|
| Sustainable offer status   | Green Premium product   |
| California proposition 65  | WARNING: This product can expose you to chemicals including: Lead and lead compounds, which is known to the State of California to cause cancer 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 | <a href="#">Yes</a>   |
| 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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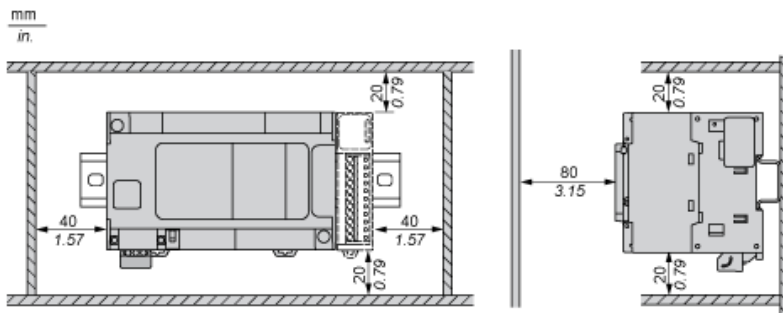
|          |  |
|----------|--|
| WEEE     | The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins. |
| PVC free | Yes  |

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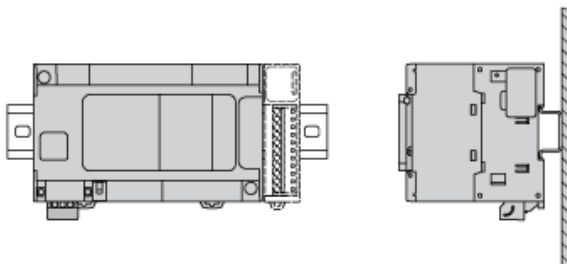
Dimensions



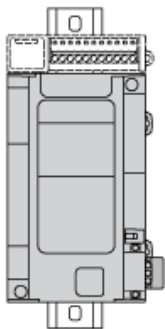
Clearance



Mounting Position

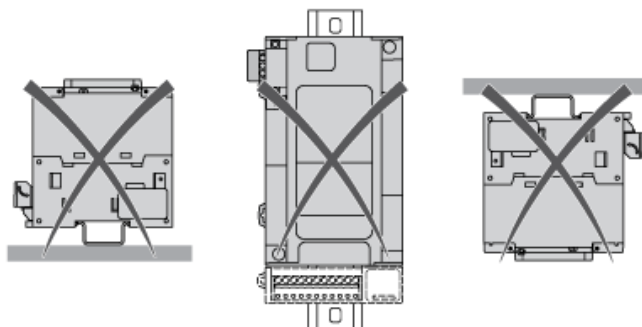


Acceptable Mounting



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

Incorrect Mounting

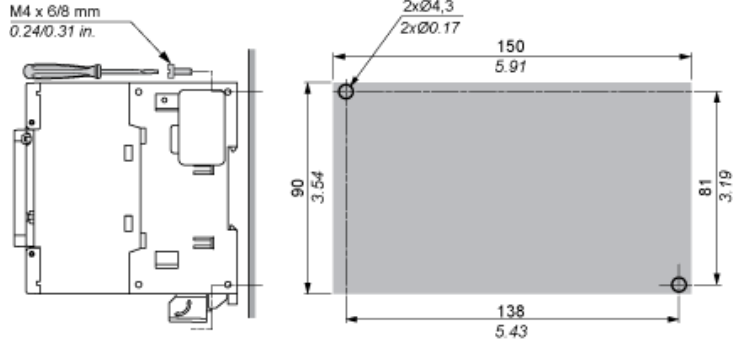


Direct Mounting On a Panel Surface

## Mounting Hole Layout

mm  
in.

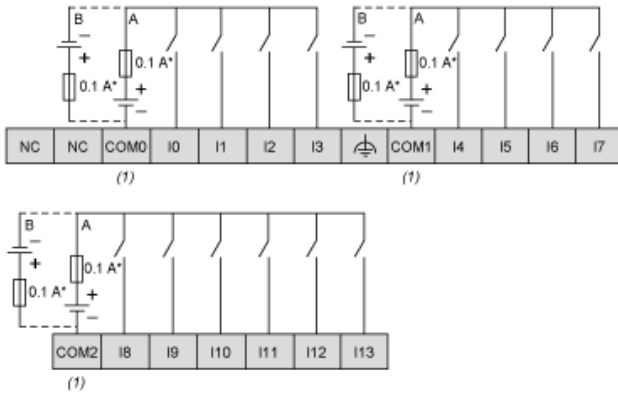
M4 x 6/8 mm  
0.24/0.31 in.





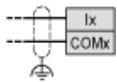
Digital Inputs

Wiring Diagram



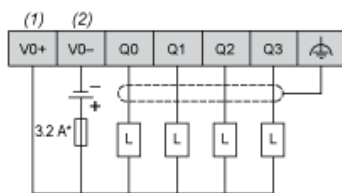
- (\*) : Type T fuse
- (1) : The COM0, COM1 and COM2 terminals are not connected internally
- (A) : Sink wiring (positive logic)
- (B) : Source wiring (negative logic)

Fast Input Wiring (I0...I7)



Fast Transistor Outputs

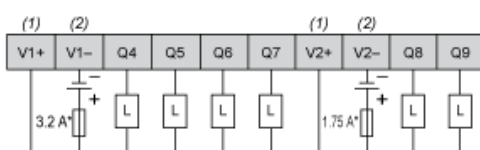
Wiring Diagram



- (\*) : Type T fuse
- (1) The V0+, V1+, V2+ and V3+ terminals are not connected internally.
- (2) The V0-, V1-, V2- and V3- terminals are not connected internally.

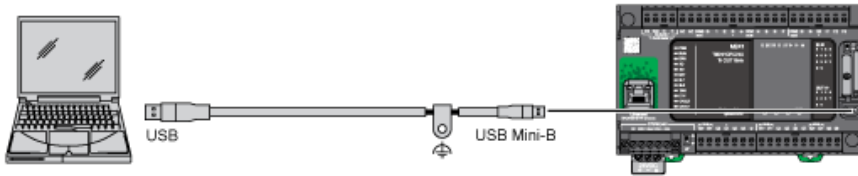
Transistor Outputs

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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