Product data sheet
Characteristics

TM251MESC
logic controller, Modicon M251, Ethernet CAN



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 for system memory RAM
Data backed up	128 MB built-in flash memory for backup of user programs
Data storage equipment	<= 16 GB SD card (optional)
Battery type	BR2032 lithium non-rechargeable, battery life: 4 year(s)
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	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 at 25 °C
Integrated connection type	USB port with mini B USB 2.0 connector Non isolated serial link serial with RJ45 connector and RS232/RS485 interface Dual-port Ethernet with RJ45 connector CANopen J1939 with SUB-D 9 connector
Supply	(Serial)Serial link supply: 5 V, <200 mA
Transmission rate	1.2...115.2 kbit/s (115.2 kbit/s by default) for bus length of 15 m for RS485 1.2...115.2 kbit/s (115.2 kbit/s by default) for bus length of 3 m for RS232 480 Mbit/s for bus length of 3 m for USB
Communication port protocol	USB port: USB - SoMachine-Network Non isolated serial link: Modbus master/slave - RTU/ASCII or SoMachine-Network
Port Ethernet	Ethernet marking 10BASE-T/100BASE-TX - 2 copper cable
Web services	Web server

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 blockpower supply (pitch 5.08 mm)
Insulation	Non-insulated between supply and internal logic Between supply and ground at 500 V AC
Marking	CE
Surge withstand	1 KV shielded cable common mode conforming to IEC 61000-4-5 1 KV power lines common mode conforming to IEC 61000-4-5 0.5 KV power lines differential mode conforming to IEC 61000-4-5
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	54 Mm
Net weight	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[RETURN]CE[RETURN]UKCA[RETURN]DNV-GL[RETURN]ABS[RETURN]LR
Resistance to electrostatic discharge	8 KV in air conforming to IEC 61000-4-2 4 KV on contact conforming to IEC 61000-4-2
Resistance to electromagnetic fields	10 V/M 80 MHz...1 GHz conforming to IEC 61000-4-3 3 V/M 1.4 GHz...2 GHz conforming to IEC 61000-4-3 1 V/M 2 GHz...3 GHz conforming to IEC 61000-4-3
Resistance to fast transients	2 KV (power lines) conforming to IEC 61000-4-4 1 KV (Ethernet line) conforming to IEC 61000-4-4 1 KV (serial link) conforming to IEC 61000-4-4

Resistance to conducted disturbances	10 V 0.15...80 MHz conforming to 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 spec
Electromagnetic emission	Conducted emissions - test level: 120...69 dBµV/m QP (power lines) at 10…150 kHz conformi Conducted emissions - test level: 63 dBµV/m QP (power lines) at 1.5…30 MHz conforming to Radiated emissions - test level: 40 dBµV/m QP class A (10 m) at 30…230 MHz conforming to Conducted emissions - test level: 79...63 dBµV/m QP (power lines) at 150…1500 kHz conform Radiated emissions - test level: 47 dBµV/m QP class A (10 m) at 230…1000 MHz conforming
Immunity to microbreaks	10 Ms
Ambient air temperature for operation	-10…35 °C (vertical installation) -10…55 °C (horizontal 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 at 5…8.4 Hz on symmetrical rail 3 gn at 8.4…150 Hz on symmetrical rail 3.5 mm at 5…8.4 Hz on panel mounting 3 gn at 8.4…150 Hz on panel mounting
Shock resistance	15 gn for 11 ms

Packing Units

Unit Type of Package 1	PCE
Number of Units in Package 1	1
Package 1 Height	10.800 Cm
Package 1 Width	12.000 Cm
Package 1 Length	17.000 Cm
Package 1 Weight	386.000 G
Unit Type of Package 2	S03
Number of Units in Package 2	10
Package 2 Height	30.000 Cm
Package 2 Width	30.000 Cm
Package 2 Length	40.000 Cm
Package 2 Weight	4.461 Kg
Unit Type of Package 3	P06
Number of Units in Package 3	80
Package 3 Height	75.000 Cm
Package 3 Width	60.000 Cm
Package 3 Length	80.000 Cm
Package 3 Weight	43.000 Kg

Offer Sustainability

Recyclability potential, in %	0.10777772296987033
Total lifecycle Carbon footprint	697 kg CO2 eq.
Carbon footprint of the manufacturing phase [A1 to A3]	17.45167876088961
Carbon footprint of the manufacturing phase [A1 to A3]	17 kg CO2 eq.
Carbon footprint of the distribution phase [A4]	2.050061466774713
Carbon footprint of the distribution phase [A4]	2 kg CO2 eq.
Carbon footprint of the installation phase [A5]	0.02085945239080871
Carbon footprint of the installation phase [A5]	0 kg CO2 eq.
Carbon footprint of the use phase [B2, B3, B4, B6]	676.3289711229977
Carbon footprint of the use phase [B2, B3, B4, B6]	676 kg CO2 eq.
Mercury free	Yes
Sustainable packaging	Yes
Carbon footprint of the end-of-life phase [C1 to C4]	0.729348361534748
Carbon footprint of the end-of-life phase [C1 to C4]	0.7 kg CO2 eq.

Total lifecycle Carbon footprint	697
Packaging made with recycled cardboard	Yes
Packaging without single use plastic	Yes
SCIP Number	C0f4b1e4-ee0f-48bb-9bdf-1bcc0df7db56
REACh Regulation	Reference contains Substances of Very High Concern above the threshold
EU RoHS Directive	Compliant By Exemption
California proposition 65	WARNING: This product can expose you to chemicals including: Lead and lead compounds, which
PVC free	Yes
End of life manual availability	End Of Life Information
Take-back	No
WEEE Label	The product must be disposed on European Union markets following specific waste collection and

Contractual warranty

Warranty (in months)	18

Product Life Status : Commercialised