Introduction

▶ **Important:** At Release 12.0, the NAE85 functions as a Site Director but not as a child device. **To keep a NAE85 as a child device, do not upgrade it to Release 12.0**.

▶ **Important:** A new install of an NAE85 or an upgrade of an NAE85 requires Microsoft™ SQL Server. If you install or upgrade an NAE85 on the Microsoft Server Operating System (OS), you need the standard or enterprise edition of SQL Server and an SQL license. If you install or upgrade an NAE85 on your Windows 10 OS, SQL Server Express is loaded for you as part of the install if no other SQL Server instance is installed.

The NAE85 is a specific series of network engine that performs a key role in the Metasys system architecture. Network engines provide network management and system-wide control and coordination over one or more Metasys equipment controller networks, that include the following series:

- CG series General Purpose Application Equipment Controllers

- CV series VAV Box Controllers

- FAC and FEC series Field Equipment Controllers

- VMA series VAV Box Controllers

- TEC series Terminal Equipment Controllers

- Legacy Metasys controllers, such as Unitary (UNT) controllers, Variable Air Volume Assembly (VMA14xx) controllers, and DX-9100 controllers

- Third-party equipment controllers

  ⓘ **Note:** The following IP controllers at firmware 10.0 support BACnet™/IP and BACnet/SC at Release 12.0.

    - M4-CGE09090-0/-0H

    - M4-CGE04060-0

    - M4-CVE03050-0P

    - MS-FAC4911-0

    - MS-VMA1930-0

The NAE85 is a software-only Metasys network engine that runs on a Windows™ Server. The NAE85 provides most of the functions and capabilities as the hardware network engine models, but with a much higher point capacity.

The NAE85 can supervise IP-based devices directly and also MS/TP-based devices using BACnet ™MS/TP to IP routers and the Remote Field Bus integration object.

The NAE85 provides building control scheduling, alarm and event management, energy management, data exchange, historical data storage and management, and custom control logic. The NAE85 at Release 12.0 includes an embedded user interface called the Metasys UI. You can use a web browser to access the Metasys UI for system navigation and operation. To prevent unauthorized access, network engines use password protection, permission access, and IT security best practices.

For information about the latest family of network engines that are available at Release 10.1 or

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later, refer to the SNE/SNC Product Bulletin (LIT-12013296). For information about other network engine models, refer to the NAE55 Catalog Page (LIT-1900195). For information about network engines that have approval for use at facilities that require regulatory compliance, refer to the Metasys for Validated Environments, Extended Architecture Product Bulletin (LIT-12011326).

Features and benefits

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

The NAE85 supports connectivity to open network standards for field device flexibility.

The NAE85 can supervise BACnet/IP or BACnet/SC devices directly, including the following: Metasys CGE and FAC4911 series general purpose application controllers, Metasys CVE and VMA1930 series VAV box controllers, Simplex™ Fire Alarm Control Unit (FACU) panels, and BTL-listed third-party BACnet devices.

The NAE85 can integrate BACnet MS/TP devices with a BACnet MS/TP to IP router and the Remote Field Bus integration object. This includes the following: Metasys CGM series general purpose controllers, Metasys CVM series VAV box controllers, Metasys FEC, FAC, and VMA16/18 series field equipment controllers, and TEC series networked thermostats.

The NAE85 also supports up to eight integrations using the VND integration object for the following: Modbus, M-Bus, KNX, OPC UA, C-Cure access control system, victor video management system, and Zettler fire panel.

Communication using commonly accepted IT standards at the automation and enterprise level

The Metasys system is installed on your existing IT infrastructure in a building or enterprise and uses standard IT communication services over the company Intranet, WAN, public Internet with VPN tunnel, or firewall protection. You can run the NAE85 on a virtual environment using popular software applications such as VMWare® and Microsoft Hyper-V™. Network engines also support the ability to log Metasys audits and events to a Syslog Destination Delivery Agent (DDA).

FIPS compliance

The NAE85 supports an add-on license to comply with FIPS 140-2 Level 1. The FIPS 140-2 standard is an information technology security approval program for cryptographic modules produced by private sector vendors who seek to have their products certified or validated for use in government departments and regulated industries. For a site to be fully FIPS compliant, you need to upgrade all network engines to the same release (11.0 or 12.0), then install and license the FIPS 140-2 feature on the Metasys Server.

Secure web-based user interface

Access system data in the network engines from any supported web browser device connected to the network. All upgraded network engines have self-signed certificates that provide for encrypted communication. Optionally, you can deploy to the network engines trusted certificates that are provided and managed by the customer's IT department or a Certificate Authority (CA).

Metasys UI (Web-based UI)

Provides client-device-agnostic user access to NAE8500 Metasys system data from any supported web browser to a device that connects to the network.

Site Director function

As a Site Director, the NAE85 provides user access and easy navigation to all data on one site through one device. The Site Director coordinates the display of data from multiple NxE and SNx engines at supported releases or NAE85s at Release 11.0 and earlier.

Embedded user interface and online system configuration software

At Release 12.0, the NAE85 includes the Metasys User Interface (Metasys UI), that succeeds the Site Management Portal (SMP). Use the password-protected Metasys UI to enable, configure, commission, archive data, monitor, command, and perform system diagnosis from any device by using a web browser, without the need for separate workstation software.

Application documentation

Refer to the *Network Engines Product Bulletin (LIT-12012138)* for important product application information.

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Ordering information

Table 1: NAE85 ordering information

Product code number	Release	Description
MS-NXE85SW-0	12.0	License that enables NAE85 software for new installation; supports a maximum of 10,000 objects. Download software from the Licensing Portal. NAE85 installer includes SQL Server 2017 Express.
MS-NXE85SW-6	12.0	License that enables NAE85 software for upgrading existing installation; supports a maximum of 10,000 objects. Download software from the Licensing Portal. NAE85 installer includes SQL Server 2017 Express.
MS-15KUPG-0	12.0	License that enables an additional 15,000 objects on NAE85 or LCS85, this results in the support of a maximum of 25,000 total objects.
M4-FIPS-0	12.0	License that enables FIPS 140-2 Level 1 compliance (NAE85 only; not required for all other network engines).
MS-SMP-6	12.0	License that enables Site Management Portal (SMP). Only available to existing NAE85 installations upgrading to Release 12.0.
M4-BACNETSC-0	12.0	License that enables BACnet/SC.

Ordering information - accessories

Table 2: Network engines accessories ordering information

Product code number	Description
MS-EXPORT-0	License that enables Metasys Export Utility software for new installation. Software may be obtained by electronic download from the Licensing Portal.

Table 3: M-Bus accessories ordering information

Product code number	Description
SIS-MBUSNCLL-1E	M-Bus level converter for up to 100 unit loads; 24 VAC/VDC (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
ⓘ **Note:** Order these accessories in AOMS from the European Distribution Center.	

Table 4: KNX accessories ordering information

Product code number	Description
GRIPIN01-S-KNX	KNX IP interface module to connect KNX line through Ethernet to a network engine
GRRIN01-KNX	KNX IP router to connect KNX line through Ethernet to a network engine, including line or area coupler functionality
ⓘ **Note:** Order these accessories in AOMS from the European Distribution Center.	
ⓘ **Note:** When you use the GRIPIN01-S-KNX for NAE integration, use a non-secure mode. Set Metasys driver N=ROUTING MODE and in ETS set "Secure mode" to deactivated.	

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Technical specifications

Table 5: NAE85 software system recommendations for installation or upgrade

Recommended computer platform	Intel® Xeon® Gold 5222 3.8G, 4C/8T, 10.4GT/s, 16.5M Cache, Turbo, HT (105W) DDR4-2933 or Intel® Xeon® Gold 6244 3.6G, 8C/16T, 10.4GT/s, 24.75M Cache, Turbo, HT (150W) DDR4-2933
Recommended memory	16 GB RAM minimum; 32 GB RAM recommended
Hard disk	160 GB minimum
Supported operating systems and software	• Windows® 10 Pro and Windows 10 Enterprise Editions versions 2004, 21H1, and 21H2 (64-bit). For all future Windows 10 updates after version 21H2, we will evaluate and certify that Metasys software can support the updates before we provide guidance on support. • Windows® Server® 2019 (version 1809 or later) (64-bit) • Windows® Server® 2016 (version 1607 or later) (64-bit) ⓘ **Note:** The NAE85 software requires two Windows components: Microsoft .NET Framework Version 3.5 SP1 and Microsoft .NET Framework Version 4.6.1.
Operating systems and icrosoft SQL	Windows 10: • SQL Server® 2019 Express with CU14 (64-bit) • SQL Server® 2017 Express with CU27 (64-bit) • SQL Server® 2016 Express with SP2 CU17 (64-bit) ⓘ **Note:** The NAE85 installation program includes SQL Server Express 2017 CU19 (64-bit). If no SQL Server instance is present on the host computer, the NAE85 installation program installs and configures SQL Server Express 2017 CU19. Windows Server 2019: • SQL Server® 2019 with CU14 (64-bit) • SQL Server® 2017 with CU27 (64-bit) • SQL Server® 2016 with SP2 CU17 (64-bit) Windows Server 2016: • SQL Server® 2019 with CU14 (64-bit) • SQL Server® 2017 with CU27 (64-bit) • SQL Server® 2016 with SP2 CU17 (64-bit)

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Table 5: NAE85 software system recommendations for installation or upgrade

Supported operating systems for Metasys client computers	• Windows® 10 Pro and Windows 10 Enterprise Editions versions 2004, 21H1, and 21H2 (64-bit). For all future Windows 10 updates after version 21H2, we will evaluate and certify that Metasys software can support the updates before we provide guidance on support.
	
	• Apple® macOS® 11 Big Sur
	
	• Apple® macOS® 10.15 Catalina
	
	• Apple® OS X® 10.14 Mojave
	
	ⓘ **Note:**
	  • Apple® operating systems are supported for Metasys client computers only.
	  • In Apple® OS X®, you cannot view Graphics+ graphics in the SMP UI.

Recommended antivirus software	Symantec Endpoint Protection version 12

Supported web browser software for Metasys client computers	• Microsoft® Edge® version 91 or later
	
	• Google® Chrome™ version 91 or later
	
	• Apple® Safari® 13.1 or later
	
	ⓘ **Note:**
	  • Other browsers, such as Mozilla® Firefox®, may also be used but are not fully supported.
	  • Use a web browser to download the Launcher application. After you install Launcher, use Launcher, not the web browser, to log on to the SMP.

Supported virtual environments	Microsoft Hyper-V™, VMware®
Network communication	Network Interface: 1 Gbps Ethernet network interface card connects at 10 Mbps, 100 Mbps, or 1 Gbps (100 Mbps or better recommended)
Recommended data protection	UPS for NxE85 model: APC Smart-UPS SC 450VA, 280 W, 120 VAC input/output, NEMA 5-15R output connections, OEM Part No. SC450RM1U
Compliance	**FIPS 140-2 Level 1**: Compliant with Federal Information Processing Standard ⓘ **Note:** FIPS 140-2 compliance applies to an NAE85 when the FIPS 140-2 feature is licensed.

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.

Warning (Part 15.21)

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Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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.

Industry Canada Statement(s)

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions:

1. This device may not cause interference, and

2. This device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

1. L'appareil ne doit pas produire de brouillage, et

2. L'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Product warranty

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

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 end-user license, open-source software information, and other terms set forth at www.johnsoncontrols.com/ techterms. Your use of this product constitutes an agreement to such terms.

Patents

Patents: https://jcipat.com

Single point of contact

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