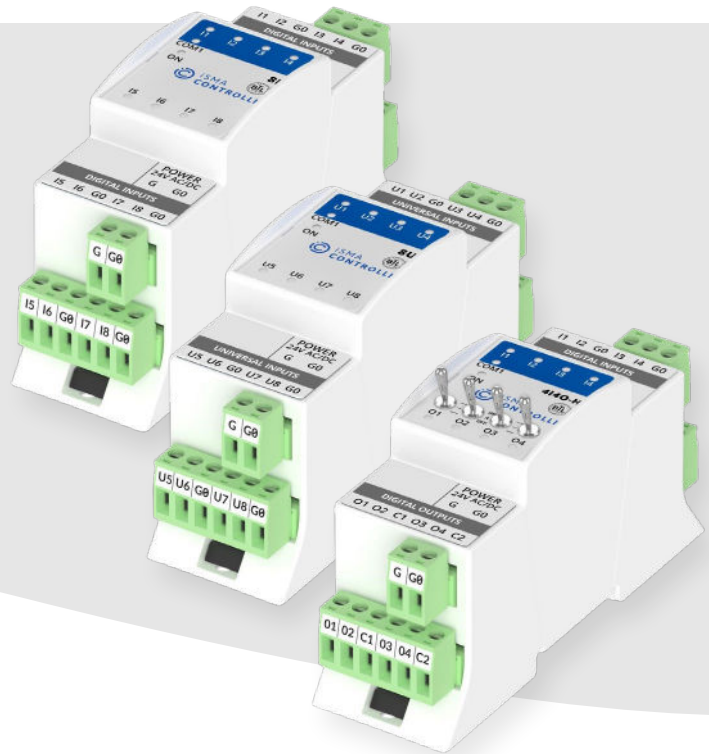


# MINI-RS Series

Multiprotocol I/O modules.



## **iSMA-B-4I40-H**

**Multiprotocol I/O module with 4 digital inputs and 4 digital outputs, HOA switches and built-in light applications.**

Multiprotocol I/O Module in a Compact Size with Built-in Light Applications. Powerful I/O module that works as a remote I/O over a serial port with open protocols, BACnet MS/TP and Modbus RTU/ASCII. A compact size and ease of installation allow the module to be fitted even into limited space installations. The module is equipped with light applications that control the output based on the input measurement.

## **iSMA-B-8I**

**Multiprotocol I/O module with 8 digital inputs.**

Multiprotocol I/O Module in a Compact Size. Powerful I/O module that works as a remote I/O over a serial port with open protocols, BACnet MS/TP and Modbus RTU/ASCII. The module is equipped with 8 digital inputs, which makes it a perfect monitoring device. A compact size and ease of installation allow the module to be fitted even into limited space installations.

## **iSMA-B-8U**

**Multiprotocol I/O module with 8 universal inputs.**

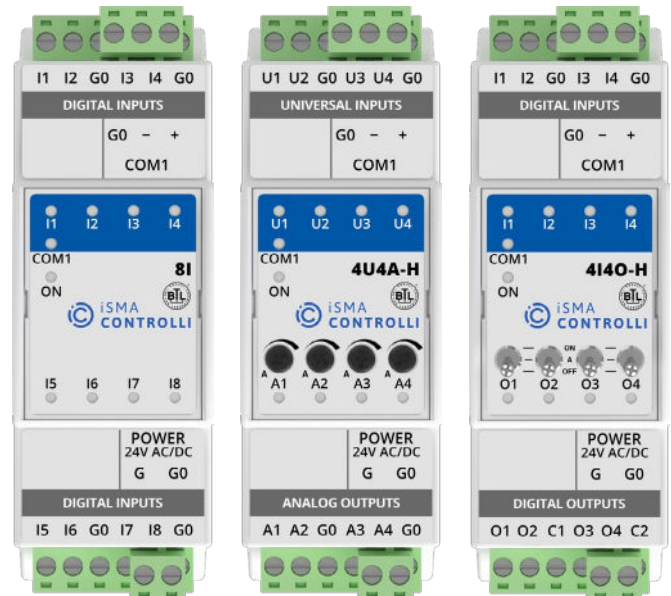
Multiprotocol I/O Module in a Compact Size. Powerful I/O module that works as a remote I/O over a serial port with open protocols, BACnet MS/TP and Modbus RTU/ASCII. The module is equipped with 8 universal inputs with a built-in temperature table for over twenty types of temperature sensors in both Celsius and Fahrenheit degrees. A compact size and ease of installation allow the module to be fitted even into limited space installations.

# MINI-RS Series

## Multiprotocol I/O Modules



MODEL	DESCRIPTION
iSMA-B-4I4O-H	I/O module with 4 digital inputs, 4 digital outputs, HOA switches, RS485 BACnet MS/TP and Modbus RTU/ASCII communication, and built-in light application
iSMA-B-4O-H	I/O module with 4 digital outputs, HOA switches, and RS485 BACnet MS/TP and Modbus RTU/ASCII communication
iSMA-B-4TO-H	I/O module with 4 triac outputs, HOA switches, and RS485 BACnet MS/TP and Modbus RTU/ASCII communication
iSMA-B-4U4A-H	I/O module with 4 universal inputs, 4 analog outputs, manual override switches, and RS485 BACnet MS/TP and Modbus RTU/ASCII communication
iSMA-B-4U4O-H	I/O module with 4 universal inputs, 4 digital outputs, HOA switches, RS485 BACnet MS/TP and Modbus RTU/ASCII communication, and built-in HVAC and light applications
iSMA-B-8I	I/O module with 8 digital inputs and RS485 BACnet MS/TP and Modbus RTU/ASCII communication
iSMA-B-8U	I/O module with 8 universal inputs and RS485 BACnet MS/TP and Modbus RTU/ASCII communication



### APPLICATION AND USE

Multiprotocol I/O modules of the MINI-RS series are compact devices working as remote I/Os over RS485 with open protocols, BACnet MS/TP and Modbus RTU/ASCII. The modules can be simply addressed from 0 to 99 using an onboard rotary switch and connected to a BMS via a local controller or using the Modbus gateway functionality in a MIX-IP or MINI-IP module of choice, to create a cost-effective building control solution. The MINI-RS modules can extend building controllers with a number of inputs and outputs and complement the MIX I/O modules. Unlike the MIX series, the MINI line is dedicated to all applications where manually operated switches are required. Built-in algorithms for lighting, cooling, and heating make them suitable for use as standalone controllers. In addition, the modules support timer relay modes dedicated to occupancy sensors. Like the MIX-RS series, the MINI-RS modules are factory-equipped with the two most popular open communication protocols, Modbus RTU/ASCII and BACnet MS/TP, selected with DIP switches. Devices configured to communicate in the Modbus RTU/ASCII protocol operate as server devices, and devices configured to communicate in the BACnet MS/TP protocol work as client or server devices. One major advantage of supporting the modules with open communication standards is the versatility to install them in both new and completed installations, as part of an existing BMS. Built-in mini USB allows for the initial configuration of the unit without an additional power supply.

### FEATURES

- 7 different types of modules with RS485 communication
- BACnet MS/TP, BACnet Slave, and Modbus RTU/ASCII protocols, selected with a DIP switch
- Compact dimensions
- Manual override switches\*
- Built-in HVAC and light applications\*\*
- All digital inputs work as fast counters up to 100 Hz
- Universal inputs have 16-bit resolution, which increases the accuracy of measurement
- Wide range of supported temperature sensors in Celsius and Fahrenheit degrees (NTC, PT1000, etc.)
- Automatic detection of a signal type of universal inputs
- Digital outputs 230 V AC max. 3 A or 8 A allow for direct control without additional relays
- Triac outputs: 0.5 A at 24 V AC, 0.5 A at 230 V AC
- Analog output with max. 20 mA load per channel allows for a direct control of relays (12 V DC) or SSR with PWM support
- LEDs indicate the status of inputs and outputs
- Simple and fast addressing from 0 to 99 using rotary switches
- UL listed
- BTL certified

\* The '-H' part in the product code indicates a manual override switch onboard. Digital outputs can be manually overridden using a dedicated hand operating switch, analog outputs can be manually overdriven using a dedicated manual potentiometer.

\*\* Built-in applications are supported in the iSMA-B-4U4O-H and iSMA-B-4I4O-H models.

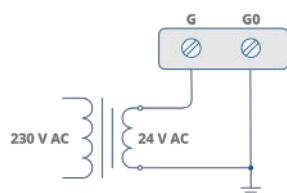
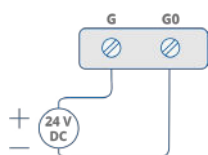
The performances stated in this sheet can be modified without any prior notice.

DESCRIPTION		MINI-RS I/O MODULES			
Power supply	Voltage	24 V AC/DC $\pm$ 20%			
Universal inputs	Number of inputs	4 (4U4A-H, 4U4O-H), 8 (8U)			
	Voltage input	Voltage measurement: 0-10 V DC Input impedance: 100 k $\Omega$ Measurement accuracy: $\pm$ 0.1% Measurement resolution: 3 mV at 12-bit and 1 mV at 16-bit			
	Current input	Current measurement: 0-20 mA Required external resistor: 200 $\Omega$ Measurement accuracy: $\pm$ 1.1% Measurement resolution: 15 $\mu$ A at 12-bit and 5 $\mu$ A at 16-bit			
	Digital input	Output current $\sim$ 1 mA			
	Resistance input	Measurement of resistance: 0-1000 k $\Omega$ Measurement resolution for 20 k $\Omega$ load: 20 $\Omega$ at 12-bit and 1 $\Omega$ at 16-bit Measurement resolution for PT1000 and NI1000: 0.1 $\Omega$ at 16-bit Resistance measurement method: voltage divider			
	Temperature input	Measurement with RTDS (Real Time Digital Simulator) attached Accuracy: $\pm$ 0.1 $^{\circ}$ C The PT1000 and NI1000 sensors use 16-bit resolution			
	Measurement resolution	12-bit (default), 16-bit			
	Processing time	10 ms/channel at 12-bit 140 ms/channel at 16-bit			
Digital inputs	Number of inputs	4 (4I4O-H), 8 (8I)			
	Type	Dry contact or fast pulse counter			
	Maximum input frequency	100 Hz saved in the EEPROM memory			
Analog outputs	Number of outputs	3			
	Voltage range	0-10 V DC			
	Maximum load current	20 mA			
	Resolution	12-bit			
	Accuracy	$\pm$ 0.5%			
Digital outputs	Number of outputs	4 (4I4O-H, 4U4O-H, 4O-H)			
	Maximum loads:	4I4O-H, 4U4O-H		4O-H	
		UL compliant ratings	Maximum ratings	UL compliant ratings	Maximum ratings
	Resistive load (AC1)	3 A at 24 V AC 3 A at 30 V DC	3 A at 230 V AC 3 A at 30 V DC	8 A at 230 V AC 8 A at 30 V DC	8 A at 230 V AC 8 A at 30 V DC
	Inductive load (AC3)	8 VA at 24 V AC 30 W at 30 V DC	75 VA at 230 V AC 30 W at 30 V DC	37 VA at 230 V AC 90 W at 30 V DC	360 VA at 230 V AC 90 W at 30 V DC
Triac outputs	Number of outputs	4 (4TO-H)			
	Load	0.5 A at 20 V AC up to max. 250 V AC			
	Peak load per channel	1.5 A at 20 V AC up to max. 250 V AC (30 s)			
	Gate control	Zero crossing turn ON			
	Frequency range	47 to 63 Hz			
	Snubber	Snubberless triac			
COM1	RS485 interface	Up to 128 devices			
		Half-duplex			
	Communication protocol	Modbus RTU/ASCII, BACnet MS/TP			
	Ports	Screw connector			
	Baud rate	2400-115200			
	Address	0-99 set by a rotary switch			

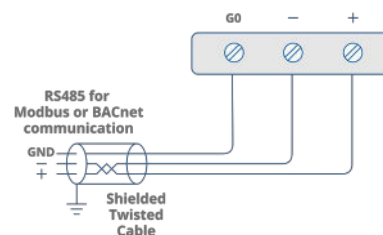
DESCRIPTION		MINI-RS I/O MODULES	
USB1	USB 2.0	mini USB type B	
Ingress protection	IP rating	IP 40 for indoor installation	
Temperature	Storage	-40°C to +85°C (-40°F to +185°F)	
	Operating	-10°C to +50°C (14°F to 122°F)	
Humidity	Relative	5 to 95% RH (without condensation)	
	Type	Removable screw terminals	
Screw connectors	Maximum cable size	2.5 mm <sup>2</sup> (18...12 AWG)	
	Material	Self-extinguishing plastic (PC/ABS)	
Housing	Mounting	DIN (DIN EN 50022 norm)	
	Width	36.30 mm/1.43 in	
Dimensions	Length	114.40 mm/4.39 in	
	Height	Without hand switch	With hand switch
		62.00 mm/2.44 in	68.70 mm/2.70 in

## WIRING DIAGRAMS

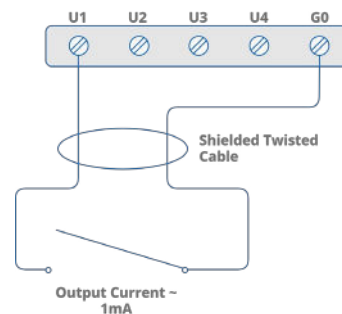
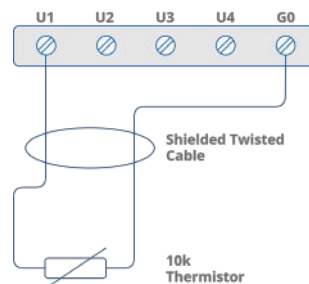
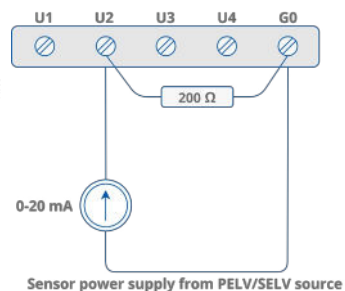
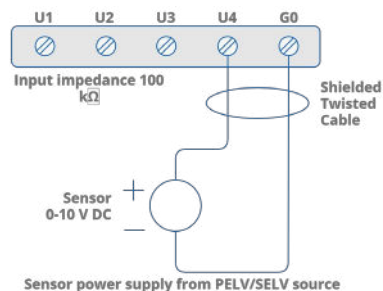
### Power Supply



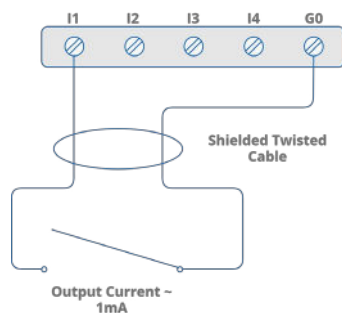
### Communication



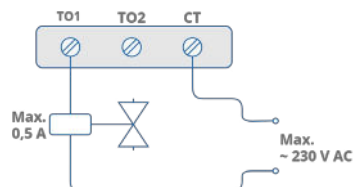
### Universal Inputs



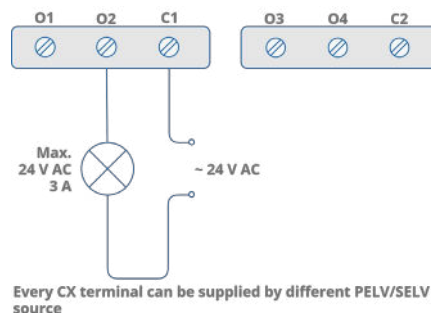
### Digital Inputs

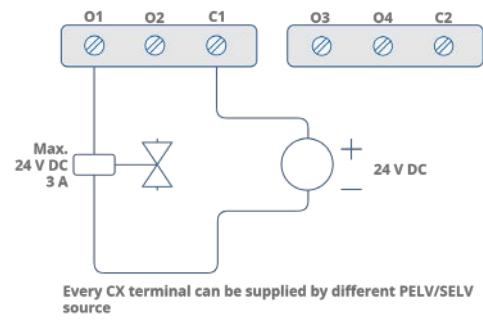
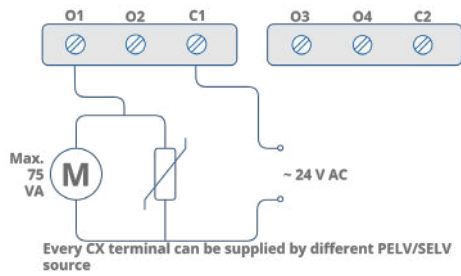


### Triac Outputs

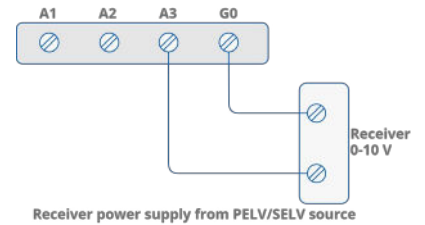
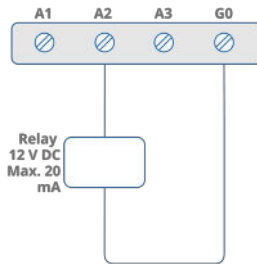
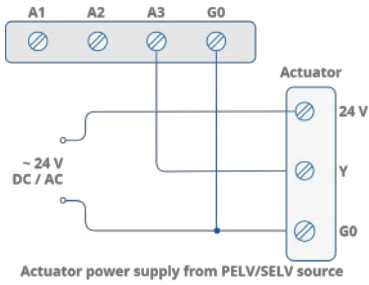


### Digital Outputs

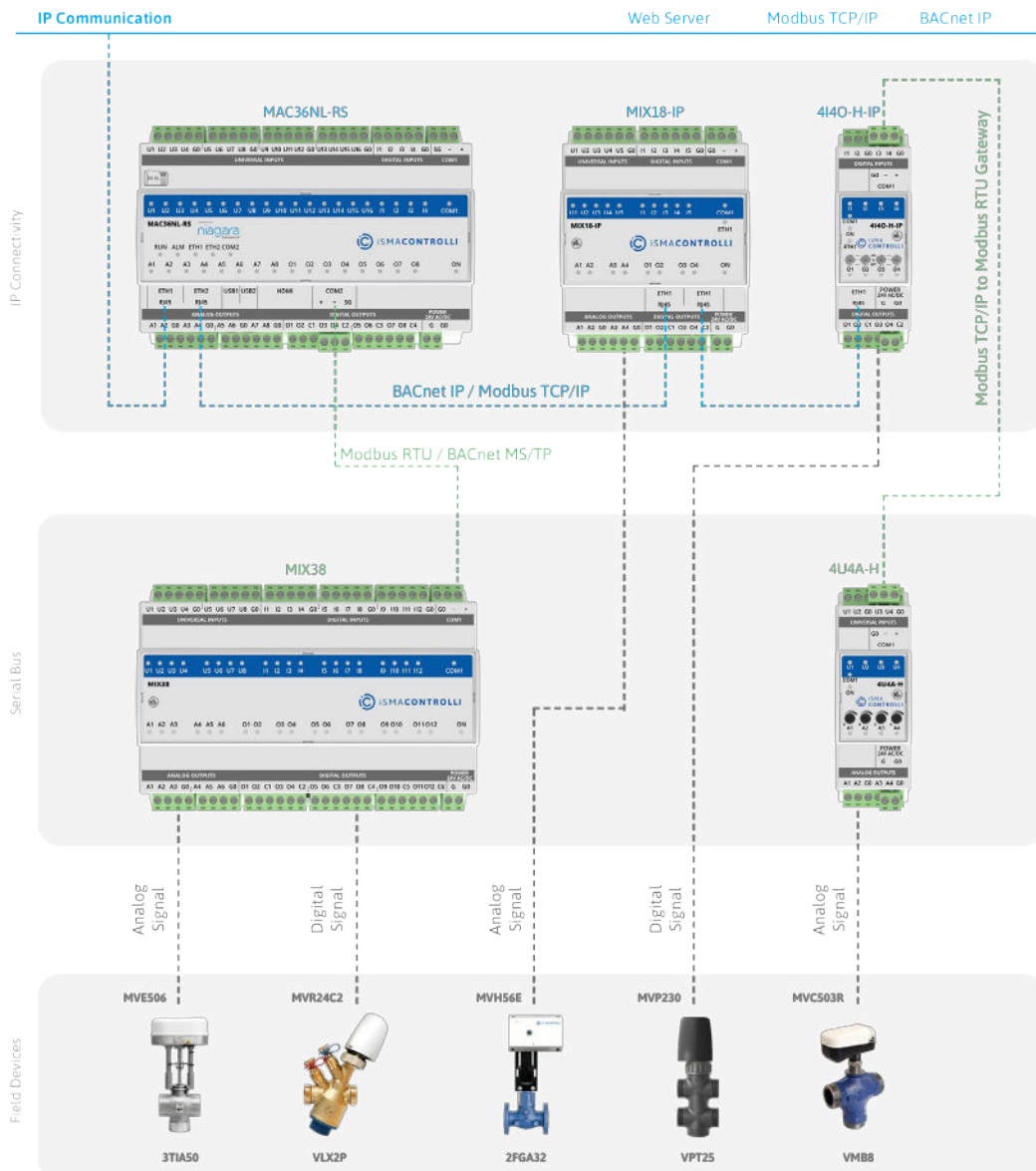




## Analog Outputs



## APPLICATION EXAMPLE

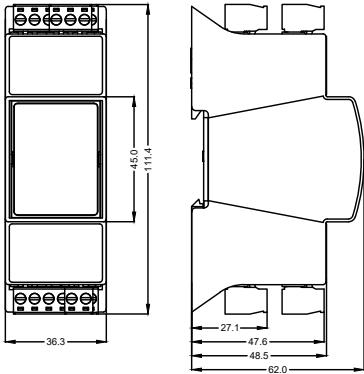




iSMA Configurator - configuration tool for non-programmable iSMA CONTROLI devices

DIMENSIONS [mm]

Without Hand Switch



With Hand Switch

