innon
CONTROL THINGS

Solution Guide:

Motor Control Centre

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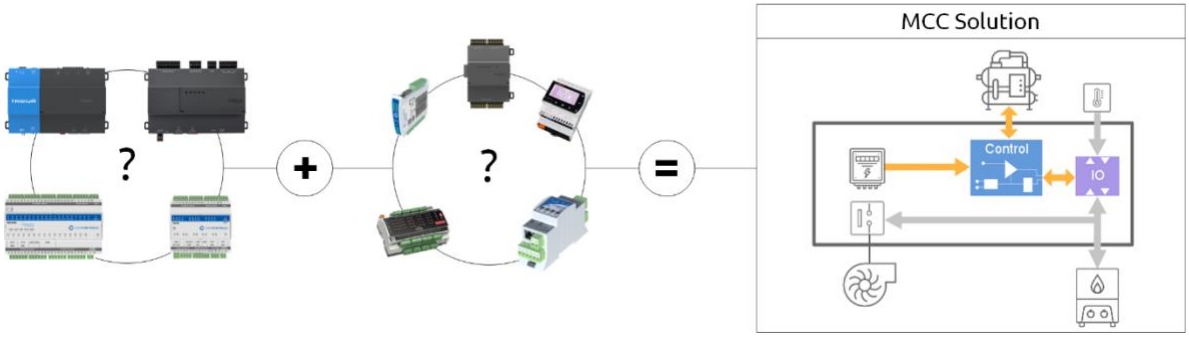
Overview



What is the purpose of this document?

In this guide we will help you to choose controllers, IO modules etc. from our product range for your Motor Control Centre (MCC) control solution by

- Exploring the different controller and IO module options in our product range
  - Describe and compare the main features
  - Highlight pros and cons, capacity limits etc.
- Showing each product in a worked solution example with explanations of the choices made, looking at –
  - **Hardwired control and monitoring** – MCC control circuits, hardwired control to plant and field devices
  - **Integration** with communicating devices in the MCC and plantroom, e.g. variable speed drives, using various protocols, e.g. Modbus
  - **User Interface** – locally or with site, campus or estate supervisors

The guide will also outline the engineering and commissioning activities to help you understand the time resources required to deliver each solution.

Who is this document for?

- **Technical Sales People** – the guide will help you build proposals by guiding you in selecting the right hardware to fulfil the required functionality, whilst being as competitive on pricing as possible, and to help estimate engineering and commissioning time
- **Project Engineers** – the guide will help you to select the right hardware to fulfil the required functionality of your design. The guide could also highlight opportunities to increase margin by value engineering your solution, e.g. maintaining functionality whilst selecting a less costly controller and IO module(s) than estimated for

Please note – this document is intended as a guide only and should always be read in conjunction with the latest technical documentation for any product

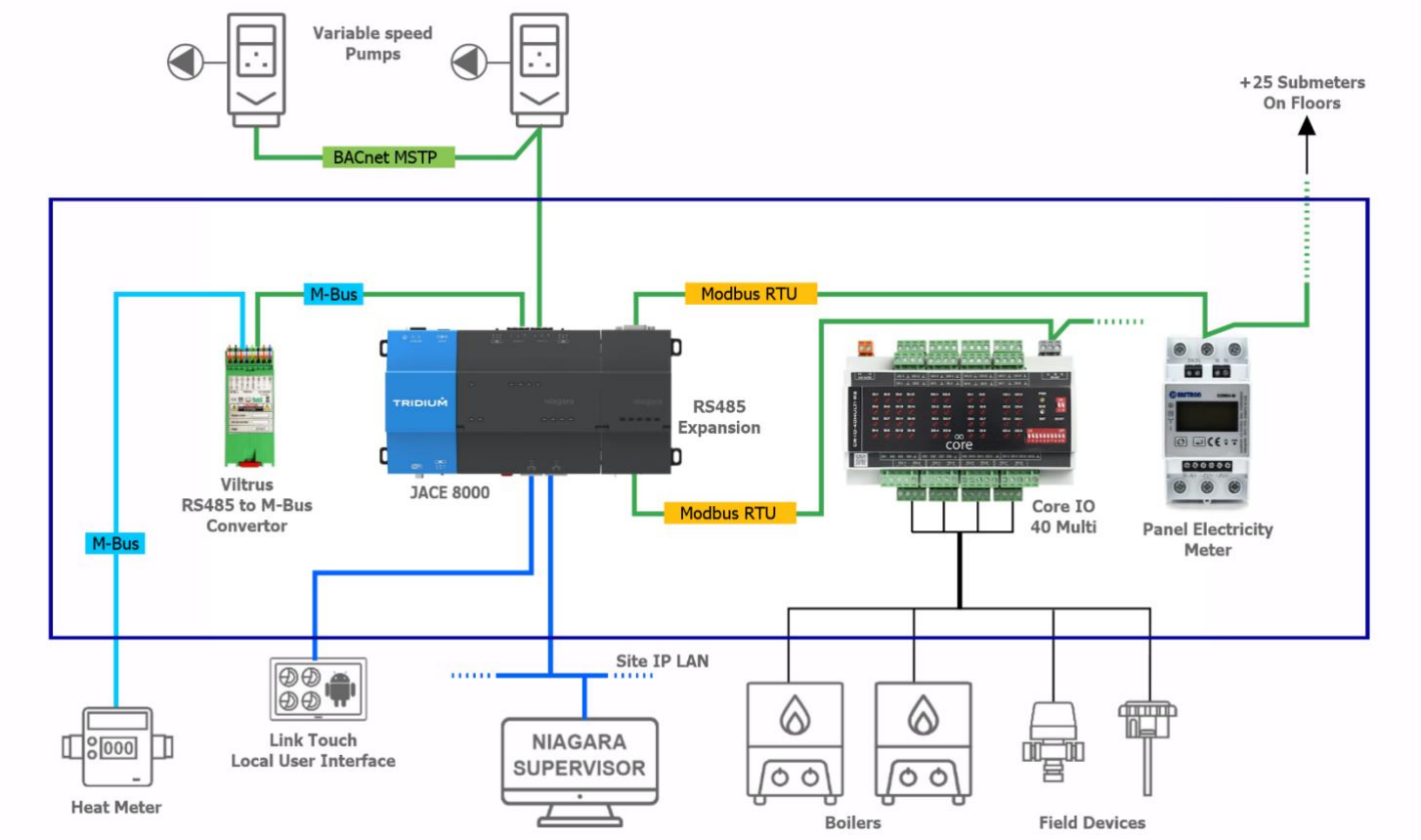
Controller and IO Module Options Matrix

I/O Modules ▶	Tridium IO-R-xx	Innon Link IO	Innon Core IO	iSMA MIX/MINI	iSMA SfAR
Protocol & Comms Option Key N Niagara IO B BACnet M Modbus RS RS485 IP Ethernet/TCP/IP	 N RS	 B M RS IP	 M RS IP	 B M RS IP	 M RS
Controllers ▼	Consumes no proxy points	Onboard strategy Touchscreen Web config	Conig. App via BlueTooth 4-20mA direct inputs	Modbus Gateway Ethernet Switch (MIX only)	Active digin reading Pulse memory
Tridium N4 JACE 8000  ✓ Large proxy point count ✓ RS232/485 LON ports ! No onboard IO	✓ Does not consume proxy points ✓	✓	✓	✓	✓
Tridium N4 Edge 10  ✓ Super-fast boot ✓ Onboard IO ! Limited comms options ! Only 50 proxy points	Max limits = 4 x 16 OR 2 x 34 OR 2 x 16 + 34 ! ✓ Does not consume proxy points ✓	✓	✓	✓	✓
iSMA N4 MAC36  ✓ Onboard IO ✓ Mbus port option ! No RS232 expansion	✗	✓	✓	✓	✓
iSMA AAC20  ✓ Onboard IO ✓ Mbus or DALI port ! Limited web GUI ! NOT N4 framework	✗	✓	✓	✓	✓

Application Example 1 – JACE 8000 and Core IO

In this example we show the advantages of the JACE's multiple RS485 port expandability, multiple protocol capability and high proxy point capacity.

- JACE provides
  - Control strategy and local graphical user interface with Link Touch
  - Integrates using multiple comms ports and protocols to IO, VSDs and meters
  - All local control by RS485 ports – no Ethernet switch required – one less single point of failure
- Core IO input/output modules on Modbus RTU for hard-wired control
- Electricity meters read on dedicated Modbus RTU RS485 bus
  - Comms fault in wider building area will not affect MCC control IO modules
- BACnet MS/TP pump invertors on a dedicated RS485 port/bus
  - Reduces control cabling to VSDs
  - Provides detailed VSD data for users to monitor running and efficiency
- M-Bus heat meter read via a Viltrus RS485 to M-Bus convertor on dedicated RS485 port
- Link Touch provides local user interface
  - Connects to JACEs built-in web server to access JACE graphics (HTML5 PX pages)



Hardware Functions and Reasons for Selection

JACE 8000

Main Functions

- Provides control strategy for plant
- Interfaces to Modbus, M-Bus and BACnet devices for control and monitoring purposes
- Can provide local graphical user interface web pages viewable on Link Touch connected to secondary IP port
  - Isolated from primary port to eliminate security issues
- Connected to site BEMS IP network for remote web station supervision

Reasons for Selection

- Multiple RS485 ports required
- JACE is easily expanded using EM-8000-2X-485 module that requires little configuration
- Using RS485 interfacing removes need for Ethernet switch in panel
  - Less possible points of failure in comms chain

!
  - 4 x EM-8000 expansion modules MAX

!
  - If using 2 x EM-8000-2X-485 modules, then ONLY one additional NON 485 module can be added (i.e. LON or 232 module)

!
  - If using 1 x EM-8000-2X-485 modules, then THREE additional NON 485 modules can be added (i.e. LON or 232 modules in any combination)

  - Extensive hard-wired IO points and integration points requirement, JACE can be licensed for large amount of proxy points

! No hard limit on point expansion BUT
  - CPU, memory and comms capacity need to be considered –
  - Points will put demand on CPU and comms resources when being polled for PX pages, wiresheet logic, histories etc.
  - Maximum of 5000 histories recommended
  - Configuration of history collection and archiving may need careful consideration to avoid over-filling RAM

Core IO Modules

Main Function

- Provides hard-wired control and monitoring of plant and field devices directly or via panel control circuits

!
  - Up to 63 IO modules on each RS485 Modbus RTU bus

Reasons for Selection

- Panel maker and pre-commissioning engineers can test panel circuits and field devices using Innon App (available on Google Play) on their Android phones using built-in Bluetooth on each module

- Ease of use with 4-20mA detectors
  - Any or all universal inputs can be configured for 4-20mA – no limitation
  - No external resistors required to convert from 4-20mA to 2-10V – 4-20mA read directly

Alternative to consider: Link IO

- Good fit for data centres
  - Carel manufactured controls are widely used in DCs
    - Chillers
    - AC Units
- Touchscreen for:
  - Configuration
  - Manual override, status viewing for:
    - Pre-commissioning
    - Panel testing
    - Servicing
- Modbus and BACnet options available
- High points count to Modbus slave or BACnet device ratio using expansions
  - 160 points per IO20 module slave/device
- When universal IOs are used as 4-20mA inputs
  - Resistors required

!
  - Only 4 x Universals in total can be used in this way per IO20 or IO16

Viltrus RS485 to M-Bus Convertor

Main Function

- Converts between physical bus types, i.e. RS485 and M-Bus

Reason for Selection

- Simple RS485 to M-Bus convertor, no configuration required

Link Touch – Android touchscreen with built-in Innon app

Main Functions

- Graphical user interface
- Auto login panels
  - View only and Engineer user access
- Separation from customer IT network using JACE secondary port
  - Can only access JACE web GUI for local user interface
  - Immune from site network and central supervisor failures to allow users continued access to control supervision locally
  - Useful if customer IT will only allow certain devices on their network after successful PEN testing etc.

Reason for Selection

- Easy setup and use with included onboard Innon app
- Secure, locked-down BEMS-focused functionality

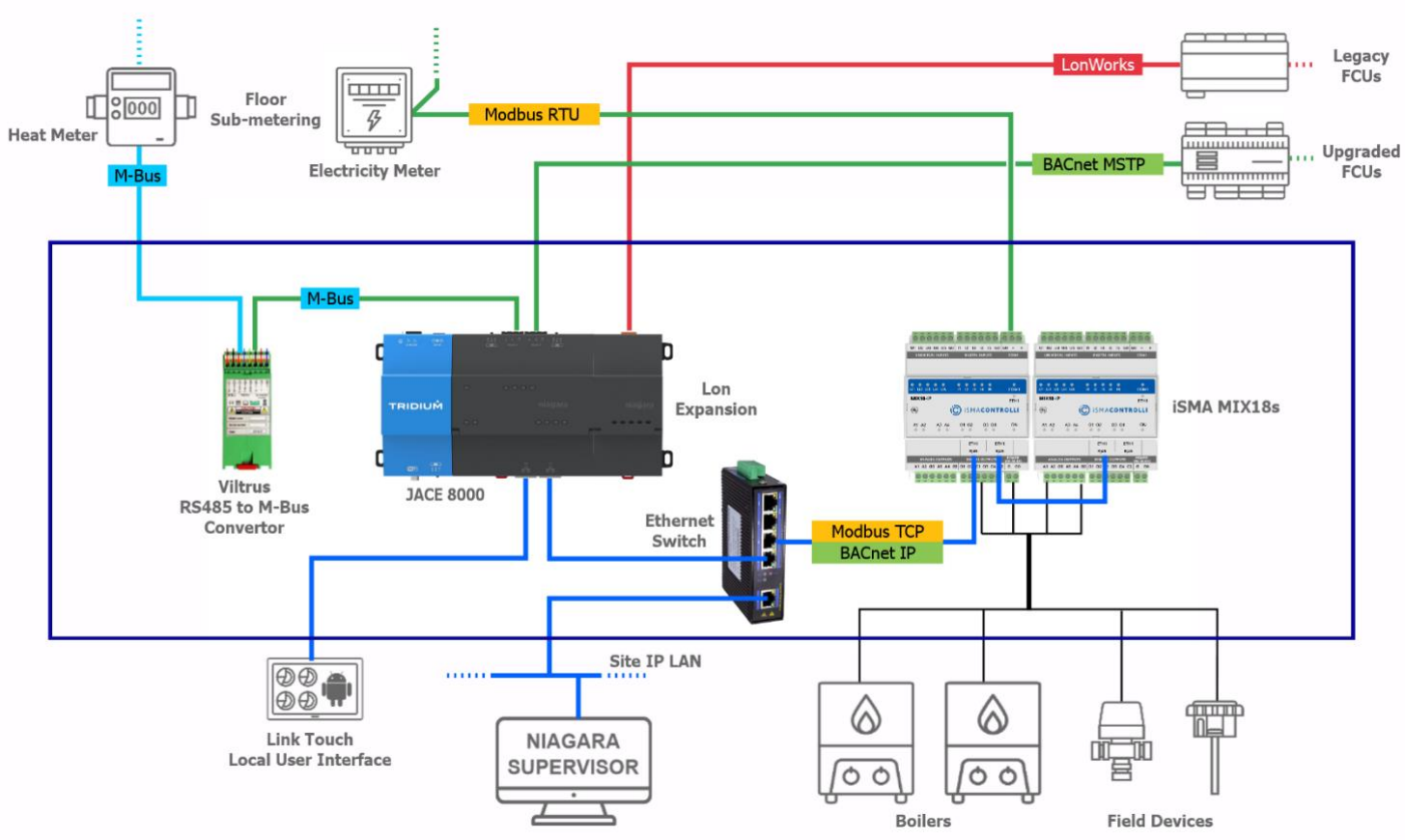
Engineering and Commissioning Procedure Overview

- Core IO
  - Set Modbus address, baud rate, EOL resistor and bias resistor as required
  - Set-up IO settings using Android App via Bluetooth, Web page or Modbus registers in JACE station, as preferred
- Electricity Meters
  - Set Modbus addresses, baud rate, EOL resistor and bias resistor as required
- Invertors
  - Configure BACnet settings e.g. MAC address, device number, baud etc.
  - Set-up motor settings and application
- JACE 8000
  - Commission and license
  - Copy engineered station which would include
    - Configure Modbus, M-Bus and BACnet drivers
    - Add/learn devices and points, set M-Bus devices primary addresses
    - Configure wiresheet control logic, histories, alarms etc.
    - Create PX pages for local GUI via Link Touch
- Link Touch
  - Set-up IP address, login panels and any other settings required
- Pre-commission all hard-wired and integration points
- Commission system as a whole checking each control function behaves as per description of operation

Application Example 2 – JACE 8000 and iSMA IO

In this example we show the advantages of the iSMA MIX and MINI IO modules' Modbus gateway functionality; this means that we can reduce costs by needing less JACE option modules as the RS485 connection to the Modbus RTU slaves, in this case, the electricity meters, is provided by one of the iSMA MIX IOs

- JACE provides
  - Control strategy and local graphical user interface with Link Touch
  - Integrates using multiple comms ports and protocols to IO, FCUs and meters
- iSMA MIX IO input/output modules on BACnet IP and Modbus/TCP for
  - Hard-wired control (BACnet IP)
  - Modbus gateway – Modbus/TCP to Modbus RTU for electricity meters
  - Onboard Ethernet switch to provide daisy-chain comms between modules
- Electricity meters read on dedicated Modbus RTU RS485 bus via IO modules' gateway
  - Comms fault in wider building area will not affect MCC control IO modules
- M-Bus heat meter read via a Viltrus RS485 to M-Bus convertor on dedicated RS485 port
- Link Touch provides local user interface
  - Connects to JACEs built-in web server to access JACE graphics (HTML5 PX pages)



Hardware Functions and Reasons for Selection

JACE 8000

Main Functions

- Provides control strategy for plant
- Interfaces to Modbus, Lon, M-Bus and BACnet devices for control and monitoring purposes
- Can provide local graphical user interface web pages viewable on Link Touch connected to secondary IP port
  - Isolated from primary port to eliminate security issues
- Connected to site BEMS IP network for remote web station supervision

Reasons for Selection

- Multiple RS485 ports and Lon port required
- JACE is easily expanded using EM-8000-LON module that requires little configuration

!
  - 4 x EM-8000 expansion modules MAX

!
  - If using 2 x EM-8000-2X-485 modules, then ONLY one additional NON 485 module can be added (i.e. LON or 232 module)

!
  - If using 1 x EM-8000-2X-485 modules, then THREE additional NON 485 modules can be added (i.e. LON or 232 modules in any combination)

  - Extensive hard-wired IO points and integration points requirement, JACE can be licensed for large amount of proxy points

!
No hard limit on point expansion BUT
  - CPU, memory and comms capacity need to be considered –
  - Points will put demand on CPU and comms resources when being polled for PX pages, wiresheet logic, histories etc.
  - Maximum of 5000 histories recommended
  - Configuration of history collection and archiving may need careful consideration to avoid over-filling RAM

iSMA MIX IO Modules

Main Functions

- Provides hard-wired control and monitoring of plant and field devices directly or via panel control circuits
- Provides Modbus gateway between Modbus/TCP to Modbus RTU protocols and Ethernet and RS485 networks to read electricity meters
  - **Note** – please use Modbus Gateway N4 driver for this application
- Onboard Ethernet switch to provide daisy-chain comms between modules
  - Daisy Chain network architecture only; FSTP operation not possible – do not attempt to create ring network back to main switch

Reasons for Selection

- Module can double-up as Modbus gateway to eliminate need for JACE RS485 option module reducing cost
- IO module input and output mix covers application with minimal amount of modules

Viltrus RS485 to M-Bus Convertor

Main Function

- Converts between physical bus types, i.e. RS485 and M-Bus

Reason for Selection

- Simple RS485 to M-Bus convertor, no configuration required

Link Touch – Android touchscreen with built-in Innon app

Main Functions

- Graphical user interface
- Auto login panels
  - View only user access
  - Engineer access
- Separation from customer IT network using JACE secondary port
  - Can only access JACE web GUI for local user interface
  - Immune from site network and central supervisor failures to allow users continued access to control supervision locally
  - Useful if customer IT will only allow certain devices on their network after successful PEN testing etc.

Reason for Selection

- Easy setup and use with included onboard Innon app
- Secure, locked-down BEMS-focused functionality

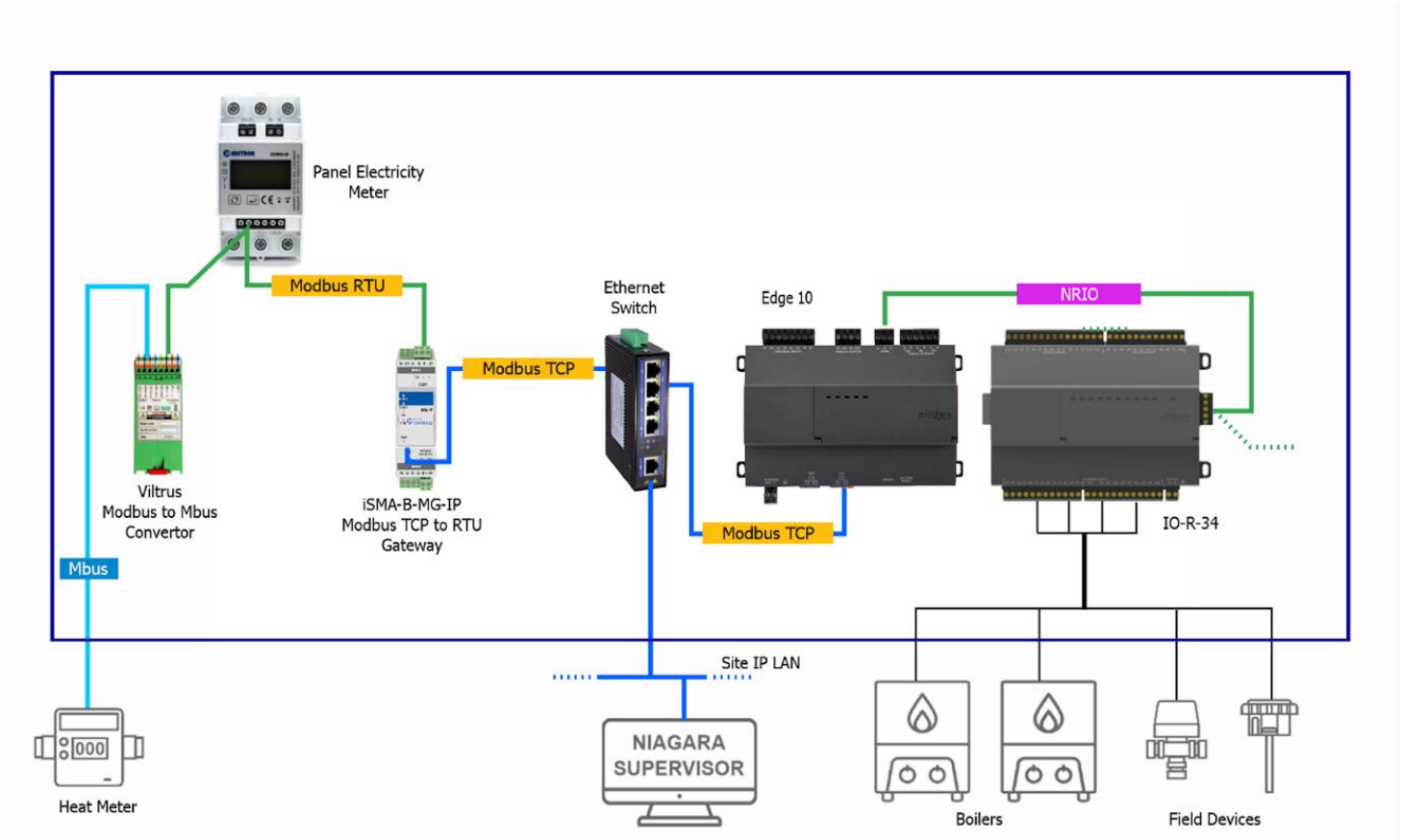
Engineering and Commissioning Procedure Overview

- iSMA MIX IO
  - Set IP address, BACnet and Modbus settings etc.
  - Set-up IO settings using Web page
- Electricity Meters
  - Set Modbus addresses, baud rate, EOL resistor and bias resistor as required
- Upgraded BACnet FCUs
  - Set MAC address, device object ID number etc.
  - Set-up EOL resistors as required
- JACE 8000
  - Commission and license
  - Copy engineered station which would include
    - Configure Modbus gateway, Lon, M-Bus and BACnet drivers
    - Add/learn devices and points, set M-Bus devices primary addresses
    - Configure wiresheet control logic, histories, alarms etc.
    - Create PX pages for local GUI via Link Touch
- Link Touch
  - Set-up IP address, login panels and any other settings required
- Pre-commission all hard-wired and integration points
- Commission system as a whole checking each control function behaves as per description of operation

Application Example 3 – Edge 10 and IO-R-xx

In this example we show the advantages of the Edge 10's ACE Engine and use of IO-R-xx modules to provide rapid recovery from power failures to continue critical hard-wired control as quickly as possible after power failures.

- ACE Engine provides servicing of familiar wiresheet components and IO in rapidly booted area of the Niagara N4 station for time critical plant control recovery after power loss
- IO is expanded using IO-R-xx modules WITHOUT consuming license proxy point or device allowance
- Edge 10 can integrate with up to three devices and fifty of their points (in total) using Modbus, BACnet or SNMP ONLY
- Viltrus M-Bus to Modbus convertor needed for Edge 10 to read M-Bus meter
- Edge 10's limitation of only one RS485 port and no M-Bus protocol driver is overcome by using
    - iSMA-B-MG-IP Modbus RS485 to TCP gateway and
    - Viltrus Modbus to M-Bus convertor



Hardware Functions and Reasons for Selection

Edge 10

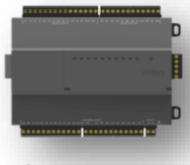
Main Functions

- Control strategy for plant
- Interfacing to Modbus devices for control and monitoring purposes
  - 3 devices MAX
  - 50 proxy points MAX
  - Modbus, BACnet and SNMP protocols only
- Connected to site BEMS IP network for remote web station supervision

Reason for selection

- Control application requires rapid control restart after power loss – usual station restart time would be unacceptable
  - Edge 10 ACE (autonomous control engine) boots very quickly on power restart
  - ACE Catalog side bar provides special kitControl components
  - Normal Niagara area of the station runs in parallel

Tridium IO-R-34 Module



Main Functions

- Provides hard-wired control and monitoring of plant and field devices directly or via panel control circuits
  - Edge 10 can only have maximum of:
    - 2 x IO-R34
      - This gives Edge 10 a maximum NRIO point count of 78 hard points (includes Edge 10 onboard points) or
    - 4 x IO-R16 or
    - 1 x IO-R34 + 2 x IO-R-16

Reason for Selection

- Does not consume station license point or device allocation
- Leaves 50 proxy points and 3 devices available for Modbus devices
- Integrates with ACE NRIO Trunk for fast processing on reboot

iSMA B-MG-IP

Main Functions

- Modbus TCP to Modbus RTU comms gateway
- Allows Edge 10 to read Modbus RTU device data via its Ethernet port

Reason for selection

- Edge 10's only RS485 port needed by IO-R-34 IO module so is not available to read Modbus RTU slaves directly

Viltrus M-Bus to Modbus Convertor

Main Function

- Reads M-Bus points from heat meter and writes them to a set of Modbus registers that can be read by the Edge 10

Reason for Selection

- Edge 10 cannot have Niagara M-Bus driver added but can read M-Bus points via the convertor using its Modbus driver

Engineering and Commissioning Procedure Overview

- Electricity Meter
  - Set Modbus address, baud rate, EOL resistor and bias resistor as required
- Viltrus M-Bus to Modbus Convertor
  - Set-up Modbus and M-Bus comms and Modbus conversion tables
- Edge 10
  - Copy/create engineered station which would include
    - Configure NRIO, Modbus driver
    - Note – use Modbus TCP Gateway driver for this application
    - Add/learn devices and points
    - Configure ACE and normal wiresheet control logic, histories etc.
- Pre-commission all hard-wired and integration points
- Commission system as a whole checking each control function behaves as per description of operation

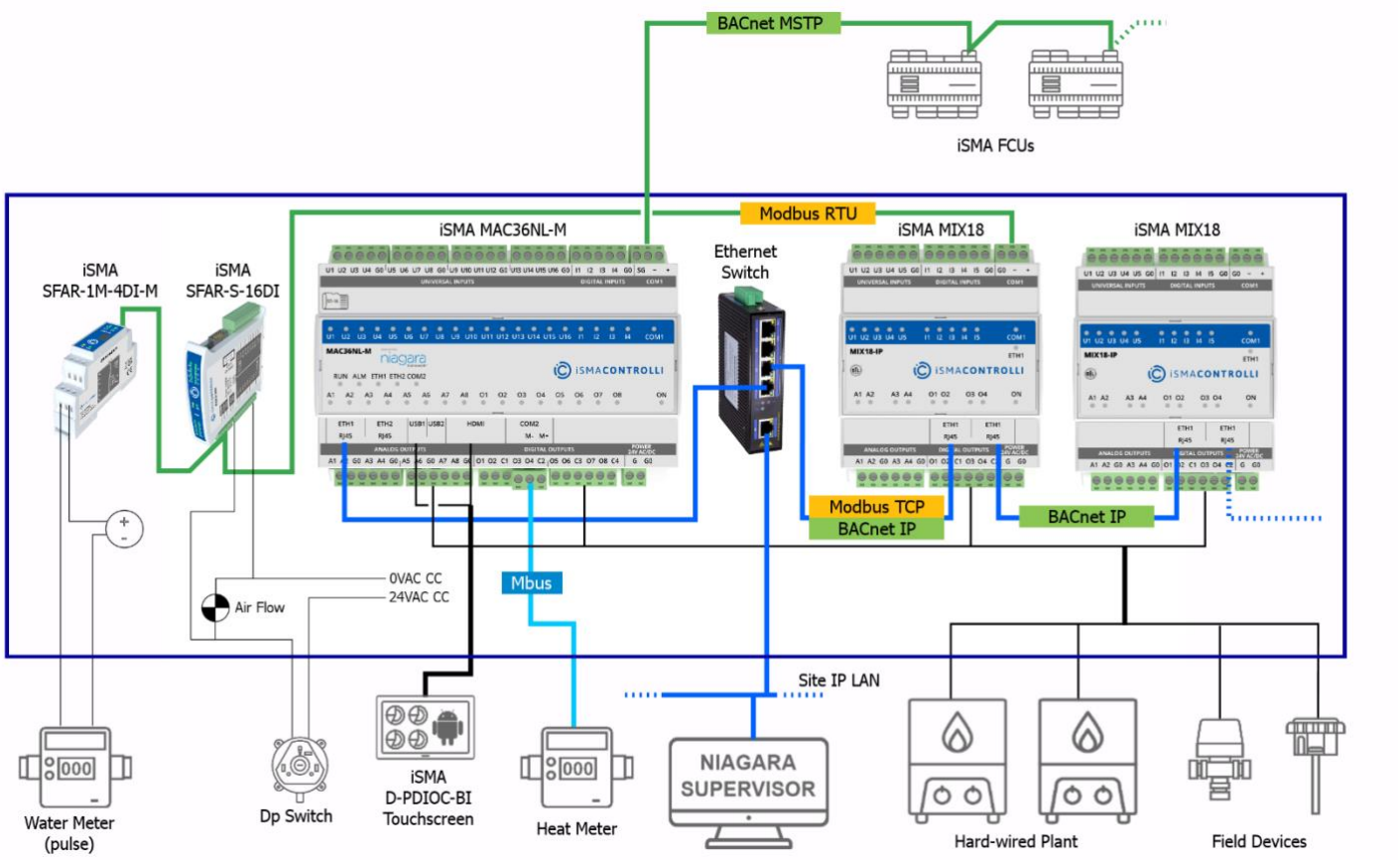
Application Example 4 – iSMA MAC36 and IO

In this example we show how iSMA's MAC36 Niagara 4 framework controller provides a very similar engineering workflow to a JACE 8000 whilst having some additional features that could be advantageous for certain projects such as:

- Onboard IO
- Option of built-in M-Bus port
- Direct connection of touchscreen to HDMI and USB

We will also demonstrate the different models in the iSMA IO range that give you the following options

- BACnet OR Modbus, RS485 OR IP
- Pulse counting memory for important metering data preservation (SfAR)
- Modbus gateway capability (MIX or MINI IO modules)
- Ability to accept active voltage digital inputs (SfAR)
- Option to daisy-chain Ethernet using built-in switch (MIX IO)



Hardware Functions and Reasons for Selection

iSMA MAC36NL-M

Main Functions

- Provides 36 x IO points for hard interface to plant and field devices
- Provides control strategy for plant
- Interfaces to Modbus, M-Bus and BACnet devices for control and monitoring purposes
- Can provide local graphical user interface web pages viewable on iSMA touchscreen connected to HDMI port
- Connected to site BEMS IP network for remote web station supervision

Reasons for Selection

- Onboard IO points minimise IO modules needed
  - Onboard points do not consume proxy point license
- Built-in M-Bus port – no need for external convertor
  - 20 M-Bus devices MAX
  - MAC36NL can only have a maximum of 2 x serial ports and these cannot be expanded with extra modules like a JACE 8000
  - No direct RS232 port option available
- Extensive hard-wired IO points and integration points requirement, MAC36 can be licensed for large amount of proxy points
  - No hard limit on point expansion BUT
    - CPU, memory and comms capacity need to be considered
      - Points will put demand on CPU and comms resources when being polled for PX pages, wiresheet logic, histories etc.
      - Maximum of 5000 histories recommended
      - Configuration of history collection and archiving may need careful consideration to avoid over-filling RAM

iSMA MIX and MINI IO Modules

Main Functions

- Provides hard-wired control and monitoring of plant and field devices directly or via panel control circuits
- Provides Modbus TCP to RTU gateway to IO modules (SfAR, Modbus RTU only)
  - **Note** – please use Modbus Gateway N4 driver for this function
- MAX IO modules provide Ethernet switch onboard to allow daisy-chaining
  - Reduces need for larger main Ethernet switch
  - Simplifies wiring and installation
  - Reduces likelihood of comms problems by shortening CAT5e runs in panel

Reasons for selection

- Provides extra RS485 interface port MAC36 does not have
- Simplifies Ethernet comms installation

iSMA SfAR-S-16DI IO Module

Main Function

- Provides digital plant statuses by monitoring switched 24V AC signals
  - Up to 128 modules on bus

Reasons for Selection

- Reduces need for relays to provide dedicated volt-free contact interface for BEMS for plant statuses
- Has filter function to allow reliable monitoring of AC voltage digital signals

iSMA SfAR-1M-4DI-M IO Module

Main Function

- Provides pulse counting of water meter output
  - Up to 128 modules on bus

Reasons for Selection

- Pulse count registers memory back-up – no loss of utility consumption data
- 1KHz inputs – can cope with very fast pulsing

Engineering and Commissioning Procedure Overview

- iSMA MIX and MINI IO
  - Set-up IP address etc.
  - Set-up BACnet settings
  - Set-up IO settings
  - Set-up Modbus settings (for SfAR slave modules)
- iSMA SfAR IO Modules
  - Set-up Modbus comms settings
  - Check network termination resistors are in place
  - Configure inputs
  - Heat Meter
  - Set primary address
- iSMA MAC36NL-M
  - Commission and license
  - Copy engineered station which would include –
  - Configure Modbus, M-Bus and BACnet drivers
  - Add/learn devices and points, set M-Bus devices primary addresses
  - Configure wiresheet control logic, histories, alarms etc.
  - Create PX pages for local GUI via iSMA touchscreen
- iSMA Touchscreen
  - Set-up iSMA HDMI service in MAC36
- Pre-commission all hard-wired and integration points
- Commission system as a whole checking each control function behaves as per description of operation

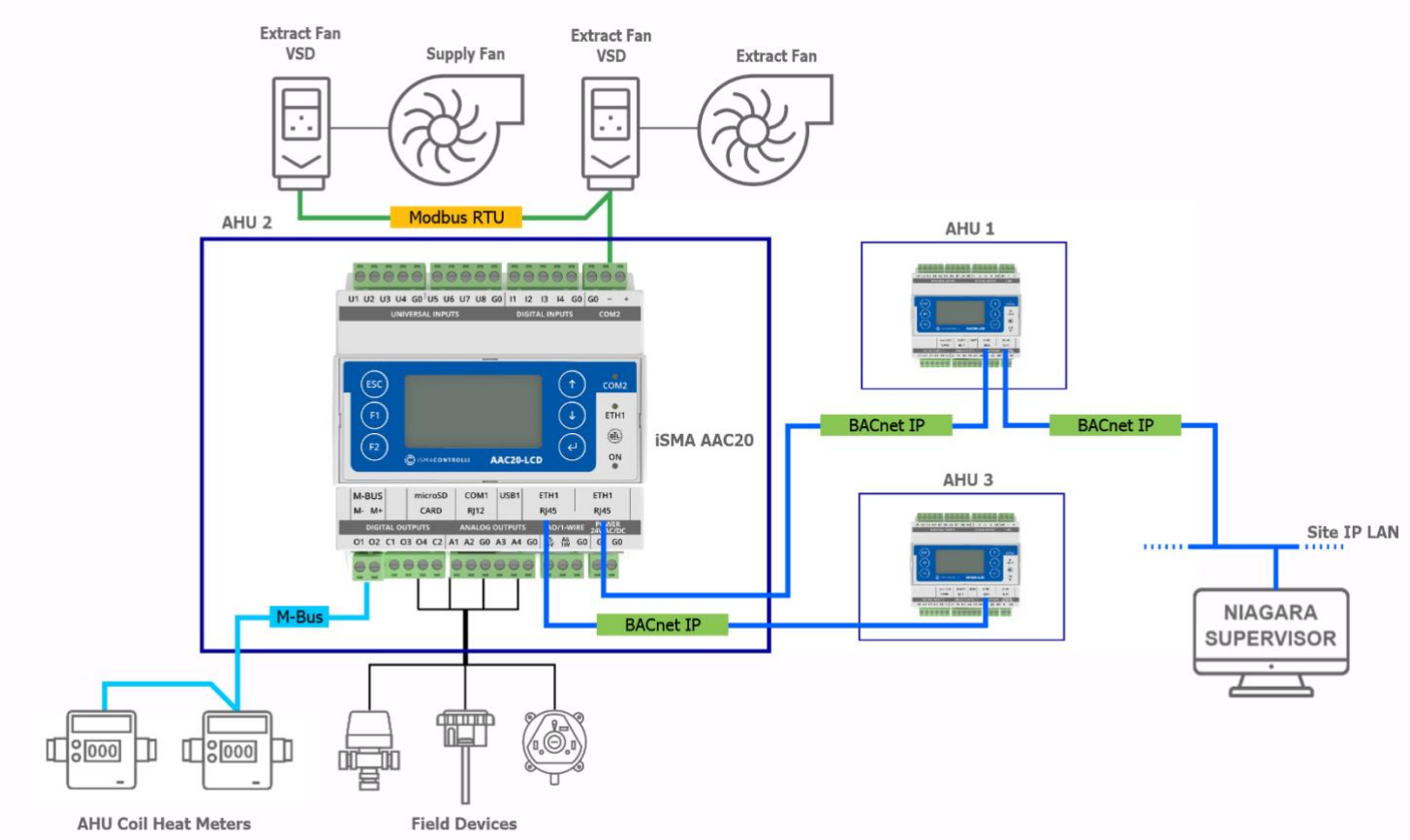
Application Example 5 – iSMA AAC20

In this example we show that although the AAC20 is not a Niagara 4 framework controller, it can still be integrated into a Niagara 4 system (or any other system that supports BACnet) and can still be a very powerful and cost-effective solution offering much of the core connectivity and expandability of more costly offerings, all be it in a more limited capacity. Highlights are:

- Onboard IO – can be expanded
- Option to daisy-chain Ethernet using built-in switch
- Option of built-in M-Bus port OR DALI port
- Onboard keypad option
- BACnet server and client functionality
- Modbus
  - TCP Master and Slave capability
  - Modbus TCP to RTU gateway option
  - RTU Master only

Some things to note are:

- Not Niagara 4 Framework – requires iSMA Tool to engineer (free to download)
- Cannot route BACnet between IP and MS/TP
- Very limited web user interface – graphics pages are not really possible



Hardware Functions and Reasons for Selection

iSMA AAC20

Main Functions

- Provides 20 x IO points for hard interface to plant and field devices
- Provides control strategy for plant
- Interfaces to Modbus devices for control and monitoring purposes
  - 500 points maximum in each TCP and RTU Master driver
    - Note – same applies to BACnet drivers
  - Each device consumes 1 additional point
- Interfaces directly with M-Bus heat meters – no convertor required
  - 20 M-Bus devices maximum
- Can provide local user interface with LCD screen and buttons
- Connected to site BEMS IP network for remote web station supervision via BACnet

Reasons for Selection

- Cost-effective
- Onboard IO caters for small AHU application – no IO modules needed
- Simple application doesn't require large points capacity, multiple serial ports or multi-protocol capability of more powerful controllers, e.g. MAC36 or JACE 8000
- On-board M-Bus port removes need for convertor – less panel space required
- Lack of onboard graphics capability is not an issue as site has central N4 supervisor
- Onboard Ethernet switch allows daisy-chain topology, reduced wiring

Engineering and Commissioning Procedure Overview

- iSMA AAC20
  - Check firmware and update as required
  - Set-up IP to suit system subnet
  - Create application in iSMATool and download
    - Wiresheet logic
    - Modbus and M-Bus driver set-up
    - BACnet export (for integration with Niagara 4 system)
    - IO setup
    - Histories, alarms, user access, schedules
- Fan VSDs
  - Set-up Modbus comms settings
  - Set-up fan motor settings, application etc.
- M-Bus heat meters
  - Set primary addresses
- Pre-commission all hard-wired and integration points
- Commission system as a whole checking each control function behaves as per description of operation
- N4 Supervisor Integration
  - Set-up N4 BACnet driver
    - Devices, points, histories, alarms, schedules, graphics

Useful Resources

Knowledge Base

Knowledge Base is an extensive collection of articles designed to help you navigate your way through our range of products. We understand that starting out with new equipment can be daunting, which is why our team has created easy-to-follow articles that are tailored specifically to our customers' needs, so you can avoid common mistakes and pitfalls.

Our Knowledge Base is constantly growing with new articles added frequently, ensuring that you always have access to the latest and most up-to-date information.

http://know.innon.com

Documentation

If you've misplaced your manual, don't worry. Our online library has got all the latest software versions, datasheets, and manuals for all the products we distribute. Plus, we update our files daily, so you'll never have to worry about using outdated information. Our library is available 24/7, so you can access it whenever you need it. Just head to

http://support.innon.com

YouTube

Looking for more information on our products? Check out our friendly and informative YouTube channel! We've got everything from quick start videos to product walkthroughs and selection advice. Our team will guide you through our products, providing demonstrations and use cases to help you choose the right product for your needs.

https://www.youtube.com/channel/UCeM5DQ3Umugfm6pNLutR6dg

Niagara 4 Engineers Facebook Group

Join our Niagara 4 Engineers Facebook Group and connect with engineers from all over the world! With over 3000 members, this private group allows you to engage in conversations, ask questions, and offer peer support about products and technology. Please note that we have a strict no advertising or recruitment policy to protect the integrity of the group and keep the conversations Niagara focused.

https://www.facebook.com/groups/NiagaraEngineers

About our Solution Guide Range

We've developed our Solution Guide range to help clients select the best products to build their own solutions. They aren't glossy sales brochures or heavy datasheets; they're educational guides designed to provide you with the right balance of features and technical information to inform your decision-making process.

Each solution guide will give you a rounded sense of what the products can do, their features, limitations, and differences and, importantly, how to leverage them to your advantage. You'll see how the different elements come together to build each solution, and we even put forward engineering and commissioning exercises for effective time management.

About Innon Energy

Innon Energy was founded in 2008 by engineers husband and wife Radu and Turchian. Since then, we've focused on providing the best possible service to BMS companies. We're not just a product distribution company - we work closely with our clients to understand their specific needs and develop products that meet them.

At Innon, we believe that engineering is more than a job. We see it as an opportunity to solve problems that enhance the quality of life for everyone around us. Our sales team is made of BMS engineers passionate about finding innovative solutions to help other BMS engineers achieve their goals.

We also invest heavily in education and have a Learning Management System designed specifically so that BMS engineers can stay updated with the latest BMS and IoT technology. We take our core values seriously, and they guide everything we do. We believe that an engineer's role is to find solutions to problems. We are here to provide them with the right tools and education to achieve their goals.

We prioritize customer satisfaction above all else. We want our clients to feel confident and supported every step of the way. Our growth strategy for the future focuses on helping System Integrators and IoT companies win more projects and self-deliver them better. We never do projects ourselves.

Innon Energy is more than just a company - we're a community of engineers and problem-solvers who are committed to making a positive impact on the world. We're excited to partner with you and help you achieve your goals.

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