

TM2ALM3LT

analog input/output module M238 - 2 inputs
thermocouple/temp low level- 1 output



Main

Range of product	Modicon M238 logic controller
Product or component type	Input/output analog module
Analogue input number	2
Input level	Low level
Analogue input type	Temperature probe - 100...500 °C 3-wire Pt probe differential Thermocouple 0...1200 °C thermocouple J differential Thermocouple 0...1300 °C thermocouple K differential Thermocouple 0...400 °C thermocouple T differential
Analogue output number	1
Analogue output type	Current 4...20 mA Voltage 0...10 V
Cross talk	<= 2 LSB

Complementary

Range compatibility	Advantys OTB Twido
Analogue input resolution	12 bits
Analogue output resolution	12 bits
LSB value	0.1 °C thermocouple 0.15 °C temperature probe 2.5 mV voltage voltage 4.8 µA current current
Input impedance	>= 1 MOhm
Load type	Resistive
Load impedance ohmic	<= 300 Ohm current >= 2000 Ohm voltage
Stabilisation time	20 ms
Conversion time	20 ms + 1 controller cycle time
Sampling duration	<= 20 ms temperature probe <= 60 ms thermocouple
Acquisition period	60 ms per channel + 1 controller cycle time thermocouple 80 ms per channel + 1 controller cycle time
Measurement error	+/- 0.2 % of full scale - 100...500 °C 3-wire Pt probe 25 °C 0.2 % of full scale +/- 4 °C 0...1200 °C thermocouple J 25 °C 0.2 % of full scale +/- 4 °C 0...1300 °C thermocouple K 25 °C 0.2 % of full scale +/- 4 °C 0...400 °C thermocouple T 25 °C +/- 0.2 % of full scale 0...10 V 0...10 V 25 °C +/- 0.2 % of full scale 4...20 mA 4...20 mA 25 °C
Temperature coefficient	+/-0.006 %FS/°C - 100...500 °C 3-wire Pt probe +/-0.006 %FS/°C 0...1200 °C thermocouple J +/-0.006 %FS/°C 0...1300 °C thermocouple K +/-0.006 %FS/°C 0...400 °C thermocouple T +/-0.015 %FS/°C 0...10 V 0...10 V +/-0.015 %FS/°C 4...20 mA 4...20 mA
Repeat accuracy	+/-0.5 %FS input/output
Non-linearity	+/- 0.2 %FS temperature probe +/- 0.2 %FS thermocouple +/- 0.2 %FS current current +/- 0.2 %FS voltage voltage
Output error	+/- 1 %FS

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Output ripple	<= 1 LSB
Total error	+/-1 %FS temperature probe +/-1 %FS thermocouple +/-1 %FS current current +/-1 %FS voltage voltage
Type of cable	Shielded cable
Insulation between channel and internal logic	Photocoupler
Supply	External supply
[Us] rated supply voltage	24 V DC
Supply voltage limits	19.2...30 V
Electrical connection	1 removable screw terminal block
Current consumption	50 mA 24 V DC external 50 mA 5 V DC internal
Product weight	0.085 kg

Environment

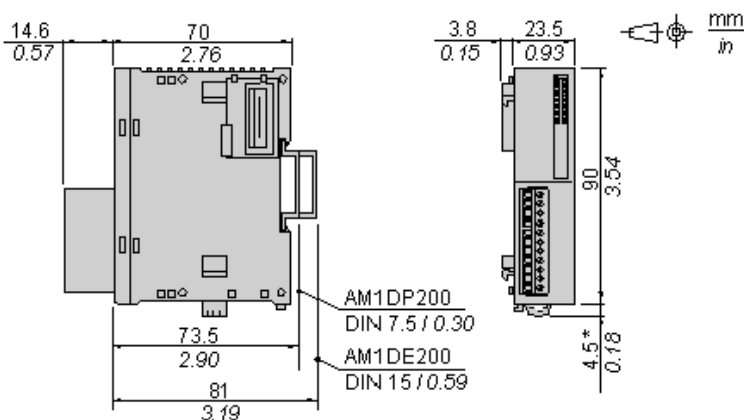
dielectric strength	500 V between I/O channel 500 V between the I/O and internal logic 500 V between the I/O and the external supply circuit
width	23.5 mm
depth	70 mm
height	90 mm

Offer Sustainability

Sustainable offer status	Green Premium product
RoHS (date code: YYWW)	Compliant - since 1039 - Schneider Electric declaration of conformity
REACH	Reference not containing SVHC above the threshold
Product environmental profile	Available
Product end of life instructions	Available

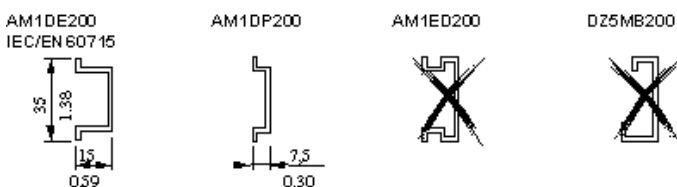
Analog Mixed I/O Module (3-channel, Thermocouple/Temperature Probe/Voltage/Current)

Dimensions



NOTE: * 8.5 mm (0.33 in) when the clip-on lock is pulled out.

DIN Rail Mounting

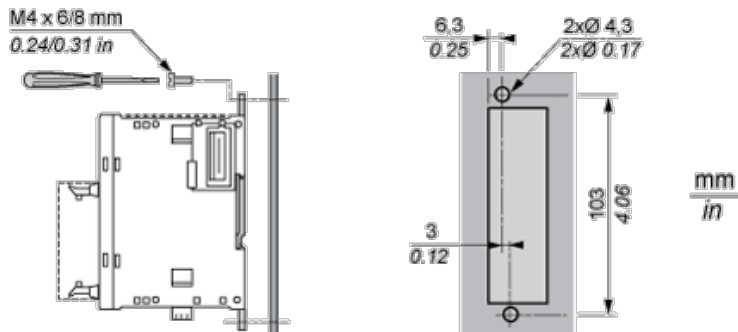


Rail depth	Catalogue part number
15 mm (0.59 in.)	AM1DE200
7,5 mm (0.30 in.)	AM1DP200

NOTE: Do not use AM1ED200 and DZ5MB200

Module Mounting on a Panel Surface

Mounting Hole Layout



Wiring Requirements

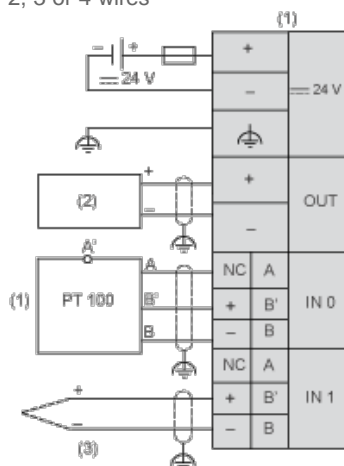
Cable Types and Wire Sizes for Removable Screw Terminal Block

9 0.35 mm in.							
mm ²	0,14...1,5	0,25...0,5	0,25...1,5	0,14...0,5	0,14...0,75	0,25...0,34	0,5
AWG	26...16	24...20	24...16	26...20	26...18	24...22	20

Analog Mixed I/O Module (3-channel, Thermocouple/Temperature Probe/Voltage/Current)

Wiring Diagram Example

2, 3 or 4 wires



- (1) 4 wires
- (2) Voltage/current preactuator
- (3) Thermocouple