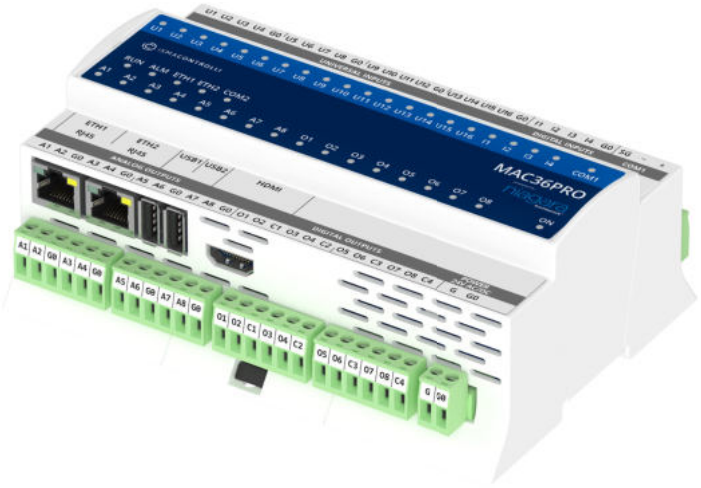
MAC36PRO

Next-gen Hybrid IoT Controller

MODEL	DESCRIPTION
iSMA-B-MAC36PRO	Next-gen Hybrid IoT Controller powered by Niagara Framework
iSMA-B-MAC36PRO-RS	Next-gen Hybrid IoT Controller powered by Niagara Framework, with 2 RS485 ports
iSMA-B-MAC36PRO-M	Next-gen Hybrid IoT Controller powered by Niagara Framework, with M-Bus interface

powered by niagara framework®



APPLICATION AND USE

iSMA-B-MAC36PRO is a family of next generation Master Application Controllers. This advanced iteration boasts a major upgrade with a powerful Quad-Core 1.6 Ghz processor, doubled RAM and storage capacity, and an efficient visualization system with HDMI and USB support.MAC36PRO powered by Niagara Framework allows to take advantage of all the functionality of the Niagara Framework, enhancing its potential with the capabilities of this innovative controller. This controller is extremely versatile, offering a set of onboard I/Os consisting of 16 UI, 8 AO, 4 DI, and 8 DO, making it adaptable to a wide range of applications. Among its various functions, the iSMA-B-MAC36PRO excels in 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 multiprotocol 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.
The iSMA-B-MAC36PRO 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 4.10.U6 and up
- Powerful Quad-Core 1.6 Ghz processor
- 64-bit iSMA OS (Linux)
- Local visualisation and control with HDMi output
- 36 inputs and outputs: 16 UI, 8 AO, 4 DI, and 8 DO
- 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)
- Built-in web server provides graphical user interface available from a web browser level
- 8GB micro SD card for system and user
- Hardware replacement by SD card

TECHNICAL SPECIFICATION

DESCRIPTION		MAC36PRO
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

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

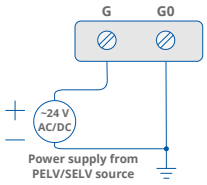
DESCRIPTION		MAC36PRO
Universal inputs	Current input	Current measurement: 0-20 mA Required external resistor: 200 Ω Measurement accuracy: ±1.1% Measurement resolution: 15 µA at 12-bit and 5 µA at 16-bit
	Digital input	Output current ~1 mA
	Resistance input	Measurement of resistance: 0-1000 kΩ Measurement 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 N4.10U6 (4.10.6.18)
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-PRO
Ingress protection	IP rating	IP 20 for indoor installation

DESCRIPTION		MAC36PRO
Temperature	Storage	-40°C to +85°C (-40°F to +185°F)
	Operating	0°C to +50°C (32°F to 122°F) 0°C to +40°C (32˚F to 104˚F) with active HDMI output
Humidity	Relative	5 to 95% RH (without condensation)
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

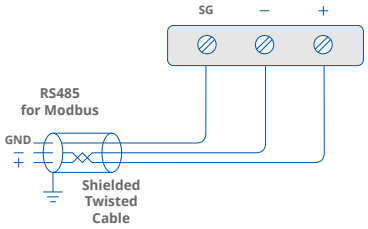
iSMA MAC36PRO powered by Niagara	
iSMA-B-MAC36PRO-100	MAC36PRO hardware base. 1xSD-PRO Card. No device limitation, 100 proxy point. Require maintenance.
iSMA-B-MAC36PRO-150	MAC36PRO hardware base. 1xSD-PRO Card. No device limitation, 150 proxy point. Require maintenance.
iSMA-B-MAC36PRO-250	MAC36PRO hardware base. 1xSD-PRO Card. No device limitation, 250 proxy point. Require maintenance.
iSMA-B-MAC36PRO-300	MAC36PRO hardware base. 1xSD-PRO Card. No device limitation, 300 proxy point. Require maintenance.
iSMA-B-MAC36PRO-500	MAC36PRO hardware base. 1xSD-PRO Card. No device limitation, 500 proxy point. Require maintenance.
iSMA-B-MAC36PRO-1250	MAC36PRO hardware base. 1xSD-PRO Card. No device limitation, 1250 proxy point. Require maintenance.
iSMA-B-MAC36PRO-5000	MAC36PRO hardware base. 1xSD-PRO Card. No device limitation, 5000 proxy point. Require maintenance.
iSMA-B-MAC36PRO-RS-100	MAC36PRO-RS hardware base. 1xSD-PRO Card . No device limitation, 100 proxy point. Require maintenance.
iSMA-B-MAC36PRO-RS-150	MAC36PRO-RS hardware base. 1xSD-PRO Card . No device limitation, 150 proxy point. Require maintenance.
iSMA-B-MAC36PRO-RS-250	MAC36PRO-RS hardware base. 1xSD-PRO Card . No device limitation, 250 proxy point. Require maintenance.
iSMA-B-MAC36PRO-RS-300	MAC36PRO-RS hardware base. 1xSD-PRO Card . No device limitation, 300 proxy point. Require maintenance.
iSMA-B-MAC36PRO-RS-500	MAC36PRO-RS hardware base. 1xSD-PRO Card . No device limitation, 500 proxy point. Require maintenance.
iSMA-B-MAC36PRO-RS-1250	MAC36PRO-RS hardware base. 1xSD-PRO Card . No device limitation, 1250 proxy point. Require maintenance.
iSMA-B-MAC36PRO-RS-5000	MAC36PRO-RS hardware base. 1xSD-PRO Card . No device limitation, 5000 proxy point. Require maintenance.
iSMA-B-MAC36PRO-M-100	MAC36PRO-M hardware base. 1xSD-PRO Card . No device limitation, 100 proxy point. Require maintenance.
iSMA-B-MAC36PRO-M-150	MAC36PRO-M hardware base. 1xSD-PRO Card . No device limitation, 150 proxy point. Require maintenance.
iSMA-B-MAC36PRO-M-250	MAC36PRO-M hardware base. 1xSD-PRO Card . No device limitation, 250 proxy point. Require maintenance.
iSMA-B-MAC36NL-M-300	MAC36PRO-M hardware base. 1xSD-PRO Card . No device limitation, 300 proxy point. Require maintenance.
iSMA-B-MAC36PRO-M-500	MAC36PRO-M hardware base. 1xSD-PRO Card . No device limitation, 500 proxy point. Require maintenance.
iSMA-B-MAC36PRO-M-1250	MAC36PRO-M hardware base. 1xSD-PRO Card . No device limitation, 1250 proxy point. Require maintenance.
iSMA-B-MAC36PRO-M-5000	MAC36PRO-M hardware base. 1xSD-PRO Card . No device limitation, 5000 proxy point. Require maintenance.

WIRING DIAGRAMS

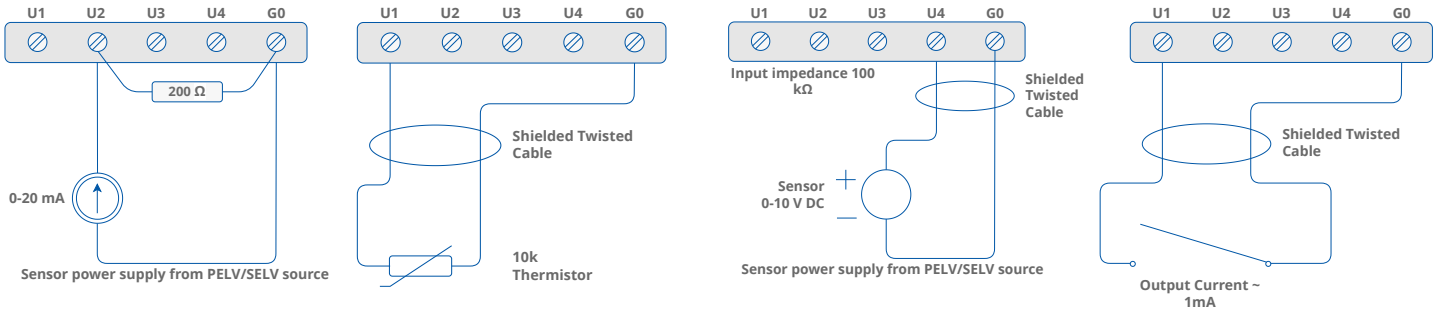
Power Supply



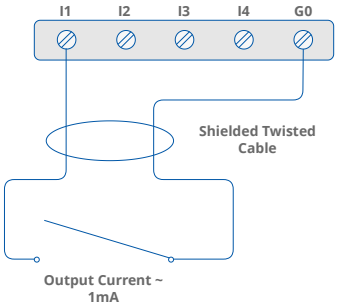
Communication



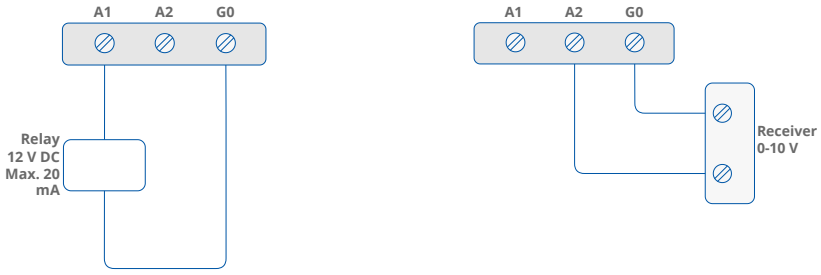
Universal Inputs



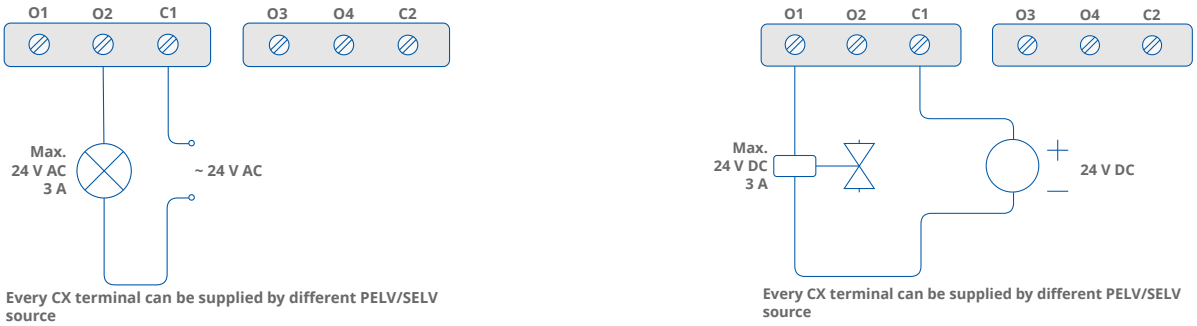
Digital Inputs



Analog Outputs



Digital Outputs



APPLICATION EXAMPLE

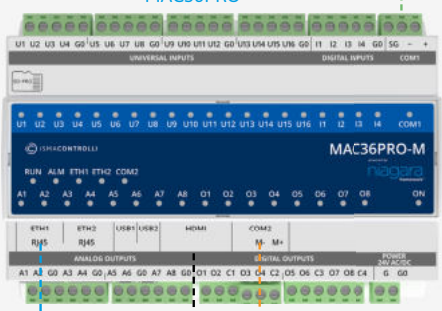
iSMA Supervisor

Cloud Applications

FOX

BACnet S/C

MAC36PRO

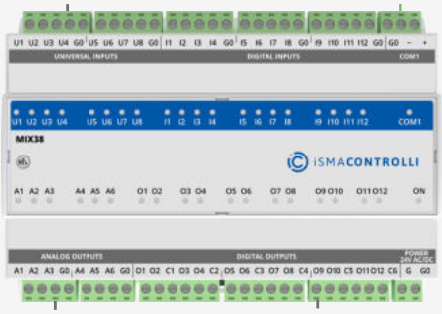


iSMA-D-PD10C

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

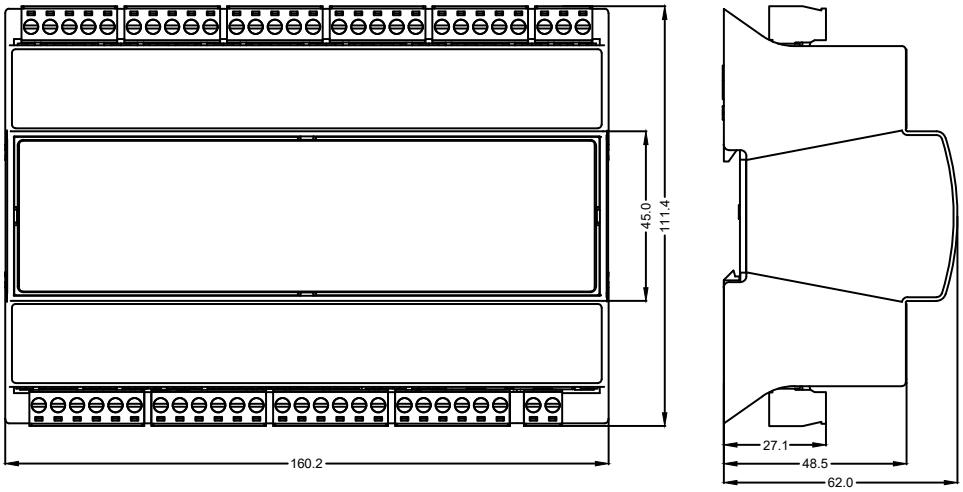
MVR24C2

VLX2P

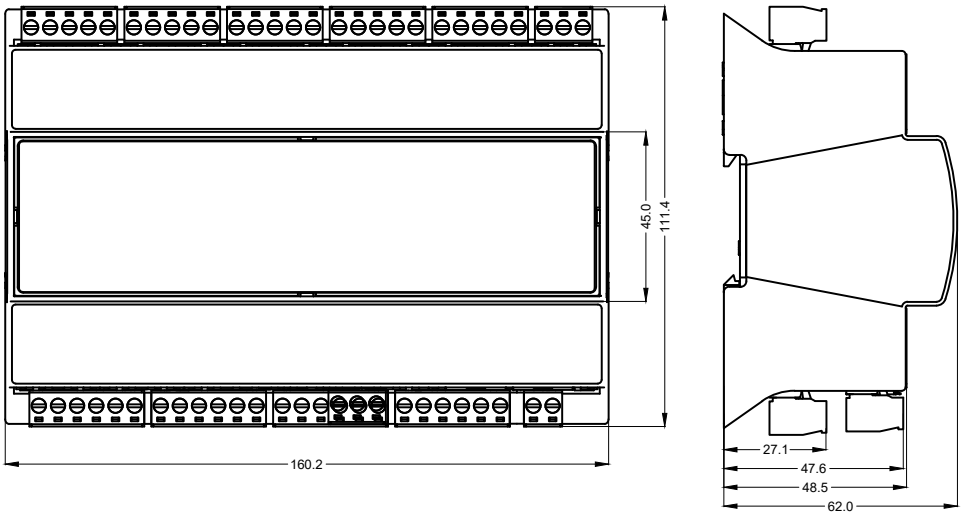
powered by niagara framework®

DIMENSIONS [mm]

MAC36PRO



MAC36PRO-RS / MAC36PRO-M



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