Product data sheet

Specifications



logic controller, Modicon M251, Ethernet CAN

TM251MESC

Product availability: Stock - Normally stocked in distribution facility

Main

Range of Product	Modicon M251
Product or Component Type	Logic controller
[Us] rated supply voltage	24 V DC

Complementary

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)
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 0.7 ms other instruction
Application structure	3 cyclic master tasks + 1 freewheeling task 8 event tasks 4 cyclic master tasks 8 external event tasks
Realtime clock	With
Clock drift	<= 60 s/month 77 °F (25 °C)
Integrated connection type	USB port mini B USB 2.0 Non isolated serial link serial RJ45 RS232/RS485 Dual-port Ethernet RJ45 CANopen J1939 SUB-D 9
Supply	Serial)serial link supply 5 V, <200 mA
Transmission rate	1.2...115.2 kbit/s (115.2 kbit/s by default) 49.2 ft (15 m) RS485 1.2...115.2 kbit/s (115.2 kbit/s by default) 9.8 ft (3 m) RS232 480 Mbit/s 9.8 ft (3 m) USB
Communication port protocol	USB port USB - SoMachine-Network Non isolated serial link Modbus master/slave - RTU/ASCII or SoMachine-Network
Port Ethernet	Ethernet 10BASE-T/100BASE-TX - 2 copper cable
Web services	Web server

Price is “List Price” and may be subject to a trade discount – check with your local distributor or retailer for actual price.

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

Communication service	DHCP client Downloading Ethernet/IP slave device IEC VAR ACCESS Modbus TCP client Modbus TCP server Modbus TCP slave device Monitoring NGVL Programming Updating firmware SMS notifications FTP client/server SNMP client/server SQL client Send and receive email from the controller based on TCP/UDP library Web server (WebVisu & XWeb system) OPC UA server DNS client
Maximum number of connections	8 Modbus server 8 Modbus client 16 Ethernet/IP target 4 FTP server 10 web server 8 SoMachine protocol
CANopen feature profile	DR 303-1 DS 301 V4.02
Number of server device(s)	63 CANopen
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 Ethernet port activity 1 LED (green) for SL 1 LED (red) for bus fault on TM4 (TM4) 1 LED (green) for CANopen run 1 LED (green) for CANopen error
Electrical connection	removable screw terminal block power supply pitch 5.08 mm)
Insulation	Non-insulated between supply and internal logic Between supply and ground 500 V AC
Marking	CE
Surge withstand	1 kV shielded cable common mode IEC 61000-4-5 1 kV power lines common mode IEC 61000-4-5 0.5 kV power lines differential mode IEC 61000-4-5
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	3.5 in (90 mm)
Depth	3.7 in (95 mm)
Width	2.1 in (54 mm)
Product Weight	0.49 lb(US) (0.22 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	cULus CE UKCA DNV-GL ABS LR
Resistance to electrostatic discharge	8 kV in air IEC 61000-4-2 4 kV on contact IEC 61000-4-2
Resistance to electromagnetic fields	9.1 V/m (10 V/m) 80 MHz...1 GHz IEC 61000-4-3 2.7 V/m (3 V/m) 1.4 GHz...2 GHz IEC 61000-4-3 0.9 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) 1 kV IEC 61000-4-4 Ethernet line) 1 kV IEC 61000-4-4 serial link)
Resistance to conducted disturbances	10 V 0.15...80 MHz 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 dBµV/m QP power lines)10…150 kHz IEC 55011 Conducted emissions 63 dBµV/m QP power lines)1.5…30 MHz IEC 55011 Radiated emissions 40 dBµV/m QP class A 10 m)30…230 MHz IEC 55011 Conducted emissions 79...63 dBµV/m QP power lines)150…1500 kHz IEC 55011 Radiated emissions 47 dBµV/m QP class A 10 m)230…1000 MHz IEC 55011
Immunity to microbreaks	10 ms
Ambient air temperature for operation	14…95 °F (-10…35 °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…9842.5 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	US10MSX22533
Discount Schedule	0MSX
GTIN	3606480648861
Returnability	Yes
Country of origin	ID

Packing Units

Unit Type of Package 1	PCE
Nbr. of units in pkg.	1
Package 1 Height	4.252 in (10.800 cm)
Package 1 Width	4.724 in (12.000 cm)
Package 1 Length	6.693 in (17.000 cm)

Package weight(Lbs)	13.616 oz (386.000 g)
Unit Type of Package 2	S03
Number of Units in Package 2	10
Package 2 Height	11.811 in (30.000 cm)
Package 2 Width	11.811 in (30.000 cm)
Package 2 Length	15.748 in (40.000 cm)
Package 2 Weight	9.835 lb(US) (4.461 kg)
Unit Type of Package 3	P06
Number of Units in Package 3	80
Package 3 Height	29.528 in (75.000 cm)
Package 3 Width	23.622 in (60.000 cm)
Package 3 Length	31.496 in (80.000 cm)
Package 3 Weight	94.799 lb(US) (43.000 kg)

Contractual warranty

Warranty (in months)	18

Environmental Data

Schneider Electric aims to achieve Net Zero status by 2050 through supply chain partnerships, lower impact materials, and circularity via our ongoing “Use Better, Use Longer, Use Again” campaign to extend product lifetimes and recyclability.

Environmental Data explained >

How we assess product sustainability >

Environmental footprint

Total lifecycle Carbon footprint	**697 kg CO2 eq.**
Carbon footprint of the manufacturing phase [A1 to A3]	**17 kg CO2 eq.**
Carbon footprint of the distribution phase [A4]	**2 kg CO2 eq.**
Carbon footprint of the installation phase [A5]	**0 kg CO2 eq.**
Carbon footprint of the use phase [B2, B3, B4, B6]	**676 kg CO2 eq.**
Carbon footprint of the end-of-life phase [C1 to C4]	**0.7 kg CO2 eq.**
Environmental Disclosure	Product Environmental Profile

Use Better

Materials and Substances

Packaging made with recycled cardboard	**Yes**
Packaging without single use plastic	**Yes**
SCIP Number	**C0f4b1e4-ee0f-48bb-9bdf-1bcc0df7db56**
EU RoHS Directive	Compliant By Exemption
REACh Regulation	Reference contains Substances of Very High Concern above the threshold
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 www.P65Warnings.ca.gov**
PVC free	**Yes**

Use Longer

Lifetime extension

Repair	**No**

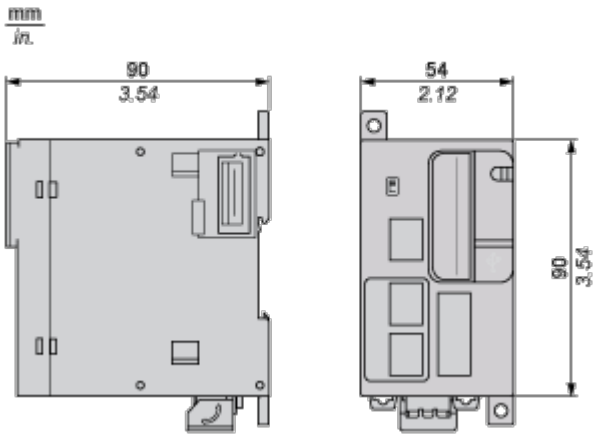
Use Again

Repack and remanufacture

Recyclability potential, in %	**10**
Circularity Profile	End of Life Information
Take-back	**No**
WEEE Label	**The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins.**

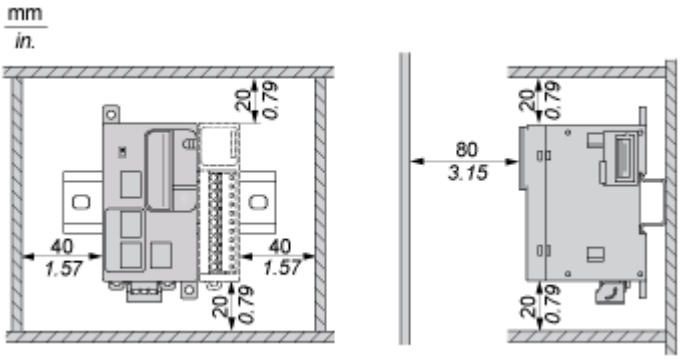
Dimensions Drawings

Dimensions

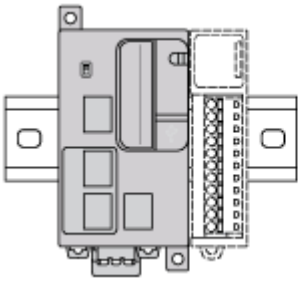


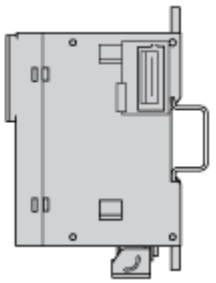
Mounting and Clearance

Clearance



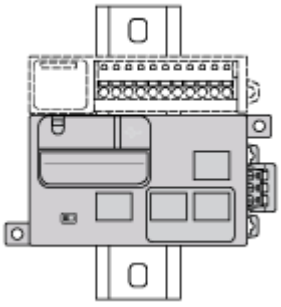
Mounting Position





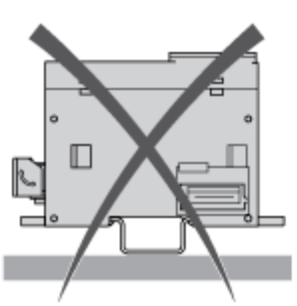
NOTE: Keep adequate spacing for proper ventilation and to maintain an ambient temperature between -10°C (14°F) and 55°C (131°F).

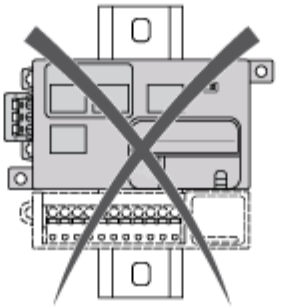
Acceptable Mounting

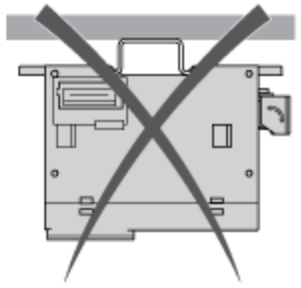


NOTE: Expansion modules must be mounted above the controller.

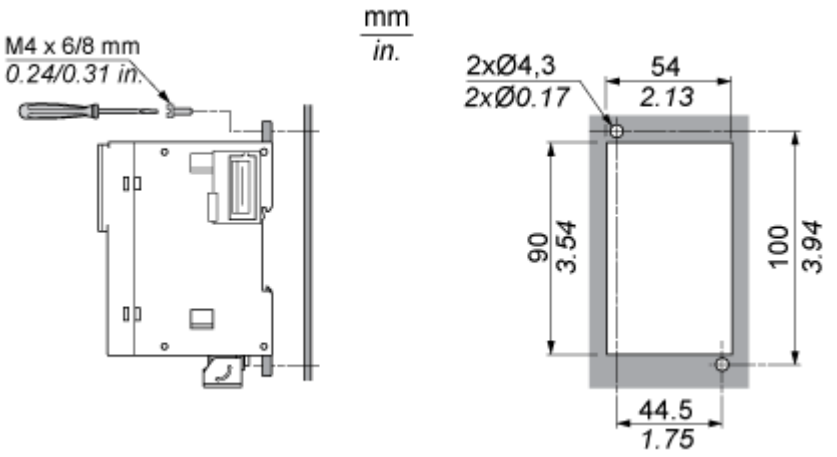
Incorrect Mounting







Direct Mounting on a Panel Surface



Connections and Schema

USB Connection to a PC

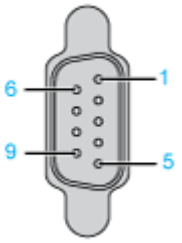


Ethernet Connection to a PC



CANopen

Wiring



Pin	Signal	Description
1	–	Reserved
2	CAN_L	CAN_L bus line
3	CAN_GND	CAN ground
4	–	Reserved
5	(CAN_SHLD)	Optional CAN shield
6	GND	Ground
7	CAN_H	CAN_H bus line
8	–	Reserved
9	(CAN_V+)	Optional CAN external positive supply