



Main

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| Range of product | Modicon M241 |
| Product or component type | Logic controller |
| [Us] rated supply voltage | 100...240 V AC |
| Discrete input number | 14 discrete input including 8 fast input conforming to IEC 61131-2 Type 1 |
| Discrete output type | Relay Transistor |
| Discrete output number | 6 relay 4 transistor including 4 fast output |
| Discrete output voltage | 24 V DC for transistor output 5...125 V DC for relay output 5...250 V AC for relay output |
| Discrete output current | 2 A with Q4...Q9 terminal(s) for relay output 0.1 A with TR0...TR3 terminal(s) for fast output (PTO mode) 0.5 A with TR0...TR3 terminal(s) for transistor output |

Complementary

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| Discrete I/O number | 24 |
| Number of I/O expansion module | 7 (local I/O architecture) 14 (remote I/O architecture) |
| Supply voltage limits | 85...264 V |
| Network frequency | 50/60 Hz |
| 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 |
| Input impedance | 4.7 kOhm for input |
| Response time | 50 µs turn-on operation with I0...I13 terminal(s) for input |
| Configurable filtering time | 1 µs for fast input |
| Discrete output logic | Positive logic (source) |
| Output voltage limits | 125 V DC relay output 30 V DC transistor output 277 V AC relay output |
| Output frequency | <= 1 kHz for transistor output <= 20 kHz for fast output (PWM mode) <= 100 kHz for fast output (PLS mode) |
| Accuracy | +/- 0.1 % at 0.02...0.1 kHz for fast output +/- 1 % at 0.1...1 kHz for fast output |
| Protection type | Short-circuit protection for transistor output Short-circuit and overload protection with automatic reset for transistor output Reverse polarity protection for transistor output Without protection for relay output |
| Reset time | 10 ms automatic reset output 12 s automatic reset fast output |
| Memory capacity | 8 MB for program 64 MB for system memory RAM |
| Data backed up | 128 MB built-in flash memory for backup of user programs |
| Data storage equipment | <= 32 GB SD card optional |

The information provided in this documentation contains general descriptions and/or technical characteristics 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.

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| Battery type | BR2032 lithium non-rechargeable, battery life: 4 yr |
| Backup time | 2 years at 25 °C |
| Execution time for 1 KInstruction | 0.3 ms for event and periodic task 0.7 ms for other instruction |
| Application structure | 8 event tasks 4 cyclic master tasks 3 cyclic master tasks + 1 freewheeling task 8 external event tasks |
| Realtime clock | With |
| Clock drift | <= 60 s/month at 25 °C |
| Positioning functions | PTO function 4 channel(s) (positioning frequency: 100 kHz) |
| Counting input number | 4 fast input (HSC mode) at 200 kHz 14 standard input at 1 kHz |
| Control signal type | A/B signal at 100 kHz for fast input (HSC mode) Pulse/direction signal at 200 kHz for fast input (HSC mode) Single phase signal at 200 kHz for fast input (HSC mode) |
| Integrated connection type | USB port with connector mini B USB 2.0 Ethernet with connector RJ45 Non isolated serial link "serial 1" with connector RJ45 and interface RS232/RS485 Non isolated serial link "serial 2" with connector removable screw terminal block and interface RS485 |
| Supply | Serial link supply "serial 1" at 5 V, 200 mA |
| Transmission rate | 1.2...115.2 kbit/s (115.2 kbit/s by default) for bus length of 15 m - communication protocol: RS485 1.2...115.2 kbit/s (115.2 kbit/s by default) for bus length of 3 m - communication protocol: RS232 480 Mbit/s for bus length of 3 m - communication protocol: USB 10/100 Mbit/s - communication protocol: Ethernet |
| Communication port protocol | Modbus non isolated serial link with master/slave method |
| Port Ethernet | 1 - 10BASE-T/100BASE-TX port with copper cable support |
| Communication service | FDR Downloading IEC VAR ACCESS Monitoring NGVL Programming Updating firmware SMS notifications DHCP server (via TM4 Ethernet switch network module) DHCP client (embedded Ethernet port) SNMP client/server FTP client/server 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 | 1 LED red for module error (ERR) 1 LED green for PWR 1 LED green for RUN 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 per channel green for I/O state 1 LED red for I/O error (I/O) 1 LED red for bus fault on TM4 (TM4) 1 LED green for Ethernet port activity |
| 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) |
| Cable distance between devices | Shielded cable: 10 m for fast input Shielded cable: 3 m for fast output Unshielded cable: 50 m for input Unshielded cable: 50 m for output |
| Insulation | 500 V AC between supply and internal logic Non-insulated between supply and ground |
| Marking | CE |

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| Sensor power supply | 24 V DC at 400 mA supplied by the controller |
| Surge withstand | 2 kV for power lines (AC) in common mode conforming to EN/IEC 61000-4-5 2 kV for relay output in common mode conforming to EN/IEC 61000-4-5 1 kV for shielded cable in common mode conforming to EN/IEC 61000-4-5 1 kV for power lines (AC) in differential mode conforming to EN/IEC 61000-4-5 1 kV for relay output in differential mode conforming to EN/IEC 61000-4-5 1 kV for input in common mode conforming to EN/IEC 61000-4-5 1 kV for transistor output in common mode conforming to EN/IEC 61000-4-5 |
| Web services | Web server |
| Maximum number of connections | 8 connection(s) for Modbus server 8 connection(s) for SoMachine protocol 10 connection(s) for web server 4 connection(s) for FTP server 16 connection(s) for Ethernet/IP target 8 connection(s) for Modbus client |
| Number of slave | 16 Ethernet/IP 64 Modbus TCP |
| Cycle time | 10 ms 16 Ethernet/IP 64 ms 64 Modbus TCP |
| 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 |
| Product weight | 0.53 kg |

Environment

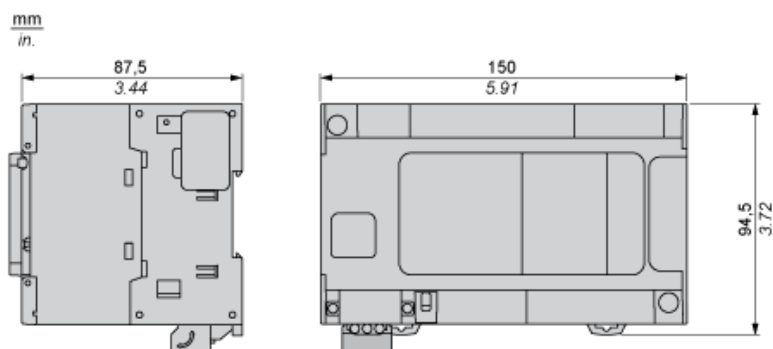
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| standards | UL 508 CSA C22.2 No 142 ANSI/ISA 12-12-01 UL 1604 CSA C22.2 No 213 EN/IEC 61131-2 : 2007 Marine specification (LR, ABS, DNV, GL) |
| product certifications | CSA CULus IACS E10 RCM |
| resistance to electrostatic discharge | 4 kV on contact conforming to EN/IEC 61000-4-2 8 kV in air conforming to EN/IEC 61000-4-2 |
| resistance to electromagnetic fields | 10 V/m (80 MHz...1 GHz) conforming to EN/IEC 61000-4-3 3 V/m (1.4 GHz...2 GHz) conforming to EN/IEC 61000-4-3 1 V/m (2 GHz...3 GHz) conforming to EN/IEC 61000-4-3 |
| resistance to fast transients | 2 kV for power lines conforming to EN/IEC 61000-4-4 2 kV for relay output conforming to EN/IEC 61000-4-4 1 kV for Ethernet line conforming to EN/IEC 61000-4-4 1 kV for serial link conforming to EN/IEC 61000-4-4 1 kV for input conforming to EN/IEC 61000-4-4 1 kV for transistor output conforming to EN/IEC 61000-4-4 |
| resistance to conducted disturbances | 10 V (0.15...80 MHz) conforming to EN/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 dB μ V/m QP, condition of test: power lines (radio frequency: 10...150 kHz) conforming to EN/IEC 55011 Conducted emissions, test level: 63 dB μ V/m QP, condition of test: power lines (radio frequency: 1.5...30 MHz) conforming to EN/IEC 55011 Conducted emissions, test level: 79 dB μ V/m QP/66 dB μ V/m AV, condition of test: power lines (radio frequency: 0.15...0.5 MHz) conforming to EN/IEC 55011 Conducted emissions, test level: 73 dB μ V/m QP/60 dB μ V/m AV, condition of test: power lines (radio frequency: 0.5...300 MHz) conforming to EN/IEC 55011 Radiated emissions, test level: 40 dB μ V/m QP with class A, condition of test: 10 m (radio frequency: 30...230 MHz) conforming to EN/IEC 55011 Conducted emissions, test level: 79...63 dB μ V/m QP, condition of test: power lines (radio frequency: 150...1500 kHz) conforming to EN/IEC 55011 Radiated emissions, test level: 47 dB μ V/m QP with class A, condition of test: 10 m (radio frequency: 230...1000 MHz) conforming to EN/IEC 55011 |
| immunity to microbreaks | 10 ms |
| ambient air temperature for operation | -10...55 °C for horizontal installation |

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| | -10...50 °C for vertical 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 (vibration frequency: 5...8.4 Hz) on symmetrical rail 3 gn (vibration frequency: 8.4...150 Hz) on symmetrical rail 3.5 mm (vibration frequency: 5...8.4 Hz) on panel mounting 3 gn (vibration frequency: 8.4...150 Hz) on panel mounting |
| shock resistance | 15 gn for 11 ms |

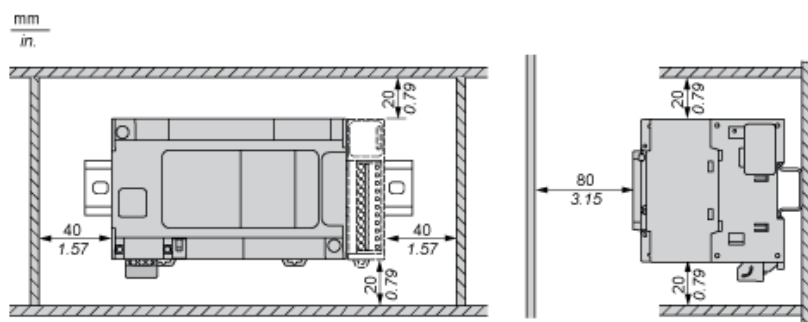
Offer Sustainability

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| Sustainable offer status | Green Premium product |
| RoHS (date code: YYWW) | Compliant - since 1350 - Schneider Electric declaration of conformity |
| REACH | Reference contains SVHC above the threshold |
| Product environmental profile | Available |
| Product end of life instructions | Available |

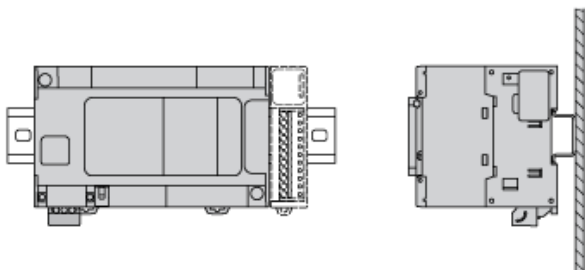
Dimensions



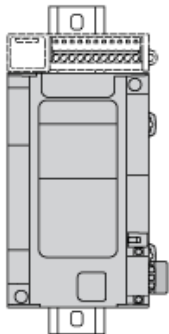
Clearance



Mounting Position

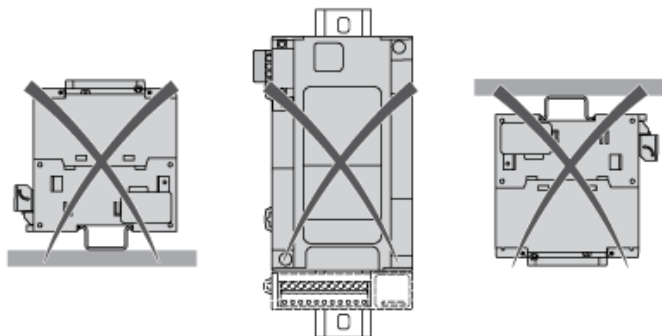


Acceptable Mounting



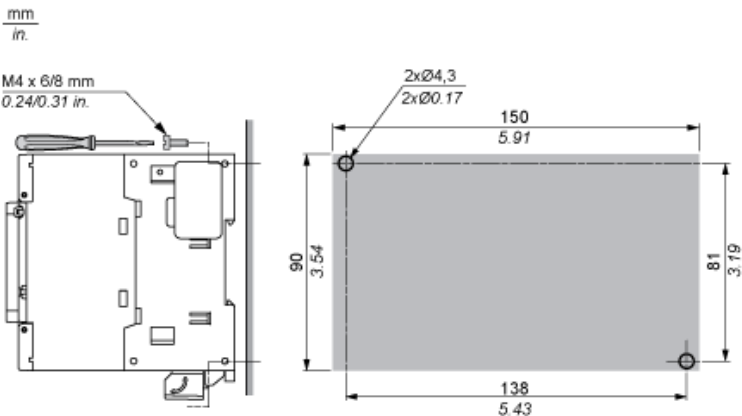
NOTE: Expansion modules must be mounted above the logic controller.

Incorrect Mounting



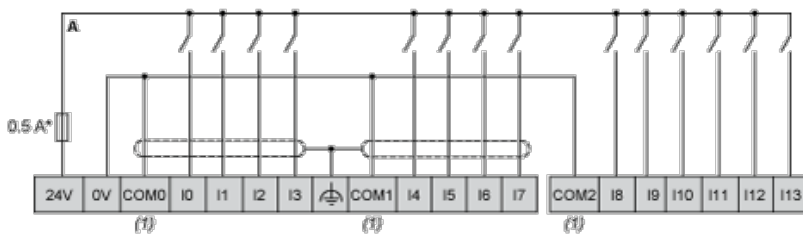
Direct Mounting On a Panel Surface

Mounting Hole Layout



Digital Inputs

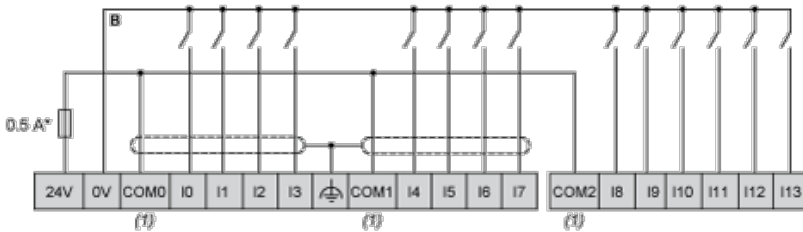
Wiring Diagram (Positive Logic)



(*) : Type T fuse

(1) : The COM0, COM1 and COM2 terminals are not connected internally.

Wiring Diagram (Negative Logic)

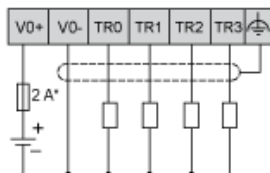


(*) : Type T fuse

(1) : The COM0, COM1 and COM2 terminals are not connected internally.

Fast Transistor Outputs

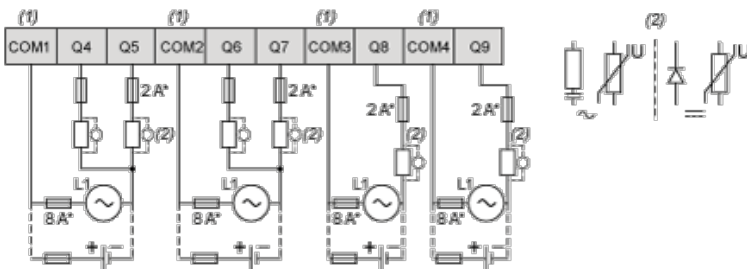
Wiring Diagram



(*) : 2 A fast-blow fuse

Relay Outputs

Wiring Diagram

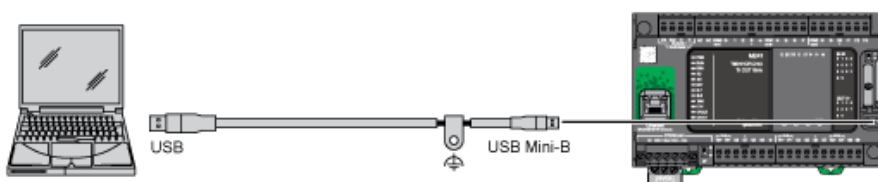


(*) : Type T fuse

(1) : The terminals COM1 to COM4 are not connected internally.

(2) : To improve the life time of the contacts, and to protect from potential inductive load damage, you must connect a free wheeling diode in parallel to each inductive DC load or an RC snubber in parallel of each inductive AC load

USB Mini-B Connection



Ethernet Connection to a PC

