## Characteristics

### Main

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range of product</td>
<td>Modicon M251</td>
</tr>
<tr>
<td>Product or component type</td>
<td>Logic controller</td>
</tr>
<tr>
<td>[Us] rated supply voltage</td>
<td>24 V DC</td>
</tr>
</tbody>
</table>

### Complementary

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum number of I/O expansion module</td>
<td>7 (local) 14 (remote)</td>
</tr>
<tr>
<td>Supply voltage limits</td>
<td>20.4…28.8 V</td>
</tr>
<tr>
<td>Inrush current</td>
<td>50 A</td>
</tr>
<tr>
<td>Power consumption in W</td>
<td>32.6…40.4 W (with max number of I/O expansion module)</td>
</tr>
<tr>
<td>Memory capacity</td>
<td>8 MB for program 64 MB for system memory RAM</td>
</tr>
<tr>
<td>Data backed up</td>
<td>128 MB built-in flash memory for backup of user programs</td>
</tr>
<tr>
<td>Data storage equipment</td>
<td>&lt;= 32 GB SD card (optional)</td>
</tr>
<tr>
<td>Battery type</td>
<td>BR2032 lithium non-rechargeable, battery life: 4 year(s)</td>
</tr>
<tr>
<td>Backup time</td>
<td>2 years at 25 °C</td>
</tr>
<tr>
<td>Execution time for 1 KInstruction</td>
<td>0.3 ms for event and periodic task 0.7 ms for other instruction</td>
</tr>
<tr>
<td>Execution time per instruction</td>
<td>0.022 µs</td>
</tr>
<tr>
<td>Application structure</td>
<td>4 cyclic master tasks 8 event tasks 3 cyclic master tasks + 1 freewheeling task 8 external event tasks</td>
</tr>
<tr>
<td>Realtime clock</td>
<td>With</td>
</tr>
<tr>
<td>Clock drift</td>
<td>&lt;= 60 s/month at 25 °C</td>
</tr>
<tr>
<td>Integrated connection type</td>
<td>USB port with mini B USB 2.0 connector Non isolated serial link serial with RJ45 connector and RS232/RS485 interface Dual-port Ethernet 1 with RJ45 connector Ethernet port Ethernet 2 with RJ45 connector</td>
</tr>
<tr>
<td>Supply</td>
<td>(serial)serial link supply: 5 V, &lt;200 mA</td>
</tr>
<tr>
<td>Transmission rate</td>
<td>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</td>
</tr>
</tbody>
</table>

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 port protocol** | **USB port:** USB - SoMachine-Network  
Non isolated serial link: Modbus master/slave - RTU/ASCII or SoMachine-Network |
|------------------------------|----------------------------------------------------------------------------------|
| **Port Ethernet**            | Ethernet 1 marking 10BASE-T/100BASE-TX - 2 copper cable  
Ethernet 2 marking 10BASE-T/100BASE-TX - 1 copper cable |
| **Web services**              | Web server  
**Communication service**  
- IEC VAR ACCESS  
- Modbus TCP client  
- Modbus TCP server  
- Modbus TCP slave device  
- Monitoring  
- NGVL  
- Programming  
- Updating firmware  
- SMS notifications  
- DHCP client (Eth1)  
- DHCP server (Eth2)  
- Ethernet/IP originator (Eth2)  
- Ethernet/IP target (Eth1, Eth2)  
- Ethernet/IP scanner (Eth2)  
- Modbus TCP I/O Scanner and Messaging (Eth2)  
- FDR  
- 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 |
| **Cycle time**                | 10 ms 16 Ethernet/IP  
64 ms 64 Modbus TCP |
| **Local signalling**         | 1 LED (green)PWR:  
1 LED (green)RUN:  
1 LED (red)module error (ERR):  
1 LED (red)I/O error (I/O):  
1 LED (green)SD card access (SD):  
1 LED (red)BAT:  
1 LED (green)SL:  
1 LED (red)bus fault on TM4 (TM4):  
1 LED (green)Ethernet activity (ETH1):  
1 LED (green)Ethernet activity (ETH2):  |
| **Electrical connection**     | removable screw terminal block power 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 EN/IEC 61000-4-5  
1 kV power lines common mode conforming to EN/IEC 61000-4-5  
0.5 kV power lines differential mode conforming to EN/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
Product certifications
CULus
CSA

Resistance to electrostatic discharge
8 kV in air conforming to EN/IEC 61000-4-2
4 kV on contact 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 (power lines) conforming to EN/IEC 61000-4-4
1 kV (Ethernet line) conforming to EN/IEC 61000-4-4
1 kV (serial link) 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 dBμV/m QP (power lines) at 10...150 kHz conforming to EN/IEC 55011
Conducted emissions - test level: 63 dBμV/m QP (power lines) at 1.5...30 MHz conforming to EN/IEC 55011
Radiated emissions - test level: 40 dBμV/m QP class A (10 m) at 30...230 MHz conforming to EN/IEC 55011
Radiated emissions - test level: 79...63 dBμV/m QP (power lines) at 150...1500 kHz conforming to EN/IEC 55011
Radiated emissions - test level: 47 dBμV/m QP class A (10 m) at 230...1000 MHz conforming to EN/IEC 55011

Immunity to microbreaks
10 ms

Ambient air temperature for operation
-10...35 °C (vertical installation)
-10...65 °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

Offer Sustainability
Sustainable offer status
Green Premium product

REACH Regulation
REACH Declaration

REACH free of SVHC
Yes

EU RoHS Directive
Pro-active compliance (Product out of EU RoHS legal scope)
EU RoHS Declaration

Mercury free
Yes

RoHS exemption information
Yes

China RoHS Regulation
China RoHS declaration

Environmental Disclosure
Product Environmental Profile

Circularity Profile
End of Life Information

WEEE
The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins
Dimensions

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>54</td>
</tr>
<tr>
<td>2.12</td>
<td>2.56</td>
</tr>
</tbody>
</table>

Dimensions in mm
Clearance

mm

1.57"
Mounting and 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
USB Connection to a PC
Ethernet Connection to a PC