Product data sheet
Characteristics

TM7BAO4CLA
Analog I/O expansion block, Modicon TM7, IP67, 4 AO, 0 20 mA, M12 connector

Main

Range of product	Modicon TM7
Product or component type	Analog I/O expansion block
Range compatibility	Modicon LMC058 Modicon M258
Enclosure material	Plastic
Bus type	TM7 bus
[Ue] rated operational voltage	24 V DC
Input/output number	4
Input/output number of block	4 O

Complementary

Analogue output number	4
Analogue output type	Current
Analogue output range	0...20 mA
Sensor power supply	24 V, 500 mA for all channels with overload, short-circuit and reverse polarity protection
Analogue output resolution	12 bits
Electrical connection	1 male connector M12 - B coding - 4 ways for bus IN 1 female connector M12 - B coding - 4 ways for bus OUT 1 male connector M8 - 4 ways for power IN 1 female connector M8 - 4 ways for power OUT 4 female connectors M12 - A coding - 5 ways for actuator
Local signalling	2 LEDs for bus diagnostic 2 LEDs for sensor/actuator power supply status
Operating position	Any position
Fixing mode	By 2 screws
Net weight	0.2 kg

Environment

Standards	IEC 61131-2
Product certifications	C-Tick GOST-R CURus ATEX II 3g EEx nA II T5
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 2 gn constant acceleration (f= 8…200 Hz) conforming to IEC 60721-3-5 Class 5M3 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

Resistance to electrostatic discharge	6 KV in contact conforming to EN/IEC 61000-4-2 8 kV in air conforming to EN/IEC 61000-4-2
Resistance to electromagnetic fields	10 V/M 0.08…2 Hz conforming to EN/IEC 61000-4-3 1 V/m 2…2.7 Hz conforming to EN/IEC 61000-4-3
Resistance to fast transients	2 KV (power supply) conforming to EN/IEC 61000-4-4 1 KV (input/output) conforming to EN/IEC 61000-4-4 1 kV (shielded cable) conforming to EN/IEC 61000-4-4
Surge withstand for DC 24 V circuit	1 KV power supply (common mode) conforming to EN/IEC 61000-4-5 0.5 KV power supply (differential mode) conforming to EN/IEC 61000-4-5 1 KV unshielded links (common mode) conforming to EN/IEC 61000-4-5 0.5 KV unshielded links (differential mode) conforming to EN/IEC 61000-4-5 1 KV shielded links (common mode) conforming to EN/IEC 61000-4-5 0.5 kV shielded links (differential mode) conforming to EN/IEC 61000-4-5
Electromagnetic compatibility	EN/IEC 61000-4-6
Disturbance radiated/conducted	CISPR 11

Packing Units

Unit Type of Package 1	PCE
Number of Units in Package 1	1
Package 1 Weight	232 g
Package 1 Height	5 cm
Package 1 width	6 cm
Package 1 Length	10.5 cm

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

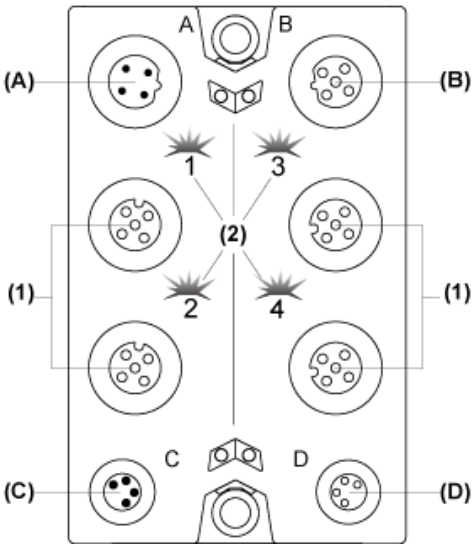
Contractual warranty

Warranty	18 months

Presentation

Analog Output Block

Description



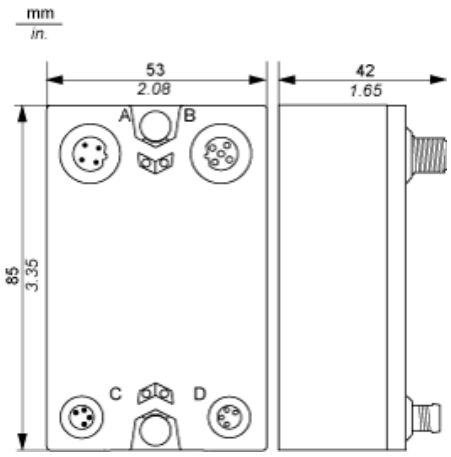
(A) TM7 bus IN connector
(B) TM7 bus OUT connector
(C) 24 Vdc power IN connector
(D) 24 Vdc power OUT connector
(1) Output connectors
(2) Status LEDs

Connector and Channel Assignments

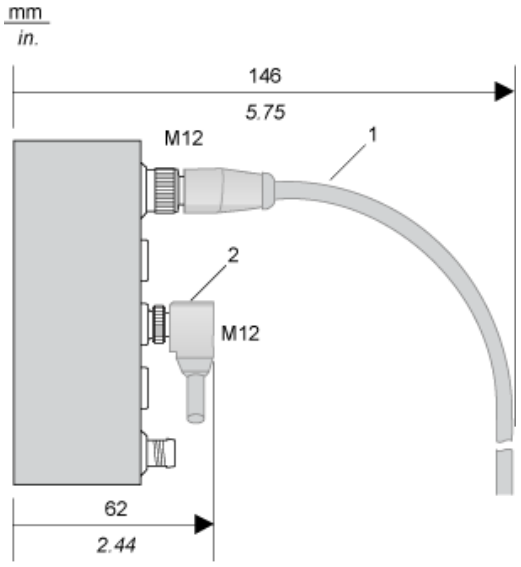
Output connectors	Channel type	Channels
1	Output	Q0
2	Output	Q1
3	Output	Q2
4	Output	Q3

TM7 Block, Size 1

Dimensions



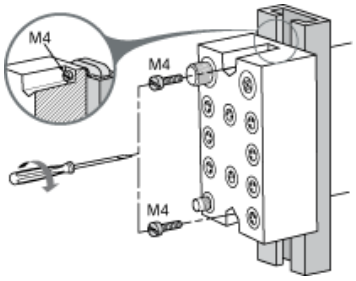
Spacing Requirements



1 Straight cable
2 Elbowed cable

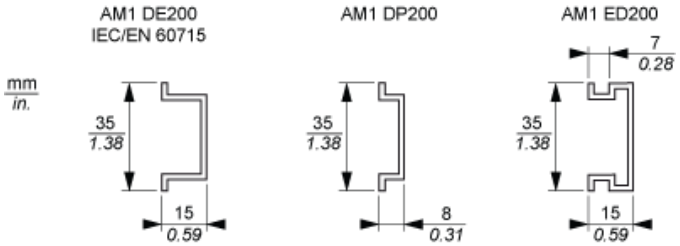
Installation Guidelines

TM7 Block on an Aluminium Frame



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

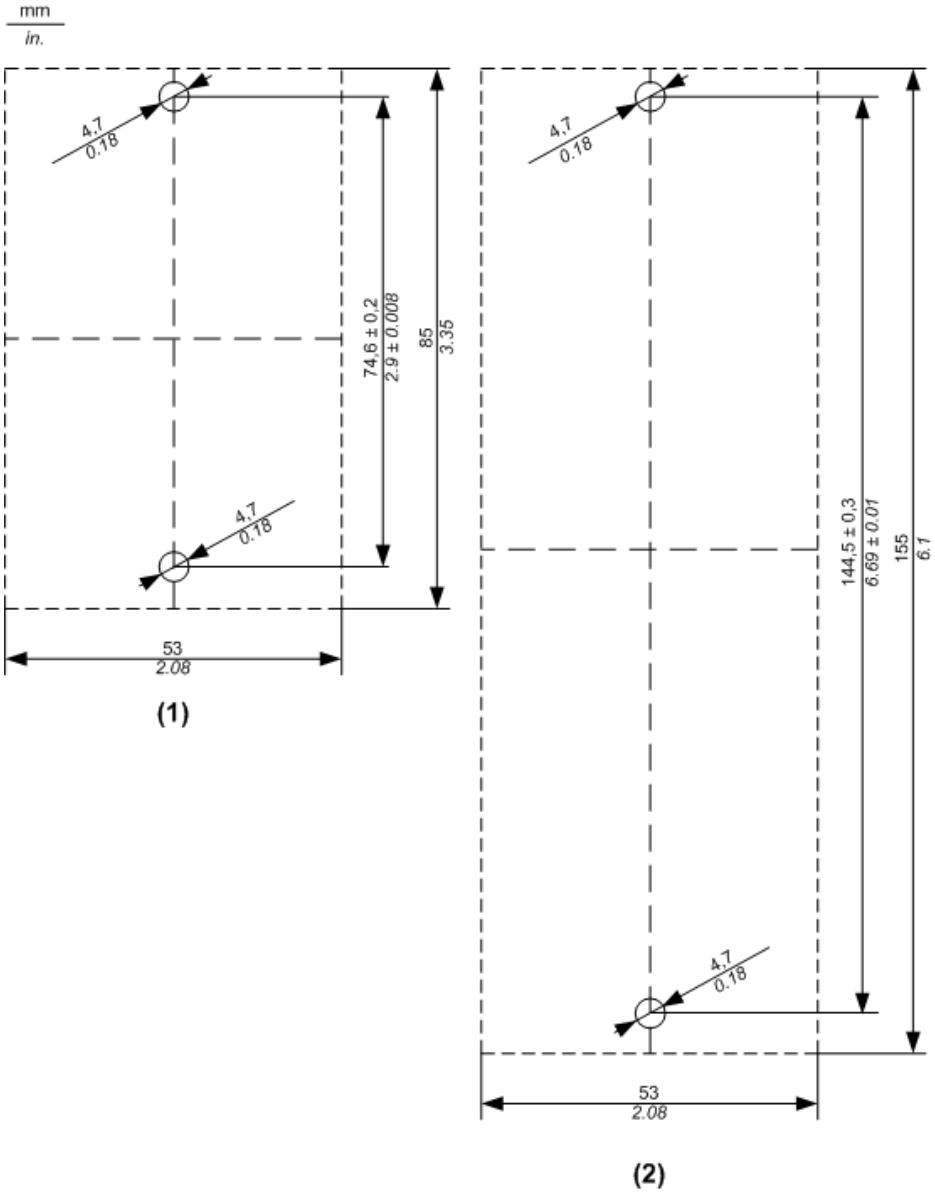
TM7 Block on a DIN Rail



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

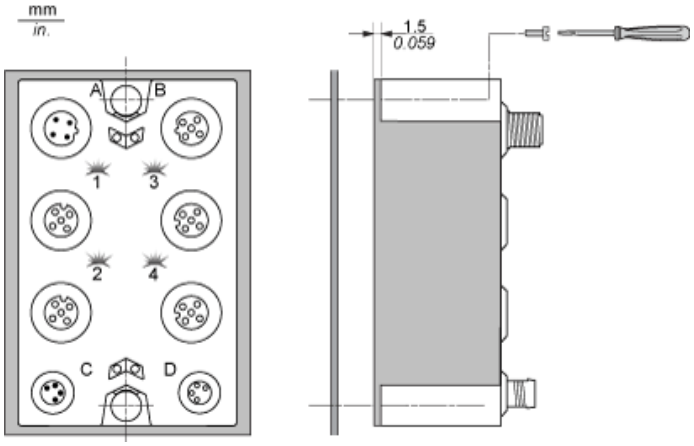
TM7 Block Directly on the Machine

Drilling template of the block:



(1) Size 1
(2) Size 2

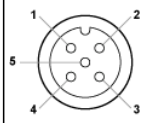
The thickness of the base plate should be taken into consideration when defining the screw length.



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

Wiring Diagram

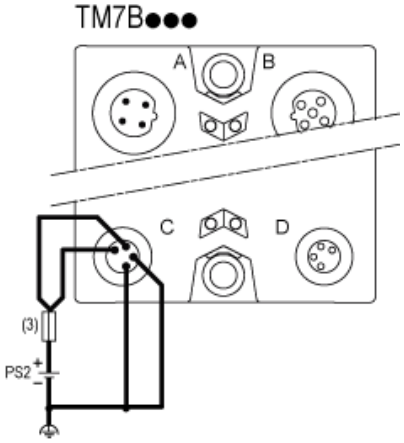
Pin Assignments for Output Connectors

Connection	Pin	M12 Output
	1	Analog output +
2	24 Vdc actuator supply	
3	Analog output - (0 Vdc)	
4	0 Vdc	
5	Shield	

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