



### 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                  | Positive logic (source)   |
| 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  |

|  |  |
|--|--|
| 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                        | 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                  | 4 cyclic master tasks<br>3 cyclic master tasks + 1 freewheeling task<br>8 external event tasks<br>8 event tasks  |
| 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  |
| 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   |
| Communication port protocol            | Non isolated serial link Modbus master/slave   |
| 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)                         |
| 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 |
| Marking                                | CE   |
| Surge withstand                        | 1 KV power lines (DC) common mode IEC 61000-4-5<br>1 KV shielded cable common mode IEC 61000-4-5<br>0.5 KV power lines (DC) differential mode IEC 61000-4-5<br>1 KV relay output differential mode IEC 61000-4-5<br>1 KV input common mode IEC 61000-4-5<br>1 KV transistor output common mode IEC 61000-4-5   |

|                  |   |
|------------------|---|
| 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>IEC 61131-2:2007<br>Marine specification (LR, ABS, DNV, GL)<br>UL 508   |
| Product Certifications                | RCM[RETURN]cULus[RETURN]CE[RETURN]UKCA[RETURN]DNV-GL[RETURN]ABS[RETURN]LR  |
| Resistance to electrostatic discharge | 8 KV in air IEC 61000-4-2<br>4 kV on contact IEC 61000-4-2   |
| Resistance to electromagnetic fields  | 9.14 V/M (10 V/m) 80 MHz...1 GHz IEC 61000-4-3<br>2.74 V/M (3 V/m) 1.4 GHz...2 GHz IEC 61000-4-3<br>0.91 V/m (1 V/m) 2 GHz...3 GHz IEC 61000-4-3   |
| Resistance to fast transients         | 2 KV IEC 61000-4-4 power lines)<br>1 KV IEC 61000-4-4 serial link)<br>1 KV IEC 61000-4-4 input)<br>1 kV IEC 61000-4-4 transistor output)   |
| Resistance to conducted disturbances  | 10 V 0.15...80 MHz 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 IEC 55011<br>Conducted emissions 63 dB $\mu$ V/m QP power lines)1.5...30 MHz IEC 55011<br>Radiated emissions 40 dB $\mu$ V/m QP class A30...230 MHz IEC 55011<br>Conducted emissions 79...63 dB $\mu$ V/m QP power lines)150...1500 kHz IEC 55011<br>Radiated emissions 47 dB $\mu$ V/m QP class A230...1000 MHz 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              | 3606480611179                |
| Returnability     | Yes                          |
| Country of origin | ID                           |

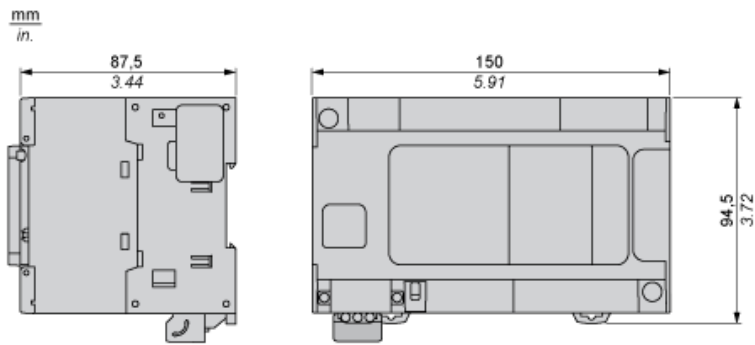
## Packing Units

|                              |                        |
|------------------------------|------------------------|
| Unit Type of Package 1       | PCE                    |
| Number of Units in Package 1 | 1                      |
| Package 1 Height             | 4.48 in (11.367 cm)    |
| Package 1 Width              | 5.16 in (13.104 cm)    |
| Package 1 Length             | 7.38 in (18.744 cm)    |
| Package 1 Weight             | 22.57 oz (640.0 g)     |
| Unit Type of Package 2       | S03                    |
| Number of Units in Package 2 | 8                      |
| Package 2 Height             | 11.81 in (30 cm)       |
| Package 2 Width              | 11.81 in (30 cm)       |
| Package 2 Length             | 15.75 in (40 cm)       |
| Package 2 Weight             | 13.21 lb(US) (5.99 kg) |
| Unit Type of Package 3       | P06                    |
| Number of Units in Package 3 | 64                     |
| Package 3 Height             | 29.53 in (75.0 cm)     |
| Package 3 Width              | 23.62 in (60.0 cm)     |
| Package 3 Length             | 31.50 in (80.0 cm)     |
| Package 3 Weight             | 123.46 lb(US) (56 kg)  |

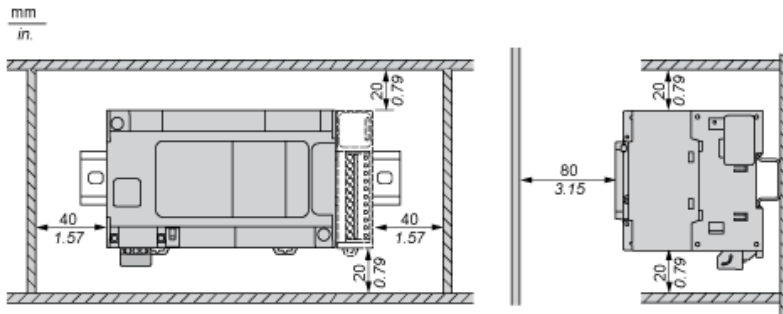
## Offer Sustainability

|                            |   |
|----------------------------|---|
| 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)  |
| Mercury free               | Yes   |
| China RoHS Regulation      | <a href="#">China RoHS Declaration</a>  |
| RoHS exemption information | <a href="#">Yes</a>   |
| Environmental Disclosure   | <a href="#">Product Environmental Profile</a>   |
| Circularity Profile        | <a href="#">End Of Life Information</a>   |
| WEEE                       | The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins.  |
| PVC free                   | Yes   |

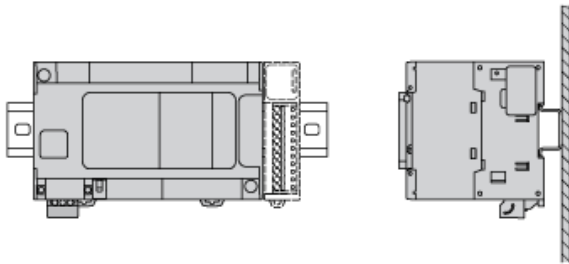
Dimensions



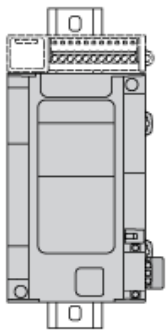
Clearance



Mounting Position

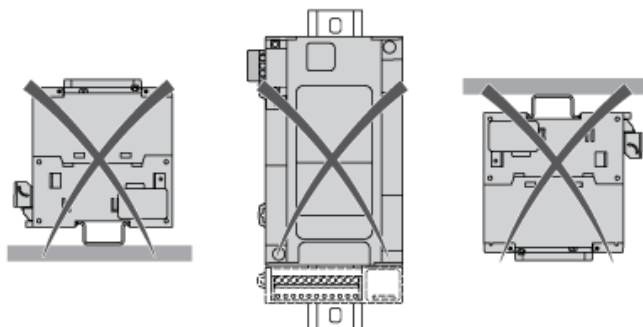


Acceptable Mounting



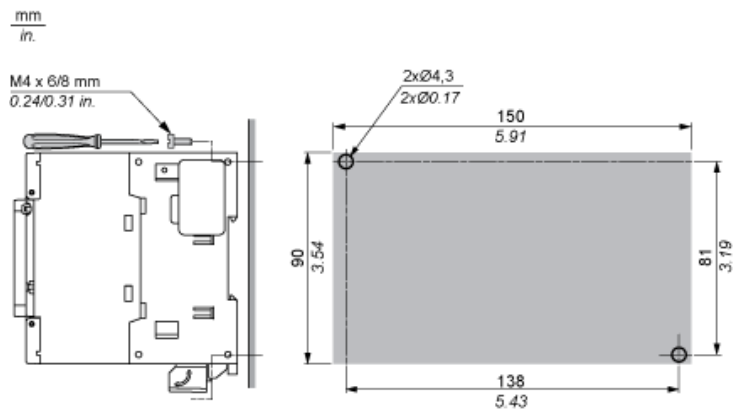
NOTE: Expansion modules must be mounted above the logic controller.

Incorrect Mounting



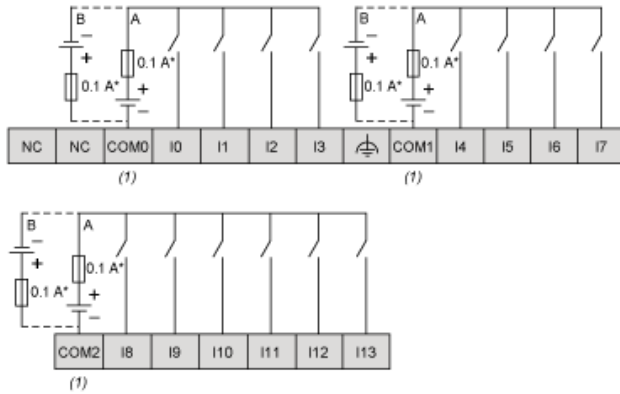
Direct Mounting On a Panel Surface

## Mounting Hole Layout



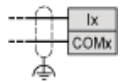
## Digital Inputs

### Wiring Diagram



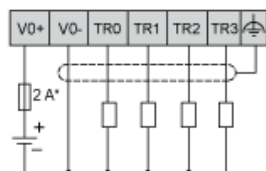
- (\*) : Type T fuse
- (1) : The COM0, COM1 and COM2 terminals are not connected internally
- (A) : Sink wiring (positive logic)
- (B) : Source wiring (negative logic)

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



## Fast Transistor Outputs

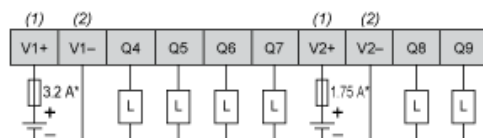
### Wiring Diagram



- (\*) : 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

