Mx110 Series

The I/O-Modules of Mx110 series offer a cost-effective and flexible solution in distributed automation systems. Unlike many decentralized I/O-Systems, there is no need of involving any bus coupler or a supply module, when using our modules, because each Mx110 unit has its own power supply and communication terminals on board. Due to the proven RS485 bus technology and intelligent functions, such as pulse counter or sensor state diagnosis, the MX110 modules can be used in different fields, such as building technology, process industry, etc. These robust digital and analog modules are used for decentralized data acquisition and process control and also can serve as a good supplement to existing systems or for creating new powerful systems as well. That's why systems with a small number of I/O points can be economically reasonable.
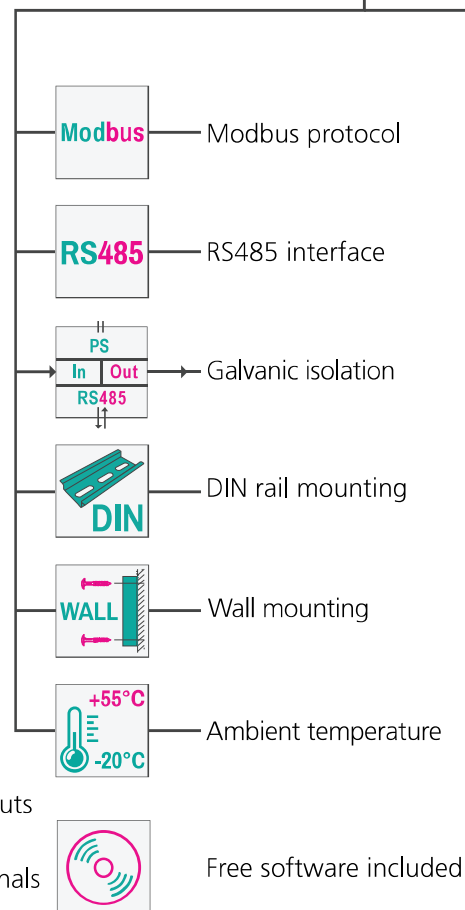
The use of I/O-Modules provides:
- Significant reduction of cabling resulting in the lower susceptibility to interferences
- Reduced setup time due to direct connection of sensors and actuators
- Higher flexibility of the entire system due to free placement and easy replaceable elements
- Better system adaptability and extensibility

Applications:
- I/O signal transmission to a SCADA system or HMI (e.g. operator terminal)
- Increasing the number of I/O points of a PLC
- Connection to all automation systems supporting RS485 interface and communication protocols Modbus RTU / ASCII

Functions:
- PWM
- Pulse counter function
- Sensor-based status diagnostics
- Diagnostics of RS485 network status
- Additional logic functions at digital inputs and outputs
- Transmission protocol autodetection
- Generation of appropriate error signals or alarm signals
- DIN rail or wall mounting

Modbus — Modbus protocol

RS485 — RS485 interface

Galvanic isolation

DIN — DIN rail mounting

WALL — Wall mounting

+55°C / -20°C — Ambient temperature

Free software included

Configuration:
The configuration software is delivered on CD. A simple and convenient interface enables fast and uncomplicated configuration of I/O-Modules. The configuration mask can be saved as a file.

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Mx110 Series

Overview table:

| Module	Digital inputs	Digital outputs	Analog inputs	Analog outputs	Properties
Input modules					
MV110-24.8A			8		Inputs: RTD, TC, 0-5 mA, 0(4)-20 mA, 0-1 V, 25...900(2000) ohm, switch contacts
MV110-24.8AS			8		"Fast" inputs: 0(4)-20 mA, 0-5 mA, 0-10 V, measuring frequency up to 200 Hz
MV110-24.16D	16				Inputs: switch contacts (no external power supply required), NPN sensors, pulse counters (24 V DC external power supply, measuring frequency up to 1kHz)
MV110-24.16DN	16				Inputs: switch contacts, NPN sensors, pulse counters (24 V DC external power supply, measuring frequency up to 1kHz)
MV110-24.1TD			1		Strain gauge module
ME110-230.3M			3		Phase voltage measurement, line-to-line voltage measurement, current measurement, power measurement, frequency measurement, power factor measurement (cos f), phase angle measurement
Combined I/O-Modules					
MK110-24.8D.4R	8	4			Inputs: Switching contacts, NPN sensors Outputs: relays 4 A, 24 V DC
Output modules					
MU110-24.8I				8	Outputs: 4-20 mA, accuracy 0.5 %
MU110-24.6U				6	Outputs: 0-10 V, accuracy 0.5 %
MU110-24.8R		8			Outputs: relays (NO), 4 A, 250 V AC or 24 V DC
MU110-24.8K		8			Outputs: NPN transistors, 400 mA, 60 V DC
MU110-24.16R		16			Outputs: relays (NO) 3 A at 250 V AC or 30 V DC
MU110-24.16K		16			Outputs: NPN transistors, 400 mA, 60 V DC

M110 Configurator:
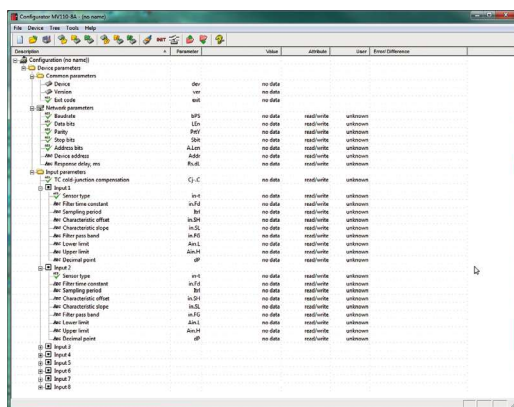
Mx110 Dimensions:

Plug-in screw terminals:

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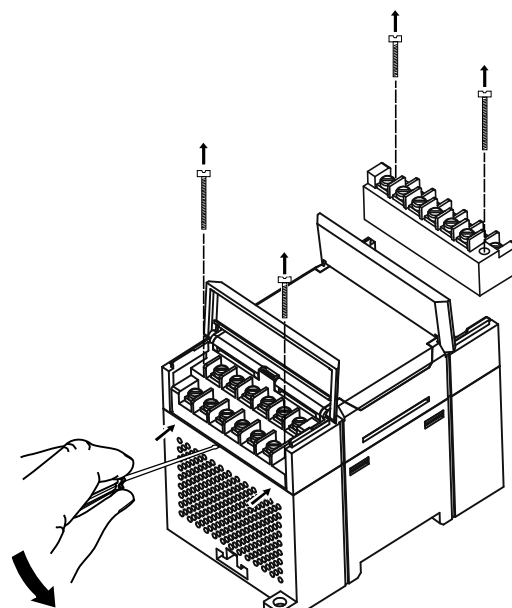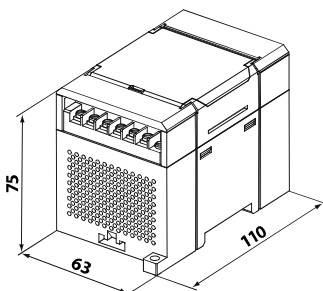
Analog input module
MV110-24.8A

Analog input module
MV110-24.8AS
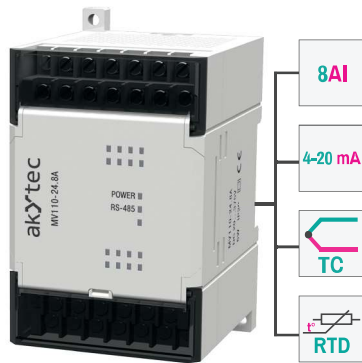
Analog inputs	8
ADC resolution	16 bit
Input signals	
Resistance thermometer	Pt50, Pt100, Pt500, Pt1000 Ni100 , Ni500, Ni1000
Thermocouple	A, J, N, K, S, R, B, T
Position encoder	25...900 ohm, 25...2000 ohm 0(4)-20 mA, 0-5 mA
Standard signal	0-1 V, 0-5 mA, 0-20 mA, 4-20 mA
Usable as digital input	yes, 8x
Accuracy, max.	
Resistance thermometer	±0.25%
Thermocouple	±0.5%
Position encoder	±0.25%
Standard signal	±0.25%
Sampling rate per input, max.	
Resistance thermometer	0.9 s
Thermocouple	0.6 s
Position encoder	0.6 s
Standard signal	0.6 s

Analog inputs	8
ADC resolution	10 bit
Input signals	
Standard signal	0-10 V, 0-5 mA, 0-20 mA, 4-20 mA
Usable as digital input	no
Accuracy, msx.	±0.25 %
Input resistance	
0-10 V	min. 200 ohm
0-5 mA	130...500 ohm
0-20 mA	130...250 ohm
4-20 mA	130...250 ohm
Sampling rate per input, max.	5 ms ± 2%

Supply	
Power supply	24 (20…28) V DC
Power consumption, max.	6 W
Communication	
Interface	RS485
Protocol	Modbus RTU / ASCII
Baud rate	2.4...115.2 kbit/s
IP Code	IP20
Environment	
Ambient temperature	-20...+55 °C
Storage temperature	-25...+55 °C
Humidity	up to 80%, non-condensing
Enclosure	
Dimensions	63 x 110 x 75 mm
Weight	approx. 240 g
Material	Plastic

Supply	
Power supply	24 (21...35) V DC
Power consumption, max.	6 W
Communication	
Interface	RS485
Protocol	Modbus RTU / ASCII
Baud rate	2.4...115.2 kbit/s
IP Code	IP20
Environment	
Ambient temperature	-20...+55 °C
Storage temperature	-25...+55 °C
Humidity	up to 80%, non-condensing
Enclosure	
Dimensions	63 x 110 x 75 mm
Weight	approx. 240 g
Material	Plastic

Digital input module
MV110-24.16D(DN)
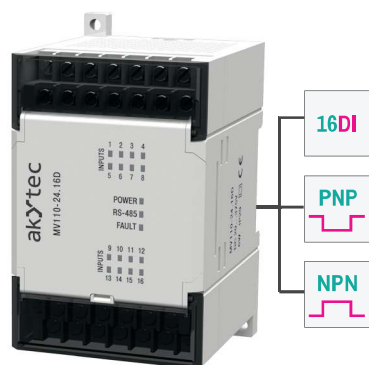
Digital inputs	16
MV110-24.16D	
Input signal	switch contact, NPN
Galvanic isolation	–
Pulse frequency, max.	1 kHz
Pulse length, min.	0.5 ms
Current, max.	7 mA
Lead resistance, max.	100 ohm
MV110-24.16DN	
Input signal	switch contact, NPN/PNP
Galvanic isolation	1500 V, in groups of 4
Pulse frequency, max.	1 kHz
Pulse length, min.	0.5 ms
Integrated voltage source	24±3 V
Current, max.	8.5 mA (with 27 V)
Logical „1", min.	4.5 mA
Logical „0", max.	1.5 mA

Supply	
Power supply	24 (20...28) V DC
Power consumption, max.	6 W
Communication	
Interface	RS485
Protocol	Modbus RTU / ASCII
Baud rate	2.4...115.2 kbit/s
IP Code	IP20
Environment	
Ambient temperature	-20...+55 °C
Storage temperature	-25...+55 °C
Humidity	up to 80%, non-condensing
Enclosure	
Dimensions	63 x 110 x 75 mm
Weight	approx. 240 g
Material	Plastic

Digital I/O module
MK110-24.8D.4R
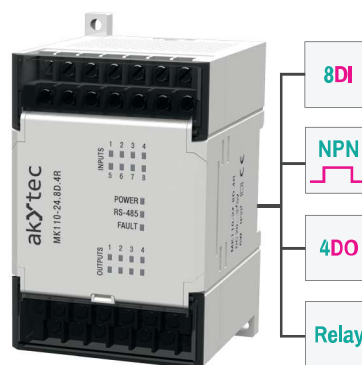
Digital inputs	8
Input signal	switch contact, NPN
Galvanic isolation	–
Insulation strength	1500 V
Pulse frequency, max.	1 kHz
Pulse width, min.	0.5 ms
Current, max.	7 mA
Lead resistance, max.	100 ohm

Digital outputs	4
Type	relays
Permissible load	4 A, 24 V DC

Supply	
Power supply	24 (20...28) V DC
Power consumption, max.	6 W
Communication	
Interface	RS485
Protocol	Modbus RTU / ASCII
Baud rate	2.4...115.2 kbit/s
IP Code	IP20
Environment	
Ambient temperature	-20...+55 °C
Storage temperature	-25...+55 °C
Humidity	up to 80%, non-condensing
Enclosure	
Dimensions	63 x 110 x 75 mm
Weight	approx. 240 g
Material	Plastic

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Analog output module
MU110-24.8I

Analog outputs	8
Output signal	4-20 mA
DAC resolution	10 bit
Power supply	10...36 V DC
Accuracy, max.	±0.5 %
Load resistance	0...1300 ohm

Supply	
Power supply	24 (20...28) V DC
Power consumption, max.	6 W
Communication	
Interface	RS485
Protocol	Modbus RTU / ASCII
Baud rate	2.4...115.2 kbit/s
IP Code	IP20
Environment	
Ambient temperature	-20...+55 °C
Storage temperature	-25...+55 °C
Humidity	up to 80%, non-condensing
Enclosure	
Dimensions	63 x 110 x 75 mm
Weight	approx. 240 g
Material	Plastic

Analog output module
MU110-24.6U
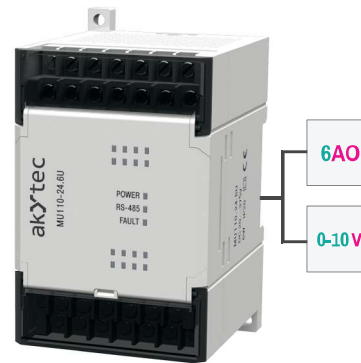
Analog outputs	6
Output signal	0-10 V
DAC resolution	10 bit
Power supply	12...36 V DC
Accuracy, max.	±0.5 %
Load resistance	min. 2000 ohm

Supply	
Power supply	24 (20...28) V DC
Power consumption, max.	6 W
Communication	
Interface	RS485
Protocol	Modbus RTU / ASCII
Baud rate	2.4...115.2 kbit/s
IP Code	IP20
Environment	
Ambient temperature	-20...+55 °C
Storage temperature	-25...+55 °C
Humidity	up to 80%, non-condensing
Enclosure	
Dimensions	63 x 110 x 75 mm
Weight	approx. 240 g
Material	Plastic

Digital output module
MU110-24.8R   MU110-24.8K

8DO	Relay

8DO	NPN
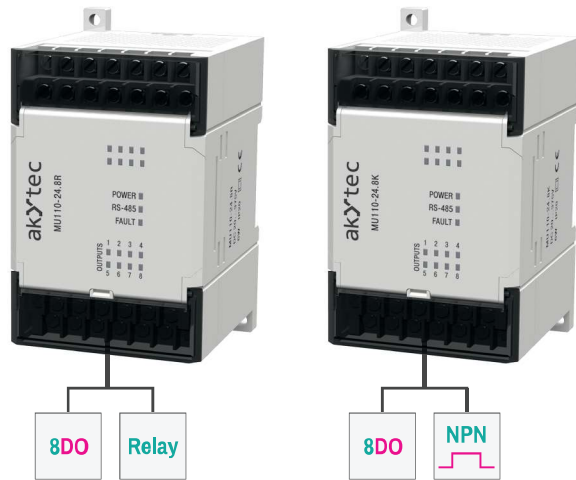
Digital output module
MU110-24.16R   MU110-24.16K

16DO	Relay

16DO	NPN
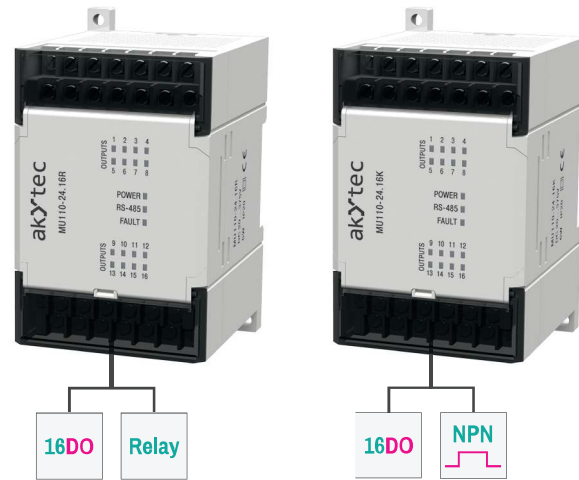
Digital outputs	8
MU110-24.8R	
Type	relay (NO)
Current, max.	4 A at 250 V AC or 24 V DC
MU110-24.8K	
Type	NPN
Current, max.	400 mA at 60 V DC

Digital outputs	16
MU110-24.16R	
Type	relay (NO)
Current, max.	3 A at 250 V AC or 30 V DC
MU110-24.16K	
Type	NPN
Current, max.	400 mA at 60 V DC
Galvanic isolation	in groups of 4

Supply	
Power supply	24 (20...28) V DC
Power consumption, max.	6 W
Communication	
Interface	RS485
Protocol	Modbus RTU / ASCII
Baud rate	2.4...115.2 kbit/s
IP Code	IP20
Environment	
Ambient temperature	-20...+55 °C
Storage temperature	-25...+55 °C
Humidity	to 80%, non-condensing
Enclosure	
Dimensions	63 x 110 x 75 mm
Weight	approx. 300 g
Material	Plastic

Supply	
Power supply	24 (20...28) V DC
Power consumption, max	12 W
Communication	
Interface	RS485
Protocol	Modbus RTU / ASCII
Baud rate	2.4...115.2 kbit/s
IP Code	IP20
Environment	
Ambient temperature	-20...+55 °C
Storage temperature	-25...+55 °C
Humidity	to 80%, non-condensing
Enclosure	
Dimensions	63 x 110 x 75 mm
Weight	approx. 300 g
Material	Plastic

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