

Schneider Service Manual

TM251MESC

1. Description

TM251MESC logic controller, Modicon M251,

3. Product Information

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
14 remote
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) 49.21 ft (15 m) RS485
1.2...115.2 kbit/s (115.2 kbit/s by default) 9.84 ft (3 m) RS232
480 Mbit/s 9.84 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
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 PWR 1 LED green)

RUN 1 LED green)

Module error (ERR) 1 LED red)

I/O error (I/O) 1 LED red)

SD card access (SD) 1 LED green)

BAT 1 LED red)

Ethernet port activity 1 LED green)

SL 1 LED green)

Bus fault on TM4 (TM4) 1 LED red)

CANopen run 1 LED green)

CANopen error 1 LED green)

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 3.54 in (90 mm)

Depth 3.74 in (95 mm)

Width 2.13 in (54 mm)

Net 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

9.14 V/yd (10 V/m) 80 MHz...1 GHz IEC 61000-4-3

2.74 V/yd (3 V/m) 1.4 GHz...2 GHz IEC 61000-4-3

0.91 V/yd (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 dB μ V/m QP power lines)10...150 kHz IEC 55011

Conducted emissions 63 dB μ V/m QP power lines)1.5...30 MHz IEC 55011

Radiated emissions 40 dB μ V/m QP class A 10 m)30...230 MHz IEC 55011

Conducted emissions 79...63 dB μ V/m QP power lines)150...1500 kHz IEC 55011

Radiated emissions 47 dB μ V/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...2000 m

Storage Altitude 0.00...9842.52 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

Packing Units

Unit Type Of Package 1 PCE

Number Of Units In Package 1 1

Package 1 Height 4.19 in (10.632 cm)

Package 1 Width 4.67 in (11.868 cm)

Package 1 Length 6.58 in (16.721 cm)

Package 1 Weight 13.40 oz (380.0 g)