

INSTALLATION GUIDE

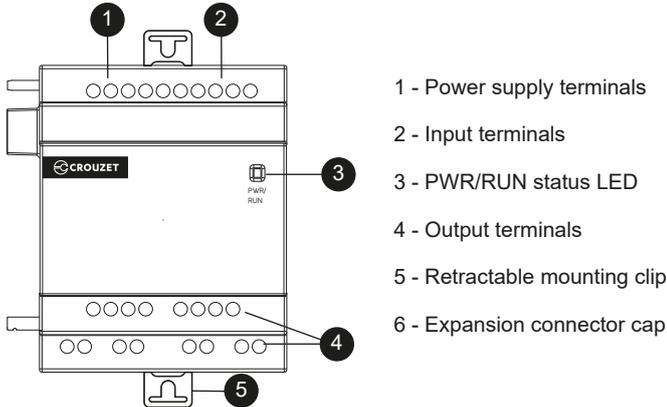
Millenium EXPANSIONS

- MXR16U3
- MXR08U3
- MXR16U1
- MXR08U1
- MXR16D7
- MXR08D7
- MXR16D1
- MXS08D1
- MXAI02D7
- MXAO02D1
- MXAI02PD7

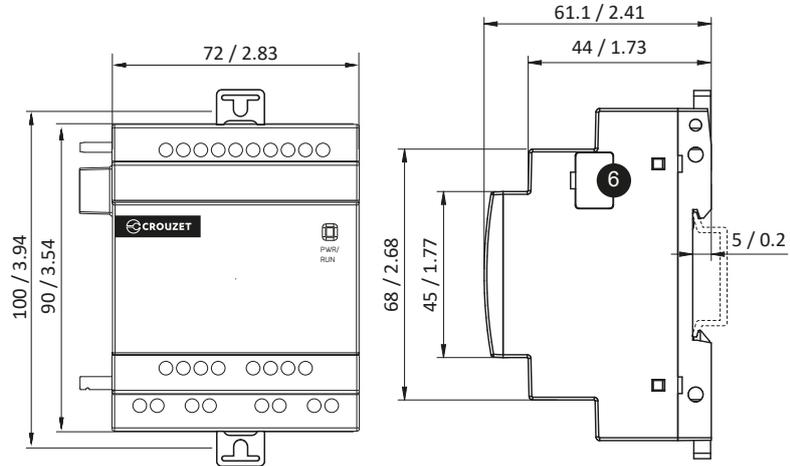
Product Overview

1. Digital - Long

MXR16U3, MXR16D7, MXR16U1, MXR16D1

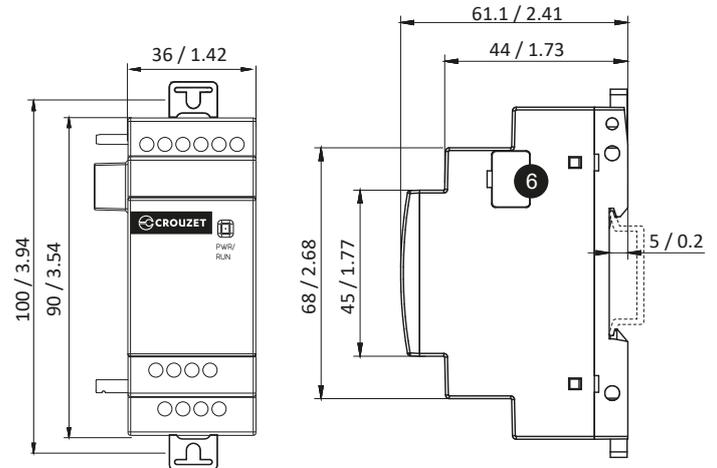
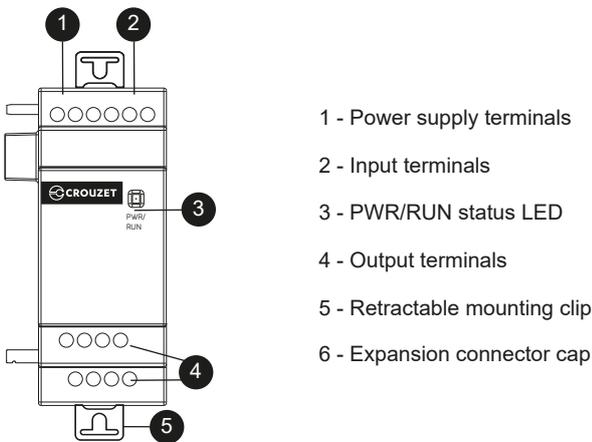


Mounting Dimensions (in mm / inches)



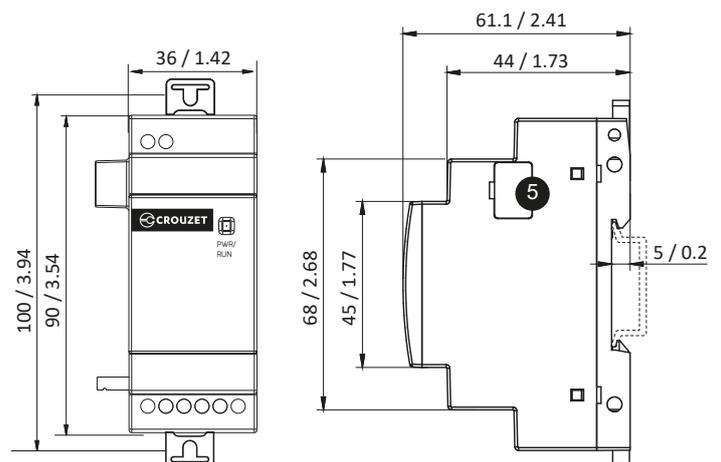
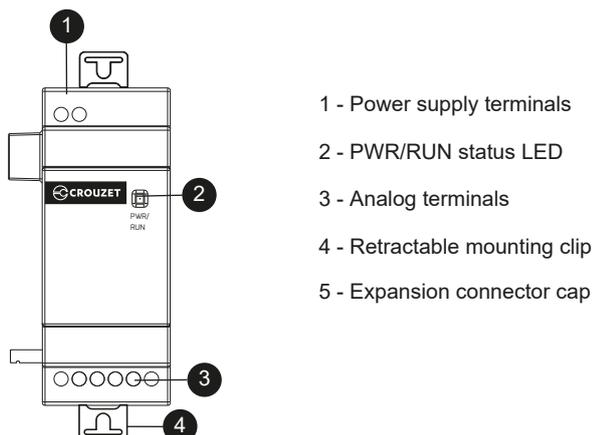
2. Digital - Short

MXR08U3, MXR08D7, MXR08U1, MXS08D1



3. Analog - Short

MXAI02D7, MXAO02D1, MXAI02PD7



LED indication PWR / RUN

 Green ON = Initialized, RUN mode  Green Blanking (30% ON / 70% OFF) = Initialized, STOP mode	 Red ON = Fault (Only on MXS08D1 and MXS16D1)  Red Blanking (50%) = Not Initialized
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DANGER

Hazard of electric shock, explosion or arc flash

- Turn power off before installing, removing, wiring or maintaining.

Failure to follow this instruction will result in death or serious injury.

WARNING

Explosion hazard

- Confirm that the product power supply voltage and its tolerances are compatible with those of the network.
- Do not disconnect equipment unless power has been switched off or the area is known to be non-hazardous.

Unintended equipment operation

- This product is not intended for use in safety critical machine functions. Where personnel and or equipment hazard exist, use appropriate hard-wired safety interlocks.
- Do not disassemble, repair or modify the controllers.
- This controller is designed for use within an enclosure (closed with a key or a tool) according to specifications described in these instructions in the paragraph on installation conditions.
- Install the controller in the operating environment conditions described below.

Failure to follow these instructions can result in death, serious injury or equipment damage.

General precautions during wiring:

1. In cases of high noise levels on the power lines, it is recommended to use an isolation transformer with the Millenium power supply, despite the built-in precautions within the Millenium.
2. When utilizing the DC-powered Millenium, ensure that the 24VDC input line is routed separately from the 100 VAC and 240 VAC lines.
3. Keep the input lines and output lines separated from each other.
4. If the output lines are close to power supply lines or input lines, use shielded cables for both the input and output lines and ensure proper grounding.

IMPORTANT

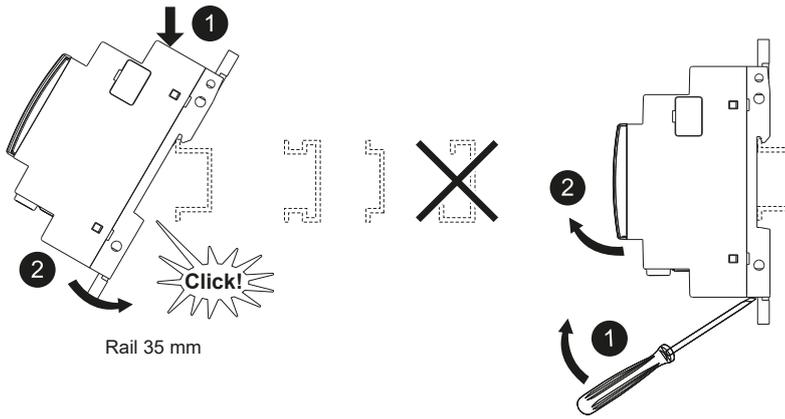
This document provides installation instructions only.

Refer to User Manual or Crouzet Soft Help for a complete Millenium set-up, operation and software instructions. Those responsible for the application, implementation or use of this product must ensure that the necessary design considerations have been incorporated into each application, completely adhering to applicable laws, performance and safety requirements, regulations, codes, and standards.

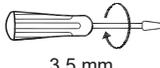
The customer is responsible for all consequences of the application.

	Direct current.
	Alternative current.
	Caution, possibility of electric shock.
	User manual and datasheet must be consulted in all cases where this symbol is marked.
	Recyclable materials.
	Made from 100% Recycled materials.
	Refer to the product recycling instructions.
	This product is not disposable in a conventional trash can. This must be brought to a collection point.

Installation on Rail



Terminal & Torque details

Type	Wire gauge (AWG)	Stripped length		Torque
Solid	24 - 12	7 - 8 mm	 $\varnothing 3.5 \text{ mm}$ 0.14 inch	0.5 N.m (4.4 Lb.in)
Stranded	24 - 12	7 - 8 mm		0.5 N.m (4.4 Lb.in)



$\approx 12 \text{ V}$

$\approx 24 \text{ V}$

$\approx 110-240 \text{ V}$

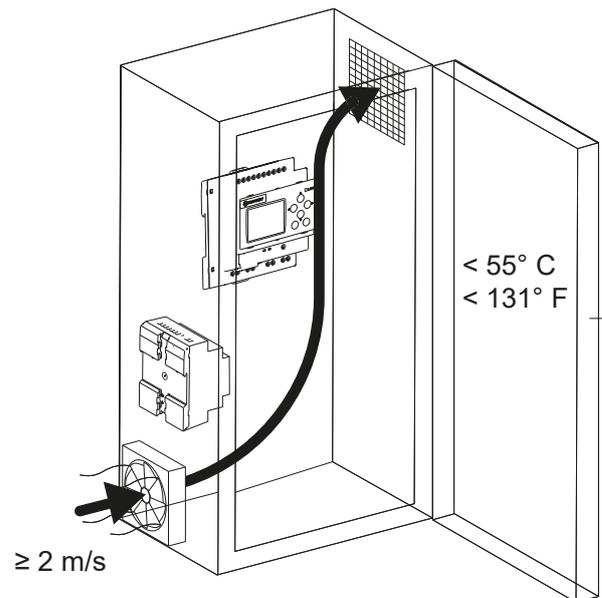
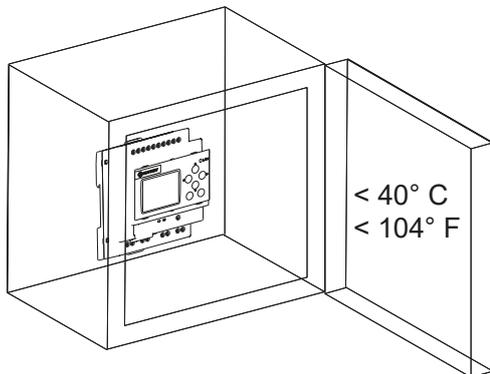


5 A

5 A

5 A

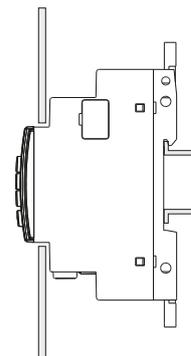
Installation conditions



Service conditions

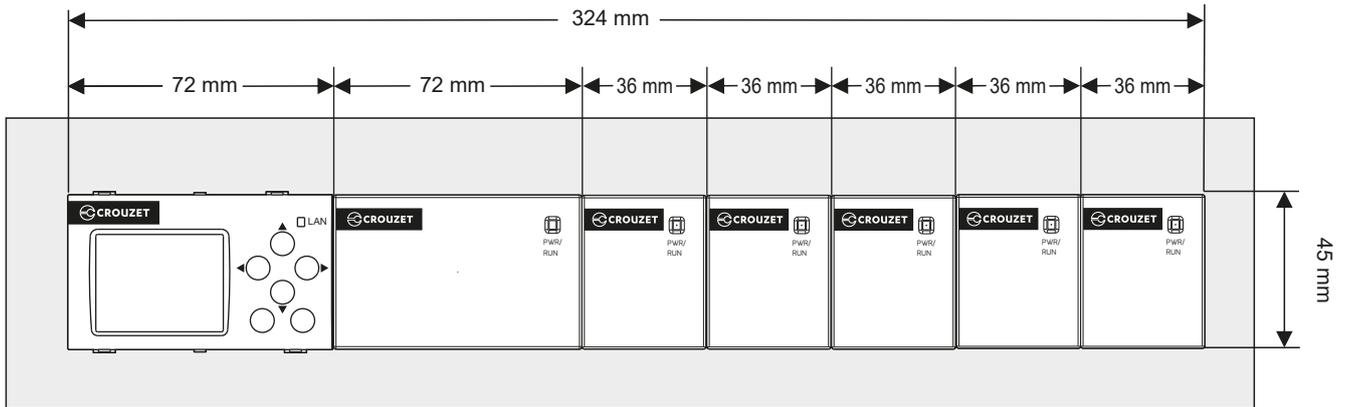
Operating temperature	(-20 °C to +55 °C) / (-4 °F to +131 °F)
Storage temperature	(-30 °C to +70 °C) / (-22 °F to +158 °F)
Relative Humidity	10-95%, non-condensing
Pollution degree	2 (IEC/EN 61131-02)
Degree of Protection	IP40 Front Panel, IP20 Terminals
Altitude	Operations: 0 - 2000 m (0 - 6562 ft)
	Transport: 0 - 3000 m (0 - 9843 ft)
Vibration resistance (IEC 60068-2-6)	5 Hz $\leq f < 8.4$ Hz, Amplitude: 3.5 mm
Shock resistance (IEC 60068-2-27)	8.4 Hz $\leq f \leq 150$ Hz, Acceleration: 1 g
Enclosure material	Self-extinguishable
Standard applicable/operating conditions	61131-02

Enclosed type mounting



Mounting dimension

1. Base with digital & analog expansion.



* Note:

The above mounting dimension is for reference, the size may change as per the system is configured. Maximum set-up configuration of expansion can add 16 Digital Inputs, 16 Digital Outputs, 8 Analog Inputs and 8 Analog Outputs

Expansions compatibility

Base and digital expansions must be supplied by a common power supply.

Base and analog expansions can be supplied from different power supply and with different voltages.

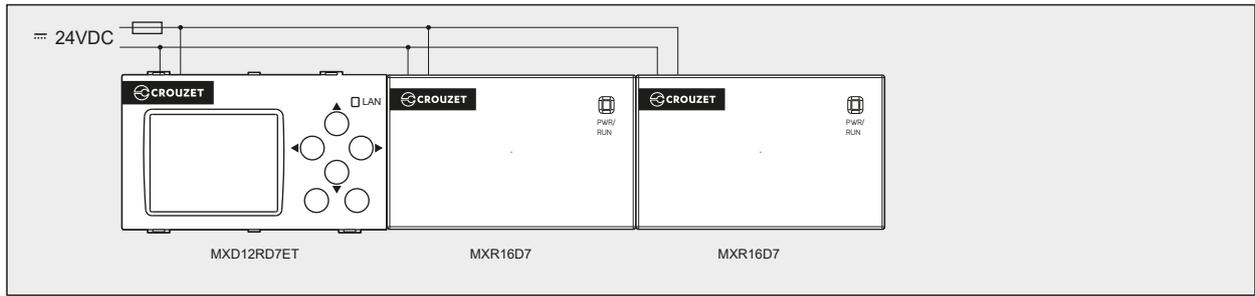
BASE MILLENNIUM	EXPANSION	SUPPLY		EXPANSION							
		INPUTS	OUTPUTS	24VAC/DC	24VDC	12-24VDC	230VAC/DC	12-24VDC	24VDC	12-24VDC	
				4/8 Digital	4/8 Digital	4/8 Digital	4/8 Digital	2 Analog (V/mA)	-	2 RTD	
 MXD12RU1ET, MXB12RU1ET	24VAC/DC	8 Digital	4 Relay 8A	✓	If common DC supply	If common DC supply	✗	✓	✓	✓	
 MXD12SD1ET, MXB12SD1ET	24VDC	4 Digital/ Analog 4 Digital/ HighSpeed	4 SSR/PWM 0.5A	If common DC supply	✓	✓	✗	✓	✓	✓	
 MXD12RD7ET, MXB12RD7ET	12-24VDC	4 Digital Analog/ 4 Digital/ HighSpeed	4 Relay 8A	If common DC supply	✓	✓	✗	✓	✓	✓	
 MXD12RU3ET, MXB12RU3ET	230V AC/DC	8 Digital	4 Relay 8A	✗	✗	✗	✓	✓	✓	✓	

* Note:

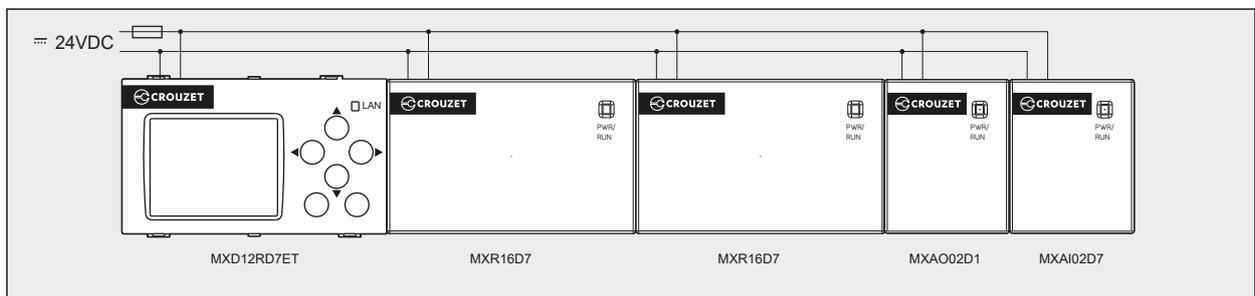
Analog Input or Output expansion can be used with any Base Device. Only restriction is that, if an Analog input or output expansion is used, then we can't connect digital expansion after that in the system.

Examples

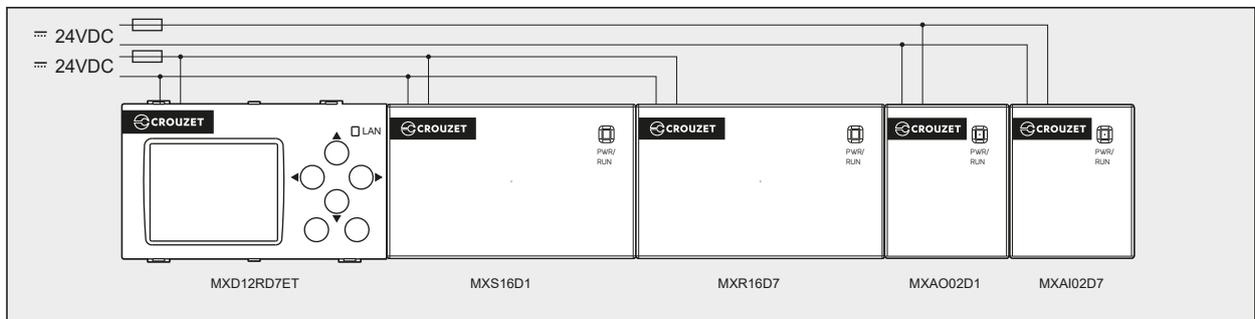
1. Base with digital expansion, same electrical power supply.



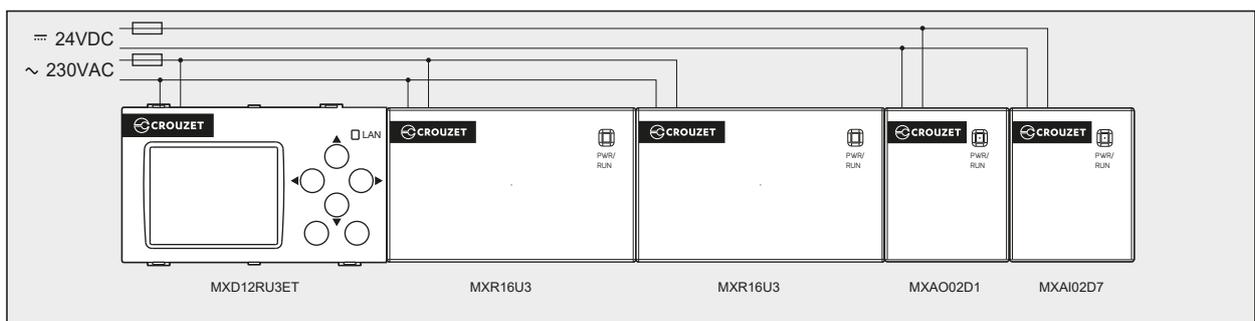
2. Base with digital & analog expansion, same electrical power supply.



3. Base with digital & analog expansion, different electrical power supply.



4. Base with digital & analog expansion, different electrical power supply.



INPUTS Electronic & Wiring Diagrams

Digital Inputs (AC/DC Voltage)

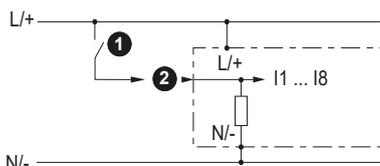
MXR08U1, MXR08U3 → Inputs I1...I4

MXR16U1, MXR16U3 → Inputs I1...I8

Electronic Diagram

~ 110-240VAC, 50/60 Hz or ~ 24VAC, 50/60 Hz
≡ 110-240VDC ≡ 24VDC

I1 ... I8 0/1



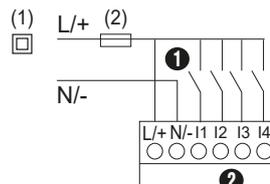
- 1. Contact
- 2. Digital Input

- (1) Isolated source if 24VAC or 24VDC supply
- (2) 1A quick blowing fuse, circuit breaker, or circuit protector

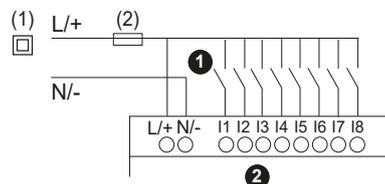
L: Line
N: Neutral

Wiring Diagram

~ 110-240VAC, 50/60 Hz or ~ 24VAC, 50/60 Hz
≡ 110-240VDC ≡ 24VDC



~ 110-240VAC, 50/60 Hz or ~ 24VAC, 50/60 Hz
≡ 110-240VDC ≡ 24VDC



Digital Inputs (DC Voltage)

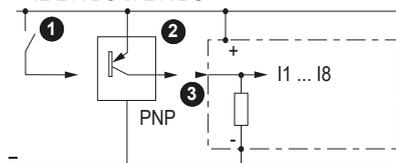
MXR08D7, MXS08D1 → Inputs I1...I4

MXR16D7, MXS16D1 → Inputs I1...I8

Electronic Diagram

+ 12-24VDC or 24VDC

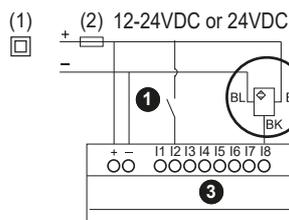
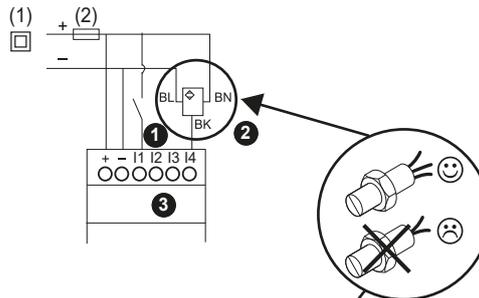
I1 ... I8 0/1



- 1. Contact
- 2. 3-wire PNP sensor
- 3. Digital Input

Wiring Diagram

12-24VDC or 24VDC



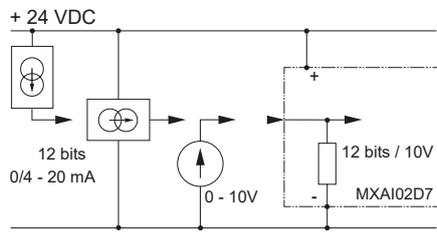
- (1) Isolated source
- (2) 1A quick blowing fuse, circuit breaker, or circuit protector

BN: Brown cable of the 3-Wire PNP sensor
BL: Blue cable of the 3-Wire PNP sensor
BK: Black cable of the 3-Wire PNP sensor

Analog Inputs

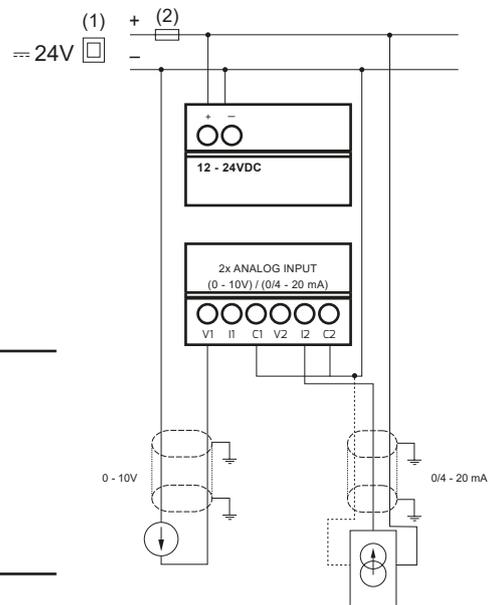
MXAI02D7 → Inputs I1...I2

Electronic Diagram



10V, 20 mA
10 m Max
393.7 inches Max

Wiring Diagram

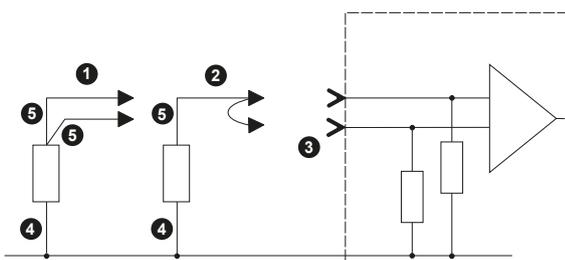


- (1) Isolated source
- (2) 1A quick blowing fuse, circuit breaker, or circuit protector

Analog Inputs - Temperature

MXAI02PD7 → Inputs I1...I2

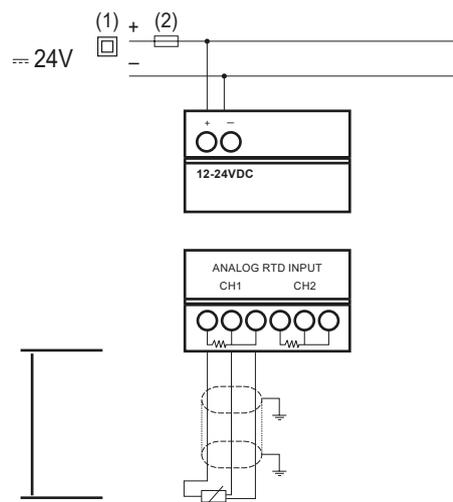
Electronic Diagram



- 1. Pt100 3-wire
- 2. Pt100 2-wire
- 3. Analog inputs
- 4. White cable
- 5. Red cable

PT100/PT1000
10 m Max
393.7 inches Max

Wiring Diagram



- (1) Isolated source
- (2) 1A quick blowing fuse, circuit breaker, or circuit protector

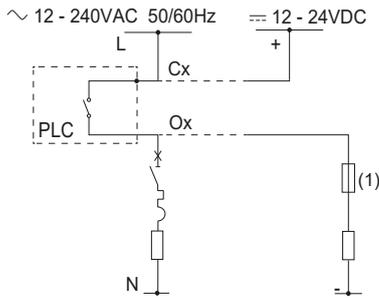
OUTPUTS Electronic & Wiring Diagrams

Relay Outputs

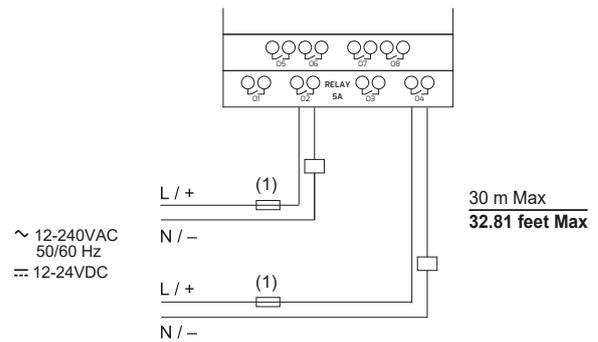
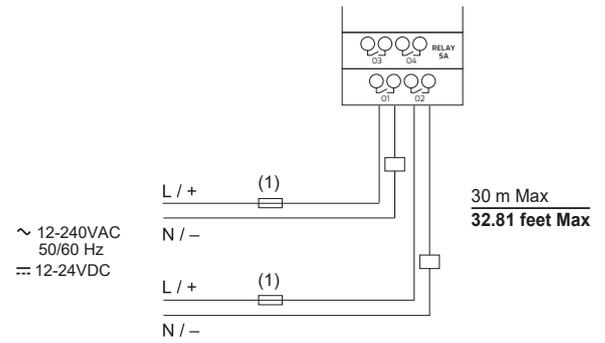
MXR08D7, MRX08U1, MXR08U3 → Outputs O1....O4

MXR16D7, MXR16U1, MXR16U3 → Outputs O1....O8

Electronic Diagram



Wiring Diagram



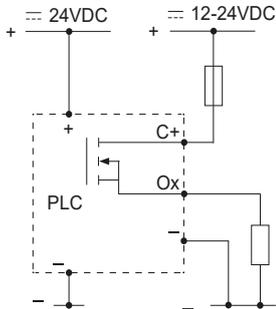
- (1) Fuse, circuit breaker or current protector as per relay rating.
 For 8A relay use 8A circuit breaker or current protector.
 For 5A relay use 5A circuit breaker or current protector.

Static Outputs

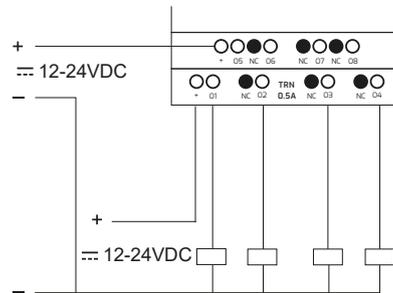
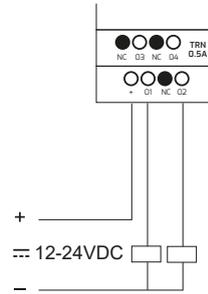
MXS08D1 → Outputs O1...O4

MXS16D1 → Outputs O1...O8

Electronic Diagram



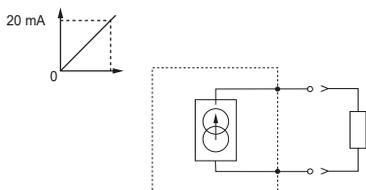
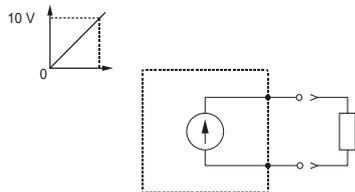
Wiring Diagram



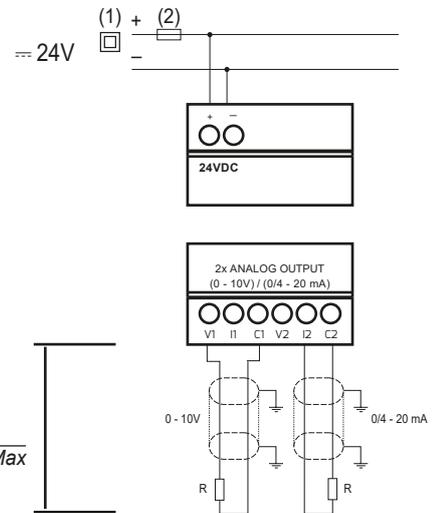
Analog Outputs

MXAO02D1 → Outputs I1...I2

Electronic Diagram



Wiring Diagram



10V, 20 mA
10 m Max
393.7 inches Max

- (1) Isolated source
- (2) 1A quick blowing fuse, circuit breaker, or circuit protector