

NCM45x0-2 Network Control Module Catalog Page

MS-NCM4510-2, MS-NCM4520-2

Code No. LIT-1900362

Software Release 6.0

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Supersedes October 4, 2010

The NCM45x0-2 Series Network Control Module is a fully user-programmable supervisory controller. It is responsible for monitoring and controlling networks of field-level building automation devices and HVAC equipment. See [Figure 1](#).

The NCM45x0-2 is functionally similar to the NCM350/361 controllers. The primary differences between these controllers are the support for one N2 trunk and two Network Control Module (NCM) types: General with Network Terminal (NT) and General with Operator Terminal (OT). The NCM45x0-2 is available with the N2 Bus or LON Trunk interface.

The NCM45x0-2 communicates with all other Metasys® Network Control Units (NCUs) over the N1 Network. Systems with Person-Machine Interface (PMI) Software Release 12.04 and the M-Series Workstation Software products at Release 5.4 support the NCM45x0-2.

The NCM45x0-2 uses the same hardware design as the NAE45 Series controllers and can be optionally upgraded to an NAE45 as part of a migration strategy to the Metasys system extended architecture.

Refer to the *NCM45x0-2 Network Control Module Product Bulletin (LIT-12011173)* for important product application information.

Features

- Compatibility with All Existing Controllers on the Network
- NCM350/361 Controllers Replacement
- Current Level of Software and Tool Support
- Supervision of Field Controller Networks
- Field-Upgradable to an NAE45

If the control module fails to operate within its specifications, replace the unit. For a replacement control module, contact the nearest Johnson Controls® representative.

Figure 1: NCM45x0-2



NCM Fits the Needs of Any Size Facility

The NCM45x0-2 is a high-performance supervisory controller that can handle a wide array of control duties.

In small facility applications, an Network Control Module (NCM) serves as the primary supervisor for field controllers. Using a combination of resident applications and custom user-written programs, the NCM operates equipment at peak efficiency while maintaining optimum occupant comfort. The NCM communicates to the building manager through local override controls, an easy to use Network Terminal (NT), and local or remote graphic Operator Workstations (OWSs) and printers.

Medium and large facilities use several NCMs, each of them controlling a portion of the facility, yet sharing information and data as necessary. In each system, the NCM coordinates a local network of Application Specific Controllers (ASCs) as they perform HVAC, fire, and access control functions. In this application, the NCM provides alarm monitoring and integrated control functions for the stand-alone controllers.

Carrying out even one of these many functions would be a major accomplishment for many controllers, but the Metasys® NCM handles them all with ease.

Table 1: NCM45x0-2 Ordering Information

Product Code Number ¹	Description
MS-NCM45x0-2 (Base features of each NCM45x0)	Requires a 24 VAC power supply. Each model includes two RS-232-C serial ports, one Universal Serial Bus (USB) serial port (unused), one Ethernet port, and an MS-BAT1020-0 Data Protection Battery.
MS-NCM4510-2	Supports one N2 trunk (RS-485 port). Up to 100 devices (60 to 200 TC-9100s or up to 63 VMAs) are supported on the N2 trunk with the use of a repeater.
MS-NCM4520-2	Includes a LonWorks® port and supports one LonWorks trunk. Up to 127 devices are supported on the LonWorks port.

1 All models are also available in a Buy American version (add a G after the code number). For repair parts, replace the -2 suffix with -702.

Table 2: NCM45x0-2 Accessories Ordering Information

Product Code Number	Description
MS-BAT1020-0	Replacement data protection battery: Rechargeable NiMH 3.6 VDC, 500 mAh battery with a typical life of 5 to 7 years at 21°C (70°F) (Higher operating temperatures reduce battery life.)
AS-XFR050-0	Power transformer (Class 2, 24 VAC, 50 VA maximum output), no enclosure
MS-NC45NTK-0	NCM4500 NT Cable Kit (North American version)
MS-NC45NTE-0	NCM4500 NT Cable Kit (International version)

Technical Specifications

Table 3: NCM45x0-2 Model

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
Ambient Operating Temperature	0 to 50°C (32 to 122°F)
Ambient Operating Conditions	10 to 90% RH, 30°C (86°F) maximum dew point
Ambient Storage Temperature	-40 to 70°C (-40 to 158°F)
Ambient Storage Conditions	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
Processor	192 MHz Renesas® SH4 7760 RISC 32-bit processor
Memory	128 MB Flash nonvolatile memory 128 MB Synchronous Dynamic Random Access Memory (SDRAM) Note: Even though the unit has 128 MB of memory, it is sized to emulate the capacity of an NCM300 Series controller with 10 MB of memory.
Operating System	Microsoft® Windows® CE embedded Release 5.0
Metasys Features	One N2 or LON Trunk, Dial-up access, local printer, JC-BASIC, Demand Limiting Load Rolling (DLLR), Trend, Totalization, Scheduling, Point History, Report Router and Alarm Management, Duty Standby (both models must be NCM45x0-2s), N1 on Ethernet, Pass-through download and upload of ASCs, DX-9100s, and VMA-1400s, Battery backup of data
Network Communication Module (NCM) Types	General with NT, General with Operator Terminal (OT)
Network and Serial Interfaces	One Ethernet port; 10/100 Mbps; 8-pin RJ-45 connector One optically isolated RS-485 port; 9600 bps; pluggable and keyed 4-position terminal block (Field Controller (FC) Bus terminal, used for N2 Bus, is available on NCM4510-2 model only) One LONWORKS port; FTT10 78 Kbps; pluggable, keyed 3-position terminal block (LONWORKS port available on NCM4520-2 model only) Two RS-232-C serial ports with standard 9-pin sub-D connectors that support standard baud rates One USB serial port with standard USB connector (not used)
Dimensions (Height x Width x Depth)	131 x 270 x 62 mm (5.2 x 10.6 x 2.5 in.) Minimum space for mounting: 210 x 350 x 110 mm (8.3 x 13.8 x 4.3 in.)
Housing	Plastic housing material: ABS + polycarbonate, Protection: IP20 (IEC60529)
Mounting	On flat surface with screws on three mounting clips or a single 35 mm DIN rail (DIN rail mount recommended)
Shipping Weight	1.2 kg (2.7 lb)
Agency Listings	United States - UL Listed (PAZX), UL 916 - Federal Communications Commission (FCC) compliant, CFR47, Part 15, Class B Canada - UL Listed (PAZX7), CAN/CSA C22.2 No. 205 - Industry Canada: ICES-003 European Union - CE Mark – Johnson Controls® declares that the NCM45 Controllers are in compliance with the essential requirements and other relevant provisions of the EMC Directive 2004/108/EC. Australia/New Zealand - C-Tick Mark based on EMC Directive, 89/336/EEC



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