



# Solutions

Experience new levels of control, comfort, energy efficiency, and cloud management with intelligent solutions for small, medium, and large buildings.



Solutions  
Issue No.1,  
June, 2022

**iSMA CONTROLLI is a company operating in the field of building automation. Our purpose is to build an international brand that helps to make buildings better places to live and work through innovative solutions for wellbeing, security, sustainability, and efficiency. We offer the perfect solution for projects of all sizes that can be implemented in both new and existing buildings, increasing comfort and energy savings.**

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iSMA CONTROLLI with over 80 years of experience in manufacturing control valves, actuators and intelligent building automation systems offers a reliable and trusted solution for every application.

## **Comprehensive product design - from concept to the final product.**

Centers of excellence employ passionate engineers specializing in mechanical engineering, building automation, electronic design, and programming.



Teams combining experts and engineers allow us to create technologically advanced products and innovative solutions, which simplify the user experience throughout a whole lifecycle of a building.

Product design and manufacturing take place in the European Union. iSMA CONTROLLI operational centers are located in Genoa, Italy and Gdansk, Poland. A total area of more than 8 000 square meters houses production, R&D, technical support center, and warehouse.

**Multi-site Building Management**

**Small & Medium BMS**

**HVAC & Plant Control**

**Comfort**

IP

EDGE TO CLOUD 



Analytics Energy Management  
Integration Control Engine **CLOUD**  
MQTT Niagara4 Scheduling  
Normalization IoT Visualization



PA



J8



MAC36NL



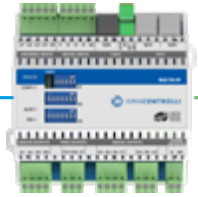
AAC20



AAC20-LCD



RAC18-IP



BACnet MS/TP / Modbus RTU/ASCII

# Solutions Overview Application Example

Experience new levels of control, comfort, energy efficiency, and cloud management with Intelligent Building Automation solutions for small, medium, and large buildings.

The wide range of solutions bring innovative products from the field to the cloud level and leverage the flexibility and integration possibilities thanks to the BACnet and Modbus protocols.



Serial Bus

AAC20



AAC20-LCD



FCU-HH



2D



Field Devices

EBV80



MVR24C2



MVP



DALI



VLX2P

VPT25P

Management

Gateways

I/O Modules

Control Valves & Actuators

BACnet IP / Modbus TCP/IP

MG-IP



MIX18-IP



4U40-H-IP



MVE510-9-IP  
Smart Actuator



COMING  
SOON

MIX38-IP



RS485

TP



LP



W0202



W0202



Wireless Modbus RTU

MIX18



4U40-H



MVC503R



VMB

MVE506



MVC503R



VLX3P

MVR24C2



VLX2P

MVC503R



VLX3P

MVE506



3TIA50

MDS



# Multi-site Building Management BMS & Analytic Software

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## iSMA Supervisor

### Connecting Minds and Machines

Tridium's Niagara Framework has fundamentally changed the way devices and systems connect to people - and the way people can control and optimize those machines.

### Niagara 4 - Open 4 Performance

From buildings and data centers to manufacturing systems and smart cities, the Niagara Framework improves strategic decision-making, allowing for optimized performance and cost reductions that can help businesses be more competitive and more profitable.

### Over a Million Instances Worldwide

With over a million instances worldwide, Niagara is quickly becoming the operating system of the Internet of Things. Its open API, open distribution business model, and open protocol support give you the freedom to choose how you work, what you build, and with whom you partner. Niagara enables you to connect and control devices, while normalizing, visualizing, and analyzing data from nearly anywhere or anything.



## Key Functionalities and Features

### Intuitive User Interface

Niagara 4 features a bold and intuitive new interface. Modern and easy to use, the platform utilizes HTML5 to provide an array of rich features.

### More Data at Your Fingertips

Integrators can provide an interface that empowers users to do more on their own. Because devices, systems and data points can be tagged in Niagara 4, users can easily conduct a station-wide search of the most important elements in their operation.

### Powerful Security

Niagara 4 takes a "defense-in-depth" approach to the Internet of Things security. Niagara 4 makes user permissions completely configurable and easy to assign.





# SkySpark

## Key Functionalities and Features

### Identification to Resolution

Easily create customized workflows to track work orders using the process best fit to your own organization.

### Any View is a Report

Any SkySpark view can be turned into a report in a variety of formats, including PDF. Or export the view for the use in your favorite desktop word processing or publishing tool in formats including SVG, PNG, Excel, and more.

### Build Your Own Views

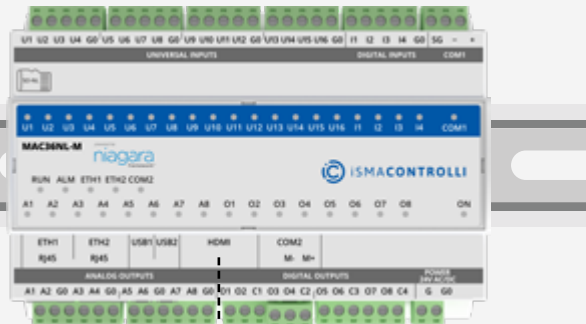
SkySpark's View Builder combines all the benefits of automatically generated analytics with the ability to create your own customized views quickly and easily.



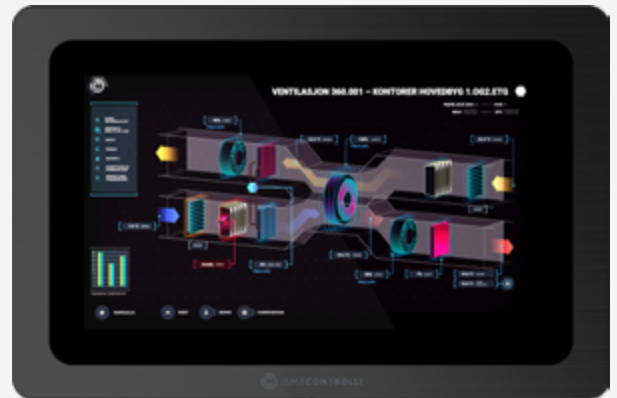
## Small & Medium BMS

# Hybrid IoT & Integration Controllers, HMI Panels

MAC36NL



PD10C



HDMI Output

## Hybrid IoT Controllers

### Powered by the Niagara Framework

The MAC36NL has supported the Niagara Framework since version 4.4. A continuous upgrade process ensures that the latest version of the Niagara is always supported by the controller.

### 36 I/Os and Multiple Interfaces

Multiprotocol integration platform with 36 I/O's, 2 independent Ethernet ports, 2 RS485 ports, 2 USB, and HDMI interface.

### Cost-effective Visualisation Platform

Built-in HDMI 1.4 output with USB for keyboard, mouse, or touch interface allows local control of visualization without an additional computer.



### Industrial LCD Panel

Thanks to a simple connectivity by USB cable and HDMI cable for display, the PD10 LCD panel makes a perfect, cost-effective extension of the MAC36NL controller.

### iSMA OS

The controller runs on a unique Linux distribution that allows direct connection of an external display, thanks to the HDMI port and built-in web server, and a connection of touch interface, mouse, or keyboard straight to the controller USB ports.



## Integration Controllers

### Powered by the Niagara Framework

Powerful Niagara 4 hardware platform with easy software upgrade capability.

### Modular Hardware Design

Fast and easy installation of up to four expansion modules for additional communication ports, including types for LonWorks®, RS232, and RS485 networks.

### Seamless Integration Platform

Global capacity licensing for up to 10 000 points and multiple integration interfaces for serial bus and IP make the controller a powerful integration platform with IoT connectivity.

## Android HMI Panels

### Available in Three Sizes

7", 10", and 15" Android panels with VESA or control cabinet snap-joint mounting will meet requirements of all surfaces.

### iSMA Android Application

By increasing a facility's cost-efficiency and simplifying the use of web-based controllers, the iSMA Android Application is the most versatile, multivendor BMS visualization platform on the market.

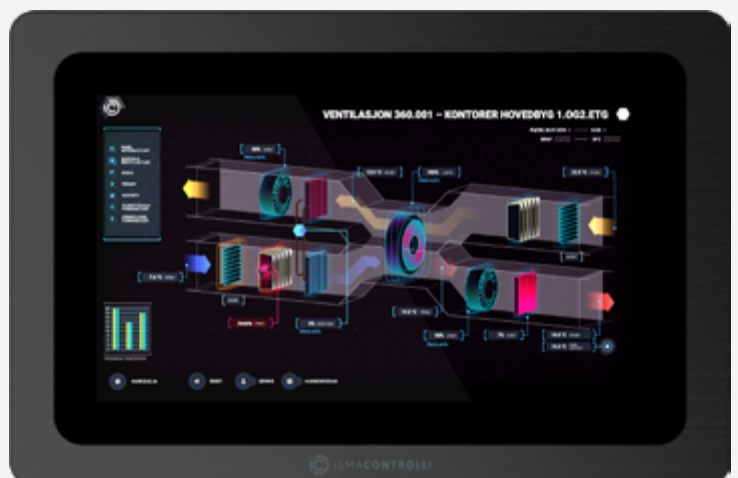
### Industrial Grade Housing

The robust aluminum body made of the highest quality materials allows for an excellent user experience and long service life.



J8

PA15C



# HVAC & Plant Control

## Advanced Application Controllers

AAC20-LCD

AAC20-LCD-M

AAC20-LCD-D



### Direct Digital Control

Freely programmable DDC controller with a modern programming tool, a variety of integration interfaces, and 22 onboard I/O's make it suitable for a wide range of building automation applications.

### Local HMI with a Built-in LCD Display

The fully programmable LCD display with role-based access makes the controller useful in various HVAC scenarios.

### Real-time Meter Management

AAC20-M and AAC20-LCD-M are equipped with an M-Bus interface that allows for real-time measurements of water, gas, electricity, or any other types of consumption meters.

### Effective Building Management with DALI Interface

AAC20-D and AAC20-LCD-D are equipped with a DALI interface that allows for direct integration of up to 64 DALI ballasts.

### Quality and Reliability Confirmed by Certificates

The experience in developing high-quality products and the BTL certification confirm the excellent performance of communication using the BACnet protocol.



## Integration

### BACnet IP and BACnet MS/TP

AAC20 controllers are certified by the official BACnet Test Laboratories (BTL).



### Modbus TCP/IP and Modbus RTU/ASCII

Modbus is one of the most used protocol in industrial electronic devices.

### 1-Wire

Interface for DS18B20 temperature sensors.

### M-Bus

AAC20-M and AAC20-LCD-M are equipped with a built-in M-Bus interface for direct integration of up to 20 M-Bus meters.

### DALI

AAC20-D and AAC20-LCD-D allows for direct integration of up to 32 DALI ballasts.

## Inputs and Outputs

- **8 Universal Inputs** - Support for temperature sensors and voltage, resistance, current, and dry contact measurements on each universal input.
- **4 Digital Inputs** - Dry contact inputs, 100 Hz fast pulse counter.
- **6 Analog Outputs** - 0-10 V DC control, PWM modes, and a maximum load of up to 20 mA.
- **4 Digital Outputs** - Equipped with normally open 3 A relays.

AAC20

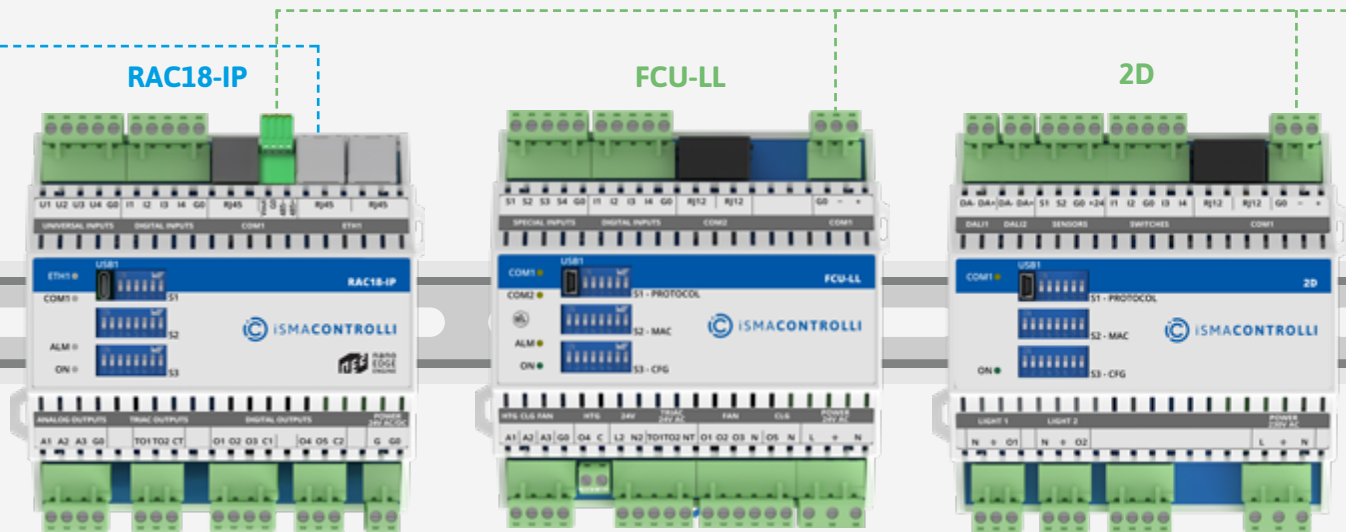
AAC20-M

AAC20-D



# Comfort Management

## Zone Controllers, Light & Blind Controllers, Wall Panels



### RAC18-IP - Zone Controller



#### Room and Zone IP Management

The RAC18-IP controller is a freely programmable multifunctional device providing comfort in a single room or a zone in a building. 18 onboard I/O's, with Ethernet and serial ports.

#### High-end Technology at the Edge

Powerful, IoT-ready nano EDGE ENGINE allows unprecedented capabilities for a microcontroller-based device. Take advantage of the time-saving automatic BACnet exposure, real-time programming, and cloud connectivity.

### FCU - Zone Controller

#### Unique 2-in-1 Device

Configurable and freely programmable controller for fan coil units.

#### Powerful Configurable Application

To minimize time and simplify the commissioning process the FCU controller is delivered with a built-in application.

#### Quality and Reliability Confirmed by Certificates

The experience in developing high-quality products and the BTL certification confirm the excellent performance of communication using the BACnet protocol.



## Light & Blind Controllers

### Simplified Configuration and Commissioning Process

The 2D and 2D1B controllers are ready for operation out of the box, you just have to configure the controller using built-in DIP switches and you are ready to control up to 32 DALI ballasts.

### Comprehensive Range of Wall Panels

Divided into the TP, LP and SP series, the wall panels innovate room management with open protocols, modern design and a variety of sensors.

### BACnet MS/TP & Modbus RTU/ASCII

All panels are equipped with the most popular protocols in building automation: BACnet and Modbus.

### Cutting Edge Design

Glass front panel and two color versions (black and white) make TP panels fit to all modern interiors.

### Seamless Installation and Configuration

Wall panels are suitable for flush or surface mounting. The panels offer effortless configuration using network protocols or a built-in USB port, even without an external power supply. Fully supported by the free iSMA Configurator app, they can be updated or configured in seconds.

### Ultimate Flexibility

Panels are available with a set of temperature, CO<sub>2</sub>, and humidity sensors in different configurations.

TP-C-DISP-B



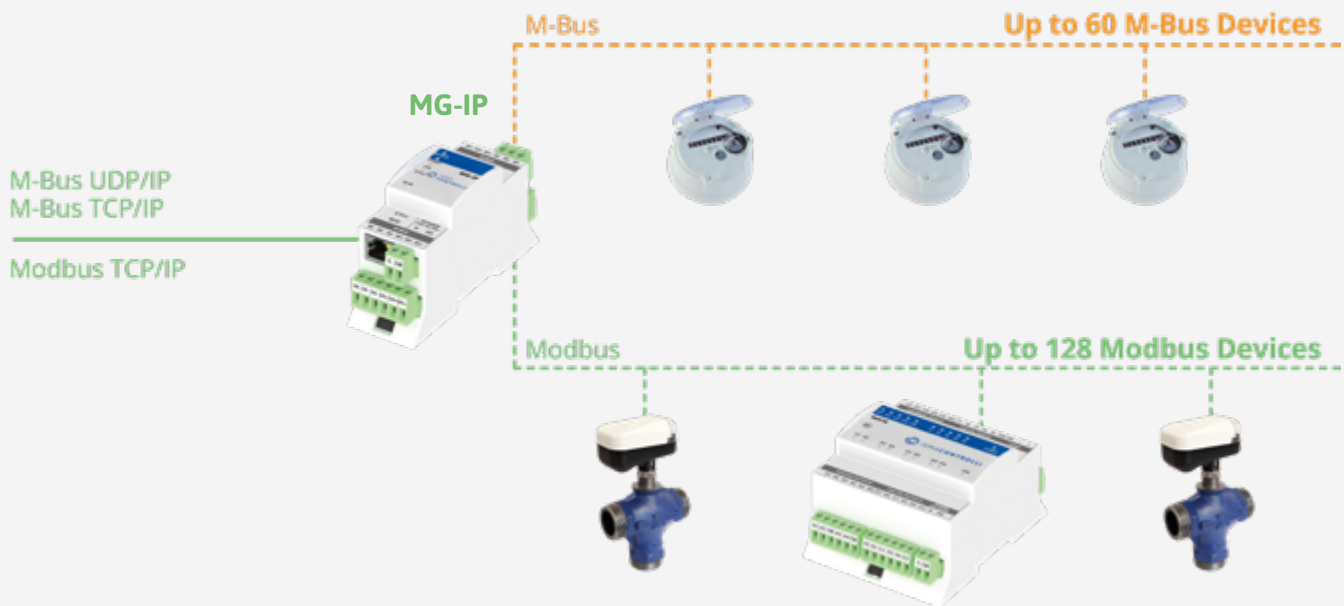
TP-HC-DISP-W



LP



## Metering & Wireless Gateways



### M-Bus Interface

The M-Bus interface allows for communication and power supply for up to 60 M-Bus meters with a maximum current of up to 130 mA. This way up to 60 energy, flow, water, and other types of meters can be powered up and integrated with M-Bus protocol to a master controller.

### M-Bus to M-Bus IP

Bring data from meters to various systems based on the versatility of communication with support for M-Bus TCP/IP and M-Bus UDP/IP protocols.

### Modbus TCP/IP to Modbus RTU/ASCII Gateway

Built-in Modbus gateway on the COM1 port enables integration of up to 128 Modbus slave devices to the IP layer.

### Two Independent Gateways Operating Simultaneously in One Device

By applying the most popular interfaces for M-Bus and Modbus meters, the device allows for handling up to 180 meters of various types simultaneously.

### Simplified Configuration and Commissioning Process

MG-IP allows for seamless configuration with a built-in web server or dedicated free of charge tool. The ability to be powered from a USB port facilitates local testing and a straightforward updating process.



## Wireless Modbus

Eliminate the need to run RS485 cables with the wireless technology offered by the W0202 module. This powerful device acts as a bridge for Modbus RTU/ASCII devices.

## 2 Special Inputs

Take advantage of the special inputs with support for the most popular types of temperature sensors, ability to read voltage, resistance, current, and dry contact measurements with a fast pulse counter saving up to 100 pulses per second directly to the EEPROM memory.

## 2 Digital Outputs

Equipped with normally open 3 A relays.

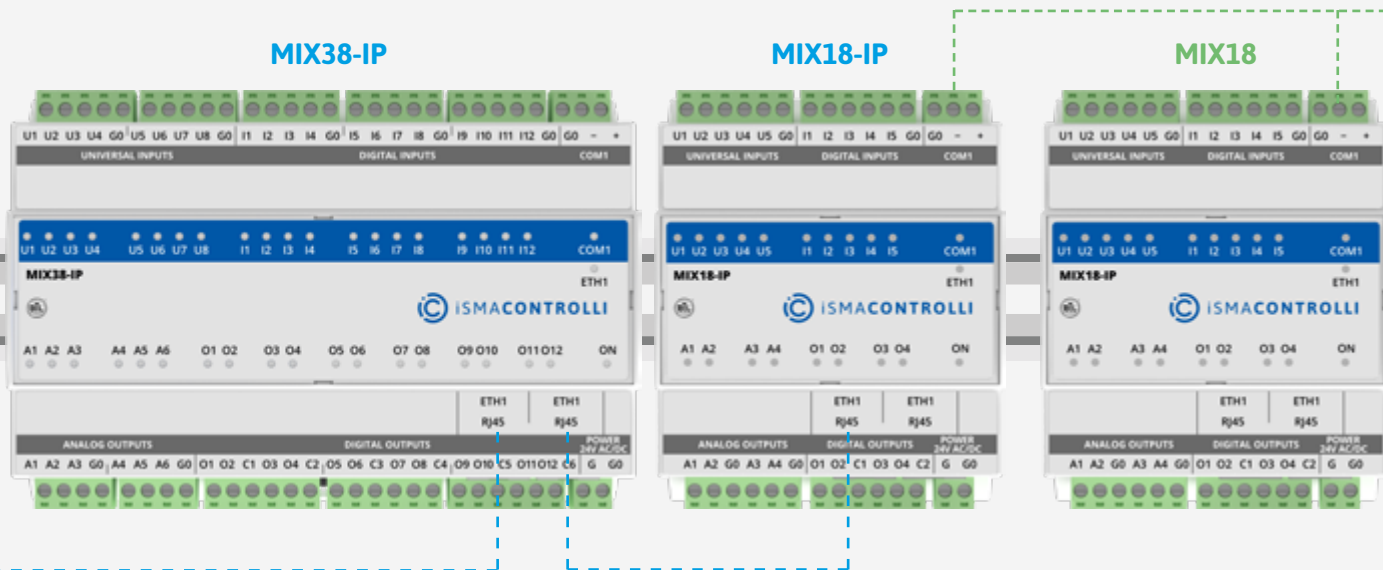
## Built-in HVAC and Light Applications

Light, cooling, and heating configurable algorithms make the module applicable as a standalone controller.



# I/O Modules

## Multiprotocol I/O Modules



### Wide range of BACnet and Modbus I/O Modules

Group of 18 types of I/O modules from 4 to 38 inputs and outputs, suitable for local or distributed control of any building. Support for the most popular open protocols - BACnet and Modbus, both via RS485 and IP, makes them one of the most versatile products on the market.

### Seamless Configuration

The protocol and other parameters can be configured in a matter of seconds thanks to onboard DIP and rotary switches.

### Powering with USB Cable

The ability to be powered from a USB port facilitates local testing and a straightforward updating process.

### iSMA Configurator

Portable software dedicated for device configuration and firmware upgrade.

### Dedicated Niagara Framework Modules

Seamless integration of multiprotocol I/O in the Niagara Framework using a dedicated module.



## Communication

### BACnet MS/TP and Modbus RTU

RS485 multiprotocol I/O modules are equipped with two most popular open protocols in building automation, BACnet and Modbus.



### BACnet IP

Multiprotocol I/O modules are equipped with Building Automation and Control Network (BACnet) and are certified by the official BACnet Test Laboratories (BTL).



### Modbus TCP/IP

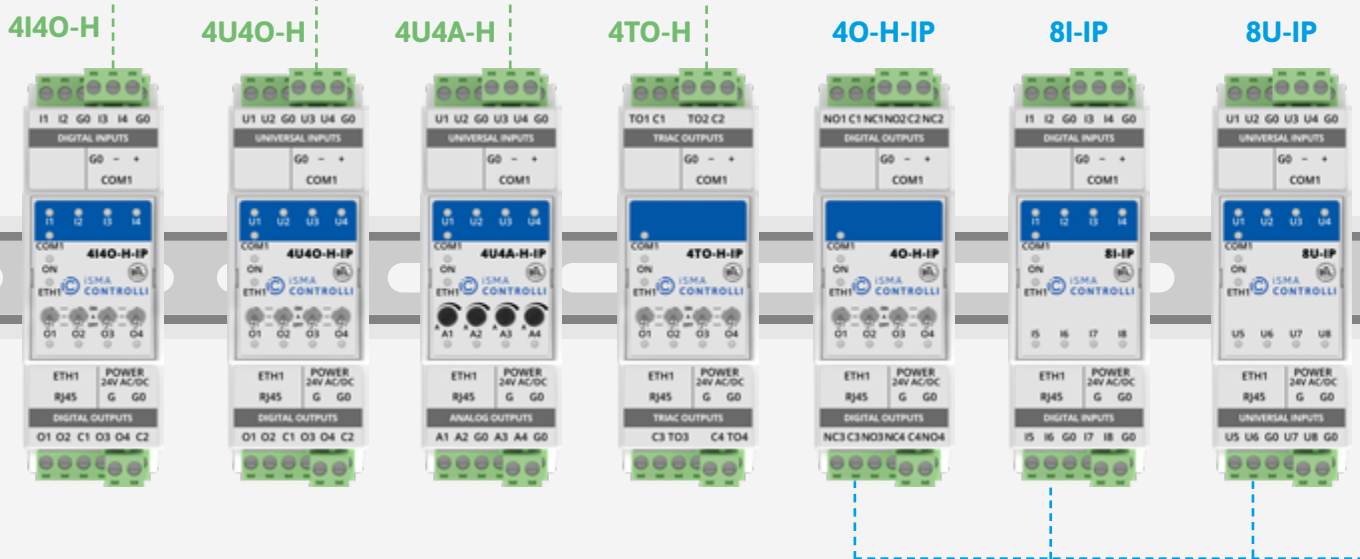
Modbus is one of the most used protocols in industrial electronic devices.

### Modbus TCP/IP to Modbus RTU/ASCII Gateway

IP multiprotocol I/O modules can serve as a Modbus gateway with onboard COM1 port.

### Web-based Configuration

Built-in web server enables not only a seamless device configuration without any additional tools, but also enables a preview of all I/O states and device specification, all with a password-protected access.



# I/O Modules

## Modbus I/O Modules

ETH



## SfAR-S

### Slim Modbus I/O Modules

The S line consists of slim modules offering 6-16 inputs and outputs in 12 combinations. Each module is equipped with an optoisolator between the inputs/outputs, power supply, and RS485.

### Open Communication Protocols

Each SfAR I/O module has the Modbus RTU/ASCII onboard supporting up to 128 modules on the RS485 bus. There is also a possibility to integrate them into a Modbus TCP/IP network thanks to the dedicated SfAR-S-ETH module.

### Quick Connector System

To simplify an installation, the modules have been equipped with the Quick Connector system. Using a dedicated SfAR-S-LINK cable allows for connecting of up to 10 modules.

## SfAR-1M

### The Smallest Distributed I/O Modules

The 1M line consists of small modules with a small amount of I/Os – 7 types of modules with 2 to 4 I/O's. Each module is equipped with opto-isolation between I/O's, power supply, and RS485 onboard is a perfect choice for distributed systems with devices scattered over a large area.

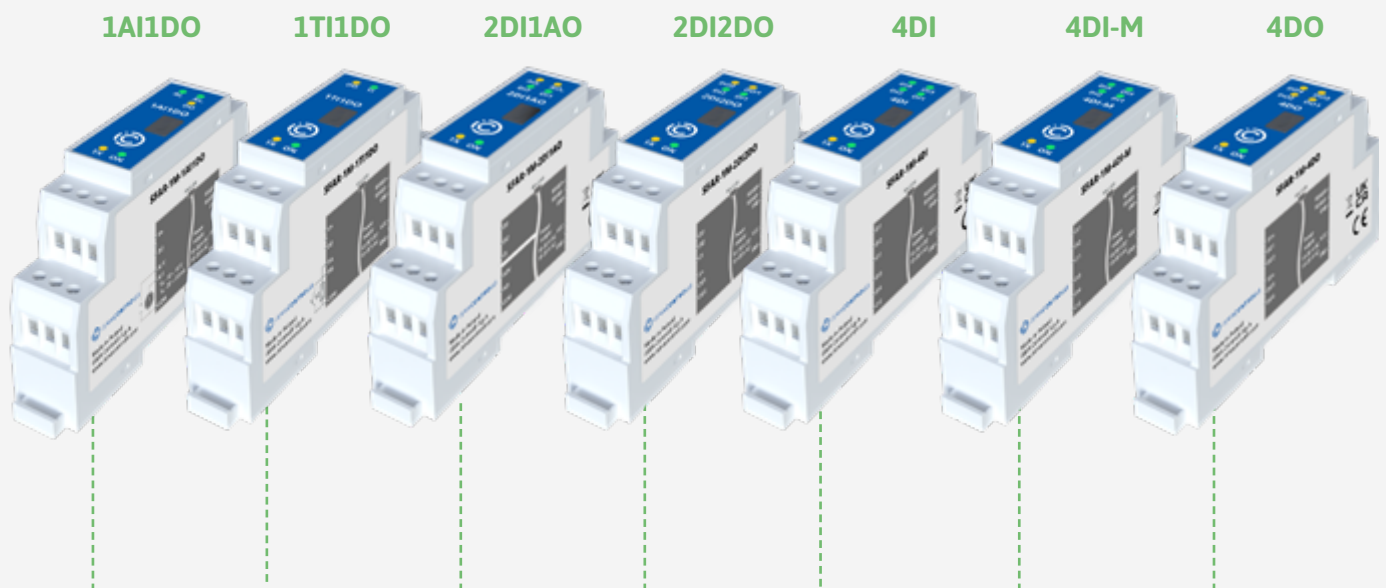
### Made to Control and Communicate

Each module in this line is created for specific purpose with a main goal – to connect devices without Modbus onboard into the Modbus network.

### Simple Configuration and Commissioning

The module is equipped with a set of LEDs used to indicate the status of I/Os, power supply, and RS485 communication.

Configuration of the modules is carried out with our free software, the SfAR Configurator. A built-in mini USB allows for performing a primary configuration of the unit without an additional power supply.



# Control Valves & Actuators

## PICV & Zone Valves

### Pressure Independent Control Valves - PICV

#### Libra Dynamic Pressure Independent Control Valves

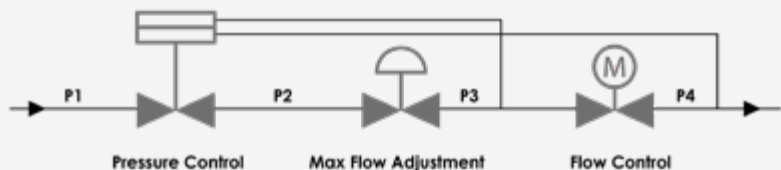


DN: 15-50; Q: 375 l/h - 12500 l/h

PICVs are ideal for use in heating/cooling variable flow systems and provide constant flow regulation within a given range of differential pressure drop. Dynamic balancing eliminates overflows regardless of fluctuating pressure conditions in the system.

#### 3 PRODUCTS IN 1

- Control valve
- Differential pressure controller
- Static flow limiting valve



#### EBV Smart Balancing Control Valves



DN: 65-150

EBV valves represent an innovative solution to manage the efficiency of cooling and heating circuits. The key functions are: pressure independent flow control and energy control.

The EBV is equipped with a smart actuator with Modbus connectivity, micro USB port, PID control loop, analog inputs (0-10 V DC, 2-10 V DC, 4-20 mA).

Modbus connectivity allows an integration of the EBV into BMS and makes commissioning and monitoring activities very easy. Configuration of the EBV can also be achieved through the micro USB port.

## Zone Valves

### Piuma High Performance Composite Zone Valves for FCUs

- 0% lead, therefore fully compliant with ROHS and REACH;
- No rust;
- High thermic insulation;
- No condensation;
- High resistance to dirty water;
- Light weight.



**UNIQUE SOLUTION!**

### Micra<sup>®</sup> Compact Zone Valves for FCUs

Wide range of motorized valves for fan coil units. Consists of PN16 brass valve bodies with compact dimensions: 2-way, 3-way, 3-way 4-ports.

All valve bodies are available with either flat end threaded connections or conic (Conex):

- 4-port versions (3-way with bypass) are available with different port-to-port distances;
- Valves are available with strokes: 2.5 mm (V.X serie) and 5.5 mm (V.XT).



DN: 15-20; Kvs: 0.25-6



**Two valve strokes available:**



**V.X**  
Stroke 2.5 mm



**V.XT**  
Stroke 5.5 mm

# Control Valves & Actuators

## Globe, Butterfly & Ball Valves

### Globe Valves - HVAC Applications

Wide selection of 2-way and 3-way control valves with threaded and flanged connections, dedicated for the room, zone, and HVAC applications.



#### HVAC Application

### Ball Valves

#### VSS-VSD, VSC-VDC

- 2-way and 3-way valves (mixing/diverting)
- Tight close-off (0% leakage);
- Fluids temperature from -20°C to +130°C;
- Up to 10 bar close-off pressure;
- High Kvs values.





## Globe Valves - Industrial Applications

Wide range of control valves designed for heavy-duty HVAC applications and industrial processes. Valves for high-pressure applications and, in case of fluids, for very low or high temperature - superheated water, steam, heat transfer oil.



**2FGA.B**  
DN: 150-200  
Stroke: 45 mm  
Kvs: 300



**2FGA**  
DN: 15-150  
Stroke: 16-45 mm  
Kvs: 0.6-140



**2-3FAA**  
DN: 25-125  
Stroke: 16-45 mm  
Kvs: 1.6-250



**2FAA150B**  
DN: 150  
Stroke: 45 mm  
Kvs: 500



**2-3FAA.P**  
DN: 15-125  
Stroke: 16-45 mm  
Kvs: 1.6-250



**2-3FAA.T**  
DN: 15-125  
Stroke: 16-45 mm  
Kvs: 1.6-100



**2-3TIA**  
DN: 20-65  
Stroke: 20 mm  
Kvs: 6.3-63



**2-3FSA**  
(District Heating)  
DN: 25-80  
Stroke: 16-45 mm  
Kvs: 4-63



**2FSA.B**  
DN: 25-80  
Stroke: 16-45 mm  
Kvs: 4-100



**3FSAS**  
DN: 25-80  
Stroke: 16-45 mm  
Kvs: 4-100



**2-3FIA**  
DN: 25-100  
Stroke: 20-30 mm  
Kvs: 3.5-138

**Industrial Application**

## VFA - Butterfly Valves

Valves dedicated for heating, cooling and hydraulic distribution systems in general for fluids belonging to group 2 - water, superheated water, steam.

Can be servo-controlled with MDA Rotary Actuators or with MDL Industrial Rotary Actuators.



DN: 25-200  
Stroke: 90°  
Kvs: 26-3460

# Control Valves & Actuators

## Linear & Rotary Actuators

### Valves Actuators

- Wide range of linear and rotary actuators;
- Availability of many linkage kits for competitor's valves;
- High possibility of customization;
- Rotary actautors for industrial applications and butterfly valves.



**MVE.R**  
Electric Actuators with  
Emergency Fail-safe Function



**MVH56E/A**  
Globe Valve Actuators  
with Spring Return



**MVC**  
Globe Valve Compact Actuators



**MVE IP65**  
More Protection  
for Better Performance

### Air Damper Actuators

- Wide range of rotary actuators for dampers - from 5 to 20 Nm;
- Damper actuators with emergency fail-safe function.



**MDB**  
Actuators Without  
Spring Return



**MDS**  
Actuators with Emergency  
Fail-safe Function

↑ VALUE



**MDL**  
up to 30 Nm  
Butterfly Valves  
Dampers  
Burners



**MVH**  
3000 N  
Globe Valve  
(Manual Override)



**MDA**  
20-40 Nm  
Butterfly Valves



**MVE**  
up to 2200 N  
Globe Valves

**Industrial Application**



**MVB**  
450 N  
Globe Valves



**MDS**  
6-20 Nm  
Damper Actuators with Emergency  
Fail-safe Function



**MDB**  
5-20 Nm  
Damper Actuators Without Spring Return

**HVAC Application**



**MVC**  
300 N  
Globe Valves - up to 16 mm stroke  
Micra Zone Valves  
Libra PICV



**MVS**  
10-16 Nm  
Ball Valves



**MVT**  
300 N  
Globe Valves - up to 9 mm stroke  
Micra Zone Valves  
Libra PICV



**MCA**  
140 N  
Micra Zone Valves  
Libra PICV  
Floor Heating



**MVR**  
90 N  
Micra Zone Valves  
Libra PICV  
Floor Heating



**MVX**  
140 N  
Micra Zone Valves



**MVP**  
170 N  
Piuma - Composite Zone Valves

**Zone & Ball Valves**

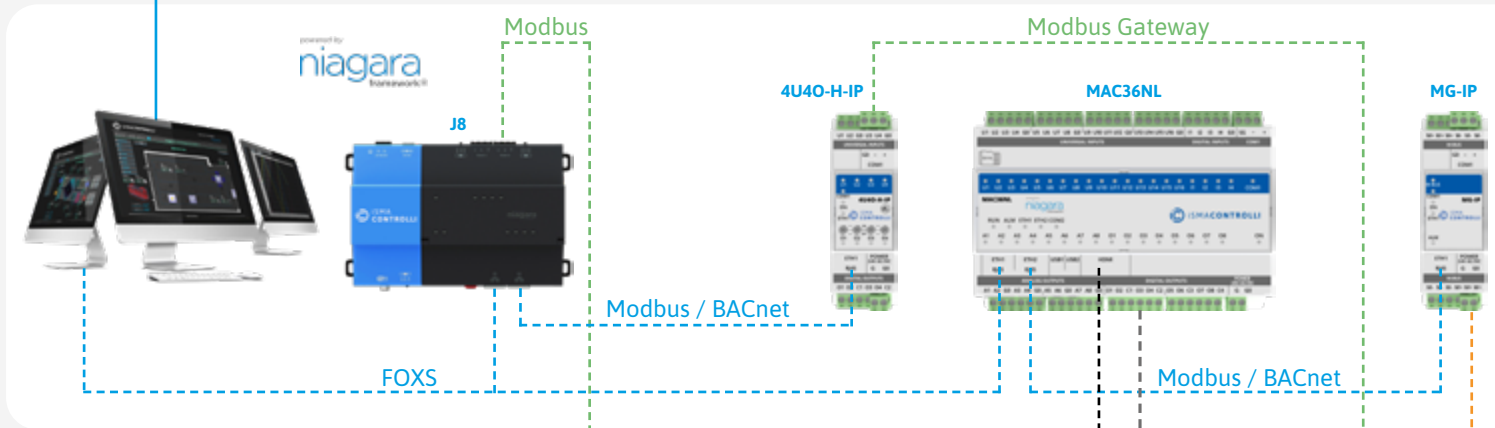
→ FORCE/TORQUE

# Solutions Overview

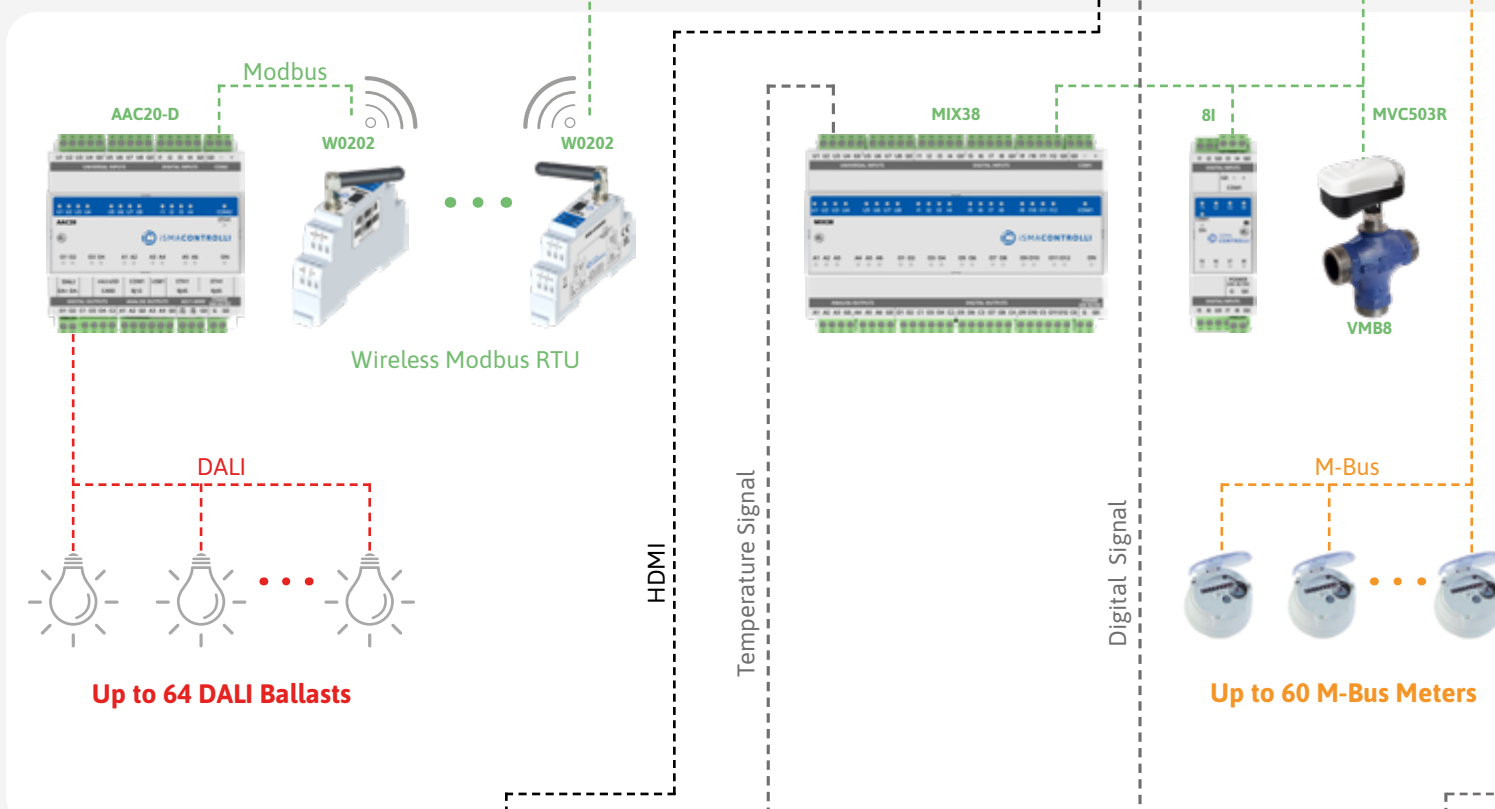
## System Architecture

IP      iSMA Analytics      FOX      SkySpark      BACnet S/C

IP Connectivity



Serial Bus



Extensions

Field Devices

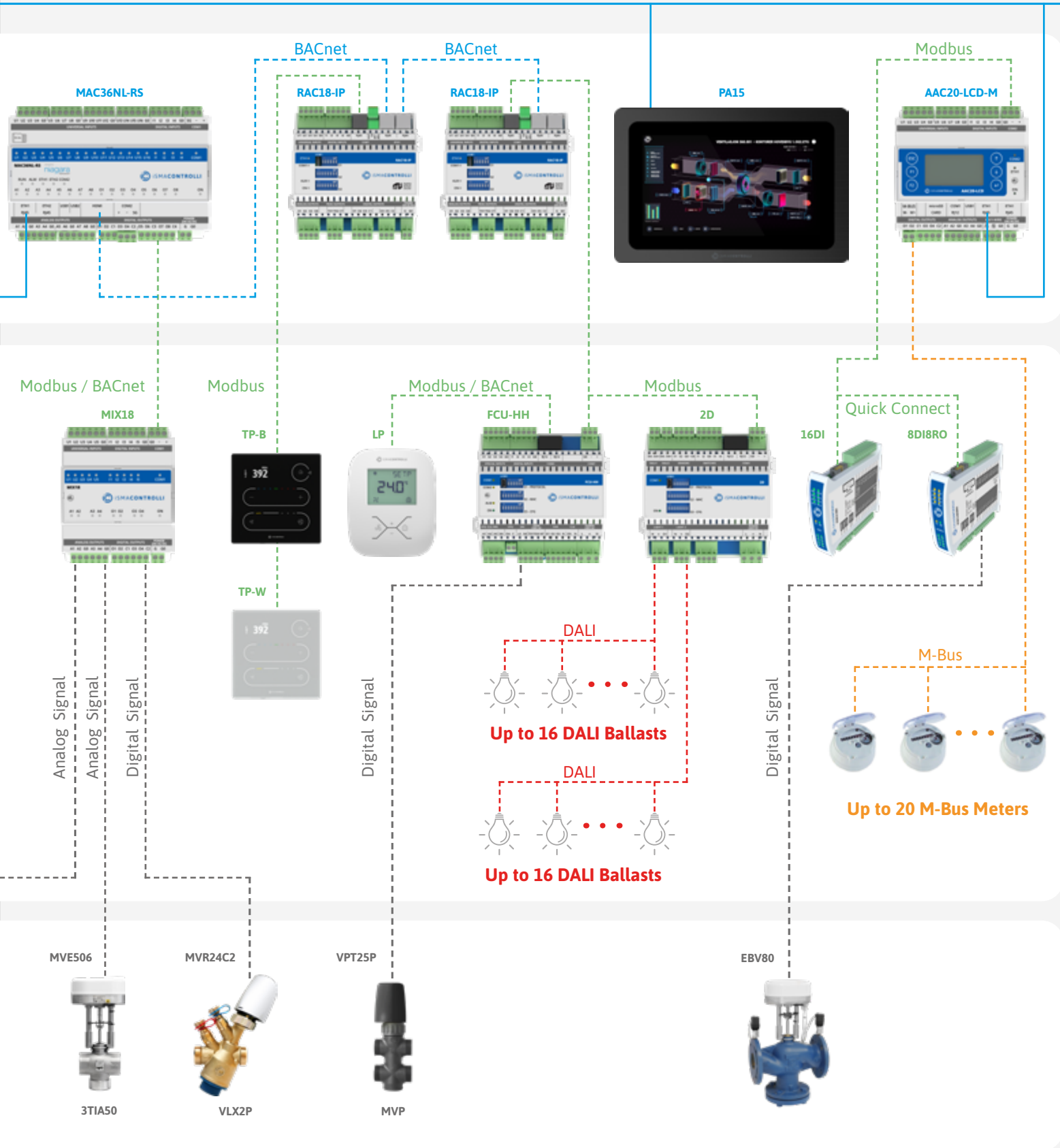


MQTT

Cloud Applications

HTML5

Modbus / BACnet



# Solutions Overview

## Product Groups

Multi-site Building Management



BMS Software

Small & Medium BMS



Integration Controllers

HVAC & Plant Control



Advanced Application Controllers

Comfort Management



Zone Controllers

Gateways



Metering Gateway

I/O Modules



Multiprotocol

Control Valves & Actuators



PICV



Linear

niagara<sup>4</sup>

SkySpark  
EVERYWHERE

Analytics Software



Hybrid IoT Controllers



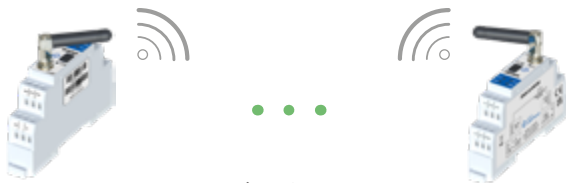
HMI Panels



Light & Blind Controllers



Wall Panels



Wireless Gateways



I/O Modules



Modbus I/O Modules



Zone



Ball



Butterfly



Globe



Rotary



## Solutions

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Solutions  
Issue No.1,  
June, 2022

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product range at:  
[about.ismacontrolli.com/en/solutions](http://about.ismacontrolli.com/en/solutions)