

# Product data sheet

Specifications



logic controller, Modicon M221, 24  
IO, relay

TM221C24R

Product availability: Stock - Normally stocked in distribution  
facility

Price\*: 299.00 USD

## Main

|                           |                                       |
|---------------------------|---------------------------------------|
| Range of Product          | Modicon M221                          |
| Product or Component Type | Logic controller                      |
| [Us] rated supply voltage | 100...240 V AC                        |
| Discrete input number     | 14, discrete input IEC 61131-2 Type 1 |
| Analogue input number     | 2 0...10 V                            |
| Discrete output type      | Relay normally open                   |
| Discrete output number    | 10 relay                              |
| Discrete output voltage   | 5...125 V DC<br>5...250 V AC          |
| Discrete output current   | 2 A                                   |

## Complementary

|                                        |                                                                                                             |
|----------------------------------------|-------------------------------------------------------------------------------------------------------------|
| Discrete I/O number                    | 24                                                                                                          |
| Maximum number of I/O expansion module | 7 (local I/O-Architecture)<br>14 (remote I/O-Architecture)                                                  |
| Supply voltage limits                  | 85...264 V                                                                                                  |
| Network Frequency                      | 50/60 Hz                                                                                                    |
| Inrush current                         | 40 A                                                                                                        |
| Maximum power consumption in VA        | 55 VA 100...240 V with max number of I/O expansion module<br>32 VA 100...240 V without I/O expansion module |
| Power supply output current            | 0.52 A 5 V expansion bus<br>0.16 A 24 V expansion bus                                                       |
| Discrete input logic                   | Sink or source (positive/negative)                                                                          |
| Discrete input voltage                 | 24 V                                                                                                        |
| Discrete input voltage type            | DC                                                                                                          |
| Analogue input resolution              | 10 bits                                                                                                     |
| LSB value                              | 10 mV                                                                                                       |
| Conversion time                        | 1 ms per channel + 1 controller cycle time analog input                                                     |
| Permitted overload on inputs           | +/- 30 V DC 5 min maximum)analog input<br>+/- 13 V DC permanent)analog input                                |
| Voltage state 1 guaranteed             | >= 15 V input                                                                                               |
| Voltage state 0 guaranteed             | <= 5 V input                                                                                                |
| Discrete input current                 | 7 mA discrete input<br>5 mA fast input                                                                      |

Price is "List Price" and may be subject to a trade discount – check with your local distributor or retailer for actual price.

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

|                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Input impedance</b>                   | 3.4 kOhm discrete input<br>100 kOhm analog input<br>4.9 kOhm fast input                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Response time</b>                     | 35 µs turn-off, I2...I5 input<br>10 ms turn-on output<br>10 ms turn-off output<br>5 µs turn-on, I0, I1, I6, I7 fast input<br>35 µs turn-on, other terminals input<br>5 µs turn-off, I0, I1, I6, I7 fast input<br>100 µs turn-off, other terminals input                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Configurable filtering time</b>       | 0 ms input<br>3 ms input<br>12 ms input                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Output voltage limits</b>             | 125 V DC<br>277 V AC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Maximum current per output common</b> | 4 A COM 2<br>7 A COM 0<br>7 A COM 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Absolute accuracy error</b>           | +/- 1 % of full scale analog input                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Electrical durability</b>             | 100000 cycles AC-12, 120 V, 240 VA, resistive<br>100000 cycles AC-12, 240 V, 480 VA, resistive<br>300000 cycles AC-12, 120 V, 80 VA, resistive<br>300000 cycles AC-12, 240 V, 160 VA, resistive<br>100000 cycles AC-15, cos phi = 0.35, 120 V, 60 VA, inductive<br>100000 cycles AC-15, cos phi = 0.35, 240 V, 120 VA, inductive<br>300000 cycles AC-15, cos phi = 0.35, 120 V, 18 VA, inductive<br>300000 cycles AC-15, cos phi = 0.35, 240 V, 36 VA, inductive<br>100000 cycles AC-14, cos phi = 0.7, 120 V, 120 VA, inductive<br>100000 cycles AC-14, cos phi = 0.7, 240 V, 240 VA, inductive<br>300000 cycles AC-14, cos phi = 0.7, 120 V, 36 VA, inductive<br>300000 cycles AC-14, cos phi = 0.7, 240 V, 72 VA, inductive<br>100000 cycles DC-12, 24 V, 48 W, resistive<br>300000 cycles DC-12, 24 V, 16 W, resistive<br>100000 cycles DC-13, 24 V, 24 W, inductive (L/R = 7 ms)<br>300000 cycles DC-13, 24 V, 7.2 W, inductive (L/R = 7 ms) |
| <b>Switching frequency</b>               | 20 switching operations/minute with maximum load                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Mechanical durability</b>             | 20000000 cycles relay output                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Minimum load</b>                      | 1 mA 5 V DC relay output                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Protection type</b>                   | Without protection 5 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Reset time</b>                        | 1 s                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Memory capacity</b>                   | 256 kB user application and data RAM 10000 instructions<br>256 kB internal variables RAM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Data backed up</b>                    | 256 kB built-in flash memory backup of application and data                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Data storage equipment</b>            | 2 GB SD card optional)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Battery type</b>                      | BR2032 or CR2032X lithium non-rechargeable                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Backup time</b>                       | 1 year 77.0000000000 °F (25 °C) by interruption of power supply)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Execution time for 1 KInstruction</b> | 0.3 ms event and periodic task                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Execution time per instruction</b>    | 0.2 µs Boolean                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Exct time for event task</b>          | 60 µs response time                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Maximum size of object areas</b>      | 255 %C counters<br>8000 %MW memory words<br>512 %M memory bits<br>512 %KW constant words<br>255 %TM timers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Realtime clock</b>                    | With                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Clock drift</b>                       | <= 30 s/month 77.0000000000 °F (25 °C)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Regulation loop</b>                   | Adjustable PID regulator up to 14 simultaneous loops                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

|                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Counting input number                  | 4 fast input (HSC mode) 100 kHz 32 bits                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| counter function                       | A/B<br>Single phase<br>Pulse/direction                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Integrated connection type             | USB port mini B USB 2.0<br>Non isolated serial link serial 1 RJ45 RS485<br>Non isolated serial link serial 2 RJ45 RS232/RS485                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Supply                                 | Serial)serial link supply 5 V, <200 mA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Transmission rate                      | 1.2...115.2 kbit/s (115.2 kbit/s by default) 49.2 ft (15 m) RS485<br>1.2...115.2 kbit/s (115.2 kbit/s by default) 9.8 ft (3 m) RS232<br>480 Mbit/s USB                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Communication port protocol            | USB port USB - SoMachine-Network<br>Non isolated serial link Modbus master/slave - RTU/ASCII or SoMachine-Network                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Local signalling                       | for PWR 1 LED (green)<br>for RUN 1 LED (green)<br>for module error (ERR) 1 LED (red)<br>for SD card access (SD) 1 LED (green)<br>for BAT 1 LED (red)<br>for SL1 1 LED (green)<br>for SL2 1 LED (green)<br>for I/O state 1 LED per channel (green)                                                                                                                                                                                                                                                                                                                                         |
| Electrical connection                  | removable screw terminal block for inputs<br>removable screw terminal block for outputs<br>terminal block, 3 for connecting the 24 V DC power supply<br>connector, 4 for analogue inputs<br>Mini B USB 2.0 connector for a programming terminal                                                                                                                                                                                                                                                                                                                                           |
| Maximum cable distance between devices | Shielded cable <32.8 ft (10 m) fast input<br>Unshielded cable <98.4 ft (30 m) output<br>Unshielded cable <98.4 ft (30 m) digital input<br>Unshielded cable <3.3 ft (1 m) analog input                                                                                                                                                                                                                                                                                                                                                                                                     |
| Insulation                             | Between input and internal logic 500 V AC<br>Non-insulated between analogue input and internal logic<br>Non-insulated between analogue inputs<br>Between supply and ground 1500 V AC<br>Between sensor power supply and ground 500 V AC<br>Between input and ground 500 V AC<br>Between output and ground 1500 V AC<br>Between supply and internal logic 2300 V AC<br>Between sensor power supply and internal logic 500 V AC<br>Between output and internal logic 2300 V AC<br>Between Ethernet terminal and internal logic 500 V AC<br>Between supply and sensor power supply 2300 V AC |
| marking                                | CE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Sensor power supply                    | 24 V DC 250 mA supplied by the controller                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Mounting support                       | Top hat type TH35-15 rail IEC 60715<br>Top hat type TH35-7.5 rail IEC 60715<br>plate or panel with fixing kit                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Height                                 | 3.5 in (90 mm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Depth                                  | 2.8 in (70 mm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Width                                  | 4.3 in (110 mm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Net Weight                             | 0.871 lb(US) (0.395 kg)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

## Environment

|           |                                                                                 |
|-----------|---------------------------------------------------------------------------------|
| Standards | IEC 61131-2<br>UL 508<br>CAN/CSA C22.2 No. 213<br>IACS E10<br>ANSI/ISA 12-12-01 |
|-----------|---------------------------------------------------------------------------------|

|                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product Certifications                | LR<br>ABS<br>DNV-GL<br>RCM<br>cULus<br>EAC<br>CE<br>UKCA<br>cULus HazLoc                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Environmental characteristic          | Ordinary and hazardous location                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Resistance to electrostatic discharge | 8 kV in air IEC 61000-4-2<br>4 kV on contact IEC 61000-4-2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Resistance to electromagnetic fields  | 9.1 V/m (10 V/m) 80 MHz...1 GHz IEC 61000-4-3<br>2.7 V/m (3 V/m) 1.4 GHz...2 GHz IEC 61000-4-3<br>0.9 V/m (1 V/m) 2...2.7 GHz IEC 61000-4-3                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Resistance to magnetic fields         | 98.4 A/m (30 A/m) 50/60 Hz IEC 61000-4-8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Resistance to fast transients         | 2 kV IEC 61000-4-4 power lines)<br>2 kV IEC 61000-4-4 relay output)<br>1 kV IEC 61000-4-4 I/O)<br>1 kV IEC 61000-4-4 Ethernet line)<br>1 kV IEC 61000-4-4 serial link)                                                                                                                                                                                                                                                                                                                                                                                              |
| Surge withstand                       | 2 kV power lines (AC) common mode IEC 61000-4-5<br>2 kV relay output common mode IEC 61000-4-5<br>1 kV I/O common mode IEC 61000-4-5<br>1 kV shielded cable common mode IEC 61000-4-5<br>0.5 kV power lines (DC) differential mode IEC 61000-4-5<br>1 kV power lines (AC) differential mode IEC 61000-4-5<br>1 kV relay output differential mode IEC 61000-4-5<br>0.5 kV power lines (DC) common mode IEC 61000-4-5                                                                                                                                                 |
| Resistance to conducted disturbances  | 10 V 0.15...80 MHz IEC 61000-4-6<br>3 V 0.1...80 MHz 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) Marine specification (LR, ABS, DNV, GL)                                                                                                                                                                                                                                                                                                                                                       |
| Electromagnetic emission              | Conducted emissions 79 dBµV/m QP/66 dBµV/m AV power lines (AC))0.15...0.5 MHz IEC 55011<br>Conducted emissions 73 dBµV/m QP/60 dBµV/m AV power lines (AC))0.5...300 MHz IEC 55011<br>Conducted emissions 120...69 dBµV/m QP power lines)10...150 kHz IEC 55011<br>Conducted emissions 63 dBµV/m QP power lines)1.5...30 MHz IEC 55011<br>Radiated emissions 40 dBµV/m QP class A 10 m)30...230 MHz IEC 55011<br>Conducted emissions 79...63 dBµV/m QP power lines)150...1500 kHz IEC 55011<br>Radiated emissions 47 dBµV/m QP class A 10 m)200...1000 MHz IEC 55011 |
| Immunity to microbreaks               | 10 ms                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Ambient air temperature for operation | 14.0000000000...131.0000000000 °F (-10...55 °C) horizontal installation)<br>14.0000000000...95.0000000000 °F (-10...35 °C) vertical installation)                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Ambient Air Temperature for Storage   | -13.0000000000...158.0000000000 °F (-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...6561.68 ft (0...2000 m)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Storage altitude                      | 0.0000000000...9842.5 ft (0...3000 m)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Vibration resistance                  | 3.5 mm 5...8.4 Hz symmetrical rail<br>3.5 mm 5...8.4 Hz panel mounting<br>1 gn 8.4...150 Hz symmetrical rail<br>1 gn 8.4...150 Hz panel mounting                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Shock resistance                      | 98 m/s² 11 ms                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

## Ordering and shipping details

|                   |               |
|-------------------|---------------|
| Category          | US10MSX22533  |
| Discount Schedule | 0MSX          |
| GTIN              | 3606480648717 |
| Returnability     | Yes           |
| Country of origin | TW            |

## Packing Units

|                              |                         |
|------------------------------|-------------------------|
| Unit Type of Package 1       | PCE                     |
| Number of Units in Package 1 | 1                       |
| Package 1 Height             | 4.376 in (11.116 cm)    |
| Package 1 Width              | 5.598 in (14.219 cm)    |
| Package 1 Length             | 6.159 in (15.643 cm)    |
| Package 1 Weight             | 22.6 oz (640.0 g)       |
| Unit Type of Package 2       | CAR                     |
| Number of Units in Package 2 | 20                      |
| Package 2 Height             | 11.5 in (29.1 cm)       |
| Package 2 Width              | 15.6 in (39.5 cm)       |
| Package 2 Length             | 22.2 in (56.3 cm)       |
| Package 2 Weight             | 30.58 lb(US) (13.87 kg) |
| Unit Type of Package 3       | P12                     |
| Number of Units in Package 3 | 240                     |
| Package 3 Height             | 47.2 in (120.0 cm)      |
| Package 3 Width              | 41.3 in (105.0 cm)      |
| Package 3 Length             | 31.5 in (80.0 cm)       |
| Package 3 Weight             | 361.6 lb(US) (164 kg)   |

Sustainability



**Green Premium™ label** is Schneider Electric’s commitment to delivering products with best-in-class environmental performance. Green Premium promises compliance with the latest regulations, transparency on environmental impacts, as well as circular and low-CO<sub>2</sub> products.

**Guide to assessing product sustainability** is a white paper that clarifies global eco-label standards and how to interpret environmental declarations.

[Learn more about Green Premium >](#)

[Guide to assess a product’s sustainability >](#)



Transparency   RoHS/REACH

Well-being performance

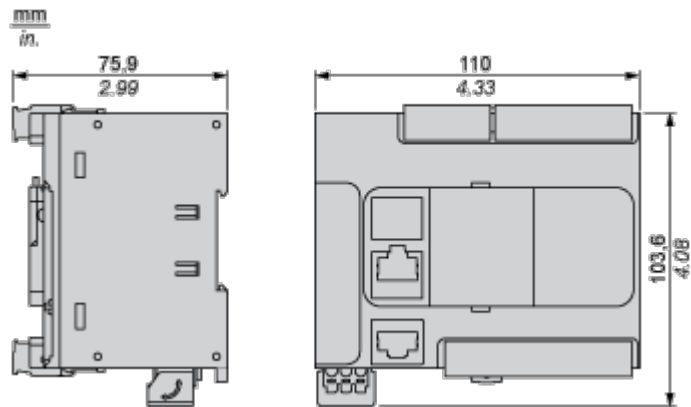
|   |                            |     |
|---|----------------------------|-----|
| ✓ | Mercury Free               |     |
| ✓ | Rohs Exemption Information | Yes |
| ✓ | Pvc Free                   |     |

Certifications & Standards

|                           |                                                                                                                                                                                                                                                                 |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Reach Regulation          | <a href="#">REACH Declaration</a>                                                                                                                                                                                                                               |
| Eu Rohs Directive         | Pro-active compliance (Product out of EU RoHS legal scope)                                                                                                                                                                                                      |
| China Rohs Regulation     | <a href="#">China RoHS declaration</a>                                                                                                                                                                                                                          |
| Environmental Disclosure  | <a href="#">Product Environmental Profile</a>                                                                                                                                                                                                                   |
| Weee                      | The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins.                                                                                                                                    |
| Circularity Profile       | <a href="#">End of Life Information</a>                                                                                                                                                                                                                         |
| California Proposition 65 | WARNING: This product can expose you to chemicals including: Lead and lead compounds, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to <a href="#">www.P65Warnings.ca.gov</a> |

Dimensions Drawings

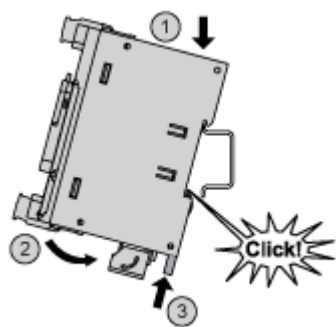
Dimensions



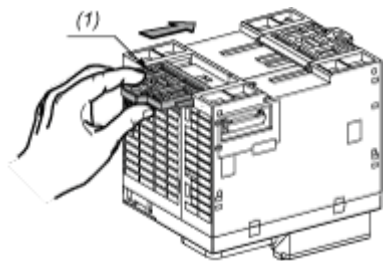
Mounting and Clearance

Mounting on a Rail

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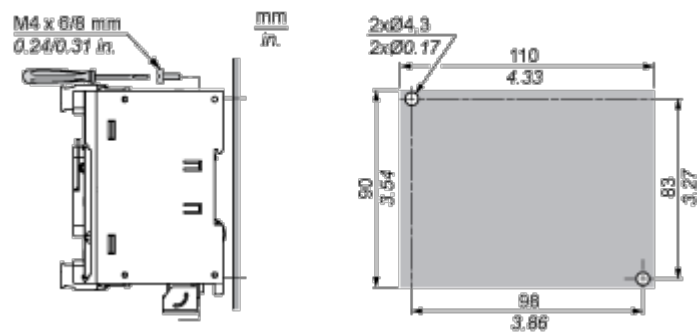


Direct Mounting on a Panel Surface



- (1) Install a mounting strip

Mounting Hole Layout



Mounting

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Correct Mounting Position



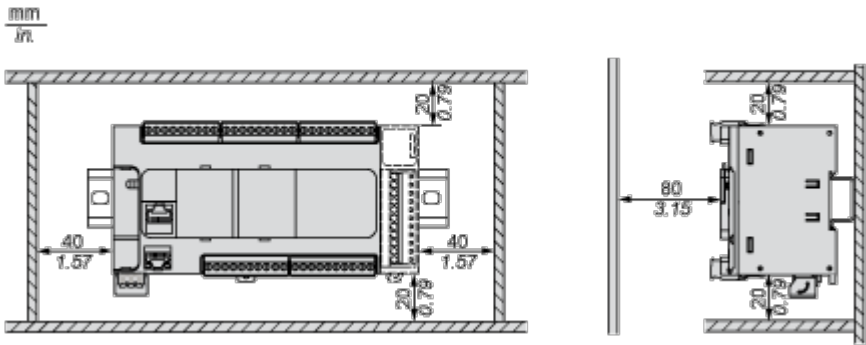
Acceptable Mounting Position



Incorrect Mounting Position



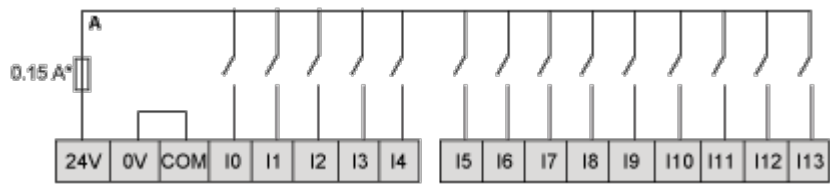
Clearance



Connections and Schema

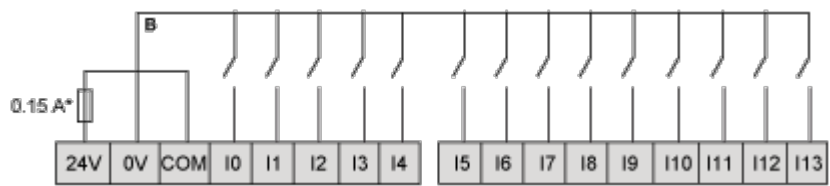
Digital Inputs

Wiring Diagram (Positive Logic)



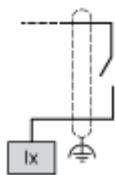
(\*) Type T fuse

Wiring Diagram (Negative Logic)



(\*) Type T fuse

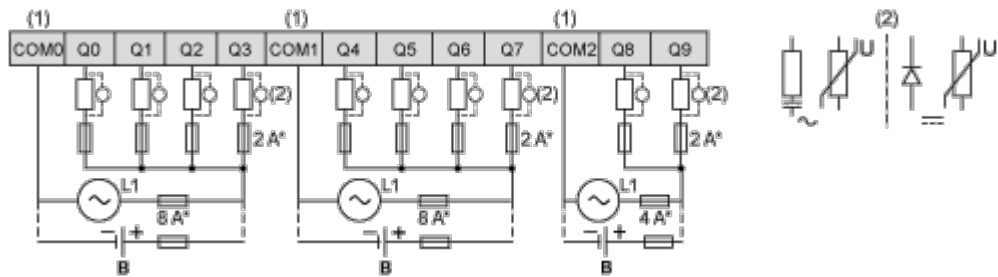
Connection of the Fast Inputs



I0, I1, I6, I7

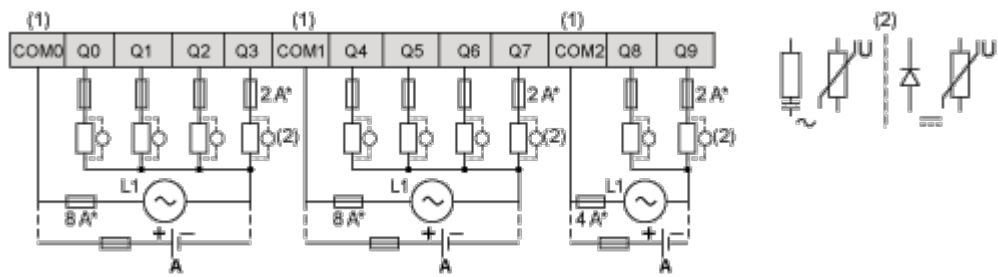
Relay Outputs

Negative Logic (Sink)



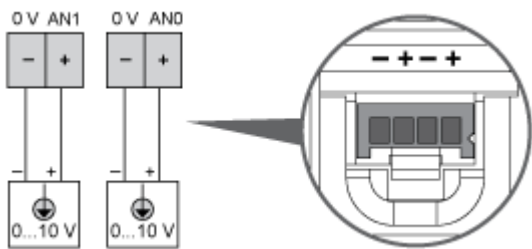
- (\*) Type T fuse
- (1) The COM0, COM1 and COM2 terminals are not connected internally.
- (2) To improve the life time of the contacts, and to protect from potential inductive load damage, you must connect a free wheeling diode in parallel to each inductive DC load or an RC snubber in parallel of each inductive AC load
- B Sink wiring (negative logic)

Positive Logic (Source)



- (\*) Type T fuse
- (1) The COM0, COM1 and COM2 terminals are not connected internally.
- (2) To improve the life time of the contacts, and to protect from potential inductive load damage, you must connect a free wheeling diode in parallel to each inductive DC load or an RC snubber in parallel of each inductive AC load
- A Source wiring (positive logic)

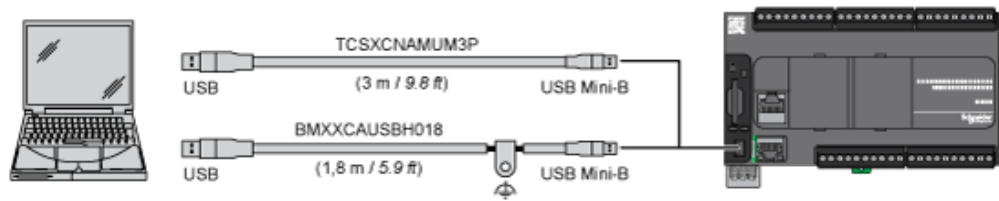
Analog Inputs



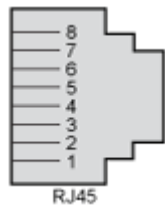
The (-) poles are connected internally.

| Pin | Wire Color |
|-----|------------|
| 0 V | Black      |
| AN1 | Red        |
| 0 V | Black      |
| AN0 | Red        |

USB Mini-B Connection



SL1 Connection

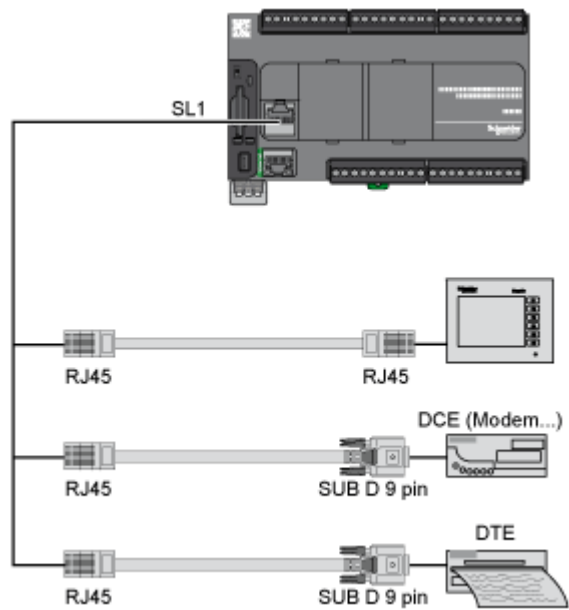


SL1

| N ° | RS 232 | RS 485 |
|-----|--------|--------|
| 1   | RxD    | N.C.   |
| 2   | TxD    | N.C.   |
| 3   | RTS    | N.C.   |
| 4   | N.C.   | D1     |
| 5   | N.C.   | D0     |
| 6   | CTS    | N.C.   |
| 7   | N.C.*  | 5 Vdc  |
| 8   | Common | Common |

N.C.: not connected

\* : 5 Vdc delivered by the controller. Do not connect.



SL2 Connection



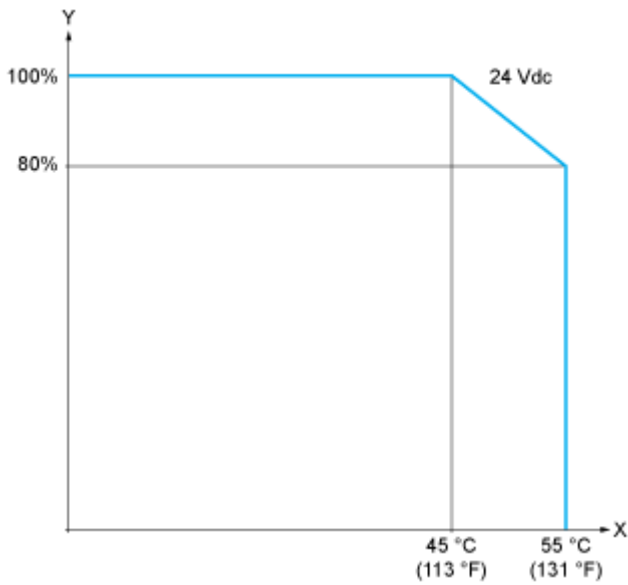
| N ° | RS 485 |
|-----|--------|
| 1   | N.C.   |
| 2   | N.C.   |
| 3   | N.C.   |
| 4   | D1     |
| 5   | D0     |
| 6   | N.C.   |
| 7   | N.C.   |
| 8   | Common |

N.C.: not connected

Performance Curves

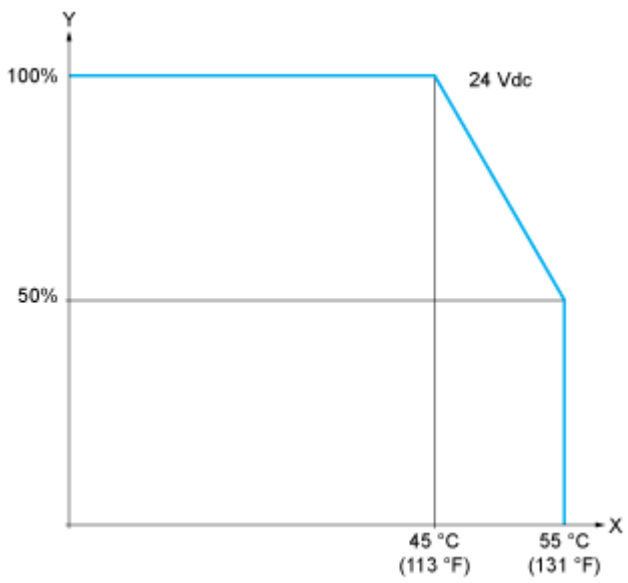
Derating Curves

Embedded Digital Inputs (No Cartridge)



X : Ambient temperature  
Y : Input simultaneous ON ratio

Embedded Digital Inputs (with Cartridge)



X : Ambient temperature  
Y : Input simultaneous ON ratio