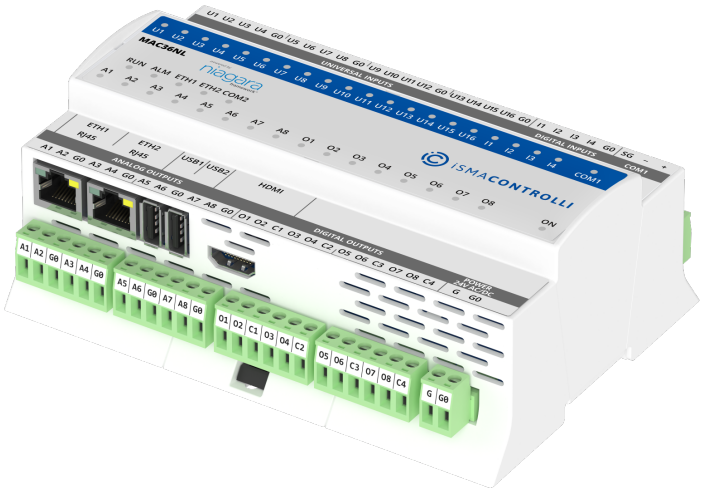
MAC36NL

Hybrid IoT Controller

MODEL	DESCRIPTION
iSMA-B-MAC36NL	Hybrid IoT Controller powered by Niagara Framework
iSMA-B-MAC36NL-RS	Hybrid IoT Controller powered by Niagara Framework, with 2 RS485 ports
iSMA-B-MAC36NL-M	Hybrid IoT Controller powered by Niagara Framework, with M-Bus interface



powered by niagara framework®

APPLICATION AND USE

iSMA-B-MAC36NL is a compact Master Application Controller with built-in different types of I/O, powered by Niagara Framework. Using the specific local I/O set (16 UI, 8 AO, 4 DI, and 8 DO) allows users to use the device in different applications. The controller provides control, data logging, alarming, scheduling, integration, and visualization.
To allow IP connectivity there are 2 Fast Ethernet ports that can operate as two independent ports. Built-in RS485 interface can be used to expand the number of I/O by connecting iSMA-B-MINI or iSMA-B-MIX series I/O modules or to integrate with other subsystems. There are two more hardware versions of the controller with the second RS485 port or M-Bus interface available.
iSMA-B-MAC36NL provides a rich graphical interface to be displayed on a standard web browser or an external display connected to a built-in HDMI and USB port (touchscreen support).

FEATURES

- Niagara 4.4 and up
- Real-time programming
- 2 Fast Ethernet (independent)
- RS485 port (opto-isolated)
- Second RS485 port (opto-isolated, optional hardware version)
- M-Bus interface (optional hardware version)
- 2 USB ports (touchscreen, mouse, keyboard support)
- 16 UI, 8 AO, 4 DI, and 8 DO
- HDMI to connect an external display
- Built-in web server provides graphical user interface available from a web browser level
- SD card to collect real-time data, history, and alarms
- Hardware replacement by SD card

TECHNICAL SPECIFICATION

DESCRIPTION		MAC36NL
Power supply	Voltage	24 V AC/DC ± 20%
Universal inputs	Number of inputs	16
	Voltage input	Voltage measurement: 0-10 V DC Input impedance: 100 kΩ Measurement accuracy: ±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 Ω Measurement accuracy: ±1.1% Measurement resolution: 15 µA at 12-bit and 5 µA at 16-bit

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

DESCRIPTION		MAC36NL
Universal inputs	Digital input	Output current ~1 mA
	Resistance input	Measurement of resistance: 0-1000 kΩ Measurement resolution for 20 kΩ load: 20 Ω at 12-bit and 1 Ω at 16-bit Measurement resolution for PT1000 and NI1000: 0.1 Ω at 16-bit Resistance measurement method: voltage divider
	Temperature input	Measurement with RTDS (Real Time Digital Simulator) attached Accuracy: ±0.1˚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
	Type	Dry contact or fast pulse counter
	Maximum input frequency	100 Hz saved on SD card memory
Analog outputs	Number of outputs	8
	Voltage range	0-10 V DC
	Maximum current load	20 mA
	Resolution	12-bit
	Accuracy	±0.5%
Digital outputs	Number of outputs	8
	Resistive load (AC1)	3 A at 230 V AC or 3 A at 30 V DC
M-Bus (optional)	Voltage	30 V
	Maximum current load	30 mA
	Number of devices	Up to 20
	Baud rate	300-19200
	Maximum cable length	350 m
	Niagara support	From N4.8 (1147)
COM1	RS485 interface	Up to 128 devices
		Half-duplex, opto-isolated
	Communication protocol	Modbus RTU/ASCII, BACnet MS/TP
	Ports	Screw connector
	Baud rate	2400-115200
	Address	1 to 247
COM2 (optional)	RS485 interface	Up to 128 devices
		Half- duplex, opto-isolated
	Communication protocol	Modbus RTU/ASCII, BACnet MS/TP
	Ports	Screw connector
	Baud rate	2400-115200
	Address	1 to 247
ETH1/ETH2	Ethernet interface	2 Fast Ethernet, independent mode
	Baud rate	10/100 Mb/s
USB1	USB 2.0	Host
USB2	USB 2.0	OTG
HDMI	HDMI 1.4 output	Standard type A
SD card	microSD card slot	Slot for the dedicated card iSMA-B-SD-NL
Ingress protection	IP rating	IP 20 for indoor installation
Temperature	Storage	-40°C to +85°C (-40°F to +185°F)
	Operating	0°C to +50°C (32°F to 122°F)
Humidity	Relative	5 to 95% RH (without condensation)

DESCRIPTION		MAC36NL
Screw connectors	Type	Removable screw terminals
	Maximum cable size	2.5 mm^2 (18...12 AWG)
Housing	Material	UL approved, self-extinguishing plastic (PC/ABS)
	Mounting	DIN (DIN EN 50022 norm)
Dimensions	Width	111.40 mm/4.38 in
	Length	160.20 mm/6.30 in
	Height	62.00 mm/2.44 in

ACCESSORIES

iSMA-B-SD-NL SD card dedicated for iSMA-B-MAC36NL controllers. Used to store and move configuration files and licenses. Required to run the controller.

STANDARD SOFTWARE MODELS

iSMA-B-MAC-L-100 Niagara Core License for iSMA-B-MAC controllers - up to 5 devices*/100 Niagara proxy points (requires iSMA-B-MAC-100-M0 maintenance)

iSMA-B-MAC-L-250 Niagara Core License for iSMA-B-MAC controllers - up to 5 devices*/250 Niagara proxy points (requires iSMA-B-MAC-250-M0 maintenance)

iSMA-B-MAC-L-500 Niagara Core License for iSMA-B-MAC controllers - up to 10 devices*/500 Niagara proxy points (requires iSMA-B-MAC-500-M0 maintenance)

iSMA-B-MAC-L-1250 Niagara Core License for iSMA-B-MAC controllers - up to 25 devices*/1250 Niagara proxy points (requires iSMA-B-MAC-1250-M0 maintenance)

ADDITIONAL CAPACITY OPTIONS

iSMA-B-MAC-L-AD-50 Additional 50 proxy points/up to 5 devices* capacity pack purchased in conjunction with initial core software. Includes standard open drivers.

iSMA-B-MAC-L-AD-100 Additional 100 proxy points/up to 5 devices* capacity pack purchased in conjunction with initial core software. Includes standard open drivers.

iSMA-B-MAC-L-AD-500 Additional 500 proxy points/up to 10 devices* capacity pack purchased in conjunction with initial core software. Includes standard open drivers.

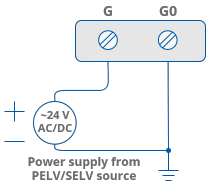
iSMA-B-MAC-L-UP-50 Additional 50 proxy points/up to 5 devices* capacity pack purchased after initial purchase of core software.

iSMA-B-MAC-L-UP-100 Additional 100 proxy points/up to 5 devices* capacity pack purchased after initial purchase of core software.

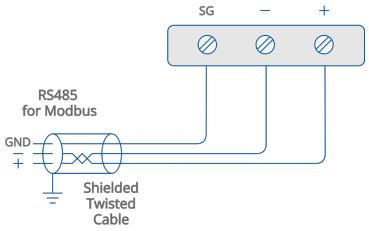
iSMA-B-MAC-L-UP-500 Additional 500 proxy points/up to 10 devices* capacity pack purchased after initial purchase of core software.

* Licensing of devices/points depends on the region. Please contact your authorized distributor for more information.

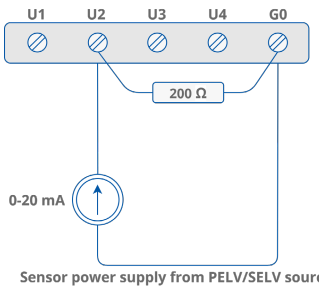
Power Supply

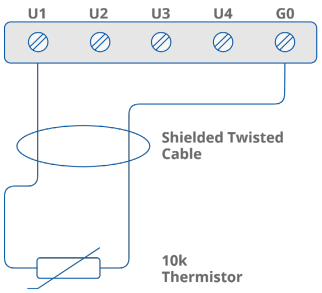


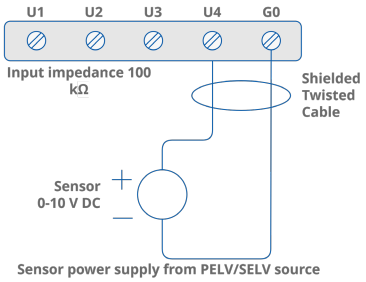
Communication

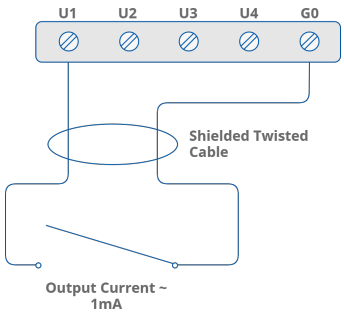


Universal Inputs

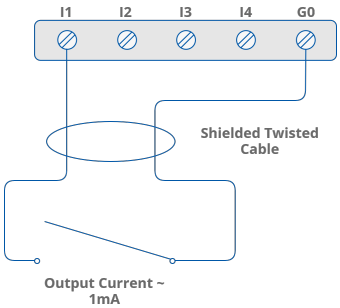




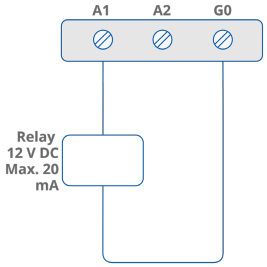


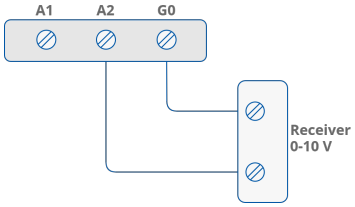


Digital Inputs

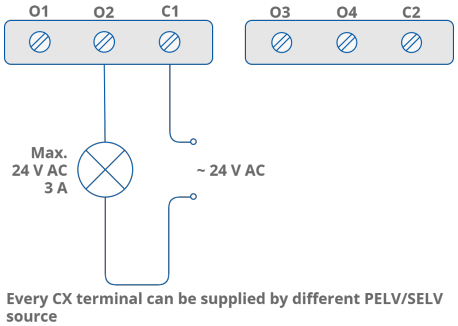


Analog Outputs

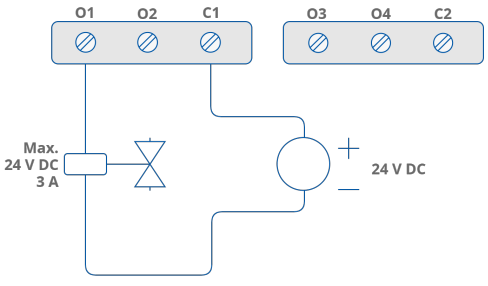




Digital Outputs



Every CX terminal can be supplied by different PELV/SELV source



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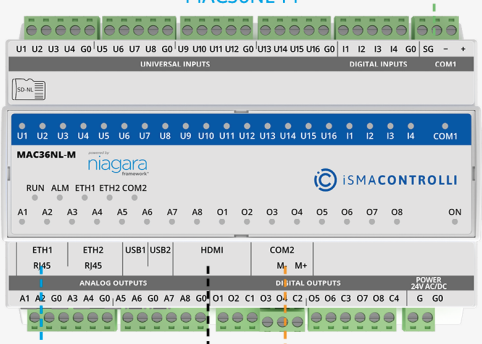
iSMA Supervisor

Cloud Applications

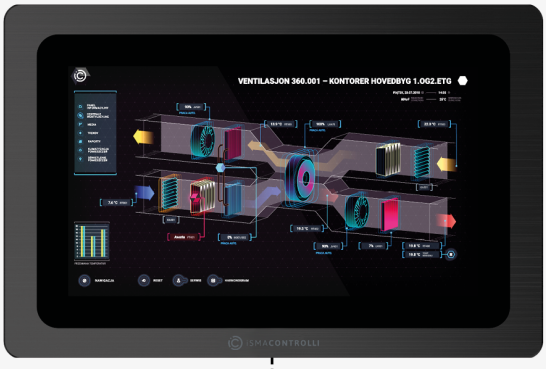
FOX

BACnet S/C

MAC36NL-M



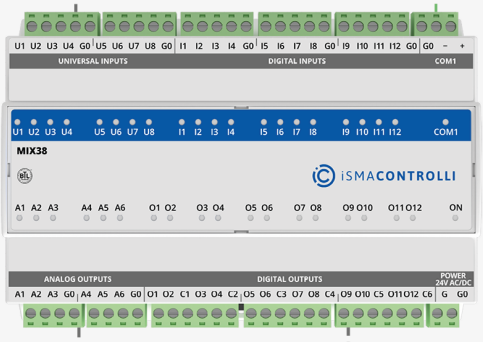
iSMA-D-PD10C



HDMI / USB

M-Bus

MIX38



4U4O-H

Up to 20 M-Bus Meters

Temperature Signal

Analog Signal

Digital Signal

SNTC-VL NTC
-20..65°C

MVE506

3TIA50

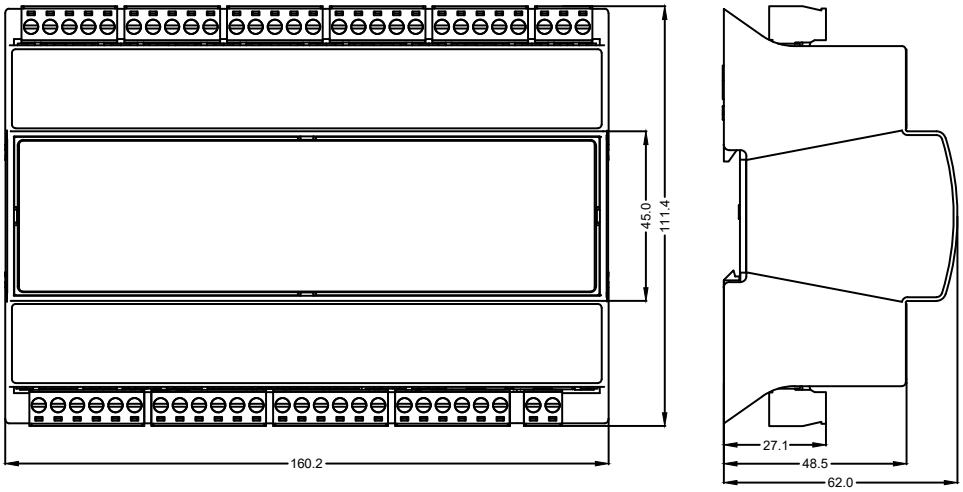
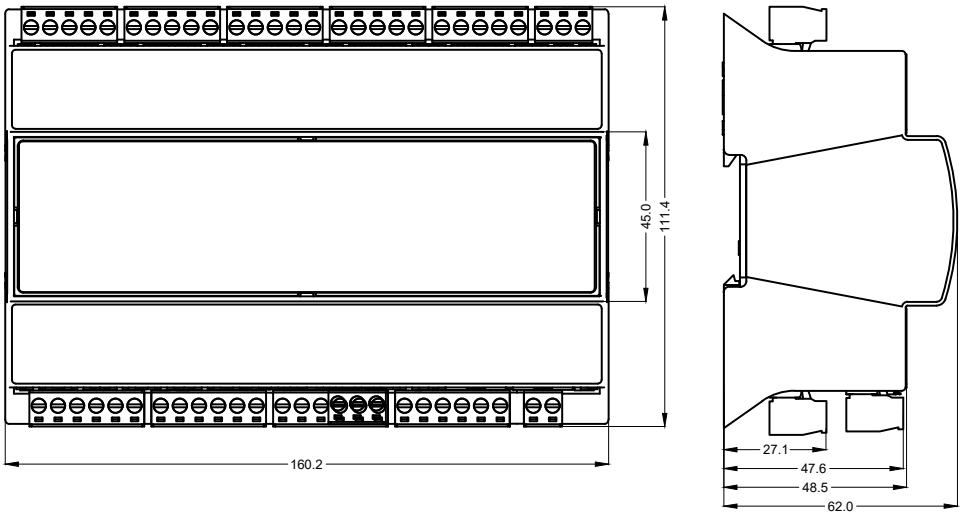
MVR24C2

VLX2P

powered by niagara framework®

DIMENSIONS [mm]

MAC36NL



MAC36NL-RS / MAC36NL-M