Specification





# compact I/O expansion block, Modicon TM5, 36 IO, 24 DI, 12 DO relay

TM5C24D12R

### Main

| Range Of Product          | Modicon TM5                 |  |
|---------------------------|-----------------------------|--|
| Product Or Component Type | Compact I/O expansion block |  |

# Complementary

| Enclosure Material                  | Plastic  |  |  |
|-------------------------------------|--|--|--|
| Colour                              | White  |  |  |
| Input/Output Number                 | 36   |  |  |
| For Enclosure Nominal<br>Dimensions | 24 I + 12 O  |  |  |
| Number Of Modules                   | Digital input: 2 module(s) x 12<br>Relay output: 2 module(s) x 6 |  |  |
| Discrete Input Number               | 24   |  |  |
| Discrete Input Voltage              | 24 V   |  |  |
| Discrete Input Voltage Type         | DC   |  |  |
| Input Voltage Limits                | 20.428.8 V   |  |  |
| Discrete Input Logic                | Sink   |  |  |
| Discrete Input Current              | 3.75 mA  |  |  |
| Input Impedance                     | 6.4 kOhm   |  |  |
| Analogue Input Number               | 0  |  |  |
| Discrete Output Number              | 12   |  |  |
| Discrete Output Type                | Relay  |  |  |
| Wiring Mode                         | 1 wire for discrete input  |  |  |
| Output Voltage                      | 30 V DC<br>240 V AC  |  |  |
| Output Voltage Limits               | 2436 V DC<br>184276 V AC   |  |  |
| Discrete Output Function            | 1 NO   |  |  |
| Discrete Output Logic               | Source or sink   |  |  |
| Discrete Output Current             | 2 A per output   |  |  |
| Voltage State 0 Guaranteed          | <= 5 V   |  |  |
| Voltage State 1 Guaranteed          | >= 15 V  |  |  |
| Input Filtering                     | <= 100 ms hardware<br><= 25 ms configurable by software          |  |  |

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| Response Time                           | <= 12 ms from state 0 to state 1 for output                  |  |  |  |  |
|---|--|--|--|--|--|
|   | <= 10 ms from state 1 to state 0 for output                  |  |  |  |  |
| Minimum Switching Current               | 10 mA at 5 V DC  |  |  |  |  |
| Isolation                               | 500 Vrms AC insulation between channel and bus               |  |  |  |  |
|   | No insulation between channels                               |  |  |  |  |
| Mechanical Durability                   | 20000000 cycles  |  |  |  |  |
| Current Consumption                     | 68 mA at 5 V DC bus  |  |  |  |  |
|   | 165 mA at 24 V DC input/output                               |  |  |  |  |
| Maximum Power Dissipation In W          | 4.3 W  |  |  |  |  |
| Local Signalling                        | 24 LEDs (green) for input status                             |  |  |  |  |
|   | 4 LEDs (green) for power supply                              |  |  |  |  |
|   | 4 LEDs (red) for power supply                                |  |  |  |  |
|   | 12 LEDs (yellow) for output status                           |  |  |  |  |
| Electrical Connection                   | Removable spring terminal block                              |  |  |  |  |
| Marking                                 | CE   |  |  |  |  |
| Surge Withstand                         | 0.5 kV differential mode 24 V DC conforming to IEC 61000-4-5 |  |  |  |  |
|   | 1 kV common mode 24 V DC conforming to IEC 61000-4-5         |  |  |  |  |
|   | 1 kV differential mode 230 V AC conforming to IEC 61000-4-5  |  |  |  |  |
|   | 2 kV common mode 230 V AC conforming to IEC 61000-4-5        |  |  |  |  |
| Electromagnetic Compatibility           | EN/IEC 61000-4-6   |  |  |  |  |
| Disturbance Radiated/Conducted CISPR 11 |  |  |  |  |  |
|   |  |  |  |  |  |

# **Environment**

| Standards  | CSA C22.2 No 213<br>CSA C22.2 No 142<br>IEC 61131-2<br>UL 508   |  |  |  |  |
|--|---|--|--|--|--|
| Product Certifications                                 | cULus<br>GOST-R<br>CSA<br>C-Tick  |  |  |  |  |
| Ambient Air Temperature For Operation                  | -1050 °C (vertical installation)<br>-1060 °C (horizontal installation)  |  |  |  |  |
| Ambient Air Temperature For Storage                    | -4070 °C  |  |  |  |  |
| Relative Humidity                                      | 595 % without condensation  |  |  |  |  |
| Ip Degree Of Protection IP20 conforming to IEC 61131-2 |   |  |  |  |  |
| Pollution Degree                                       | 2 conforming to IEC 60664   |  |  |  |  |
| Operating Altitude                                     | 02000 m   |  |  |  |  |
| Storage Altitude                                       | 03000 m   |  |  |  |  |
| Vibration Resistance                                   | 1 gn at 8.4150 Hz on DIN rail<br>3.5 mm at 58.4 Hz on DIN rail  |  |  |  |  |
| Shock Resistance                                       | 15 gn for 11 ms   |  |  |  |  |
| Resistance To Electrostatic Discharge                  | 4 kV on contact conforming to IEC 61000-4-2<br>8 kV in air conforming to IEC 61000-4-2  |  |  |  |  |
| Resistance To Electromagnetic Fields                   | 1 V/m 22.7 GHz conforming to IEC 61000-4-3<br>10 V/m 802000 MHz conforming to IEC 61000-4-3   |  |  |  |  |
| Resistance To Fast Transients                          | 1 kV (I/O) conforming to IEC 61000-4-4 1 kV (shielded cable) conforming to IEC 61000-4-4 2 kV (power lines) conforming to IEC 61000-4-4 |  |  |  |  |
| Mounting Support                                       | DIN rail  |  |  |  |  |
| Net Weight 0.26 kg                                     |   |  |  |  |  |

# **Packing Units**

| •                            |           |
|------------------------------|-----------|
| Unit Type Of Package 1       | PCE       |
| Number Of Units In Package 1 | 1         |
| Package 1 Height             | 6.900 cm  |
| Package 1 Width              | 9.200 cm  |
| Package 1 Length             | 11.000 cm |
| Package 1 Weight             | 289.000 g |
| Unit Type Of Package 2       | S03       |
| Number Of Units In Package 2 | 36        |
| Package 2 Height             | 30.000 cm |
| Package 2 Width              | 30.000 cm |
| Package 2 Length             | 40.000 cm |
| Package 2 Weight             | 10.821 kg |

# **Contractual warranty**

21-Jun-2024

Warranty 18 months



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Transparency RoHS/REACh

## Well-being performance

| <b>⊘</b> | Toxic Heavy Metal Free     |     |
|----------|----------------------------|-----|
|          | Mercury Free               |     |
| <b>②</b> | Rohs Exemption Information | Yes |
| <b>⊘</b> | Pvc Free                   |     |

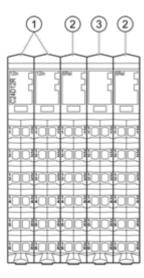
## **Certifications & Standards**

| Reach Regulation         | REACh Declaration   |  |  |  |
|--------------------------|---|--|--|--|
| Eu Rohs Directive        | Pro-active compliance (Product out of EU RoHS legal scope)  |  |  |  |
| China Rohs Regulation    | China RoHS declaration  |  |  |  |
| Environmental Disclosure | Product Environmental Profile   |  |  |  |
| Weee                     | The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins |  |  |  |
| Circularity Profile      | End of Life Information   |  |  |  |

# TM5C24D12R

Presentation

### TM5 Compact I/O Module



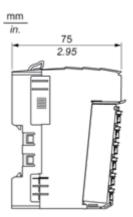
| N° | Designation                                      |
|----|--|
| 1  | Input electronic module / 12 digital inputs      |
| 2  | Relay output electronic module / 6 relay outputs |
| 3  | Dummy module                                     |

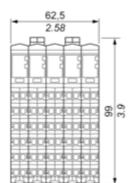
# TM5C24D12R

#### **Dimensions Drawings**

### Compact I/O Module

#### **Dimensions**



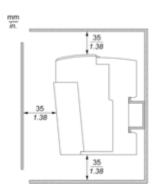


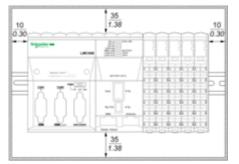
# TM5C24D12R

Mounting and Clearance

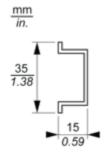
# TM5 System

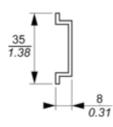
### **Spacing Requirements**

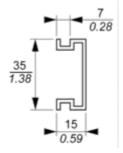




### Mounting on a DIN Rail







# TM5C24D12R

Connections and Schema

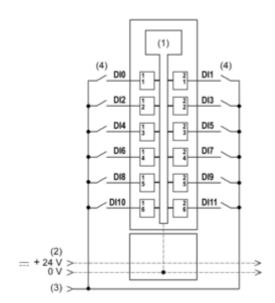
### TM5 System Wiring Recommendations

#### Wire Sizes to Use with the Removable Spring Terminal Blocks

| mm<br>in. | 0.35 |         | 2       |         |                  |
|-----------|------|---------|---------|---------|------------------|
|           | mm²  | 0,082,5 | 0,252,5 | 0,251,5 | 2 x 0,252 x 0,75 |
|           | AWG  | 2814    | 2414    | 2416    | 2 x 242 x 18     |

#### Digital Input 12In

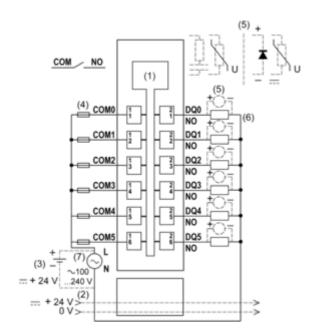
#### Wiring Diagram



- 1 Internal electronics
- 2 24 Vdc I/O power segment integrated into the bus bases
- 3 24 Vdc I/O power segment by external connection
- 4 2-wire sensor

#### **Digital Output Relay 6Rel**

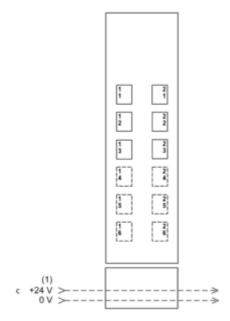
#### Wiring Diagram



- 1 Internal electronics
- 2 24 Vdc I/O power segment integrated into the bus bases
- 3 External isolated power supply 24 Vdc
- 4 External fuse type T slow-blow 2 A 250 V
- 5 Inductive load protection
- 6 2-wire load
- 7 External power supply 100...240 Vac

#### **Dummy Module**

#### Wiring Diagram



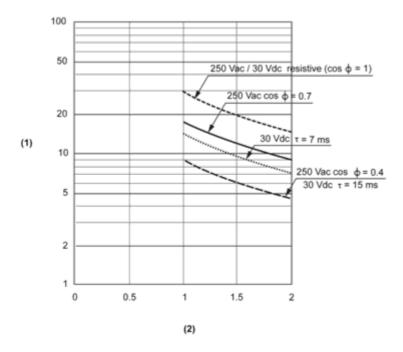
1 24 Vdc I/O power segment integrated into the bus bases

### TM5C24D12R

#### Performance Curves

#### **Digital Output Relay Electronic Module**

#### **Electric Durability**



- 1 Switching procedures (x10<sup>4</sup>)
- 2 Switching current in A