



### Main

Commercial Status	Commercialised
Range of product	Modicon M241
Product or component type	Logic controller
Discrete input number	24 discrete input including 8 fast input conforming to IEC 61131-2 Type 1
Discrete output type	Transistor
Discrete output number	16 transistor including 4 fast output
Discrete output voltage	24 V DC for transistor output
Discrete output current	0.5 A with Q0...Q15 terminal(s) for transistor output 0.1 A with Q0...Q3 terminal(s) for fast output (PTO mode)
[Us] rated supply voltage	24 V DC

### Complementary

Discrete I/O number	40
Discrete input logic	Sink or source
Discrete input voltage	24 V
Discrete input voltage type	DC
Voltage state 1 guaranteed	$\geq 15$ V for input
Current state 1 guaranteed	$\geq 5$ mA for fast input $\geq 2.5$ mA for input
Voltage state 0 guaranteed	$\leq 5$ V for input
Current state 0 guaranteed	$\leq 1.5$ mA for fast input $\leq 1$ mA for input
Discrete input current	7 mA for input 10.7 mA for fast input
Input impedance	2.81 kOhm for fast input 4.7 kOhm for input
Response time	$\leq 250$ $\mu$ s turn-off operation with Q0...Q15 terminal(s) for output $\leq 34$ $\mu$ s turn-on operation with Q0...Q15 terminal(s) for output 50 $\mu$ s turn-off operation with I0...I15 terminal(s) for input 50 $\mu$ s turn-on operation with I0...I15 terminal(s) for input $\leq 2$ $\mu$ s turn-off operation with Q0...Q3 terminal(s) for fast output $\leq 2$ $\mu$ s turn-on operation with Q0...Q3 terminal(s) for fast output $\leq 2$ $\mu$ s turn-off operation with I0...I7 terminal(s) for fast input $\leq 2$ $\mu$ s turn-on operation with I0...I7 terminal(s) for fast input
Configurable filtering time	12 ms for input 4 ms for input 1 ms for input 0 ms for input 12 ms for fast input 1 $\mu$ s for fast input
Number of I/O expansion module	14 (remote I/O architecture) 7 (local I/O architecture)
Discrete output logic	Negative logic (sink)
Output voltage limits	30 V
Output frequency	$\leq 1$ kHz for output $\leq 100$ kHz for fast output (PLS mode) $\leq 20$ kHz for fast output (PWM mode)

Accuracy	+/- 1 % at 100 Hz...1 kHz for fast output +/- 0.1 % at 20...100 Hz for fast output
Leakage current	<= 5 µA for output
Voltage drop	<= 1 V
Tungsten load	<= 2.4 W
Protection type	Reverse polarity protection for fast output Short-circuit and overload protection with automatic reset Short-circuit protection
Reset time	12 s fast output 10 ms output
Current per output common	2 A
Execution time for 1 KInstruction	0.7 ms for other instruction 0.3 ms for event and periodic task
Memory capacity	64 MB for system memory RAM 8 MB for program
Data backed up	128 MB built-in flash memory for backup of user programs
Data storage equipment	<= 32 GB SD card optional
Battery type	BR2032 lithium non-rechargeable, battery life: 4 yr
Backup time	2 years at 25 °C
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	PWM/PTO function 4 channel(s) (positioning frequency: 100 kHz)
Control signal type	Single phase signal at 200 kHz for fast input (HSC mode) Pulse/Direction signal at 200 kHz for fast input (HSC mode) A/B signal at 100 kHz for fast input (HSC mode)
Counting input number	4 fast input (HSC mode)
Integrated connection type	Ethernet with connector RJ45 USB port with connector mini B USB 2.0 Non isolated serial link "serial 2" with connector removable screw terminal block and interface RS485 Non isolated serial link "serial 1" with connector RJ45 and interface RS232/RS485
Supply	Serial link supply "serial 1" at 5 V, 200 mA
Port Ethernet	1 - 10BASE-T/100BASE-TX port with copper cable support
Web services	Web server
Communication service	FTP server SNMP DHCP client Ethernet/IP adapter Modbus TCP server Modbus TCP client IEC VAR ACCESS Modbus TCP slave device
Transmission rate	10/100 Mbit/s - communication protocol: Ethernet 480 Mbit/s for bus length of 3 m - communication protocol: USB 1.2...115.2 kbit/s (115.2 kbit/s by default) for bus length of 3 m - communication protocol: RS232 1.2...115.2 kbit/s (115.2 kbit/s by default) for bus length of 15 m - communication protocol: RS485
Communication port protocol	Modbus non isolated serial link with master/slave method
Supply voltage limits	20.4...28.8 V
Inrush current	<= 50 A
Power consumption in W	32.6...40.4 W
Cable length	<= 3 m shielded cable for fast output <= 50 m unshielded cable for output <= 10 m shielded cable for fast input <= 50 m unshielded cable for input

Local signalling	<ul style="list-style-type: none"> <li>1 LED green for Ethernet port activity</li> <li>1 LED per channel green for I/O state</li> <li>1 LED red for bus fault on TM4 (TM4)</li> <li>1 LED green for SL2</li> <li>1 LED green for SL1</li> <li>1 LED red for BAT</li> <li>1 LED green for SD card access (SD)</li> <li>1 LED red for I/O error (I/O)</li> <li>1 LED red for module error (ERR)</li> <li>1 LED green for RUN</li> <li>1 LED green for PWR</li> </ul>
Electrical connection	<ul style="list-style-type: none"> <li>Removable screw terminal block for connecting the 24 V DC power supply (pitch 5.08 mm)</li> <li>Removable screw terminal block for inputs and outputs (pitch 5.08 mm)</li> </ul>
Insulation	<ul style="list-style-type: none"> <li>500 V AC between output groups</li> <li>500 V AC between fast output and internal logic</li> <li>Non-insulated between outputs</li> <li>500 V AC between output and internal logic</li> <li>500 V AC between fast input and internal logic</li> <li>Non-insulated between inputs</li> <li>500 V AC between input and internal logic</li> <li>Non-insulated between supply and ground</li> <li>500 V AC between supply and internal logic</li> </ul>
Marking	CE
Surge withstand	<ul style="list-style-type: none"> <li>1 kV for transistor output in common mode conforming to EN/IEC 61000-4-5</li> <li>1 kV for input in common mode conforming to EN/IEC 61000-4-5</li> <li>1 kV for relay output in differential mode conforming to EN/IEC 61000-4-5</li> <li>0.5 kV for power lines (DC) in differential mode conforming to EN/IEC 61000-4-5</li> <li>1 kV for shielded cable in common mode conforming to EN/IEC 61000-4-5</li> <li>1 kV for power lines (DC) in common mode conforming to EN/IEC 61000-4-5</li> </ul>
Maximum number of connections	<ul style="list-style-type: none"> <li>8 connection(s) for Modbus server</li> <li>16 connection(s) for Ethernet/IP device</li> </ul>
Mounting support	<ul style="list-style-type: none"> <li>Plate or panel with fixing kit</li> <li>Top hat type TH35-7.5 rail conforming to IEC 60715</li> <li>Top hat type TH35-15 rail conforming to IEC 60715</li> </ul>
Height	3.54 in (90 mm)
Depth	3.74 in (95 mm)
Width	7.48 in (190 mm)
Product weight	1.37 lb(US) (0.62 kg)

## Environment

Standards	<ul style="list-style-type: none"> <li>CSA C22.2 No 142</li> <li>UL 1604</li> <li>UL 508</li> <li>ANSI/ISA 12-12-01</li> <li>CSA C22.2 No 213</li> <li>EN/IEC 61131-2 : 2007</li> <li>Marine specification (LR, ABS, DNV, GL)</li> </ul>
Product certifications	<ul style="list-style-type: none"> <li>CSA</li> <li>CULus</li> <li>IACS E10</li> <li>RCM</li> </ul>
Resistance to electrostatic discharge	<ul style="list-style-type: none"> <li>4 kV on contact conforming to EN/IEC 61000-4-2</li> <li>8 kV in air conforming to EN/IEC 61000-4-2</li> </ul>
Resistance to electromagnetic fields	<ul style="list-style-type: none"> <li>1 V/m (2 GHz...3 GHz) conforming to EN/IEC 61000-4-3</li> <li>3 V/m (1.4 GHz...2 GHz) conforming to EN/IEC 61000-4-3</li> <li>10 V/m (80 MHz...1 GHz) conforming to EN/IEC 61000-4-3</li> </ul>
Resistance to fast transients	<ul style="list-style-type: none"> <li>1 kV for transistor output conforming to EN/IEC 61000-4-4</li> <li>1 kV for input conforming to EN/IEC 61000-4-4</li> <li>1 kV for serial link conforming to EN/IEC 61000-4-4</li> <li>1 kV for Ethernet line conforming to EN/IEC 61000-4-4</li> <li>2 kV for power lines conforming to EN/IEC 61000-4-4</li> </ul>
Resistance to conducted disturbances, induced by radio frequency fields	<ul style="list-style-type: none"> <li>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)</li> <li>3 V (0.1...80 MHz) conforming to Marine specification (LR, ABS, DNV, GL)</li> <li>10 V (0.15...80 MHz) conforming to EN/IEC 61000-4-6</li> </ul>

Electromagnetic emission	<p>Radiated emissions, test level: 47 dB<math>\mu</math>V/m QP with class A (radio frequency: 230 MHz...1 GHz) conforming to EN/IEC 55011</p> <p>Radiated emissions, test level: 40 dB<math>\mu</math>V/m QP with class A (radio frequency: 30...230 MHz) conforming to EN/IEC 55011</p> <p>Conducted emissions, test level: 63 dB<math>\mu</math>V/m QP, condition of test: power lines (radio frequency: 1.5...30 MHz) conforming to EN/IEC 55011</p> <p>Conducted emissions, test level: 79...63 dB<math>\mu</math>V/m QP, condition of test: power lines (radio frequency: 150 kHz...1.5 MHz) conforming to EN/IEC 55011</p> <p>Conducted emissions, test level: 120...69 dB<math>\mu</math>V/m QP, condition of test: power lines (radio frequency: 10...150 kHz) conforming to EN/IEC 55011</p>
Immunity to microbreaks	10 ms
Ambient air temperature for operation	-10...55 °C for horizontal installation -10...50 °C for vertical installation
Ambient air temperature for storage	-13...158 °F (-25...70 °C)
Relative humidity	10...95 % without condensation in storage 10...95 % without condensation in operation
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...9842.52 ft (0...3000 m)
Vibration resistance	<p>3 gn (vibration frequency: 8.4...150 Hz) on panel mounting</p> <p>3.5 mm (vibration frequency: 5...8.4 Hz) on panel mounting</p> <p>3 gn (vibration frequency: 8.4...150 Hz) on symmetrical rail</p> <p>3.5 mm (vibration frequency: 5...8.4 Hz) on symmetrical rail</p>
Shock resistance	15 gn for 11 ms
<b>Offer Sustainability</b>	
Sustainable offer status	Not Green Premium product
RoHS	Compliant - since 1330 - <a href="#">Schneider Electric declaration of conformity</a>