



### Main

|                              |                                                                                                                                                                                                |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Range of product             | Modicon M171/M172                                                                                                                                                                              |
| Product or component type    | Programmable controllers                                                                                                                                                                       |
| Product specific application | HVAC control                                                                                                                                                                                   |
| Variant                      | Programmable                                                                                                                                                                                   |
| Total inputs/outputs         | 28                                                                                                                                                                                             |
| Discrete input number        | 8                                                                                                                                                                                              |
| Discrete output number       | 1 for relay outputs SPDT with independent common<br>3 for relay outputs SPST with same common<br>2 for relay outputs SPST with same common<br>2 for relay outputs SPST with independent common |
| Discrete output current      | 3 A for relay SPDT<br>3 A for relay SPST                                                                                                                                                       |
| Analogue input number        | 8 configurable by pair                                                                                                                                                                         |
| Analogue output number       | 2 voltage, range: 0...10 V<br>2 voltage/current, range: 4...20 mA or 0...10 V or PWM (2 kHz)                                                                                                   |

### Complementary

|                        |                                                                                                                                                                                                                                                                                                                                                                      |
|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Number of port         | 1 CAN port - screw terminal block<br>1 USB type mini B - USB device port Mini-B<br>2 RS485 - screw terminal block (Modbus serial link or BACnet MS/TP)                                                                                                                                                                                                               |
| Input/Output number    | 8 digital input(s)<br>8 analog input(s)<br>4 analog output(s)<br>8 digital output(s)                                                                                                                                                                                                                                                                                 |
| Discrete input logic   | Sink or source (positive/negative)                                                                                                                                                                                                                                                                                                                                   |
| Discrete input voltage | 24 V AC/DC                                                                                                                                                                                                                                                                                                                                                           |
| Discrete input current | 2.5 mA                                                                                                                                                                                                                                                                                                                                                               |
| Input impedance        | 20 kOhm                                                                                                                                                                                                                                                                                                                                                              |
| Analogue input type    | impedance 0...1500 hOhm - resolution: 1 hOhm at 10 kOhm<br>impedance 0...300 daOhm - resolution: 1 daOhm at 2 kOhm<br>NTC 103AT-2 Beta 3435 temperature probe - 50...110 °C - resolution: 0.1 °C at 10 kOhm<br>voltage 0...10 V - resolution: 1 digit at > 10 kOhm<br>NTC NK103 Beta 3977 temperature probe - 40...137 °C - resolution: 0.1 °C at 10 kOhm (extended) |

current 0...20 mA/4...20 mA - resolution: 1 digit at < 150 Ohm  
 PTC temperature probe - 55...150 °C - resolution: 0.1 °C at 2 kOhm  
 voltage 0...5 V - resolution: 1 digit at > 20 kOhm (absolute or ratiometric)  
 Pt 1000 temperature probe - 200...850 °C - resolution: 0.1 °C at 2 kOhm  
 direct input at > 10 kOhm

|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Measurement accuracy      | NTC NK103 Beta 3977 -40...+110 °C +/- 1 °C<br>NTC NK103 Beta 3977 110...137 °C +/- 1.9 °C<br>NTC 103AT-2 Beta 3435 - 50...110 °C +/- 1 °C<br>PTC -55...155 °C +/- 1.1 °C<br>Pt 1000 -200...-100 °C +/- 10 °C<br>Pt 1000 -100...-50 °C +/- 2.5 °C<br>Pt 1000 -50...100 °C +/- 1.5 °C<br>Pt 1000 100...400 °C +/- 2.4 °C<br>Pt 1000 400...850 °C +/- 10 °C<br>0...20 mA 0...4 mA +/- 2 % of full scale +/- 1 digit<br>0...20 mA 4...20 mA +/- 1 % of full scale +/- 1 digit<br>4...20 mA +/- 1 % of full scale +/- 1 digit<br>0...10 V +/- 1 % of full scale +/- 1 digit<br>0...5 V +/- 1 % of full scale +/- 1 digit<br>HOhm 0...1500 hOhm +/- 8.5 hOhm<br>DaOhm 0...300 daOhm +/- 2.5 daOhm |
| Sensor power supply       | 5 V DC at 50 mA supplied by the controller<br>24 V DC at 150 mA supplied by the controller                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| [Us] rated supply voltage | 24 V +/- 10 % AC<br>20...38 V DC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Power consumption in W    | 12 W at 24 V AC/DC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Realtime clock            | Built-in clock, clock drift <= 30 s/month at -20...65 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Display type              | Backlit LCD - 128 x 64 pixels                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Overvoltage category      | II                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Local signalling          | 1 LED (red)programmable:<br>1 LED (yellow)programmable:<br>1 LED (green)programmable:<br>1 LED (green)power:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Mounting support          | Panel mounting with accessory<br>DIN rail                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Width                     | 144 mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Height                    | 110 mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Depth                     | 60.5 mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Product weight            | 0.3 kg                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

## Environment

|                                       |                                                                                                                                                                                                                                           |
|---------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Directives                            | 1907/2006/EC - REACH directive<br>2014/30/EU - electromagnetic compatibility<br>2014/35/EU - low voltage directive<br>2011/65/EU - RoHS directive                                                                                         |
| Standards                             | CAN/CSA-E60730-1<br>CSA E60730-2-9<br>EN 60068-2-27<br>EN 60068-2-6 Fc<br>EN 60730-1<br>EN 60730-2-9<br>UL 60730-1<br>UL 60730-2-9<br>IEC 61000-4-2<br>IEC 61000-4-3<br>IEC 61000-4-4<br>IEC 61000-4-5<br>IEC 61000-4-6<br>IEC 61000-4-11 |
| Product certifications                | EAC<br>CE<br>CURus<br>CSA<br>RCM                                                                                                                                                                                                          |
| Ambient air temperature for operation | -20...65 °C conforming to UL 60730-1<br>-20...60 °C horizontal conforming to UL 60730-1                                                                                                                                                   |
| Ambient air temperature for storage   | -30...70 °C                                                                                                                                                                                                                               |

|                         |                         |
|-------------------------|-------------------------|
| Relative humidity       | 5...95 % non-condensing |
| IP degree of protection | IP20                    |
| Pollution degree        | 2                       |

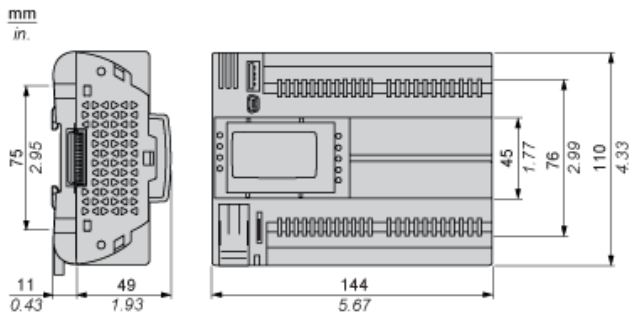
### Offer Sustainability

|                            |                                                                                                                             |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Sustainable offer status   | Green Premium product                                                                                                       |
| EU RoHS Directive          | Pro-active compliance (Product out of EU RoHS legal scope)<br><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 |

### Contractual warranty

|          |           |
|----------|-----------|
| Warranty | 18 months |
|----------|-----------|

Dimensions

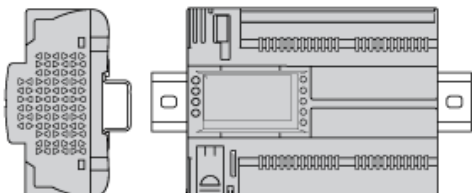


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## Mounting Positions

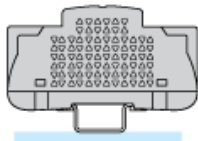
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### Correct Mounting Position

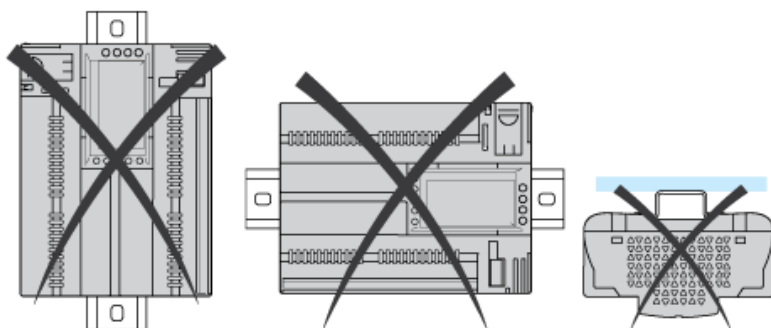


### Acceptable Mounting Position

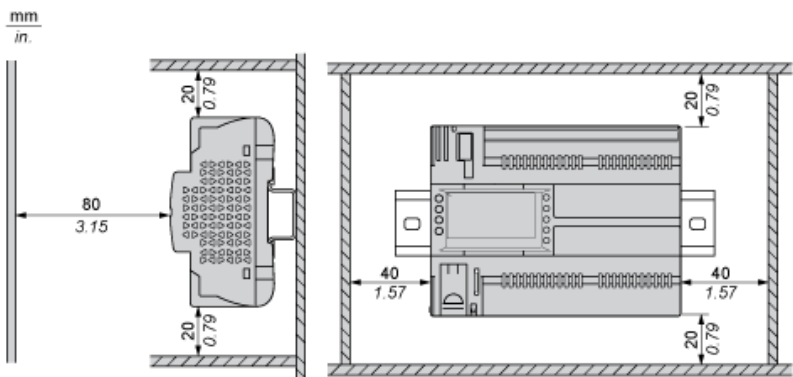
Controller can be mounted horizontally upward with a temperature derating (maximum ambient temperature: 60 °C (140 °F)).



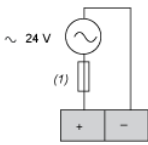
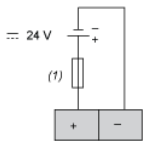
### Incorrect Mounting Position



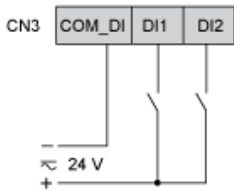
Clearance



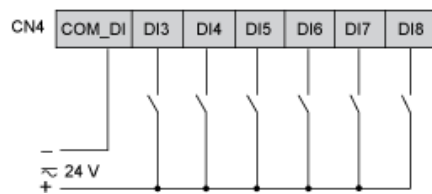
Power Supply

| 24 Vac                                                                            | 24 Vdc                                                                            |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
|  |  |

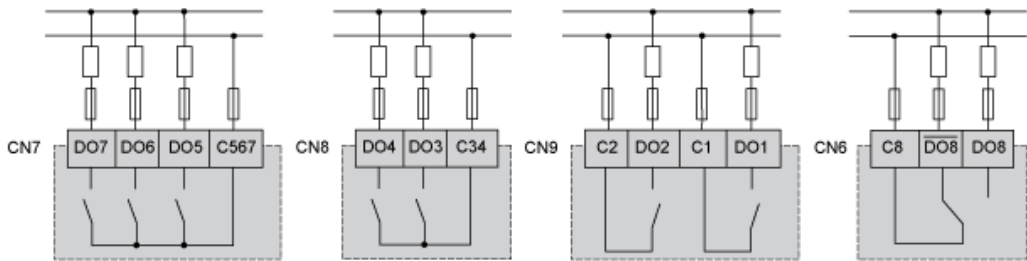
CN3 Fast Digital Inputs



## CN4 Digital Inputs



CN7, CN8, CN9, CN6 High Voltage Relay SPST Digital Output

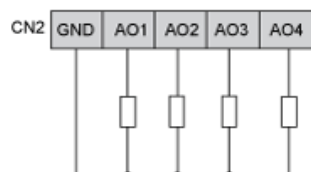


## CN5 Analog Inputs



- (1) Max. current : 50 mA.  
(2) Max. current : 150 mA.

## CN2 Analog Outputs

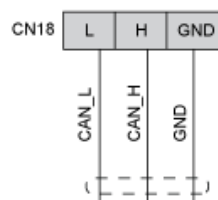


AO3, AO4 can be used also as PWM generator, up to 2kHz.

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CN18 CAN Expansion Bus Port

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CN19, CN1 CAN Expansion Bus Port

