Introduction

The *Metasys*® SNE Series of network engines and SNC Series of network control engines are Ethernet-based, supervisory engines that connect Building Automation System (BAS) networks to IP networks.

The SNE Series of network engines succeed the NAE Series of network engines, and the SNC Series of network control engines succeed the NCE Series of network control engines. This allows for the further expansion and enhancement of *Metasys* supervisory control capabilities.

The SNE and SNC perform a key role in the *Metasys* system architecture. They provide network management and system-wide control coordination over one or more networks of equipment controllers, including the following *Metasys* equipment controllers:

- CGM series general purpose equipment controllers

- CVM series VAV box controllers

- FEC and FAC series field equipment controllers

- VMA series VAV box controllers

- TEC series terminal equipment controllers

- LN series equipment controllers

- Third-party equipment controllers

These devices monitor and control networks of field-level building automation devices, including HVAC equipment, lighting, security, and fire safety equipment.

Network engines provide building control scheduling, alarm and event management, energy management, data exchange, historical data storage and management, and custom control logic. Network engines include an embedded user interface called the Site Management Portal (SMP). Users access the SMP for system navigation and operation using web browser connections. Network engines use password protection, permission access control, and IT security best practices to secure them from unauthorized access.

In addition to providing supervisory control capabilities, the SNC Series of network control engines also feature onboard input and output interfaces (I/O) and direct digital control capabilities of an equipment controller.

Figure 1: SNE Series of Network Engines and SNC Series of Network Control Engines

SNE Series

- SNE22000-0 succeeds the NAE55 Series of network engines.

- SNE11000-0 succeeds the NAE45 Series of network engines.

- SNE10500-0 succeeds the NAE35 Series of network engines.

- SNE110L0-0 succeeds the NAE45-Lite Series of network engines, and functions with the ADS-Lite-A server that is available in select regions.

SNC Series

- SNC25150-0 succeeds the NCE25 Series of network control engines.

- SNC25150-04 succeeds the NCE2500 Series of network control engines.

- SNC16120-0 succeeds the NCE25 Series of network control engines.

- SNC16120-04 succeeds the NCE2500 Series of network control engines.

ⓘ **Note:** The SNC is not an exact drop-in replacement for the NCE. Refer to *SNC Installation Guide (Part No. 24-10143-01892)* for more information about how to install an SNC.

See Ordering information for SNE models and Ordering information for SNC models for more information on the model types available. In addition, refer to the *Metasys for Validated Environments, Extended Architecture Product Bulletin (LIT-12011326)* for information about which network engines are validated for use at facilities that require regulatory compliance.

Features and benefits

The following features and benefits are applicable to SNEs and SNCs:

Multiple models available

Multiple models are available with varying device capacities for integrations and integral control I/O provide flexibility to select the appropriate model for the intended application.

Linux® operating system

Provides a robust, widely-accepted, and readily-supporting operating system.

User interface

You can use the Site Management Portal (SMP) user interface (UI) to access system data in the network engines from any supported web browser device connected to the network, including remote users connected by Virtual Private Network (VPN).

Encrypted Communications

All SNE and SNC network engines have self-signed certificates that provide for encrypted communication. Optionally, you can deploy trusted certificates from the customer's IT department or from a Certificate Authority (CA).

Memory

The memory of the SNE and SNC has 2 GB RAM and 16 GB Flash non-volatile memory. This memory provides capacity for further upgrades and a longer operational life.

Supports background file transfer

You can transfer files such as firmware upgrades, archive databases, or security transfers from the SCT to the SNE or SNC while it remains operational, minimizing system disruptions.

Device security

Ensures device integrity while the system is rebooting and during normal operation. Embedded technology provides trusted boot operation, firmware protection, secure storage, secure communications, and secure firmware updates complying with strong cyber security practices.

Smaller, modularized packaging

The size of the SNE is smaller than the NAE and the size of the SNC is smaller in comparison to the NCE. This reduces the amount of space you need for mounting, and can potentially reduce the size and cost of control panels.

Diagnostic multi-color LEDs

The use of multi-color LEDs can decrease installation and troubleshooting time.

Removable terminal blocks

The use of removable terminal blocks facilitates ease in installation and servicing.

Support for different site directors

The SNE and SNC communicate with a wide variety of Site Directors, which include the Application and Data Server (ADS), Extended Application and Data Server (ADX), Open Application Server (OAS), and Open Data Server (ODS). The ADS-Lite-A (Asia) and ADS-Lite-E (Europe) site directors are supported for select regions only.

Supervision of controller networks including Johnson Controls devices and third-party protocol devices

Supports connectivity to open network standards for complete flexibility in the selection of field devices. They include BACnet/IP, BACnet MS/TP, N2 Bus, LonWorks, Modbus TCP/IP, Modbus RTU, M-Bus, KNX, Zettler Fire Panel, Tyco C•CURE, victor, and other third-party protocols.

No battery

The SNE and SNC use a supercapacitor, not a battery, to provide temporary power for data backups during shutdown due to AC power loss. This design is more environmentally friendly and saves the eventual cost of replacing the battery. When the supercapacitor is fully charged, the SNE and SNC can maintain the real time clock for up to 72 hours during AC power loss.

Additional SNC features and benefits

The following features and benefits are specific to the SNC:

Onboard Inputs and Outputs

Provides direct equipment-level control including central plant and large air-handler applications combined with enterprise-level IP network connectivity. The SNC25150 has 25 inputs and 15 outputs, and the SNC16120 has 16 inputs and 12 outputs.

Expandable I/O point capacity, NS sensor connectivity, and Variable Frequency Drive (VFD) control on SA Bus

You can connect to multiple Input/Output Control Modules (IOM), NS Series Network Sensors, and VFD connections to the SA Bus, which greatly expands control capabilities.

Field equipment network management and integration

Metasys network engines provide network management over one or more networks of equipment controllers and other field devices. The SNEs and SNCs feature several optional communication port and protocol selections to integrate *Metasys* equipment controllers, types of non-*Metasys* devices, and third-party devices typically found in commercial buildings.

The following list includes a brief description of the supported integrations:

- **BACnet/IP**—for *Metasys* IP-based equipment controllers and other third-party BACnet/IP devices. The following are BACnet/IP integrations available:

    - **Simplex® Fire Alarm Control Unit (FACU)**—to interface with and provide secondary monitoring of a Simplex fire control system.

    - **Cree® SmartCast Lighting Control and Molex® Lighting Control**—to manage lighting control in the building.

- **BACnet MS/TP**—for *Metasys* equipment controllers and TEC equipment controllers, non-*Metasys* BACnet controllers, and other third-party BACnet MS/TP devices.

- **Tyco® C•CURE® 9000 Access Control System and victor® Video Management**—to manage building access control networks and video management systems.

- **N2 Bus**—to manage networks of N2-based *Metasys* equipment controllers, such as UNTs, VMA1400s, and DX-9100s, N2-configured *Metasys* FEC, FAC, VMA, CGM, and CVM series equipment controllers and third-party N2 Open devices.

- **LonWorks**—to manage networks of *Metasys* LonWorks controllers, legacy LonWorks equipment controllers, such as DX-9200s and Terminal Control Units (TCUs), as well as third-party LonWorks devices.

- **Modbus**—to manage networks of third-party Modbus devices, such as energy meters and process controllers.

- **KNX** —to manage networks of KNX devices, such as window blinds and shading controls, lights, and meters.

- **M-Bus**—to manage networks of M-Bus devices, such as heat meters.

- **Zettler® Fire Panel**—to interface with and provide secondary monitoring of a Zettler fire detection system.

- **Remote Field Bus Applications**—to reduce the installed cost of BACnet MS/TP field devices throughout a facility. Any intra-building, inter-building, or remote location that has IP network connections readily available can use the remote field bus.

The following is an example of a *Metasys* system network showing various integrations.

Figure 2: Device integrations for the *Metasys* network
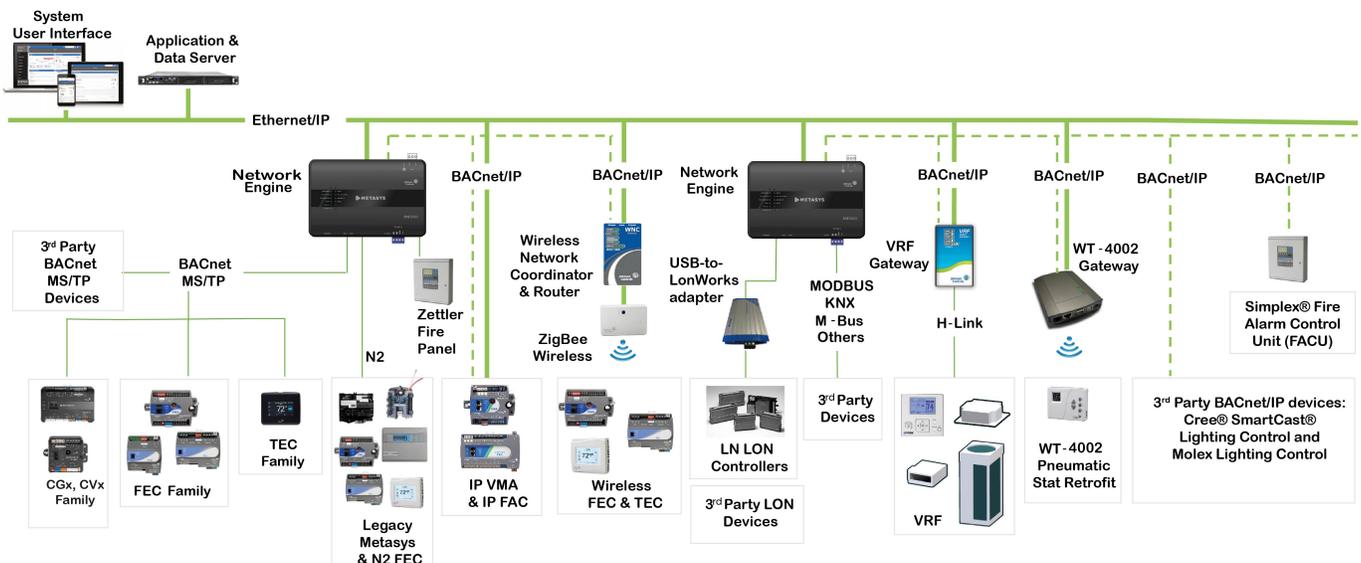
Automated system-wide control and coordination

The SNE and SNC provide automated system-wide control and coordination over multiple field devices under one or more field device networks. Some examples of the system-wide control coordination capabilities include:

- **Scheduling:** the SNE and SNC can automatically command mechanical or electrical equipment to a operational state, such as On/Off, Occupied/Unoccupied, Economy/Comfort, or Heating/Cooling/Economizer/Auto based on a user-defined schedule. You can set the operating parameters according to time of day, days of the week, holidays, or calendar dates.

- **Alarm and event management:** the SNE and SNC can generate alarms based on user-defined criteria; to send alarm and event messages to web browsers, email servers, and Network Management Systems; and to store and view alarm and event logs, and transfer the data to the Application and Data Server.

- **Network-wide system interlocking:** the SNE and SNC can collect data from field devices, make logical comparisons between the data, and issue relevant commands to other field controllers, anywhere on the network.

- **Transaction recording:** audits and logs all user actions performed through the network engine. Operators can review these logs to understand what changes have been made to the system, who made them, and when they were made.

- **Historical data:** can be collected and stored by the SNE and SNC for any monitored data point value based on user-defined intervals or on a change of value. The SNE and SNC can transfer the data logs to the Application and Data Server at defined intervals, or when the SNE and SNC logs are full.

- **Totalization:** the SNE and SNC can calculate rolling sums of any monitored data point value stream. Operators can use this information to monitor runtime information useful for service, maintenance, and early identification of building system problems.

- **Optimal start:** the SNE and SNC can automatically determine the best time to start heating and cooling systems to ensure that the facility is conditioned for occupancy. It adjusts to seasonal variations and reduces energy use.

- **Demand Limiting Load Rolling (DLLR):** the SNE and SNC can monitor energy meters, such as electricity, gas, steam, or water, and automatically shed equipment loads according to user-defined levels. Demand Limiting helps manage utility demand charges. Load Rolling controls equipment operating levels to reduce total energy consumption.

- **Access control system integration:** the SNE and SNC can monitor and control systems that notify the security guard when an access badge scan is permitted or denied, when access control devices go offline, and when monitored doors are locked and unlocked. The SNE and SNC can use building events to trigger logic and automate access control functions throughout a facility.

- **Video management system integration:** the SNE and SNC can access systems that track the health of video system components, and reports on a variety of analytics and events. Video streaming directly within the *Metasys* user interface is not available; you can view the surveillance system adjacent to the SMP UI in a separate browser window.

- **Fire panel integration:** the SNE and SNC is exposed to monitored points in the Simplex or Zettler fire alarm system to provide better and more effective interaction between the BAS and fire systems.

- **Lighting control system integration:** the SNE and SNC can access and control lighting groups, zones, and spaces without the engine needing a large number of points. Options include turning lights on and off, adjusting light levels, and obtaining sensor data that indicates such data as occupancy, ambient light level, and power consumption.

Scalable

Different SNE and SNC models are available, each with different field device capacities, so you can select the model that best meets the size, complexity, and scope of your specific project.

For projects that exceed the capacity of a single engine, you can network *Metasys* network engines together, and you can network them with the Application and Data Server for additional functionality and site unification.

Secure

The *Metasys* system uses industry-standard system security and encoding protocols to protect against unauthorized access to data and control systems.

The *Metasys* system includes the following security features:

- Support for local users, Active Directory users, Microsoft® Office 365® users, and Remote Authentication Dial-In User Service (RADIUS) users.

- Obscures user names and passwords.

- Enforces strong passwords.

- Provides an optional capability of sending its configured audit log entries and alarm notifications to an external, industry-standard Syslog server, conforming to Internet published RFC 3164.

- Provides dormant account settings for users and reports. Dormant User Account Reports are available in SMP. Dormant user account events are also included in the Audit Viewer and the Event Viewer.

- HTTPS with TLS 1.2 between *Metasys* components, including the Application and Data Server, *Metasys* UI, System Configuration Tool (SCT), and network engines. This enhancement ensures the highest level of security to protect your building automation system from unauthorized users and computer hackers.

- Self-signed certificates are installed on supported products, with the option of configuring trusted certificates.

SNE series network engines

The following table contains a brief comparison of the features of the SNE Series network engines.

ⓘ **Note:** Each device counts towards the overall limit of the SNE. For example, you cannot have 34 MS/TP devices and 43 BACnet/IP devices connected to an SNE10500.

Table 1: SNE Series of Network Engine details

Features	SNE22000	SNE11000	SNE10500	SNE110L0 [1]
Succeeds	NAE55 Series	NAE45 Series	NAE35 Series	NAE45-Lite
Communication interfaces	• 1 Ethernet port • 2 RS-485 ports • 2 USB ports[2]	• 1 Ethernet port • 1 RS-485 port • 2 USB ports[2]		

Table 1: SNE Series of Network Engine details

Features	SNE22000	SNE11000	SNE10500	SNE110L0 [1]
Maximum allowed devices across all integrations. For example, MS/TP +IP. Includes VND integrations and devices brought in via routers.	600	150	60	110
BACnet/IP maximum trunks	1	1	1	1
BACnet/IP maximum devices per trunk	200	100	50	10
BACnet MS/TP maximum trunks	2	1	1	1
BACnet MS/TP maximum devices per trunk	100	100	50	100
BACnet MS/TP maximum devices per trunk (with 3rd party)	64	64	32	64
N2 maximum trunks	2	1	1	N/A
Mapped N2 devices per trunk	100	100	50	N/A
Remote Field Bus maximum trunks	6	3	3	N/A
Remote Field Bus maximum Johnson Controls Devices per bus	32	32	32	N/A
Remote Field Bus maximum devices per bus (with 3rd party devices)	16	16	16	N/A
Maximum objects in device	5000	2500	2500	2500
Supported type of parent server	• ADS • ADX • OAS • ODS	• ADS • ADX • ADS-Lite-E • OAS • ODS	• ADS • ADX • ADS-Lite-E • OAS • ODS	ADS-Lite-A only

Table 1: SNE Series of Network Engine details

Features	SNE22000	SNE11000	SNE10500	SNE110L0 [1]

Supported integrations	• BACnet/IP
	   - Simplex® Fire Alarm Control Unit (FACU)
	   - Cree® SmartCast® Lighting Control
	   - Molex® Lighting Control
	• BACnet MS/TP Field Controller (FC) Bus
	• N2 Bus
	  ⓘ **Note:** The M4-SNE110L0-0 model does not support the N2 Bus.
	• LonWorks® (requires USB to LON adapter)
	  ⓘ **Note:** The M4-SNE110L0-0 model does not support the LonWorks network interface.
	• Modbus: Modbus TCP/IP on Ethernet and Modbus Remote Terminal Unit on RS-485
	• KNX IP
	• M-Bus
	• Tyco® C•CURE® 9000 and victor® Video Management
	• Zettler® Fire Panel			

Operating System	Wind River® Linux LTS 17 (LTS=long-term support)			
Microprocessor	NXP i.MX6 DualLite processor			
Memory	Flash 2GB of DDR3 RAM and 16 GB of eMMC Flash			
User Interface	Site Management Portal (SMP)			

1   This model is intended for use with the ADS-Lite-A servers (only) in Australia, China, Hong Kong, India, Indonesia, Japan, Korea, Malaysia, New Zealand, Philippines, Singapore, Taiwan, Thailand, Vietnam, and select branches within regions of Africa and the Middle East.

2   Only the supported USB integration adapters function with the SNE. Other integration adapters that are not supported shall not function with the SNE.

SNC series network control engines

The following table contains a brief comparison of the features of the SNC models.

ⓘ **Note:** The SNC is not an exact drop-in replacement for the NCE Series network engines.

ⓘ **Note:** Each device counts towards the overall limit of the SNC. For example, you cannot have 50 MS/TP devices and 50 BACnet/IP devices connected to an SNC25150-0.

Table 2: SNC Series of Network Control Engines details

Features	SNC25150-0	SNC25150-04	SNC16120-0	SNC16120-04
Succeeds	NCE25 Series	NCE2500	NCE25 Series	NCE2500
Onboard inputs and outputs	• 40 total onboard I/O: 14 UI, 11 BI, 4 CO, 4 AO, 7 BO • Supports SA Bus expansion		• 28 total onboard I/O: 10 UI, 6 BI, 4 CO, 4 AO, 4 BO • Supports SA Bus expansion	

Table 2: SNC Series of Network Control Engines details

Features	SNC25150-0	SNC25150-04	SNC16120-0	SNC16120-04
Communication interfaces	• 1 Ethernet port • 1 RS-485 port • 2 USB ports for connecting external integration adapters[1]			
Maximum allowed devices across all integrations. For example, MS/TP +IP. Includes VND integrations and devices brought in via routers.	96	4	60	4
BACnet/IP maximum trunks	1	1	1	1
BACnet/IP maximum devices per trunk	50	4	50	4
BACnet MS/TP maximum trunks	1	1	1	1
BACnet MS/TP maximum devices per trunk	50	4	50	4
BACnet MS/TP maximum devices per trunk (with 3rd party)	32	4	32	4
N2 maximum trunks	1	1	1	1
Mapped N2 devices per trunk	50	4	50	4
Remote Field Bus maximum trunks	0	0	0	0
Maximum objects in device	2500	2500	2500	2500
Supported type of parent server	• ADS • ADX • ADS-Lite-E • OAS • ODS			

Table 2: SNC Series of Network Control Engines details

Features	SNC25150-0	SNC25150-04	SNC16120-0	SNC16120-04

Supported integration drivers	• BACnet/IP
	    - Simplex® Fire Alarm Control Unit (FACU)
	    - Cree® SmartCast® Lighting Control
	    - Molex® Lighting Control
	• BACnet MS/TP
	• N2 Bus
	• LonWorks® (requires USB to LON adapter)
	• Modbus: Modbus TCP/IP on Ethernet and Modbus Remote Terminal Unit on RS-485
	• KNX IP
	• M-Bus
	• Tyco® C•CURE® 9000 and victor® Video Management
	• Zettler® Fire Panel			

Operating System	Wind River® Linux LTS 17 (LTS=long-term support)			
Microprocessor	NXP i.MX6 DualLite processor			
Memory	2 GB of DDR3 RAM and 16 GB of eMMC Flash			
User Interface	Site Management Portal (SMP)			

1   Only the supported USB integration adapters function with the SNC. Other integration adapters that are not supported shall not function with the SNC.

SNC point type counts

The SNC25150 supports up to 40 hard-wired onboard I/O points, 25 inputs and 15 outputs. The SNC16120 supports up to 28 hard-wired onboard I/O points, 16 inputs and 12 outputs.

Table 3: Onboard I/O points

SNC	Total I/O	Universal Inputs (UI)	Binary Inputs (BI)	Configurable Outputs (CO)	Analog Outputs (AO)	Binary Outputs (BO)
SNC25150	40	14	11	4	4	7
SNC16120	28	10	6	4	4	4

Table 4: Input and output terminals

Type of Point	Options

Universal Inputs	• Voltage Analog inputs (0-10 VDC)
	
	• Current Analog inputs (4-20 mA)
	
	• Resistive Analog inputs (0-2k Ohm)
	   - RTD: 1k Nickel, 1k Platinum, or A99B SI
	
	   - NTC: 10k Type L or 2.225k Type 2
	• Dry contact Binary inputs

Binary Inputs	• Dry contact maintained • Pulse counter mode (100 Hz)
Configurable Outputs	• Voltage Analog outputs (0-10 VDC) • Binary outputs (24 VAC Triac, require external 24 VAC supply to source the Binary outputs.)
Analog Outputs	• Voltage Analog outputs (0-10 VDC) • Current Analog outputs (4-20 mA)
Binary Outputs	24 VAC Triac outputs. Require external 24 VAC supply to source the Binary outputs.

Repair information

If the SNE or SNC fails to operate within its specifications, replace the unit. For a replacement SNE or SNC, contact the nearest Johnson Controls representative.

Conclusion

The SNE and SNC affirm the position of Johnson Controls as a leader and innovator in the Building Automation System (BAS) industry. The integration of IT and Internet standards into the SNE and SNC platform, as well as the use of open protocols for field networks, bring the benefits of the global communications and control industries into one system. Web browser-based access from any location is a key to the effective use of the automation network.

The *Metasys* system continues to be the integrating network within buildings and has now been extended to bridge the gap between traditional control systems and the business and communication network systems of the enterprise.

Ordering information for SNE and SNC models

The SNE and SNC models listed in the following tables are also available as reconditioned models. To order a reconditioned version add an **R** after the product code number.

ⓘ **Note:** Since the SNE and SNC are new models, a reconditioned model may not be available.

ⓘ **Note:** Additional USB integration adapters can be expected at future releases.

Ordering information for SNE models

Table 5: SNE ordering information

Product code number	Description
M4-SNExxxxx-xxx (base features of each SNE)	SNE Supervisory Network Engine Series Requires a 24 VAC or 24 VDC power supply. Each model includes one Ethernet port, one RS-485 communications port, two standard USB serial ports, and one micro-USB port (future use). **Supported IP integrations**: BACnet/IP, Modbus TCP/IP, KNX IP, and C-Cure/victor **Supported field bus integrations**: MS/TP (RS-485) FC Bus, N2 Bus, Modbus RTU, M-Bus, and Zettler
M4-SNE22000-0	Supports two local field bus device integrations with a maximum of 100 devices on each trunk for a maximum of 200 devices per engine. Also includes an RJ-12 connection for the FC Bus. An optional LonWorks adapter can be connected to USB port to add LON communications. Also supports one BACnet/IP device integration.
M4-SNE11000-0	Supports one local field bus device integration with a maximum of 100 devices on the trunk. An optional LonWorks adapter can be connected to USB port to add LON communications. Also supports one BACnet/IP device integration.
M4-SNE10500-0	Supports one local field bus device integration with a maximum of 50 devices on the trunk. An optional LonWorks adapter can be connected to USB port to add LON communications. Also supports one BACnet/IP device integration.
M4-SNE110L0-0	Supports one local field bus device integration with a maximum of 100 devices on the trunk. This model is intended for use with *Metasys* Server Lite (ADS-Lite-A) software in select regions of Australia, China, Hong Kong, India, Indonesia, Japan, Korea, Malaysia, New Zealand, Philippines, Singapore, Taiwan, Thailand, Vietnam, and select branches. ⓘ **Note:** This model does not support the N2 Bus or LonWorks network interface, but does support one BACnet/IP device integration.

ⓘ **Note:** See SNE series network engines for more information about the number of devices supported.

Ordering information for SNC models

Table 6: SNC base features

Product code number	Description
M4-SNCxxxxx-xxx (base features)	Supervisory Network Control Engine Series Every SNC model includes the following functionality: • Pluggable terminal blocks • Site Management Portal (SMP) UI (if used with the ADS, ADX, ODS, or OAS Server the *Metasys* UI is also available) • Wind River® Linux Operating System • Three mounting clips for direct screw-mounting, or for DIN Rail mounting • Support for BACnet/IP, MS/TP, N2, LonWorks, Modbus RTU, Modbus TCP, M-Bus, KNX, Tyco C•CURE and victor Video Management, Simplex Fire, Molex and CREE Digital Lighting, Zettler Fire integrations

Table 7: SNC model features by product code number

	M4-SNC25150-0	M4-SNC25150-04	M4-SNC16120-0	M4-SNC16120-04
Integral Equipment Controller	40 Integral I/O points - 25 inputs, 15 outputs • 14 UI • 11 BI • 4 AO • 7 BO • 4 CO		28 Integral I/O points - 16 inputs, 12 outputs • 10 UI • 6 BI • 4 AO • 4 BO • 4 CO	
Maximum MS/TP or N2 devices per local FC Bus trunk	50	4	50	4
Ethernet Port[1]	1			
Field Controller (FC) Bus	1			
SA Bus	1			
USB Ports for LonWorks, RS-232, M-Bus[2]	2			

1   A second Ethernet Port is reserved for future use.
2   The qualified LonWorks and RS-232 adapters are available from Johnson Controls. The M-Bus adapters are available directly from suppliers.

ⓘ **Note:** See SNC series network control engines
for more information about the number of
devices supported.

Accessories ordering information

Table 8: SNE accessories ordering information

Product code number or vendor model number	Description
AS-XFR100-1	Power transformer with enclosure, class 2, 24 VAC, 92 VA maximum output.
AS-XFR010-1	Power transformer, no enclosure, class 2, 24 VAC, 92 VA maximum output.
ACC-PWRKIT-1A24	Power Supply, Desktop Kit, 90-264 VAC to 24VDC, 65 W, includes AC cord with North American Plug
ACC-PWRKIT-1E24	Power Supply, Desktop Kit, 90-264 VAC to 24VDC, 65 W, includes AC cord with European Plug
ACC-USBLON-0[1]	USB to LonWorks Adapter. Includes DIN Rail mounting bracket. Tested and qualified for use on the SNE.
ACC-USBRS232-0[1]	USB to RS-232 Adapter. Tested and qualified for use on the SNE.

1   Non-qualified adapters do not function in USB ports of the SNE.

Table 9: SNC accessories ordering information

Product code number	Description
TL-MAP1810-xx	Pocket-sized web server that provides a wireless mobile user interface to *Metasys* field controllers, thermostats, and smart rooftop units. Refer to the *Mobile Access Portal Gateway Catalog Page (LIT-1900869)* to identify the appropriate product for your region. ⓘ **Note:** The initial release only supports MAP communication with equipment controllers connected to the FC Bus and not with the application within the SNC (which comes at a later release).
AS-XFR100-1	Power transformer with enclosure, class 2, 24 VAC, 92 VA maximum output.
AS-XFR010-1	Power transformer, no enclosure, class 2, 24 VAC, 92 VA maximum output.
ACC-USBLON-0[1]	USB to LonWorks Adapter. Includes DIN Rail mounting bracket. Tested and qualified for use on the SNC.
ACC-USBRS232-0[1]	USB to RS-232 Adapter. Tested and qualified for use on the SNC.
ACC-TBKINOUT-0	Replacement terminal block kit for input and output terminal blocks. All blocks are removable and labeled. Kit includes 5 of each 2, 3, and 4-pin terminal blocks
ACC-TBKPWFCSA-0	Replacement terminal block kit for power, FC Bus, SA Bus terminal blocks. All blocks are removable and labeled. Kit includes 5 of each terminal block type.
MS-FCP-0	License enabling *Metasys* Equipment Controller Firmware Package Files required for the Controller Configuration Tool (CCT).
TL-CCT-0	License enabling *Metasys* CCT software for one user.

Table 9: SNC accessories ordering information

Product code number	Description
TL-SCT-0	System Configuration Tool software for local installations. New project software for sites that do not have a previous version of SCT installed.
TL-SCT-6	System Configuration Tool software for local installations. Upgrade software for previous SCT versions being upgraded to the latest release.

1   Non-qualified adapters do not function in USB ports of the SNC.

Third-party integration accessory ordering information

Table 10: M-Bus accessories ordering information

Product Code Number	Description
SIS-MBUSNCLL-0E	M-Bus level converter for up to 100 unit loads; 24 VAC/VDC (IP connection)
SIS-MBUSNCLH-0E	M-Bus level converter for up to 100 unit loads; 230 VAC (IP connection)
SIS-MBUSRPLL-0E	M-Bus repeater for up to 100 unit loads, 24V AC/DC
SIS-MBUSRPLH-0E	M-Bus repeater for up to 100 unit loads; 230 VAC
MR003USB	Mikro-Master USB–to–M-Bus adapter for up to 10 M-Bus devices. ⓘ **Note:** Order this accessory directly from the supplier, made by Relay GmbH.
ⓘ **Note:** For the European market, order these accessories in AOMS from the Johnson Controls Essen Distribution Center.	

Table 11: KNX accessories ordering information

Product code number	Description
SIS-KNXNIXL-0E	KNX IP interface module to connect KNX line through Ethernet to the network engine.
SIS-KNXNRXL-0E	KNX IP router to connect KNX line through Ethernet to a network engine, including line or area coupler functionality
ⓘ **Note:** For the European market, order these KNX accessories in AOMS from the Johnson Controls Essen Distribution Center.	

Table 12: Modbus tool training course ordering information

Course number	Course title and description
C-10077-EN	VGE Tool Software Training (North America) The VGE tool is required to generate custom Modbus mapping tables.
PTK-CONT-26	VGE Tool Software Software Training (Europe and Asia) The VGE tool is required to generate custom Modbus mapping tables.
ⓘ **Note:** Modbus Integrations require one or more vendor Modbus definition (VMD) tables for specific third-party equipment. You can purchase tables from your regional System Integration Services (SIS) office, or you can create the tables with the VMD Generator Express (VGE) tool. To obtain a license, attend the training listed in this table.	

Technical specifications

M4-SNE Series

Table 13: SNE1100, SNE1050, and SNE110L network engines

Specification	Description
Power requirement	Dedicated nominal 24 VAC, Class 2 power supply (North America), SELV power supply (Europe), at 50/60 Hz (20 VAC minimum to 30 VAC maximum) Alternate: Dedicated nominal 24 VDC, Class II power supply input; North America: ACC-PWRKIT-1A24; Europe: ACC-PWRKIT-1E24
Power consumption	38 VA maximum
Operating System	Wind River® Linux LTS 17 (LTS=long-term support)
Processor	NXP i.MX6 DualLite processor, dual core Cortex-A9 processor at 1.0 GHz with 512 KB of L2 cache
Memory	16 GB flash nonvolatile memory for operating system, configuration data, and operations data storage and backup 2 GB SDRAM for operations data dynamic memory
Supported integrations	BACnet/IP, BACnet MS/TP, N2 Bus, LonWorks, Modbus, KNX, M-Bus, Zettler Fire Tyco C•CURE 9000-victor video management, Simplex FACU, Molex Lighting Control, Cree SmartCast Lighting Control ⓘ **Note:** The SNE110L model supports one IP device integration, but does **not** support the N2 Bus or LonWorks network interface.
Network and Serial interfaces	One Ethernet port; 1000/100/10 Mbps; 8-pin RJ45 connector One FC port (RJ12 6-pin port; connects with 1.5 m [4.9 ft] RJ-12 field bus cable) One optically isolated RS-485 port; with a removable 4-pin terminal block Three USB ports (one Micro-B port, and two USB A ports). All support USB 2.0 and Open Host Controller Interface [Open HCI] specification; Micro-USB port currently inactive
Transmission speeds	Ethernet communication: 1000, 100, or 10 Mbps Optically isolated, serial communication (FC Bus): 76,800, 38,400, 19,200, 9600, or 1200 bps (selectable)
Ambient temperature conditions	**Operating**: 0°C to 50°C (32°F to 122°F) **Operating Survival**: -30°C to 60°C (-22°F to 140°F) **Non-Operating**: -40°C to 70°C (-40°F to 158°F)
Ambient humidity conditions	**Storage**: 5% to 95% RH, 30°C (86°F) maximum dew point conditions **Operating**: 10% to 90% RH, 30°C (86°F) maximum dew point conditions
Housing	Black Polycarbonate and Acrylonitrile butadiene styrene (ABS) blend
Mounting	On flat surface with screws on three mounting clips or a single 35 mm DIN rail

Table 13: SNE1100, SNE1050, and SNE110L network engines

Specification	Description
Dimensions (Height x Width x Depth)	190 mm x 125 mm x 45.5 mm (7.48 in. x 4.92 in. x 1.75 in.)
Weight	0.387 kg (0.852 lbs)
Compliance $C\epsilon$	**United States:** UL Listed, File E107041, CCN PAZX, UL 916, Energy Management Equipment; FCC Compliant to CFR47, Part 15, Subpart B, Class A
	Canada: UL Listed, File E107041, CCN PAZX7, CAN/CSA C22.2 No. 205, Signal Equipment; Industry Canada Compliant, ICES-003
	Europe: CE Mark – Johnson Controls, Inc. declares that this product is in compliance with the essential requirements and other relevant provisions of the EMC Directive.
	Australia and New Zealand: RCM Mark, Australia/NZ Emissions Compliant
	BACnet International: BTL 135-2016 Listed B-BC/B-RTR/B-BBMD, Protocol Revision 15

Table 14: SNE2200 network engine

Specification	Description
Power requirement	Dedicated nominal 24 VAC, Class 2 power supply (North America), SELV power supply (Europe), at 50/60 Hz (20 VAC minimum to 30 VAC maximum) Alternate: Dedicated nominal 24 VDC, Class II power supply input; North America: ACC-PWRKIT-1A24; Europe: ACC-PWRKIT-1E24
Power consumption	38 VA maximum
Operating System	Wind River® Linux LTS 17 (LTS=long-term support)
Processor	NXP i.MX6 DualLite processor, dual core Cortex-A9 processor at 1.0 GHz with 512 KB of L2 cache
Memory	16 GB flash nonvolatile memory for operating system, configuration data, and operations data storage and backup 2 GB SDRAM for operations data dynamic memory
Supported integrations	BACnet/IP, BACnet MS/TP, N2 Bus, LonWorks, Modbus, KNX ,M-Bus, Zettler Fire Tyco C•CURE 9000-victor video management, Simplex FACU, Molex Lighting Control, Cree SmartCast Lighting Control
Network and Serial interfaces	One Ethernet port; 1000/100/10 Mbps; 8-pin RJ45 connector Two FC ports (RJ12 6-pin port; connects with 1.5 m [4.9 ft] RJ12 field bus cable) Two optically isolated RS-485 ports; with a removable 4-pin terminal block Three USB ports (one Micro-B port, and two USB A ports). All support USB 2.0 and Open Host Controller Interface [Open HCI] specification; Micro-USB port currently inactive
Transmission speeds	Ethernet communication: 1000, 100, or 10 Mbps Optically isolated, serial communication (FC Bus): 76,800, 38,400, 19,200, 9600, or 1200 bps (selectable)

Table 14: SNE2200 network engine

Specification	Description
Ambient temperature conditions	**Operating**: 0°C to 50°C (32°F to 122°F) **Operating Survival**: -30°C to 60°C (-22°F to 140°F) **Non-Operating**: -40°C to 70°C (-40°F to 158°F)
Ambient humidity conditions	**Storage**: 5% to 95% RH, 30°C (86°F) maximum dew point conditions **Operating**: 10% to 90% RH, 30°C (86°F) maximum dew point conditions
Housing	Black Polycarbonate and Acrylonitrile butadiene styrene (ABS) blend
Mounting	On flat surface with screws on three mounting clips or a single 35 mm DIN rail
Dimensions (Height x Width x Depth)	190 mm x 125 mm x 44.5 mm (7.48 in. x 4.92 in. x 1.75 in.)
Weight	0.387 kg (0.852 lbs)
Compliance	**United States:** UL Listed, File E107041, CCN PAZX, UL 916, Energy Management Equipment; FCC Compliant to CFR47, Part 15, Subpart B, Class A
	Canada: UL Listed, File E107041, CCN PAZX7, CAN/CSA C22.2 No. 205, Signal Equipment; Industry Canada Compliant, ICES-003
	Europe: CE Mark – Johnson Controls, Inc. declares that this product is in compliance with the essential requirements and other relevant provisions of the EMC Directive.
	Australia and New Zealand: RCM Mark, Australia/NZ Emissions Compliant
	BACnet International: BTL 135-2016 Listed B-BC/B-RTR/B-BBMD, Protocol Revision 15

M4-SNC Series

Table 15: SNC25150 and SNC16120

Specification	Description
Power requirement	Dedicated nominal 24 VAC, Class 2 power supply (North America), SELV power supply (Europe), at 50/60 Hz (20 VAC minimum to 30 VAC maximum)
Power consumption	32 VA maximum from main power supply ⓘ **Note:** The VA rating does not include any power supplied to the peripheral devices connected to Binary Outputs (BOs) or Configurable Outputs (COs), which can consume up to 12 VA for each BO or CO, for a possible total consumption of an additional 132 VA (maximum).
Power source	+15 VDC power source terminals provide 100 mA total current; quantity of inputs: five, located in Universal Input terminals; for active (3-wire) input devices
SA Bus power	15 V at 240 mA maximum
Operating System	Wind River® Linux LTS 17 (LTS=long-term support)
Processor	NXP i.MX6DualLite Processor, 1GHz 32-bit dual core Cortex A9 processor
Memory	16 GB flash nonvolatile memory for operating system, configuration data, and operations data storage and backup 2 GB SDRAM for operations data dynamic memory

Table 15: SNC25150 and SNC16120

Specification	Description
Universal Input (UI) resolution	Input: 24-bit Analog to Digital converter
Analog Output (AO) accuracy	Output: +/- 200 mV accuracy in 0–10 VDC applications
Supported integrations	BACnet/IP, BACnet MS/TP, N2 Bus, LonWorks, Modbus, KNX, M-Bus, Zettler Fire Tyco C•CURE 9000-victor video management, Simplex FACU, Molex Lighting Control, Cree SmartCast Lighting Control
Network and serial interfaces	One supported Ethernet port (top); 1000/100/10 Mbps; 8-pin RJ45 connector One FC port (RJ12 6-pin port; connects with 1.5 m [4.9 ft] RJ12 field bus cable) One SA port (RJ12 6-pin port; connects with 1.5 m [4.9 ft] RJ12 field bus cable) One optically isolated RS-485 port; with a removable 4-pin terminal block One optically isolated RS-485 SA Bus port; with a removable 4-pin terminal block Two USB A ports. All support USB 2.0 and Open Host Controller Interface [Open HCI] specification.
Transmission speeds	Ethernet communication: 1000, 100, or 10 Mbps Optically isolated, serial communication (FC Bus): 76,800, 38,400, 19,200, 9600, or 1200 bps (selectable) Sensor/actuator communication (SA Bus): 38,400 bps
Ambient temperature conditions	Operating: 0°C to 50°C (32°F to 122°F) Operating survival: -30°C to 60°C (-22°F to 140°F) Non-operating: -40°C to 70°C (-40°F to 158°F)
Ambient humidity conditions	Storage: 5% to 95% RH, 30°C (86°F) maximum dew point conditions Operating: 0% to 90% RH, 30°C (86°F) maximum dew point conditions
Housing	Black Polycarbonate and Acrylonitrile butadiene styrene (ABS) blend
Mounting	On flat surface with screws on three mounting clips or a single 35 mm DIN rail
Dimensions (width x height x depth)	250 mm x 145 mm x 45.5 mm (9.84 in. x 5.71 in. x 1.79 in.)
Weight	0.65 kg (1.433 lbs)

Table 15: SNC25150 and SNC16120

Specification	Description
Compliance CE	**United States:** UL Listed, File E107041, CCN PAZX, UL 916, Energy Management Equipment; FCC Compliant to CFR47, Part 15, Subpart B, Class A
	Canada: UL Listed, File E107041, CCN PAZX7, CAN/CSA C22.2 No. 205, Signal Equipment; Industry Canada Compliant, ICES-003
	Europe:– Johnson Controls declares that this product is in compliance with the essential requirements and other relevant provisions of the EMC Directive.
	Australia and New Zealand: RCM Mark, Australia/NZ Emissions Compliant
	BACnet International: BTL 135-2016 Listed B-BC/B-RTR/B-BBMD, Protocol Revision 15

North American emissions compliance

United States

This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when this equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area may cause harmful interference, in which case the users will be required to correct the interference at their own expense.

Canada

This Class (A) digital apparatus meets all the requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la Classe (A) respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Points of single contact

APAC	Europe	NA/SA
JOHNSON CONTROLS C/O CONTROLS PRODUCT MANAGEMENT NO. 32 CHANGJIJANG RD NEW DISTRICT WUXI JIANGSU PROVINCE 214028 CHINA	JOHNSON CONTROLS WESTENDHOF 3 45143 ESSEN GERMANY	JOHNSON CONTROLS 507 E MICHIGAN ST MILWAUKEE WI 53202 USA

Software terms

Use of the software that is in (or constitutes) this product, or access to the cloud, or hosted services applicable to this product, if any, is subject to applicable terms set forth at www.johnsoncontrols.com/techterms. Your use of this product constitutes an agreement to such terms.

Product warranty

This product is covered by a limited warranty, details of which can be found at www.johnsoncontrols.com/buildingswarranty.

Patents

Patents: http://jcipat.com