



## Main

|                           |                                                                                     |
|---------------------------|-------------------------------------------------------------------------------------|
| Range of product          | Modicon M241                                                                        |
| Product or component type | Logic controller                                                                    |
| [Us] rated supply voltage | 24 V DC                                                                             |
| Discrete input number     | 14, discrete input 8 fast input conforming to IEC 61131-2 Type 1                    |
| Discrete output type      | Transistor                                                                          |
| Discrete output number    | 10 transistor 4 fast output                                                         |
| Discrete output voltage   | 24 V DC for transistor output                                                       |
| Discrete output current   | 0.5 A for transistor output (Q0...Q9)<br>0.1 A for fast output (PTO mode) (Q0...Q3) |

## Complementary

|                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Discrete I/O number                    | 24                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Maximum number of I/O expansion module | 7 (local)<br>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)                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Voltage state 0 guaranteed             | $\leq 5$ V for input                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Discrete input current                 | 5 mA for input<br>10.7 mA for fast input                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Input impedance                        | 4.7 kOhm for input<br>2.81 kOhm for fast input                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Response time                          | 50 $\mu$ s turn-on, I0...I13 terminal(s) for input<br>50 $\mu$ s turn-off, I0...I13 terminal(s) for input<br>$\leq 2$ $\mu$ s turn-on, I0...I7 terminal(s) for fast input<br>$\leq 2$ $\mu$ s turn-off, I0...I7 terminal(s) for fast input<br>$\leq 34$ $\mu$ s turn-on, Q0...Q9 terminal(s) for output<br>$\leq 250$ $\mu$ s turn-off, Q0...Q9 terminal(s) for output<br>$\leq 2$ $\mu$ s turn-on, Q0...Q3 terminal(s) for fast output<br>$\leq 2$ $\mu$ s turn-off, Q0...Q3 terminal(s) for fast output |
| Configurable filtering time            | 1 $\mu$ s for fast input<br>12 ms for fast input<br>0 ms for input<br>1 ms for input<br>4 ms for input<br>12 ms for input                                                                                                                                                                                                                                                                                                                                                                                 |
| Discrete output logic                  | Negative logic (sink)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Output voltage limits                  | 30 V DC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

|                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Maximum current per output common | 2 A with Q0...Q3 for fast output<br>2 A with Q4...Q7 for output<br>1 A with Q8...Q9 for output                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Maximum output frequency          | 20 KHz for fast output (PWM mode)<br>100 KHz for fast output (PLS mode)<br>1 KHz for output                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Accuracy                          | +/- 0.1 % at 0.02...0.1 kHz for fast output<br>+/- 1 % at 0.1...1 kHz for fast output                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Maximum leakage current           | 5 mA for output                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Maximum voltage drop              | <1 V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Maximum tungsten load             | <2.4 W                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Protection type                   | Short-circuit protection<br>Short-circuit and overload protection with automatic reset<br>Reverse polarity protection for fast output                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Reset time                        | 10 Ms automatic reset output<br>12 S automatic reset fast output                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Memory capacity                   | 8 MB for program<br>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<br>0.7 Ms for other instruction                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Application structure             | 8 external event tasks<br>4 cyclic master tasks<br>8 event tasks<br>3 cyclic master tasks + 1 freewheeling task                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Realtime clock                    | With                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Clock drift                       | <= 60 s/month at 25 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Positioning functions             | PTO function 4 channel(s) (positioning frequency: 100 kHz)<br>PTO function 4 channel(s) for transistor output (positioning frequency: 1 kHz)                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Counting input number             | 4 fast input (HSC mode) at 200 kHz<br>14 standard input at 1 kHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Control signal type               | A/B at 100 kHz for fast input (HSC mode)<br>Pulse/Direction at 200 kHz for fast input (HSC mode)<br>Single phase at 200 kHz for fast input (HSC mode)                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Integrated connection type        | Non isolated serial link serial 1 with RJ45 connector and RS232/RS485 interface<br>Non isolated serial link serial 2 with removable screw terminal block connector and RS485 interface<br>USB port with mini B USB 2.0 connector<br>Ethernet with RJ45 connector                                                                                                                                                                                                                                                                                                                 |
| Supply                            | (Serial 1)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<br>1.2...115.2 kbit/s (115.2 kbit/s by default) for bus length of 3 m for RS232<br>480 Mbit/s for bus length of 3 m for USB<br>10/100 Mbit/s for Ethernet                                                                                                                                                                                                                                                                                                                                          |
| Communication port protocol       | Non isolated serial link: Modbus master/slave                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Port Ethernet                     | 10BASE-T/100BASE-TX - 1 port(s) copper cable                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Communication service             | FDR<br>DHCP server via TM4 Ethernet switch network module<br>DHCP client embedded Ethernet port<br>SMS notifications<br>Updating firmware<br>SNMP client/server<br>Programming<br>NGVL<br>Monitoring<br>IEC VAR ACCESS<br>FTP client/server<br>Downloading<br>SQL client<br>Modbus TCP client I/O scanner<br>Ethernet/IP originator I/O scanner embedded Ethernet port<br>Ethernet/IP target, Modbus TCP server and Modbus TCP slave<br>Send and receive email from the controller based on TCP/UDP library<br>Web server (WebVisu & XWeb system)<br>OPC UA server<br>DNS client |

|                                        |                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Local signalling                       | 1 LED (green)PWR:<br>1 LED (green)RUN:<br>1 LED (red)module error (ERR):<br>1 LED (red)I/O error (I/O):<br>1 LED (green)SD card access (SD):<br>1 LED (red)BAT:<br>1 LED (green)SL1:<br>1 LED (green)SL2:<br>1 LED (red)bus fault on TM4 (TM4):<br>1 LED per channel (green)I/O state:<br>1 LED (green)Ethernet port activity:                                                                                     |
| Electrical connection                  | Removable screw terminal blockfor inputs and outputs (pitch 5.08 mm)<br>removable screw terminal blockfor connecting the 24 V DC power supply (pitch 5.08 mm)                                                                                                                                                                                                                                                      |
| Maximum cable distance between devices | Unshielded cable: <50 m for input<br>Shielded cable: <10 m for fast input<br>Unshielded cable: <50 m for output<br>Shielded cable: <3 m for fast output                                                                                                                                                                                                                                                            |
| Insulation                             | Between supply and internal logic at 500 V AC<br>Non-insulated between supply and ground<br>Between input and internal logic at 500 V AC<br>Non-insulated between inputs<br>Between fast input and internal logic at 500 V AC<br>Between output and internal logic at 500 V AC<br>Non-insulated between outputs<br>Between fast output and internal logic at 500 V AC<br>Between output groups at 500 V AC         |
| Marking                                | CE                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Surge withstand                        | 1 KV power lines (DC) common mode conforming to EN/IEC 61000-4-5<br>1 KV shielded cable common mode conforming to EN/IEC 61000-4-5<br>0.5 KV power lines (DC) differential mode conforming to EN/IEC 61000-4-5<br>1 KV relay output differential mode conforming to EN/IEC 61000-4-5<br>1 KV input common mode conforming to EN/IEC 61000-4-5<br>1 KV transistor output common mode conforming to EN/IEC 61000-4-5 |
| Web services                           | Web server                                                                                                                                                                                                                                                                                                                                                                                                         |
| Maximum number of connections          | 8 Modbus server<br>8 SoMachine protocol<br>10 web server<br>4 FTP server<br>16 Ethernet/IP target<br>8 Modbus client                                                                                                                                                                                                                                                                                               |
| Number of slave                        | 64 Modbus TCP:<br>16 Ethernet/IP:                                                                                                                                                                                                                                                                                                                                                                                  |
| Cycle time                             | 10 Ms 16 Ethernet/IP<br>64 Ms 64 Modbus TCP                                                                                                                                                                                                                                                                                                                                                                        |
| Mounting support                       | Top hat type TH35-15 rail conforming to IEC 60715<br>Top hat type TH35-7.5 rail conforming to IEC 60715<br>plate or panel with fixing kit                                                                                                                                                                                                                                                                          |
| Height                                 | 90 Mm                                                                                                                                                                                                                                                                                                                                                                                                              |
| Depth                                  | 95 Mm                                                                                                                                                                                                                                                                                                                                                                                                              |
| Width                                  | 150 Mm                                                                                                                                                                                                                                                                                                                                                                                                             |
| Net weight                             | 0.53 Kg                                                                                                                                                                                                                                                                                                                                                                                                            |

## Environment

|                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|---------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Standards                             | ANSI/ISA 12-12-01<br>CSA C22.2 No 142<br>CSA C22.2 No 213<br>EN/IEC 61131-2:2007<br>Marine specification (LR, ABS, DNV, GL)<br>UL 1604<br>UL 508                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Product certifications                | IACS E10<br>CSA<br>CULus<br>RCM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Resistance to electrostatic discharge | 8 KV in air conforming to EN/IEC 61000-4-2<br>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<br>3 V/M 1.4 GHz...2 GHz conforming to EN/IEC 61000-4-3<br>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<br>1 KV (Ethernet line) conforming to EN/IEC 61000-4-4<br>1 KV (serial link) conforming to EN/IEC 61000-4-4<br>1 KV (input) conforming to EN/IEC 61000-4-4<br>1 KV (transistor output) conforming to EN/IEC 61000-4-4                                                                                                                                                                                                                                                                                                               |
| Resistance to conducted disturbances  | 10 V 0.15...80 MHz conforming to EN/IEC 61000-4-6<br>3 V 0.1...80 MHz conforming to Marine specification (LR, ABS, DNV, GL)<br>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 dB $\mu$ V/m QP ( power-lines) at 10...150 kHz conforming to EN/IEC 55011<br>Conducted emissions - test level: 63 dB $\mu$ V/m QP ( power lines) at 1.5...30 MHz-conforming to EN/IEC 55011<br>Radiated emissions - test level: 40 dB $\mu$ V/m QP class A at 30...230 MHz conforming to EN/IEC 55011<br>Conducted emissions - test level: 79...63 dB $\mu$ V/m QP ( power-lines) at 150...1500 kHz conforming to EN/IEC 55011<br>Radiated emissions - test level: 47 dB $\mu$ V/m QP class A at 230...1000 MHz conforming to EN/IEC 55011 |
| Immunity to microbreaks               | 10 Ms                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Ambient air temperature for operation | -10...50 °C (vertical installation)<br>-10...55 °C (horizontal installation)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Ambient air temperature for storage   | -25...70 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Relative humidity                     | 10...95 %, without condensation (in operation)<br>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<br>3 gn at 8.4...150 Hz on symmetrical rail<br>3.5 mm at 5...8.4 Hz on panel mounting<br>3 gn at 8.4...150 Hz on panel mounting                                                                                                                                                                                                                                                                                                                                                                                                              |
| Shock resistance                      | 15 gn for 11 ms                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

## Packing Units

|                  |            |
|------------------|------------|
| Package 1 Weight | 606.000 G  |
| Package 1 Height | 128.000 Mm |
| Package 1 width  | 114.500 Mm |
| Package 1 Length | 186.000 Mm |

## Offer Sustainability

|                            |                                                                                                                             |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Sustainable offer status   | Green Premium product                                                                                                       |
| EU RoHS Directive          | Pro-active compliance (Product out of EU RoHS legal scope) <a href="#">EU RoHS Declaration</a>                              |
| Mercury free               | Yes                                                                                                                         |
| RoHS exemption information | <a href="#">Yes</a>                                                                                                         |
| China RoHS Regulation      | <a href="#">China RoHS Declaration</a>                                                                                      |
| Environmental Disclosure   | <a href="#">Product Environmental Profile</a>                                                                               |
| Circularity Profile        | <a href="#">End Of Life Information</a>                                                                                     |
| WEEE                       | The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins |
| PVC free                   | Yes                                                                                                                         |

Product Life Status : **Commercialised**