Network Control Engine Catalog Page

MS-NCE25xx-x

The Metasys® Network Control Engine (NCE) Series controllers provide a cost-effective solution designed for integrating central plants and large built-up air handlers into your existing Metasys networks.

These network control engines combine the network supervisor capabilities and IP network connectivity of a Network Automation Engine (NAE) with the I/O point connectivity and direct digital control capabilities of a Field Equipment Controller (FEC), making them the ideal choice for expanding and improving your Metasys installation for greater data visibility and control over your energy usage.

Network Control Engines (NCEs) provide supervisory control of a specified field bus trunk with up to 32 field controllers. Depending on the model, an NCE supports either a BACnet® Master-Slave/Token-Passing (MS/TP) trunk, an N2 Bus trunk, or a LONWORKS® network trunk. Available in Europe only are the MS-NCE2000-0 and MS-NCE2506-0 models, which do not provide a physical field controller trunk connection.

All NCE models feature 33 integral I/O points and a Sensor/Actuator (SA) Bus, which allow you to increase the NCE's I/O field point capacity and also integrate NS Series Network Sensors and variable-frequency drives (VFDs) into your NCE application.

Some NCE models feature an integral field controller display screen with a navigation keypad, allowing for easy modifications in the field. In addition, some NCE models feature an internal modem that supports standard dial-up capabilities when traditional IT networks are not available.

Refer to the *Network Control Engine Product Bulletin (LIT-12011283)* for important product application information.

Features

- Use of Commonly Accepted IT Standards at the Automation and Enterprise Level
- Web-Based User Interface
- Supervision of Either an N2 Bus, LONWORKS Network, or BACnet MS/TP Bus Field Controller Trunk
- Multiple Connection Options for Data Access
- Integral Field Controller with 33 I/O Points
- Expandable I/O Point Capacity, NS Sensor Connectivity, and VFD Control on Field Controller SA Bus

Figure 1: NCE25 Network Control Engine

Table 1: NCE Point Type Counts

Point Type	Signals Accepted	Count
Universal Input	Analog Input Voltage Mode, 0-10 VDC Analog Input, Current Mode, 4-20 mA Analog Input, Resistive Mode, 0-2k ohm, RTD (1k [Johnson Controls], 1k PT, A99B SI), NTC (10k Type L, 2.252k Type 2) Binary Input, Dry Contact Maintained Mode	10
Binary Input	Dry Contact Maintained Mode Pulse Counter/ Accumulator Mode (High Speed), 100Hz	8
Analog Output	Analog Output, Voltage Mode, 0-10 VDC Analog Output, Current Mode 4-20 mA	4
Binary Output	24 VAC Triac	7
Configurable Output	Analog Output, Voltage Mode, 0-10 VDC Binary Output Mode, 24 VAC Triac	4

Ordering Information

Contact the nearest Johnson Controls® representative to order an NCE or accessories. Specify the desired product code number using *Table 2* and *Table 3*.

Table 2: NCE Model Ordering Information

Product Code Number[1]	Description
MS-NCE25xx-x (Base Features on Each NCE25)	Each NCE25 Series model requires a 24 VAC power supply and includes one RS-232-C serial port, one RS-485 optically isolated SA Bus port, one USB serial port, one Ethernet port, and an MS-BAT1020-0 Data Protection Battery. Each NCE25 Series model has 33 integral I/O points and supports up to 128 additional I/O points on the SA Bus.
MS-NCE2500-0 [2]	Base features with no physical field controller trunk connection.
MS-NCE2506-0[2]	Base features with no physical field controller trunk connection. Includes integral display screen.
MS-NCE2510-0	Supports one N2 Bus trunk with up to 32 N2 devices.
MS-NCE2511-0	Supports one N2 Bus trunk with up to 32 N2 devices. Includes internal modem.
MS-NCE2516-0	Supports one N2 Bus trunk with up to 32 N2 devices. Includes integral display screen.
MS-NCE2517-0	Supports one N2 Bus trunk with up to 32 N2 devices. Includes integral display screen and internal modem.
MS-NCE2520-0	Supports one LONWORKS network trunk with up to 32 LONWORKS devices.
MS-NCE2521-0	Supports one LONWORKS network trunk with up to 32 LONWORKS devices. Includes internal modem.
MS-NCE2526-0	Supports one LONWORKS network trunk with up to 32 LONWORKS devices. Includes integral display screen.
MS-NCE2527-0	Supports one LONWORKS network trunk with up to 32 LONWORKS devices. Includes integral display screen and internal modem.
MS-NCE2560-0	Supports one Master-Slave/Token-Passing (MS/TP) Bus trunk with up to 32 MS/TP devices.
MS-NCE2560-0U	Supports one MS/TP Bus trunk with up to 32 MS/TP devices. **Note:** This model is UL listed, File S4977, UUKL 864 - 9th Edition Smoke Control Equipment.
MS-NCE2561-0	Supports one MS/TP Bus trunk with up to 32 MS/TP devices. Includes internal modem.
MS-NCE2566-0	Supports one MS/TP Bus trunk with up to 32 MS/TP devices. Includes integral display screen.
MS-NCE2567-0	Supports one MS/TP Bus trunk with up to 32 MS/TP devices. Includes integral display screen and internal modem.

1 Some models are also available in a Buy American version (add a G after the code number). For repair parts, add -700 after the code number.
2 NCE25 model available in Europe only.

Table 3: NCE Accessories Ordering Information

Product Code Number	Description
MS-BAT1020-0	Replacement data protection battery for NAE35, NAE45, and NCE25. Rechargeable NiMH battery: 3.6 V 500 mAh, with a typical life of 5 to 7 years at 21°C (70°F)
MS-BTCVT-1	Wireless Commissioning Converter, with Bluetooth® technology, for configuring and commissioning the NCE field controller and the devices on the NCE SA Bus
MS-DIS1710-0	Local Controller Display connects to NCE on SA Bus and provides menu display and navigation keypad for monitoring status and controlling parameters on the NCE's integral field controller. **Note:** A DIS1710 display does not operate on NCE models that have an integral controller display.
AS-XFR100-1	Power transformer (Class 2, 24 VAC, 92 VA maximum output), with enclosure
AS-XFR010-1	Power transformer (Class 2, 24 VAC, 92 VA maximum output), no enclosure
MS-RAP-0	Ready Access Portal Server, which provides a user interface that is a natural, complementary extension of the Metasys Site Management Portal UI. **Note:** This option is not necessary for sites that have an ADS/ADX as the Site Director because it is provided with the ADS/ADX solution.
MS-EXPORT-0	Metasys Export Utility, which extracts historical trend, alarm, and audit data from the system and presents the historical data in a variety of formats. **Note:** This option is not necessary for sites that have an ADS/ADX as the Site Director because it is provided with the ADS/ADX solution.

Technical Specifications

Table 4: NCE25

Power Requirement	Dedicated nominal 24 VAC, Class 2 power supply (North America),safety extra-low voltage (SELV) power supply (Europe), at 50/60 Hz (20 VAC minimum to 30 VAC maximum)
Power Consumption	25 VA maximum for NCE25 only **Note:** The 25 VA rating does **not** include any power supplied by the NCE to devices connected at the NCE binary outputs (BOs). binary output (BO) devices connected to and powered by an NCE can require an additional 125 VA (maximum).
Ambient Operating Conditions	0 to 50°C (32 to 122°F), 10 to 90% RH, 30°C (86°F) maximum dew point
Ambient Storage Conditions	-40 to 70°C (-40 to 158°F), 5 to 95% RH, 30°C (86°F) maximum dew point
Data Protection Battery	Supports data protection on power failure. Rechargeable NiMH battery: 3.6 VDC 500 mAh, with a typical life of 5 to 7 years at 21°C (70°F); Product Code Number: MS-BAT1020-0

Table 4: NCE25

Processors	**Supervisory Controller:** 192 MHz Renesas® SH4 7760 RISC processor
	Field Controller: 20 MHz Renesas H8S2398 processor
Memory	**Supervisory Controller:** 128 MB Flash nonvolatile memory for operating system, configuration data, and operations data storage and backup and 128 MB synchronous dynamic random access memory (SDRAM) for operations data dynamic memory
	Field Controller: 192 KB flash memory and 1 MB RAM
Operating System	Microsoft Windows® CE embedded 6.0
Network and Serial Interfaces (Depending on NCE model. See *Table 2* for model information.)	One Ethernet port; 10/100 Mbps; 8-pin RJ-45 connector
	One optically isolated RS-485 SA Bus port; with a pluggable and keyed 4-position terminal block (on all NCE25 models)
	One optically isolated RS-485 port; with a pluggable and keyed 4-position terminal block (only on NCE25 models that support an N2 Bus or MS/TP bus trunk)
	One LONWORKS port; FTT10 78 Kbps; pluggable, keyed 3-position terminal block (only on NCE25 models that support a LONWORKS Network trunk)
	One RS-232-C serial port with standard 9-pin sub-D connector that supports standard baud rates
	One USB serial port with standard USB connector
	Option: One 6-pin modular jack for connecting to internal modem; up to 56 Kbps
Analog Input/Analog Output Point Resolution	Analog Input Points: 16-bit resolution
	Analog Output Points: 16-bit resolution and ±200 mV accuracy on 0-10 VDC applications
Input/Output Capabilities	10-Universal Inputs: Defined as 0-10 VDC, 4-20mA, 0-600k ohm, or Binary Dry Contact
	8-Binary Inputs: Defined as Dry Contact Maintained or Pulse/Accumulator Mode
	4-Analog Outputs: Defined as 0-10 VDC or 4-20mA
	7-Binary Outputs: Defined as 24 VAC Triac (selectable internal or external source power)
	4-Configurable Outputs: Defined as 0-10 VDC or 24 VAC Triac BO
Dimensions (Height x Width x Depth)	155 x 270 x 64 mm (6.1 x 10.6 x 2.5 in.) Minimum mounting space required: 250 x 370 x 110 mm (9.8 x 14.6 x 4.3 in.)
Housing	Plastic housing
	Plastic material: ABS and polycarbonate
	Protection: IP20 (IEC60529)
Mounting	On flat surface with screws on three mounting clips or a single 35 mm DIN rail
Shipping Weight	1.2 kg (2.7 lb)
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 2004/108/EC.
	Australia and New Zealand: C-Tick Mark, Australia/NZ Emissions Compliant
	BACnet International: BACnet Testing Laboratories™ (BTL) 135-2004 Listed BACnet Building Controller (B-BC)

The performance specifications are nominal and conform to acceptable industry standard. For application at conditions beyond these specifications, consult the local Johnson Controls office. Johnson Controls, Inc. shall not be liable for damages resulting from misapplication or misuse of its products.

United States Federal Communications Commission (FCC) Compliance Statement

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.

Canadian Compliance Statement

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.