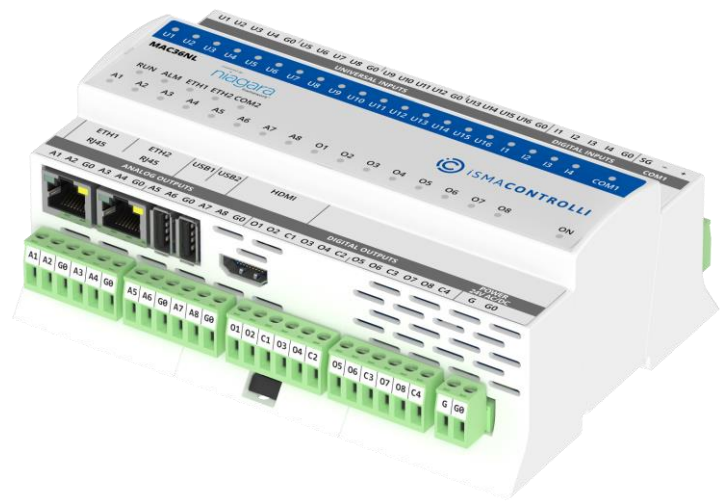


Hybrid IoT Controller

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



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 \pm 20%
Universal inputs	Number of inputs	16
	Voltage input	Voltage measurement: 0-10 V DC Input impedance: 100 k Ω 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 Ω Measurement accuracy: \pm 1.1% Measurement resolution: 15 μ A at 12-bit and 5 μ A at 16-bit

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

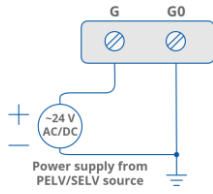
DESCRIPTION		MAC36NL
Universal inputs	Digital input	Output current ~1 mA
	Resistance input	Measurement of resistance: 0-1000 kΩ Measurement resolution for 20 kΩ load: 20 Ω at 12-bit and 1 Ω at 16-bit Measurement resolution for PT1000 and NI1000: 0.1 Ω at 16-bit Resistance measurement method: voltage 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	RJ45 + screwless 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	RJ45 + screwless connector
	Baud rate	2400-115200
	Address	1 to 247
ETH1	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 mm/4.4 in
	Length	160 mm/6.3 in
	Height	62 mm/2.45 in

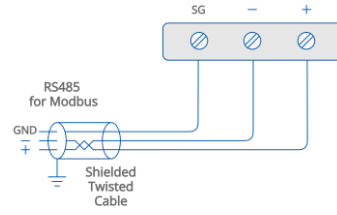
ISMA MAC36 powered by Niagara

ISMA-B-MAC36NL-50	Niagara 4 controller with built-in 16UI, 4DI, 8DO, 8AO, 1xRS485, 2xETH, 2xUSB, 1xHDMI, 1xSD card. Power supply 24 V AC/DC. No device limitation, 50 proxy points capacity - Require maintenance
ISMA-B-MAC36NL-100	Niagara 4 controller with built-in 16UI, 4DI, 8DO, 8AO, 1xRS485, 2xETH, 2xUSB, 1xHDMI, 1xSD card. Power supply 24 V AC/DC. No device limitation, 100 proxy points capacity - Require maintenance
ISMA-B-MAC36NL-150	Niagara 4 controller with built-in 16UI, 4DI, 8DO, 8AO, 1xRS485, 2xETH, 2xUSB, 1xHDMI, 1xSD card. Power supply 24 V AC/DC. No device limitation, 150 proxy points capacity - Require maintenance
ISMA-B-MAC36NL-250	Niagara 4 controller with built-in 16UI, 4DI, 8DO, 8AO, 1xRS485, 2xETH, 2xUSB, 1xHDMI, 1xSD card. Power supply 24 V AC/DC. No device limitation, 250 proxy points capacity - Require maintenance
ISMA-B-MAC36NL-300	Niagara 4 controller with built-in 16UI, 4DI, 8DO, 8AO, 1xRS485, 2xETH, 2xUSB, 1xHDMI, 1xSD card. Power supply 24 V AC/DC. No device limitation, 300 proxy points capacity - Require maintenance
ISMA-B-MAC36NL-500	Niagara 4 controller with built-in 16UI, 4DI, 8DO, 8AO, 1xRS485, 2xETH, 2xUSB, 1xHDMI, 1xSD card. Power supply 24 V AC/DC. No device limitation, 500 proxy points capacity - Require maintenance
ISMA-B-MAC36NL-1250	Niagara 4 controller with built-in 16UI, 4DI, 8DO, 8AO, 1xRS485, 2xETH, 2xUSB, 1xHDMI, 1xSD card. Power supply 24 V AC/DC. No device limitation, 1250 proxy points capacity - Require maintenance
ISMA-B-MAC36NL-RS-50	Niagara 4 controller with built-in 16UI, 4DI, 8DO, 8AO, 2xRS485, 2xETH, 2xUSB, 1xHDMI, 1xSD card. Power supply 24 V AC/DC. No device limitation, 50 proxy points capacity - Require maintenance
ISMA-B-MAC36NL-RS-100	Niagara 4 controller with built-in 16UI, 4DI, 8DO, 8AO, 2xRS485, 2xETH, 2xUSB, 1xHDMI, 1xSD card. Power supply 24 V AC/DC. No device limitation, 100 proxy points capacity - Require maintenance
ISMA-B-MAC36NL-RS-150	Niagara 4 controller with built-in 16UI, 4DI, 8DO, 8AO, 2xRS485, 2xETH, 2xUSB, 1xHDMI, 1xSD card. Power supply 24 V AC/DC. No device limitation, 150 proxy points capacity - Require maintenance
ISMA-B-MAC36NL-RS-250	Niagara 4 controller with built-in 16UI, 4DI, 8DO, 8AO, 2xRS485, 2xETH, 2xUSB, 1xHDMI, 1xSD card. Power supply 24 V AC/DC. No device limitation, 250 proxy points capacity - Require maintenance
ISMA-B-MAC36NL-RS-300	Niagara 4 controller with built-in 16UI, 4DI, 8DO, 8AO, 2xRS485, 2xETH, 2xUSB, 1xHDMI, 1xSD card. Power supply 24 V AC/DC. No device limitation, 300 proxy points capacity - Require maintenance
ISMA-B-MAC36NL-RS-500	Niagara 4 controller with built-in 16UI, 4DI, 8DO, 8AO, 2xRS485, 2xETH, 2xUSB, 1xHDMI, 1xSD card. Power supply 24 V AC/DC. No device limitation, 500 proxy points capacity - Require maintenance
ISMA-B-MAC36NL-RS-1250	Niagara 4 controller with built-in 16UI, 4DI, 8DO, 8AO, 2xRS485, 2xETH, 2xUSB, 1xHDMI, 1xSD card. Power supply 24 V AC/DC. No device limitation, 1250 proxy points capacity - Require maintenance
ISMA-B-MAC36NL-M-50	Niagara 4 Controller 16UI, 4DI, 8DO, 8AO, 1xRS485, 1xM-Bus, 2xETH, 2xUSB, 1xHDMI, 1x SD card. 24 V AC/DC power supply. No device limitation, 50 proxy points capacity - Require maintenance
ISMA-B-MAC36NL-M-100	Niagara 4 Controller 16UI, 4DI, 8DO, 8AO, 1xRS485, 1xM-Bus, 2xETH, 2xUSB, 1xHDMI, 1x SD card. 24 V AC/DC power supply. No device limitation, 100 proxy points capacity - Require maintenance
ISMA-B-MAC36NL-M-150	Niagara 4 Controller 16UI, 4DI, 8DO, 8AO, 1xRS485, 1xM-Bus, 2xETH, 2xUSB, 1xHDMI, 1x SD card. 24 V AC/DC power supply. No device limitation, 150 proxy points capacity - Require maintenance
ISMA-B-MAC36NL-M-250	Niagara 4 Controller 16UI, 4DI, 8DO, 8AO, 1xRS485, 1xM-Bus, 2xETH, 2xUSB, 1xHDMI, 1x SD card. 24 V AC/DC power supply. No device limitation, 250 proxy points capacity - Require maintenance
ISMA-B-MAC36NL-M-300	Niagara 4 Controller 16UI, 4DI, 8DO, 8AO, 1xRS485, 1xM-Bus, 2xETH, 2xUSB, 1xHDMI, 1x SD card. 24 V AC/DC power supply. No device limitation, 300 proxy points capacity - Require maintenance
ISMA-B-MAC36NL-M-500	Niagara 4 Controller 16UI, 4DI, 8DO, 8AO, 1xRS485, 1xM-Bus, 2xETH, 2xUSB, 1xHDMI, 1x SD card. 24 V AC/DC power supply. No device limitation, 500 proxy points capacity - Require maintenance
ISMA-B-MAC36NL-M-1250	Niagara 4 Controller 16UI, 4DI, 8DO, 8AO, 1xRS485, 1xM-Bus, 2xETH, 2xUSB, 1xHDMI, 1x SD card. 24 V AC/DC power supply. No device limitation, 1250 proxy points capacity - Require maintenance

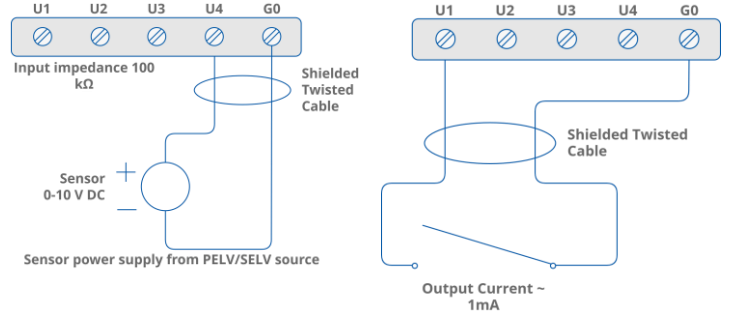
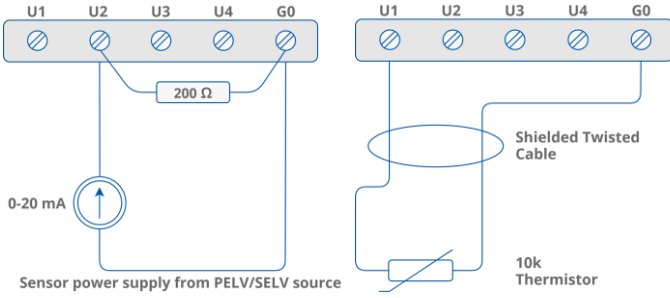
Power Supply



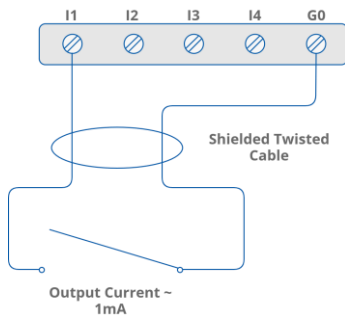
Communication



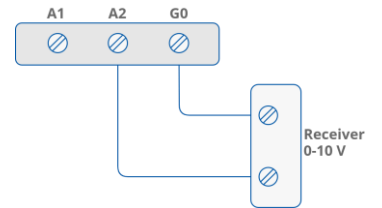
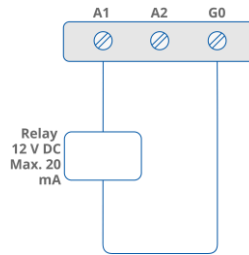
Universal Inputs



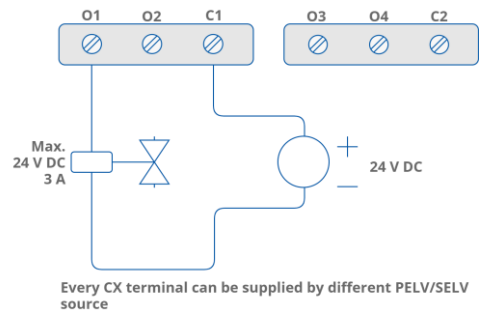
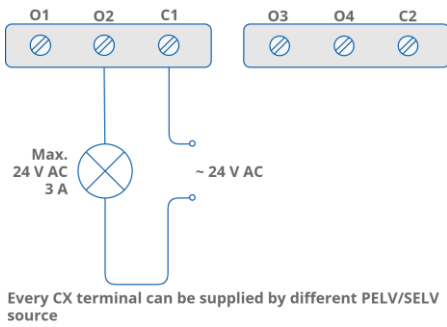
Digital Inputs



Analog Outputs



Digital Outputs

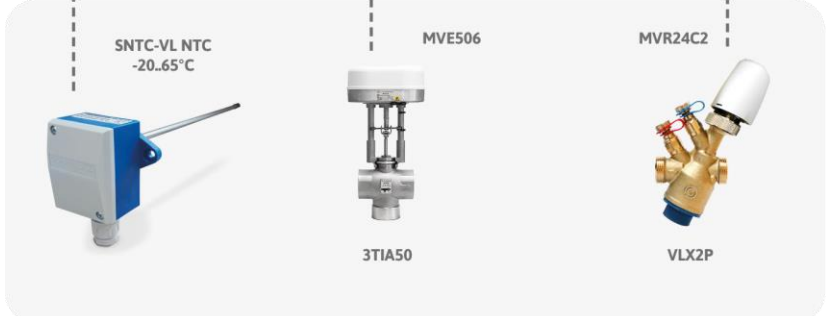
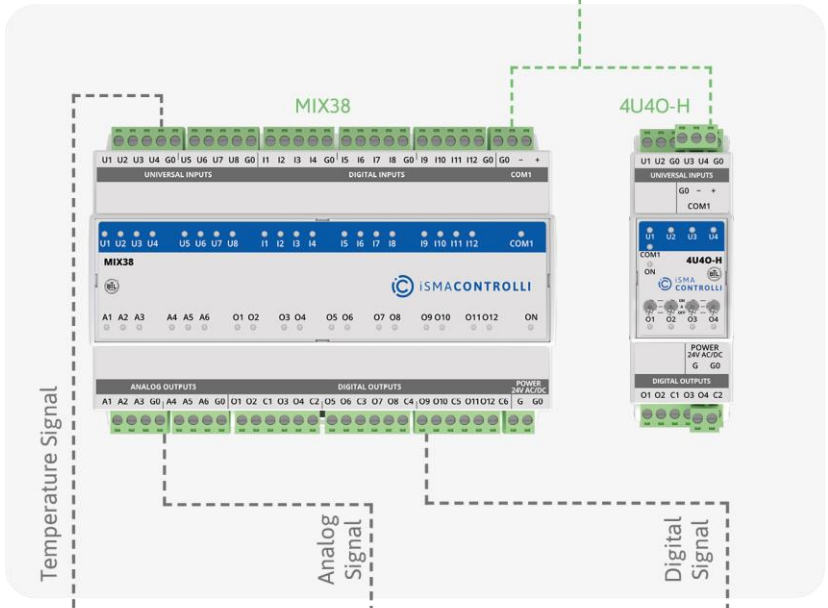




iSMA Supervisor

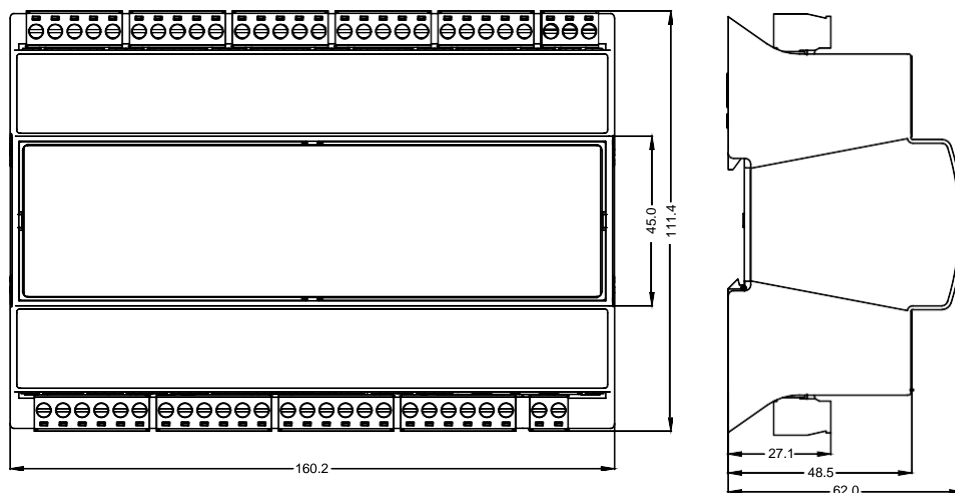


Cloud Applications



powered by
niagara
framework®

MAC36NL



MAC36NL-RS / MAC36NL-M

