# Product data sheet
## Characteristics

# TM7BDI16A
## Discrete I/O expansion block, Modicon TM7, IP67, 16 DI, 24 V DC, M12 connector

### Main

| | |
|---|---|
| Range of product | Modicon TM7 |
| Product or component type | Discrete I/O expansion block |
| Range compatibility | Modicon LMC058<br>Modicon M258 |
| Enclosure material | Plastic |
| Bus type | TM7 bus |
| [Ue] rated operational voltage | 24 V DC |
| Input/output number | 16 |
| Input/output number of block | 16 I |

### Complementary

| | |
|---|---|
| Discrete input number | 16 |
| Discrete input voltage | 24 V |
| Discrete input voltage type | DC |
| Discrete input current | 7 mA |
| Discrete input logic | Positive |
| Sensor power supply | 24 V, 500 mA for all channels with overload, short-circuit and reverse polarity protection |
| Electrical connection | 1 male connector M12 - B coding - 4 ways for bus IN<br>1 female connector M12 - B coding - 4 ways for bus OUT<br>1 male connector M8 - 4 ways for power IN<br>1 female connector M8 - 4 ways for power OUT<br>8 female connectors M12 - 5 ways for sensor |
| Local signalling | 2 LEDs for bus diagnostic<br>2 LEDs for sensor power supply diagnostics |
| Operating position | Any position |
| Fixing mode | By 2 screws |
| Net weight | 0.32 kg |

### Environment

| | |
|---|---|
| Standards | IEC 61131-2 |
| Product certifications | CURus<br>ATEX II 3g EEx nA II T5<br>GOST-R<br>C-Tick |
| Marking | CE |
| Ambient air temperature for operation | -10…60 °C |
| Ambient air temperature for storage | -25…85 °C |
| Relative humidity | 5…95 % without condensation or dripping water |
| Pollution degree | 2 conforming to IEC 60664 |
| IP degree of protection | IP67 conforming to IEC 61131-2 |
| Operating altitude | 0...2000 m |
| Storage altitude | 0…3000 m |
| Vibration resistance | 7.5 mm constant amplitude (f= 2…8 Hz) conforming to IEC 60721-3-5 Class 5M3<br>2 gn constant acceleration (f= 8…200 Hz) conforming to IEC 60721-3-5 Class 5M3<br>4 gn constant acceleration (f= 200…500 Hz) conforming to IEC 60721-3-5 Class 5M3 |

| | |
|---|---|
| Shock resistance | 30 gn for 11 ms conforming to IEC 60721-3-5 Class 5M3 |
| Electromagnetic compatibility | Electrostatic discharge immunity test, 4 kV on contact conforming to EN/IEC 61000-4-2<br>Electrostatic discharge immunity test, 8 kV in air conforming to EN/IEC 61000-4-2<br>Susceptibility to electromagnetic fields, 1 V/m 2...2.7 GHz conforming to EN/IEC 61000-4-3<br>Susceptibility to electromagnetic fields, 10 V/m 80...2000 MHz conforming to EN/IEC 61000-4-3<br>Electrical fast transient/burst immunity test, 2 kV power supply conforming to EN/IEC 61000-4-4<br>Electrical fast transient/burst immunity test, 1 kV input/output conforming to EN/IEC 61000-4-4<br>Electrical fast transient/burst immunity test, 1 kV shielded cable conforming to EN/IEC 61000-4-4<br>1.2/50 µs shock waves immunity test, 0.5 kV power supply (common mode) conforming to EN/IEC 61000-4-5<br>1.2/50 µs shock waves immunity test, 1 kV power supply (differential mode) conforming to EN/IEC 61000-4-5<br>1.2/50 µs shock waves immunity test, 0.5 kV unshielded links (common mode) conforming to EN/IEC 61000-4-5<br>1.2/50 µs shock waves immunity test, 1 kV unshielded links (differential mode) conforming to EN/IEC 61000-4-5<br>1.2/50 µs shock waves immunity test, 0.5 kV shielded links (common mode) conforming to EN/IEC 61000-4-5<br>1.2/50 µs shock waves immunity test, 1 kV shielded links (differential mode) conforming to EN/IEC 61000-4-5<br>Conducted RF disturbances conforming to EN/IEC 61000-4-6<br>Conducted and radiated emissions conforming to CISPR 11 |

## Packing Units

| | |
|---|---|
| Package 1 Weight | 0.366 kg |
| Package 1 Height | 45.000 mm |
| Package 1 width | 55.000 mm |
| Package 1 Length | 175.000 mm |

## Offer Sustainability

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

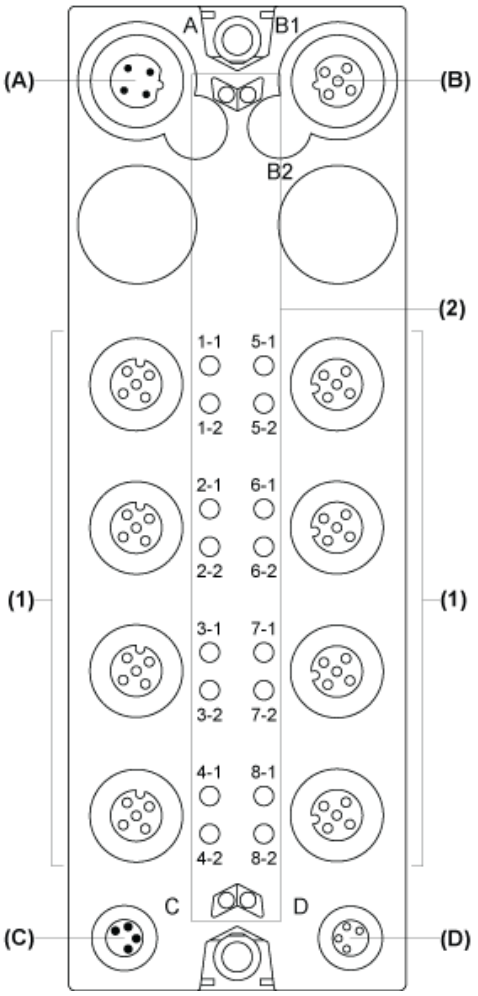
## Contractual warranty

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

# TM7BDI16A

## Digital Input Block

### Description




(A) TM7 bus IN connector
(B) TM7 bus OUT connector
(C) 24 Vdc power IN connector
(D) 24 Vdc power OUT connector
(1) Input connectors
(2) Status LEDs

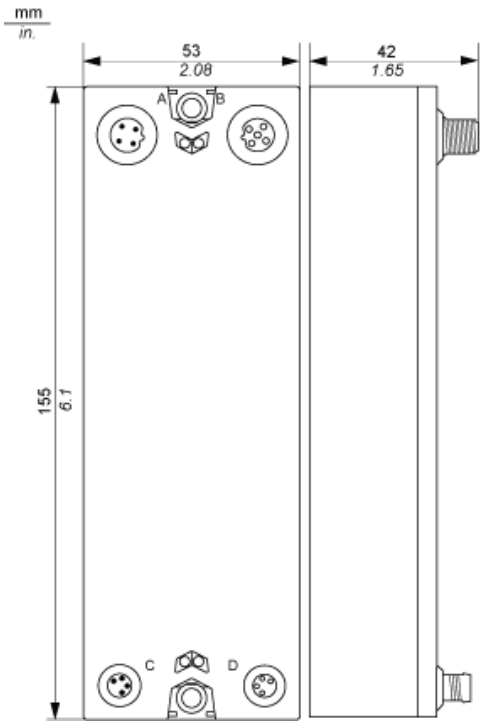
### Connector and Channel Assignments

| Input connectors | Channel type | Channels |
|---|---|---|
| 1 | Input | I0 |
| Input | I1 | |
| 2 | Input | I2 |
| Input | I3 | |
| 3 | Input | I4 |
| Input | I5 | |
| 4 | Input | I6 |
| Input | I7 | |
| 5 | Input | I8 |

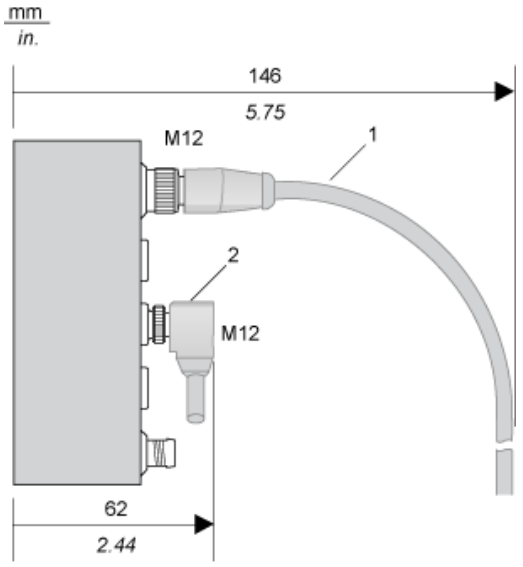
| Input connectors | Channel type | Channels |
|---|---|---|
| Input | I9 | |
| 6 | Input | I10 |
| Input | I11 | |
| 7 | Input | I12 |
| Input | I13 | |
| 8 | Input | I14 |
| Input | I15 | |

## TM7 Block, Size 2

### Dimensions



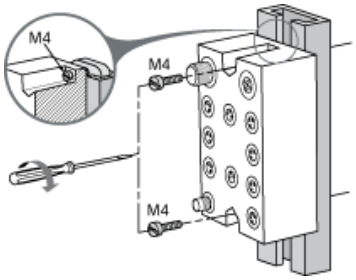
## Spacing Requirements




1 Straight cable
2 Elbowed cable

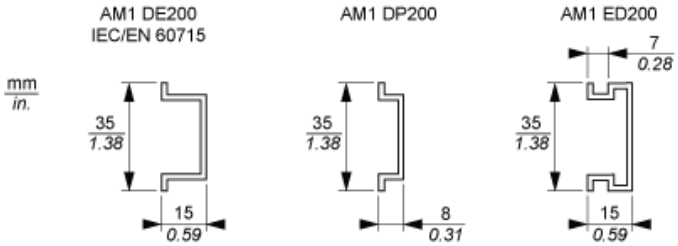
## Installation Guidelines

### TM7 Block on an Aluminium Frame




NOTE: Maximum torque to fasten the required M4 screws is 0.6 N.m (5.3 lbf-in).

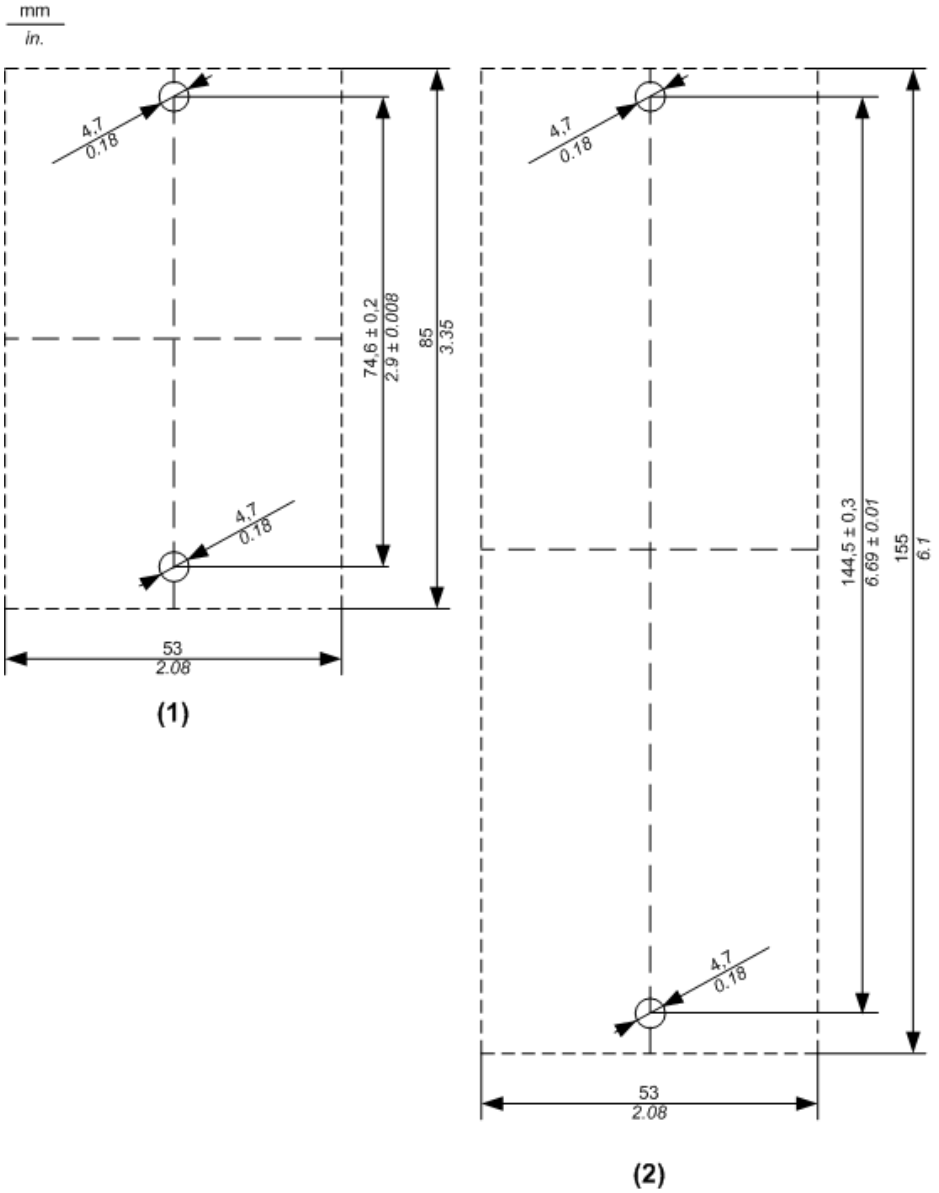
### TM7 Block on a DIN Rail




NOTE: Only size 1 (smallest) blocks can be installed on DIN rail with the TM7ACMP mounting plate.

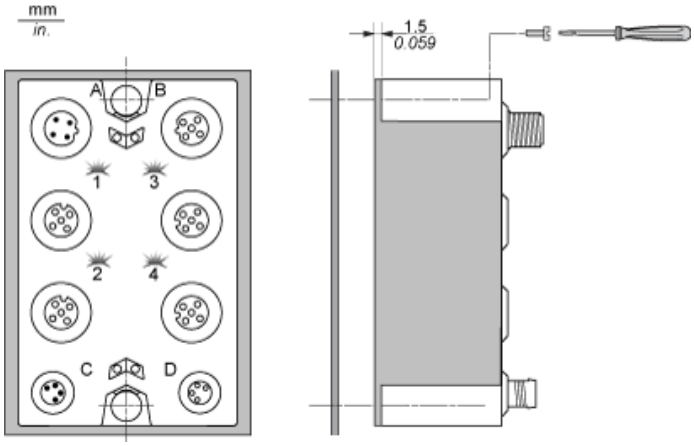
## TM7 Block Directly on the Machine

Drilling template of the block:




(1) Size 1
(2) Size 2

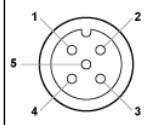
The thickness of the base plate should be taken into consideration when defining the screw length.




NOTE: Maximum torque to fasten the required M4 screws is 0.6 N.m (5.3 lbf-in).

## Wiring Diagram

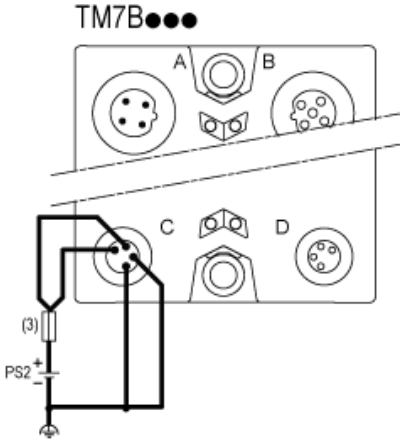
## Pin Assignments for Input Connectors

| Connector | Pin | M12 Input |
|---|---|---|
|  | 1 | 24 Vdc sensor supply |
| 2 | DI: input signal channel 1 | |
| 3 | 0 Vdc | |
| 4 | DI: input signal channel 2 | |
| 5 | N.C. | |

## Wiring the Power Supply

When you provide power to a TM7 I/O block using the 24 VDC Power OUT connector of the preceding I/O block, both blocks occupy the same 24 Vdc I/O power segment. However, if you connect an external isolated power supply to the 24 Vdc Power IN connector of a TM7 I/O block, you establish a new 24 Vdc I/O power segment beginning with that I/O block.

I/O block wired with one external 24 Vdc power supply:




(3) External fuse, Type T slow-blow, 8 A max., 250 V
PS2 External isolated I/O power supply, 24 Vdc