

# Bảng thông số sản phẩm

Thông số kỹ thuật



## Controller M200 60I/O relay

TM200C60R



### Main

|                             |   |
|-----------------------------|---|
| Range of product            | Easy Modicon M200   |
| Product or component type   | Logic controller  |
| [Us] rated supply voltage   | 220 V AC  |
| Discrete I/O number         | 60  |
| Discrete input number       | I2...I5: 4 fast input<br>I0, I1, I6, I7: 4 high speed input<br>I8...I35: 28 regular input |
| Discrete output number      | 24 relay  |
| Discrete input voltage      | 24 V  |
| Discrete input voltage type | DC  |
| Discrete input current      | 7 mA for input  |
| Discrete input logic        | Sink or source (positive/negative) type 1 conforming to EN/IEC 61131-2                    |
| Discrete output voltage     | 24 V DC<br>220 V AC   |
| Discrete output current     | 2 A   |
| Discrete output type        | Relay normally open   |
| Power consumption in VA     | 61...74 VA at 100...240 V AC (with max I/O)   |

### Complementary

|  |  |
|--|--|
| Maximum number of I/O expansion module | 4 with 128 discrete output(s) for transistor output<br>4 with 88 discrete output(s) for relay output   |
| Supply voltage limits                  | 85...264 V   |
| Inrush current                         | 50 A   |
| Voltage state 1 guaranteed             | $\geq 15$ V for input  |
| Voltage state 0 guaranteed             | $\leq 5$ V for input   |
| Input impedance                        | 3.3 kOhm for discrete input  |
| Response time                          | 10 ms turn-on, Q0...Q23 terminal(s) for output<br>10 ms turn-off, Q0...Q23 terminal(s) for output<br>5 $\mu$ s turn-off, I0, I1, I6, I7 terminal(s) for high speed input<br>5 $\mu$ s turn-on, I0, I1, I6, I7 terminal(s) for high speed input<br>100 $\mu$ s turn-off, I2...I5 terminal(s) for fast input<br>35 $\mu$ s turn-on, I2...I5 terminal(s) for fast input<br>100 $\mu$ s turn-off, I8...I13 terminal(s) for regular input<br>35 $\mu$ s turn-on, I8...I13 terminal(s) for regular input<br>125 $\mu$ s turn-off, I14...I35 terminal(s) for regular input<br>55 $\mu$ s turn-on, I14...I35 terminal(s) for regular input |

|   |   |
|---|---|
| <b>Configurable filtering time</b>            | 0 ms for input<br>3 ms for input<br>12 ms for input   |
| <b>Output voltage limits</b>                  | 30 V DC<br>250 V AC   |
| <b>Maximum current per output common</b>      | 4 A at COM 2<br>4 A at COM 0<br>4 A at COM 1<br>4 A at COM 3<br>4 A at COM 4<br>4 A at COM 5  |
| <b>Electrical durability</b>                  | 100000 cycles AC-12, 240 V, 480 VA, resistive<br>100000 cycles DC-12, 24 V, 48 W, resistive   |
| <b>Switching frequency</b>                    | 0.1 Hz with maximum load  |
| <b>Mechanical durability</b>                  | 20000000 cycles for relay output  |
| <b>Minimum load</b>                           | 10 mA at 5 V DC for relay output  |
| <b>Memory capacity</b>                        | 512 byte internal flash for backup of programs  |
| <b>Data storage equipment</b>                 | 32 GB micro SD card (optional)  |
| <b>Battery type</b>                           | BR2032 Li-CFx (Lithium-Carbon Monofluoride), battery life: 5 year(s)  |
| <b>Backup time</b>                            | 3 years at 25 °C (by interruption of power supply)  |
| <b>Execution time for 1 KInstruction</b>      | 0.3 ms for 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>Clock drift</b>                            | <= 90 s/month at 25 °C  |
| <b>Regulation loop</b>                        | Adjustable PID regulator up to 14 simultaneous loops  |
| <b>Control signal type</b>                    | Quadrature (x1, x2, x4) at 100 kHz for fast input (HSC mode)<br>Pulse/direction at 100 kHz for fast input (HSC mode)<br>Single phase at 100 kHz for fast input (HSC mode)<br>CW/CCW at 100 kHz for fast input (HSC mode)  |
| <b>Counting input number</b>                  | 4 fast input (HSC mode) at 100 kHz 32 bits  |
| <b>Integrated connection type</b>             | USB port with mini B USB 2.0 connector<br>Non isolated serial link serial 1 with terminal block connector and RS485 interface<br>Non isolated serial link serial 2 with terminal block connector and RS232/RS485 interface<br>Ethernet Modbus TCP/IP Ethernet with RJ45 connector and 1 Ethernet port 10/100BASE-T interface<br>Isolated serial link serial 2 with terminal block connector and RS485 interface |
| <b>Transmission rate</b>                      | 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>12 Mbit/s for USB  |
| <b>Communication port protocol</b>            | USB port: USB - SoMachine-Network<br>Non isolated serial link: Modbus master/slave - RTU/ASCII or SoMachine-Network   |
| <b>Local signalling</b>                       | 1 LED (green) for PWR<br>1 LED (green) for RUN<br>1 LED (red) for module error (ERR)<br>1 LED (green) for SD card access (SD)<br>1 LED (red) for BAT<br>1 LED (green) for SL1<br>1 LED per channel (green) for I/O state  |
| <b>Electrical connection</b>                  | Mini B USB 2.0 connector for a programming terminal<br>removable screw terminal block for inputs<br>removable screw terminal block for outputs<br>removable screw terminal block, 4 terminal(s) for connecting the serial link1<br>removable screw terminal block, 3 terminal(s) for connecting the 100-240 V AC power supply   |
| <b>Maximum cable distance between devices</b> | Unshielded cable: <50 m for input<br>Shielded cable: <10 m for fast input<br>Shielded cable: <10 m for high speed input<br>Unshielded cable: <150 m for output  |
| <b>Insulation</b>                             | Non-insulated between inputs<br>Between output and internal logic at 1780 V AC<br>Between output groups at 1780 V AC<br>Between supply and internal logic at 1780 V AC<br>Between input and internal logic at 500 V AC<br>Between fast input and internal logic at 500 V AC<br>Between input groups at 500 V AC   |

|                            |   |
|----------------------------|---|
| <b>Sensor power supply</b> | 24 V DC at 300 mA supplied by the controller  |
| <b>Marking</b>             | CE  |
| <b>Mounting support</b>    | Top hat type TH35-15 rail conforming to IEC 60715<br>Top hat type TH35-7.5 plate or panel with fixing kit conforming to IEC 60715 |
| <b>Height</b>              | 90 mm   |
| <b>Depth</b>               | 70 mm   |
| <b>Width</b>               | 225 mm  |
| <b>Product weight</b>      | 0.7 kg  |

## Environment

|  |  |
|--|--|
| <b>IP degree of protection</b>               | IP20 with protective cover in place  |
| <b>Standards</b>                             | EN/IEC 61131-2<br>EN/IEC 61010-2-201   |
| <b>Electromagnetic compatibility</b>         | Electrostatic discharge immunity test - test level: 8 kV (air discharge) conforming to EN/IEC 61000-4-2<br>Electrostatic discharge immunity test - test level: 6 kV (contact discharge) conforming to EN/IEC 61000-4-2<br>Susceptibility to electromagnetic fields - test level: 10 V/m (80 MHz...3 GHz) conforming to EN/IEC 61000-4-3<br>Magnetic field at power frequency - test level: 30 A/m conforming to EN/IEC 61000-4-8<br>Electrical fast transient/burst immunity test - test level: 2 kV (power lines) conforming to EN/IEC 61000-4-4<br>Electrical fast transient/burst immunity test - test level: 2 kV (relay output) conforming to EN/IEC 61000-4-4<br>Electrical fast transient/burst immunity test - test level: 1 kV (I/O) conforming to EN/IEC 61000-4-4<br>Electrical fast transient/burst immunity test - test level: 1 kV (serial link) conforming to EN/IEC 61000-4-4<br>1.2/50 µs shock waves immunity test - test level: 1 kV (power lines (DC)) conforming to EN/IEC 61000-4-5<br>1.2/50 µs shock waves immunity test - test level: 2 kV (power lines (AC)) conforming to EN/IEC 61000-4-5<br>1.2/50 µs shock waves immunity test - test level: 2 kV (relay output) conforming to EN/IEC 61000-4-5<br>1.2/50 µs shock waves immunity test - test level: 1 kV (I/O) conforming to EN/IEC 61000-4-5<br>1.2/50 µs shock waves immunity test - test level: 1 kV (shielded cable) conforming to EN/IEC 61000-4-5<br>1.2/50 µs shock waves immunity test - test level: 0.5 kV (power lines (DC)) conforming to EN/IEC 61000-4-5<br>1.2/50 µs shock waves immunity test - test level: 1 kV (power lines (AC)) conforming to EN/IEC 61000-4-5<br>Conducted RF disturbances - test level: 10 V (0.15...80 MHz) conforming to EN/IEC 61000-4-6<br>Conducted emission - test level: 79 dBµV/m QP/66 dBµV/m AV (power lines (AC)) conforming to EN/IEC 55011<br>Conducted emission - test level: 73 dBµV/m QP/60 dBµV/m AV (power lines (AC)) conforming to EN/IEC 55011<br>Radiated emission - test level: 40 dBµV/m QP class A (10 m) conforming to EN/IEC 55011<br>Radiated emission - test level: 47 dBµV/m QP class A (10 m) conforming to EN/IEC 55011<br>Electrical fast transient/burst immunity test - test level: 1 kV (Ethernet line) conforming to EN/IEC 61000-4-4 |
| <b>Shock resistance</b>                      | 15 gn for 11 ms<br>30 gn for 6 ms  |
| <b>Immunity to microbreaks</b>               | 10 ms  |
| <b>Vibration resistance</b>                  | 3.5 mm at 5...8.4 Hz on symmetrical rail<br>1 gn at 8.4...150 Hz on symmetrical rail<br>3.5 mm at 5...8.7 Hz on panel mounting<br>2 gn at 8.7...150 Hz on panel mounting   |
| <b>Relative humidity</b>                     | 10...95 %, without condensation (in operation)<br>10...95 %, without condensation (in storage)   |
| <b>Ambient air temperature for operation</b> | 0...55 °C (horizontal installation)  |
| <b>Ambient air temperature for storage</b>   | -25...70 °C  |
| <b>Pollution degree</b>                      | <= 2   |
| <b>Operating altitude</b>                    | 0...2000 m   |
| <b>Storage altitude</b>                      | 0...3000 m   |

## Packing Units

|                                     |     |
|-------------------------------------|-----|
| <b>Unit Type of Package 1</b>       | PCE |
| <b>Number of Units in Package 1</b> | 1   |

|                              |           |
|------------------------------|-----------|
| Package 1 Height             | 9.467 cm  |
| Package 1 Width              | 13.692 cm |
| Package 1 Length             | 23.764 cm |
| Package 1 Weight             | 900.5 g   |
| Unit Type of Package 2       | S03       |
| Number of Units in Package 2 | 9         |
| Package 2 Height             | 30 cm     |
| Package 2 Width              | 30 cm     |
| Package 2 Length             | 40 cm     |
| Package 2 Weight             | 8629.5 g  |
| Unit Type of Package 3       | P12       |
| Number of Units in Package 3 | 216       |
| Package 3 Height             | 95 cm     |
| Package 3 Width              | 80 cm     |
| Package 3 Length             | 120 cm    |
| Package 3 Weight             | 216108 g  |

## Offer Sustainability

|                            |   |
|----------------------------|---|
| Sustainable offer status   | Green Premium product   |
| REACH Regulation           | <a href="#">REACH Declaration</a>   |
| EU RoHS Directive          | Pro-active compliance (Product out of EU RoHS legal scope)<br><a href="#">EU RoHS Declaration</a>                           |
| Mercury free               | Yes   |
| China RoHS Regulation      | <a href="#">China RoHS declaration</a>  |
| RoHS exemption information | <a href="#">Yes</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 |

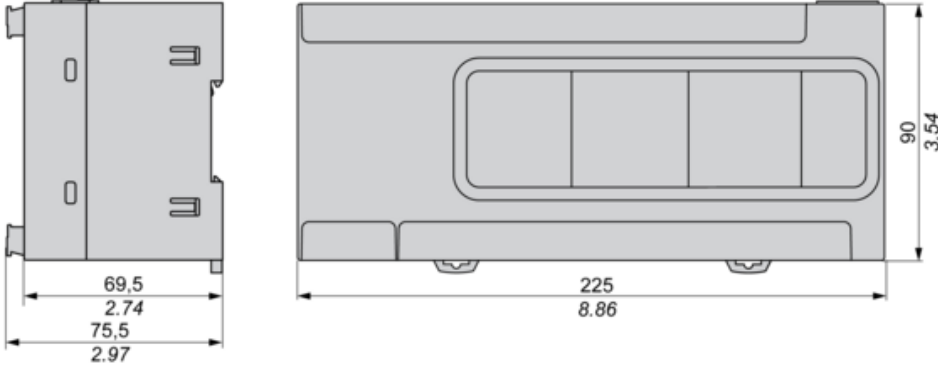
# Bảng thông số sản phẩm **TM200C60R**

Dimensions Drawings

## Dimensions Drawings

### Dimensions

mm  
in.



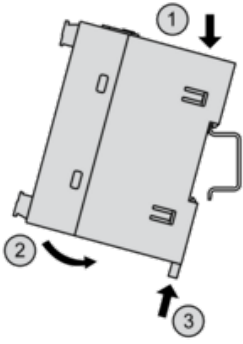
# Bảng thông số sản phẩm **TM200C60R**

## Mounting and Clearance

### Mounting and Clearance

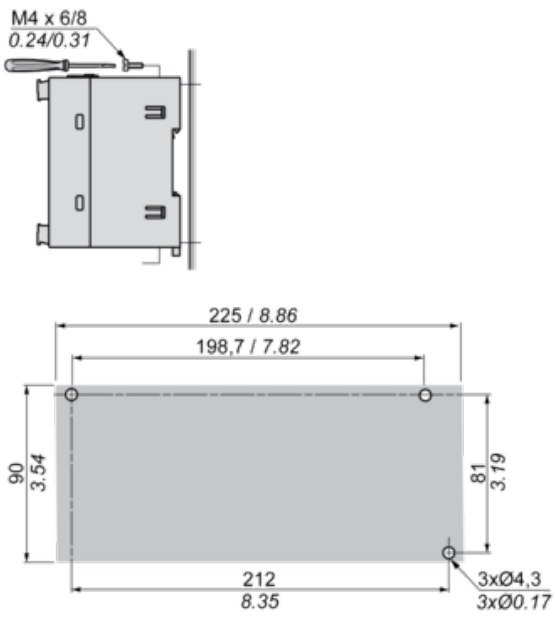
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#### Mounting on a Rail

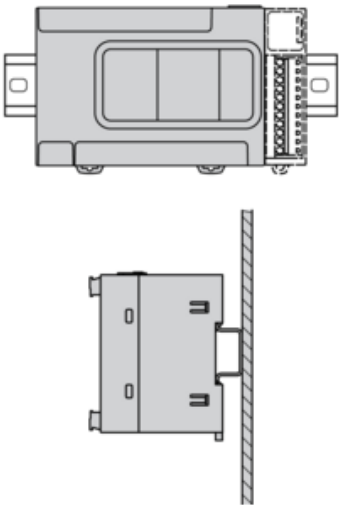


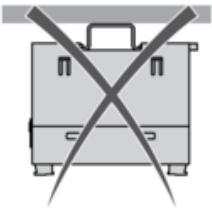
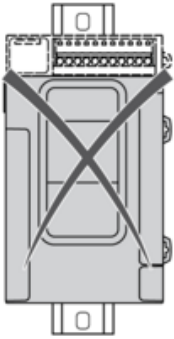
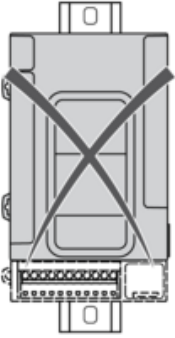
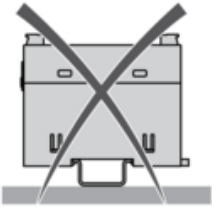
#### Direct Mounting on a Panel Surface

mm  
in.



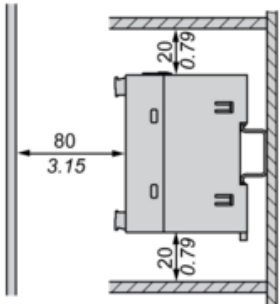
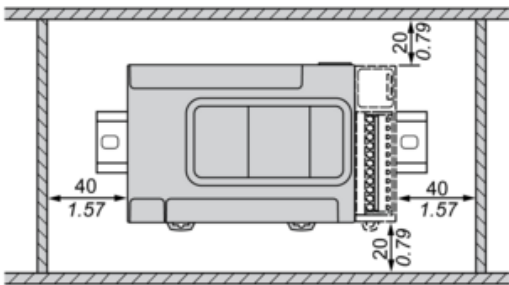
#### Mounting Position



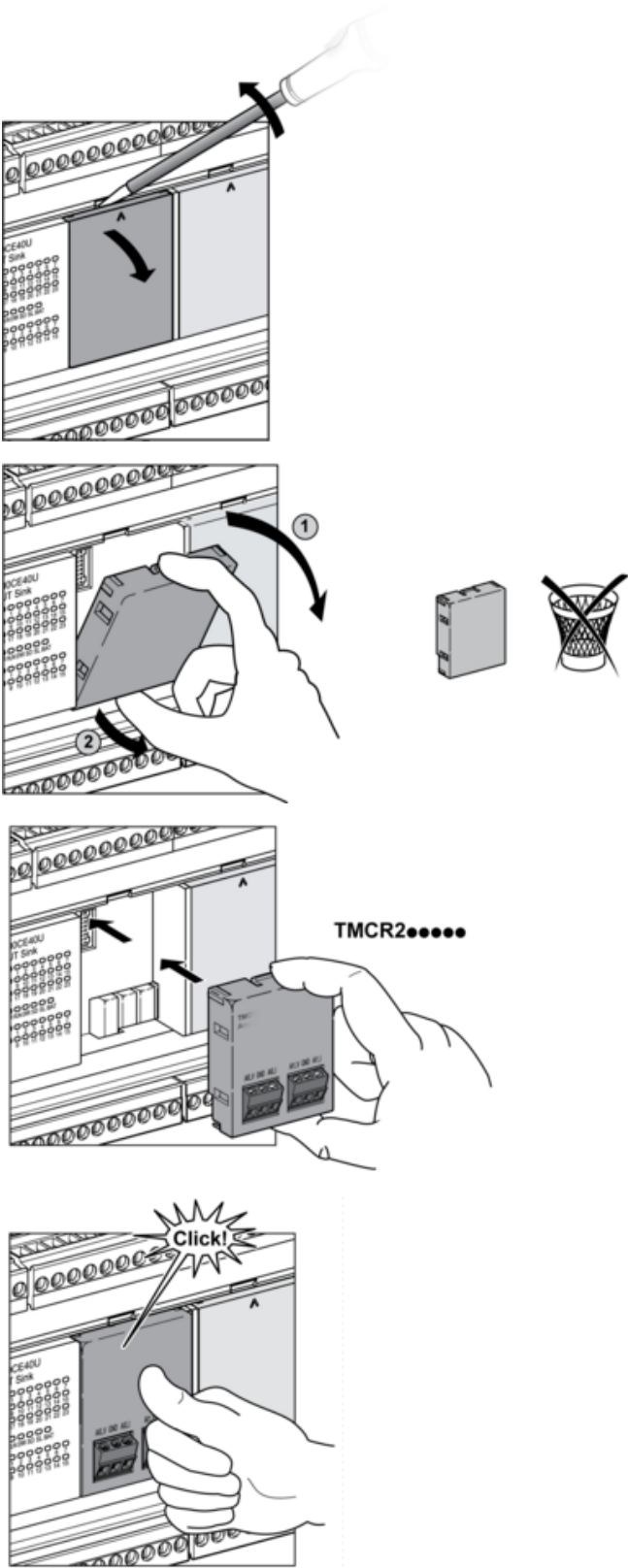


### Clearance

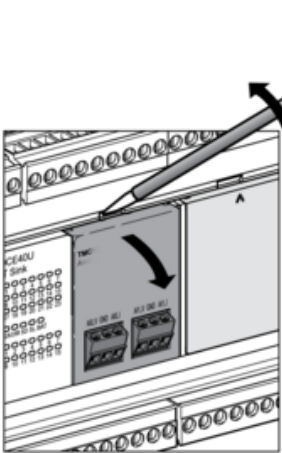
mm  
in.



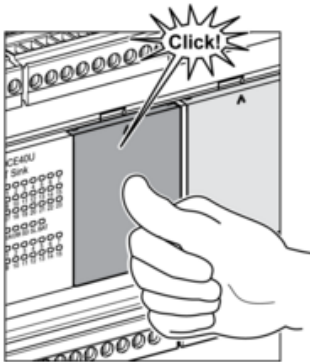
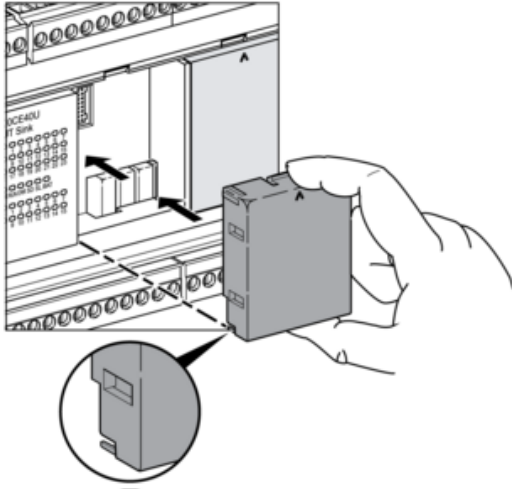
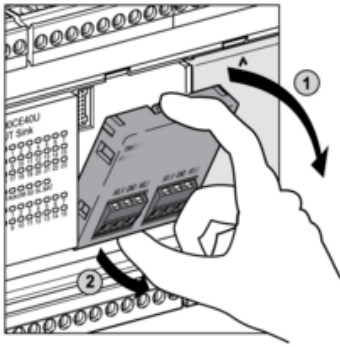
## TMCR2...Installation



## TMCR2... De-Installation





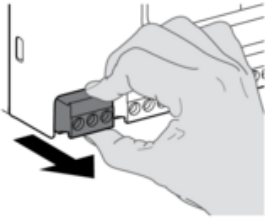


# Bảng thông số sản phẩm **TM200C60R**

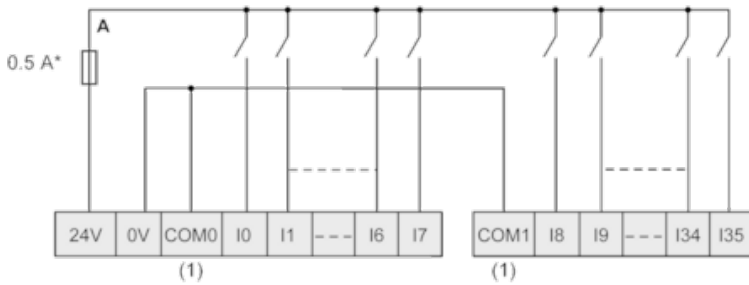
## Connections and Schema

### Wiring Diagram / Connections Schema

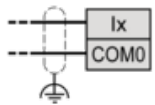
#### AC Power Supply



#### Digital Inputs Positive Logic (Sink)



\*\* I0...I7



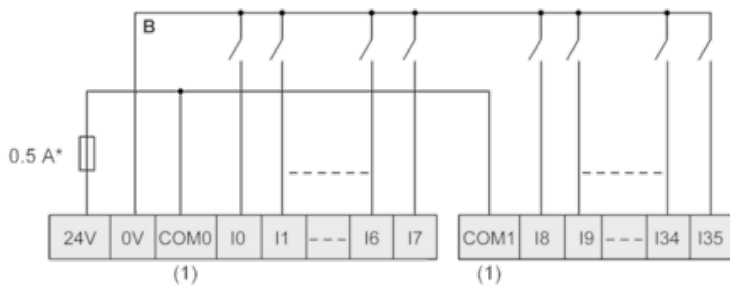
(\*) Type T fuse

(\*\*) Fast inputs

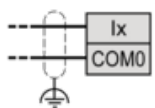
A Sink wiring (positive logic)

(1) The COM0 and COM1 terminals are **not** connected internally.

#### Digital Inputs Negative Logic (Source)



(\*\*) I0...I7



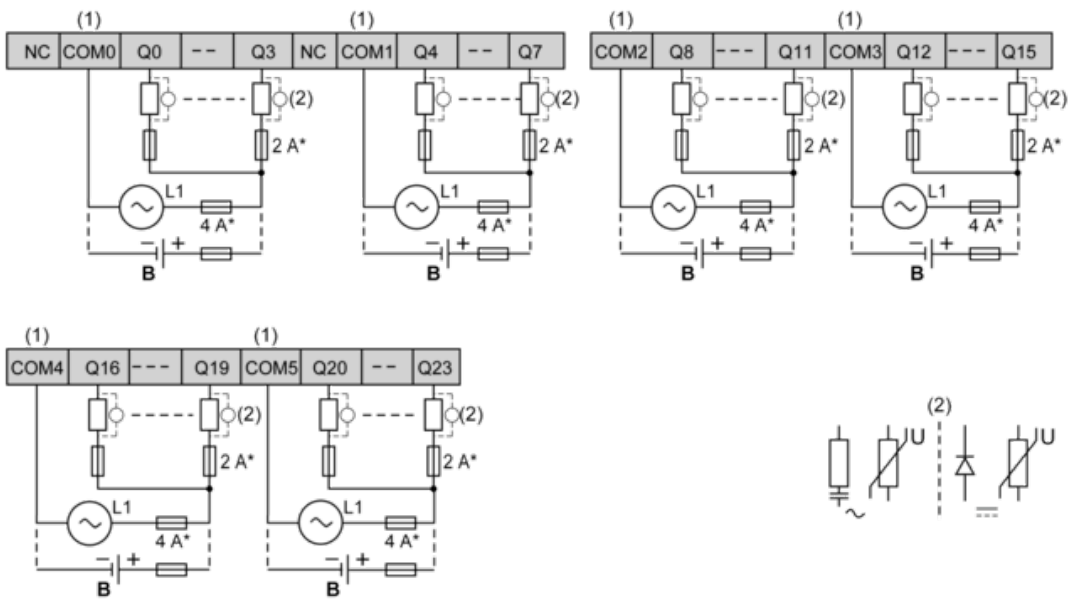
(\*) Type T fuse

(\*\*) Fast inputs

B Source wiring (negative logic)

(1) The COM0 and COM1 terminals are **not** connected internally.

## Relay Outputs - Negative Logic (Sink)



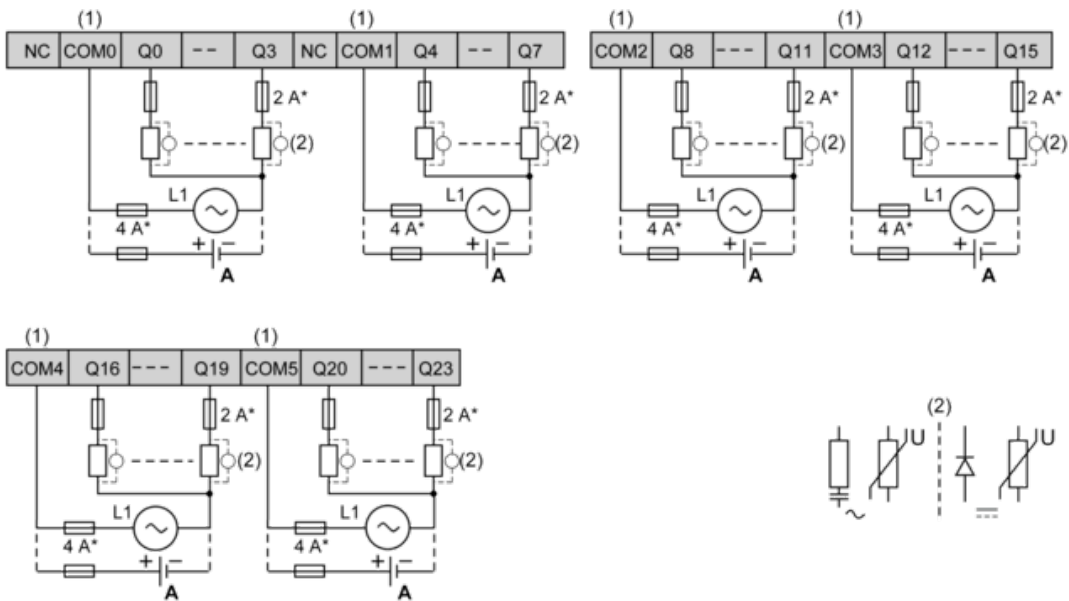
(\*) Type T fuse

(B) Sink wiring (negative logic)

(1) The COM0, COM1, COM2, COM3, COM4, and COM5 terminals are **not** connected internally.

(2) A free wheeling diode or an RC snubber.

## Relay Outputs - Positive Logic (Source)



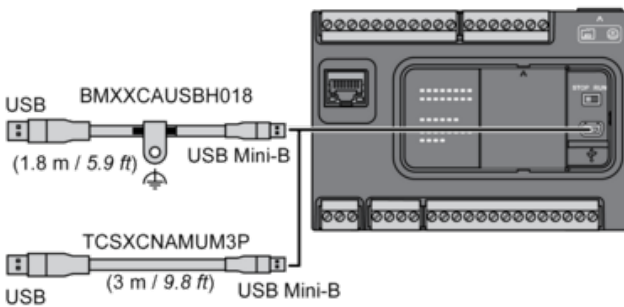
(\*) Type T fuse

(A) Source wiring (positive logic)

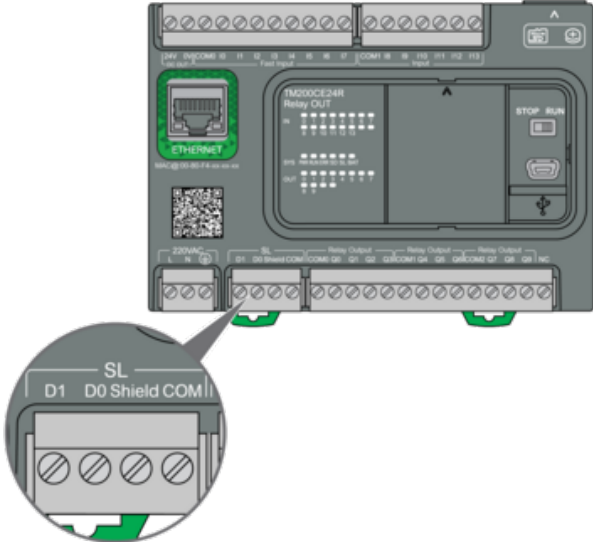
(1) The COM0, COM1, COM2, COM3, COM4, and COM5 terminals are **not** connected internally.

(2) A free wheeling diode or an RC snubber.

## USB Mini-B Connection



**SL1Connection**



Thay thế được đề xuất