

Product Datasheet

NK8000
MP4.80

NK8235 Ethernet Port

The NK8235 Ethernet Port is used to connect local and distributed safety or security devices to DMS8000 Management Stations. It provides a first level of centralisation, and acts as a secure communication partner for the NS8210 and NS8011 Network Drivers of the MM8000, or MK8000, and provides serial connectivity for MM8000, MK8000, or MT8001.

- Provides connectivity for numerous fire and intrusion detection systems to DMS8000 hosts
- Integrated interaction machine supporting logical combinations between locally connected subsystems and digital I/Os, as well as network-wide over other NK823xs
- Dual Ethernet interface for network redundancy or network separation
- Integrated firewall and router supporting the dynamic routing protocol Open Shortest Path First (OSPF)
- Three onboard digital inputs and one relay output
- USB port and SD card slot supporting memory expansion for message logging
- Based on the LAN standards BACnet/IP, TCP/IP, and Ethernet Modbus Gateway functionality for Sinteso™/Cerberus© PRO, and STT20 fire detection systems
- Web server interface for monitoring and diagnostic purposes
- SNMP protocol support for administrative management
- NK8235 is based on a flexible, high performance hardware platform, that has been specifically designed for safety and security applications
- Replacement for NK8223 and NK8225
- Supplied in a plastic box, easy to install on DIN-rails
- Optional housing solutions with autonomous power supply

Benefits

The NK8235 is part of the second generation of the NK8000 family of products. It is based on a new more powerful HW platform compliant with RoHS Regulations. The NK8235 replaces the NK8223 and NK8225, and provides backward compatibility to the first generation of NK8000 Ethernet Ports.

Approvals

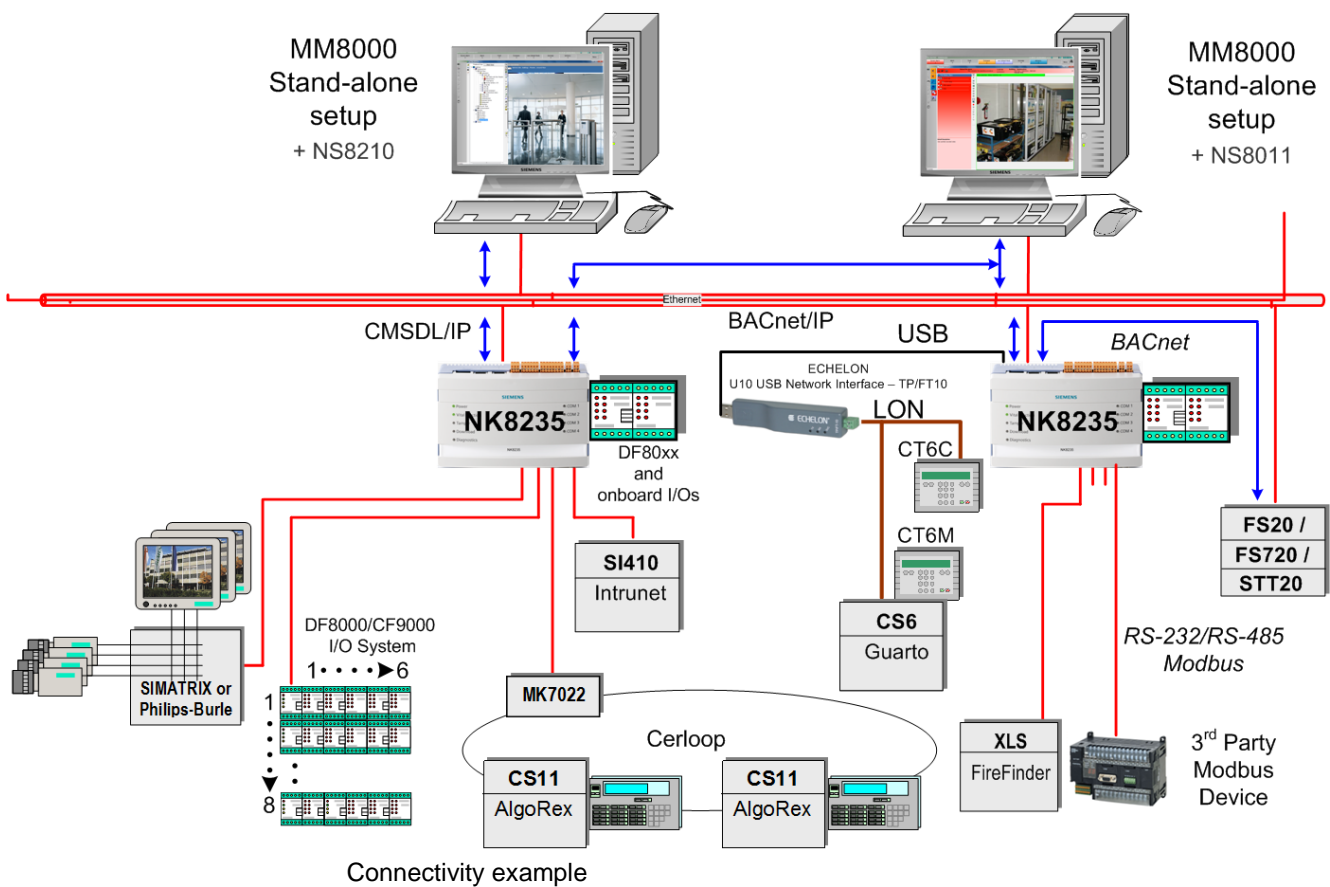
NK8235 complies with the Underwriters Laboratories of Canada (ULC) standard (CAN-S527-99) as a network gateway for CZ10 and XLS fire detection subsystems, and is listed under the following file numbers:

- UL File S7488 Vol. 22 Sec. 1
- ULC File CS182/CS166 Vol. 24

Connectivity

The following NK8235 connectivity options are available:

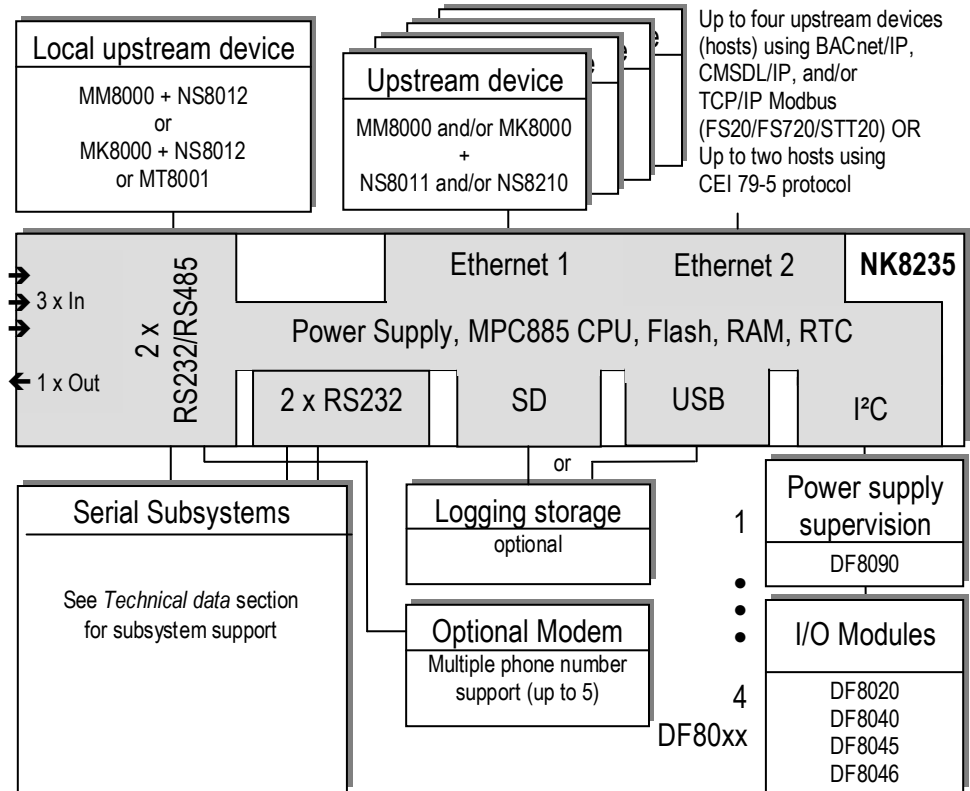
- Simultaneous routing to up to four host stations using CMSDL/IP and/or BACnet/IP protocol (without encryption)
- Serial connectivity to a local host (MM8000 MK8000/MT8001)
- Modbus Gateway functionality for FS20/FS720/STT20 fire panels to 3rd Party Modbus devices using TCP/IP Modbus or Modbus serial protocol



Upstream connectivity

Via BACnet/IP on Ethernet	<ul style="list-style-type: none"> - Simultaneous multiple host connectivity (up to four) - Protocol can optionally be combined with other protocols - Network-wide interactions - Management station equipped with NS8011 BACnet driver
Via CMSDL/IP on Ethernet	<ul style="list-style-type: none"> - Simultaneous multiple host connectivity (up to four) - Protocol can be distributed over two Ethernet lines for redundancy, or optionally be combined with other protocols - Management station equipped with NS8210 Network driver
Via CEI 79-5/IP on Ethernet and/or PSTN	<ul style="list-style-type: none"> - Up to two hosts - Encryption (option) - Protocol can be distributed over two Ethernet lines for redundancy - Note: CEI 79-5/IP cannot be combined with other protocols - Dial-up connectivity via modem for wide area extension systems - Note: Dial-up not supported on 2nd CEI host - Management station equipped with NS8210 Network driver
Via TCP/IP Modbus on Ethernet for FS20 Sinteso and FS720 Cerberus PRO (excluding FC721)	<ul style="list-style-type: none"> - Modbus server for up to four TCP/IP client connections - Simultaneous multiple host connectivity (3rd Party Modbus and MM8000/MK8000) - Note: Limit four hosts - Protocol can optionally be combined with other protocols
Via CMSDL/serial on RS232 line	<ul style="list-style-type: none"> - Local management station (MM8000/MK8000/MT8001) equipped with NS8012 CDI-Net driver
Via RS232/RS485 serial Modbus for FS20 Sinteso and FS720 Cerberus PRO (excluding FC721)	<ul style="list-style-type: none"> - Modbus slave supporting up to two links in RTU mode over RS232 or RS485 lines to Modbus master device(s) - Note: Simultaneous support of TCP/IP Modbus and serial Modbus (up to four total connections)
Downstream connectivity	
Via RS232	<ul style="list-style-type: none"> - Up to 4 serial connections supporting fire, gas, and intrusion detection systems, and digital I/Os
Via RS485	<ul style="list-style-type: none"> - Up to 2 serial connections supporting DF8000 I/O systems - Up to 32 Modbus subsystems
Via I ² C bus	<ul style="list-style-type: none"> - Direct support for local digital I/O (DF80xx modules) with up to 32 non-supervised inputs or 16 supervised inputs or 32 relay outputs
Via BACnet/IP on Ethernet	<ul style="list-style-type: none"> - Up to 16 Sinteso (or Cerberus PRO) fire detection panels or - Up to 12 Sinteso and 10 STT20 panels
Via USB and Echelon U10 USB Network Interface - TP/FT-10 Channel	<ul style="list-style-type: none"> - 1 CS6 Guarto intrusion detection panel

→ For more connectivity examples, see the *DMS8000 Application & Planning Guide* (Doc. # A6V10063710).



The NK8235 employs an industry standard MPC885 PowerPC CPU and is composed of:

- Base board with power supply, CPU module, and basic configuration of interfaces
- Optional add-on board with 2 RS232 ports (GND, Rx, Tx only)

The Base board is equipped with:

- Power supply
- 2 serial interfaces (2 RS232/RS485)
- Dual Ethernet 10/100Base-T interface provides:
 - Optional redundancy for BACnet, CMSDL/IP or CEI 79-5 protocol
 - Possibility to distribute BACnet/IP and/or CMSDL/IP protocols over two Ethernet lines
 - Routing and firewall functions across the Ethernet lines with the following configurable options:
 - *Stand-alone firewall* providing protection from external sabotage with routing between ETH1 and ETH2 disabled
 - *Edge firewall* providing protection of internal network (e.g. MM8000 connected to FS20) with specific port access to external network (e.g. Modbus client via NK8235) with routing between ETH1 and ETH2 enabled
- MPC885 PowerPC CPU module with:
 - 64MB RAM
 - 32MB Flash EPROM disk
 - Real Time Clock (RTC)
 - LINUX Operating System
 - BACnet protocol stack
- I²C bus
- Diagnostic LEDs
- 3 digital inputs; 1 relay output
- USB port supporting Echelon U10 USB Network Interface - TP/FT-10 Channel for CS6 Guarto integration or mass storage devices for logging storage of selectable data flow (upstream and/or downstream)
 - USB port file system:** FAT32; 2-64 GB
- SD card slot supporting Secure Digital (SD) memory cards for logging of selectable data flow (upstream and/or downstream)
 - SD card file system:** FAT 32 2-32 GB
 - 16 GB SD card is included

Configuration

Hardware configurations	NK8235.2	<ul style="list-style-type: none">– 2 Ethernet lines for local or remote host(s)– 2 serial lines for subsystems / modem
	NK8235.4	<ul style="list-style-type: none">– 2 Ethernet lines for local or remote host(s)– 4 serial lines for subsystems / modem
Further options	NE8001	<ul style="list-style-type: none">– Wall-mountable, metallic cabinet with DIN-rail, including power supply unit. Input: 100 –240 Vac; Output: 12Vdc 4A.
	DF8090¹ power supply supervision module on I²C bus	<ul style="list-style-type: none">– Optional module for supervising the NK8235 power supply, and detecting power failures and battery low conditions. It is not needed when NK8235 is installed in a fire or intrusion control unit whose power supply is already supervised.
	DF8020¹	<ul style="list-style-type: none">– 8 output (non-supervised) relay module for controlling digital outputs. Up to 4 DF8020 modules can be directly connected to NK8235. For more connectivity, it is necessary to use a DF8003/CF9003 CPU on one of the serial connections.
	DF8040¹	<ul style="list-style-type: none">– 8 input (non-supervised) relay module for acquiring digital inputs. Up to 4 DF8040 modules can be directly connected to NK8235. For more connectivity, it is necessary to use a DF8003/CF9003 CPU on one of the serial connections.
	DF8045¹	<ul style="list-style-type: none">– 4-balanced input module for acquiring NC supervised digital contacts. Up to 4 DF8045 modules can be directly connected to NK8235. For more connectivity, it is necessary to use a DF8003/CF8003 CPU on one of the serial connections.
	DF8046¹	<ul style="list-style-type: none">– 4-balanced input module for acquiring NO supervised digital contacts. Up to 4 DF8046 modules can be directly connected to NK8235. For more connectivity, it is necessary to use a DF8003/CF8003 CPU on one of the serial connections.

Parameterisation

The NK8235 configuration is part of the Composer tool environment. To perform the SW-configuration for NK8235, a WW8000 Composer license is required.

→ See the *WW8000 Composer Datasheet* (Doc. # A6V10062403) for licensing details. To learn how to obtain this document, see the *DMS8000 Documentation Resource Information and Glossary Guide* (Doc. # A6V10089056).

The configuration tool includes connection parameters, as well as interaction parameters (with AND, OR, XOR, and NOT logic combinations).

The NK823x supports two download modes for the configuration data transfer from the configuration station:

- Standard download mode based on FTP protocol in active mode (default) or passive mode or
- Secure download mode supporting authentication and encryption

¹ Limit 4 DF80xx modules total in any combination.

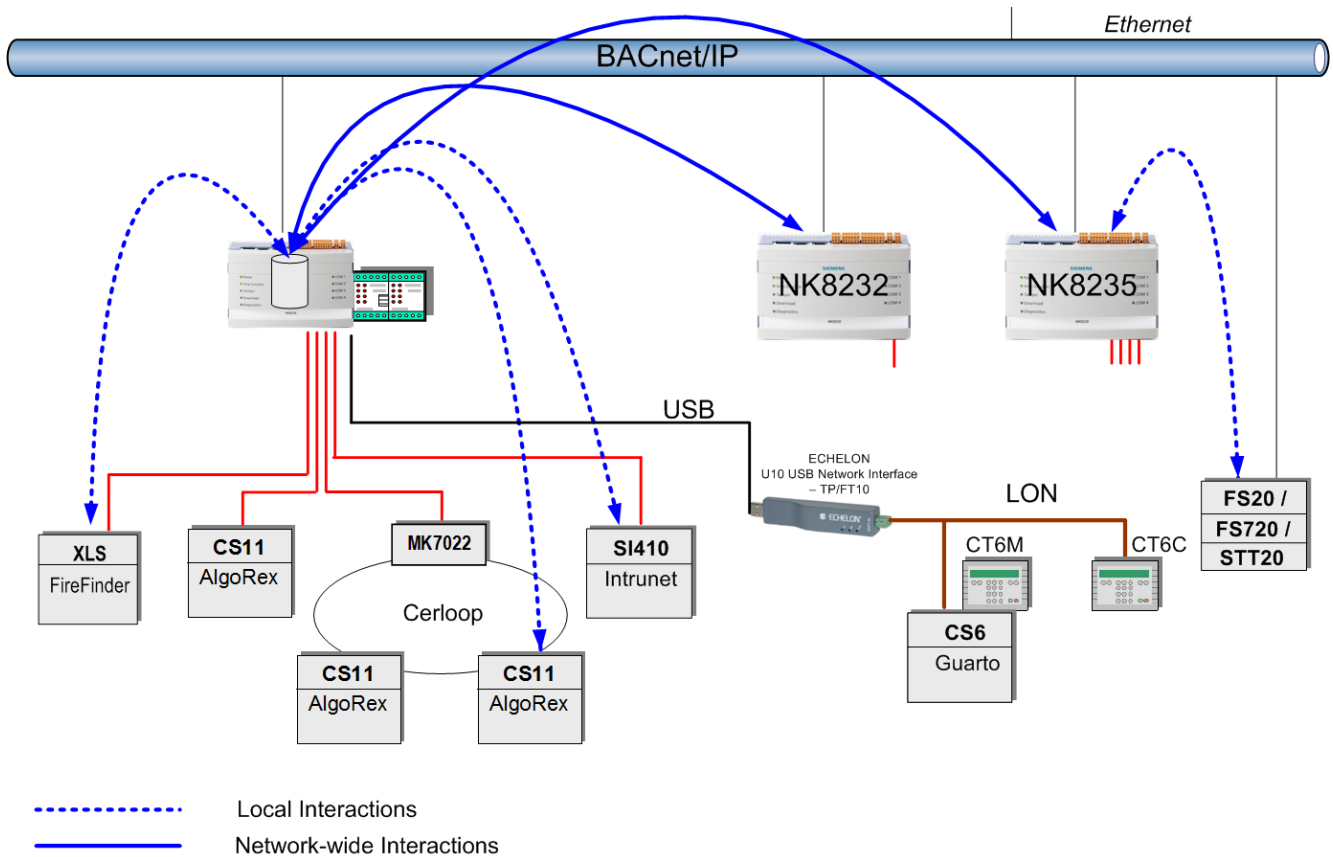
Interactions

Interactions are possible between the subsystems connected directly to NK8235 and the locally connected I/O modules. Local interactions occur when incoming messages trigger one or more command messages to other subsystems and I/Os.

Network-wide interactions via BACnet/IP are possible between subsystems connected to other NK8232 or NK8235 units on the automation level. These interactions are more secure than reactions and sequences on the management station level.

Note: Incoming messages can be combined with the logical operators AND, OR, XOR, and NOT.

The configuration is done via an easy to use interactions tool, and then downloaded to the NK8235.



Local and network-wide interactions on NK8235

→ See the *Technical data* section on page 8 for local and network-wide interaction subsystem support.

DF8090 Power supply supervision module

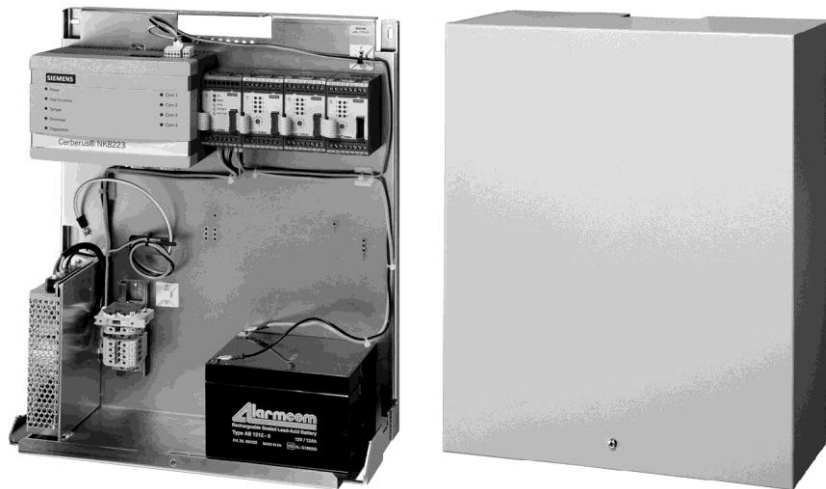
DF8090 is an optional, external module, which can be installed on the I²C bus for monitoring the NK8235 power supply. It detects conditions, shown on the DF8090 local panel (LEDs), and reported to NK8235 via I²C.

→ See page 10 for DF8090 technical details.

DF8090 can be installed on the DIN-rail, next to the NK8235.

Housing solutions for NK8235

NE8001 is a compact and convenient housing solution for NK8235 units: a metallic cabinet for easy wall-mounting, including a pre-wired power supply and a DIN rail for the NK823x unit and optional I2C bus digital I/O modules.



NE8001 housing equipped with NK8235 and I/O modules

→ See the *NE8000 Datasheet* (Doc. # A6V10062421) for technical details.

Connectivity NK8235 Ethernet Port

Management Systems	RS232 line	– 1 local management station via serial line COM1: MM8000 / MK8000 / MT8001
	RS232/RS485 Modbus line	– Up to 2 3rd Party Modbus master devices
	Ethernet	– Up to 2 remote management station: MM8000 / MK8000 (using CEI 79-5 transport protocol supporting encryption and switched lines) – 1-4 remote management stations: MM8000 / MK8000 (using CMSDL/IP transport protocol) – 1-4 remote management stations: MM8000 / MK8000 using BACnet/IP transport protocol – 1-4 3 rd Party Modbus clients using TCP/IP transport protocol
Note: Max. 4 hosts		
Subsystems	Up to 4 serial lines (2 RS232/RS485, 2 RS232)	– 1 subsystem, 1 C-Bus network or 1 Cerloop network (via MK7022) per line
	I ² C bus	– 1 Power Supply Supervision Module (1 DF8090) – Up to 32 non-supervised digital inputs (4 x DF8040) – Up to 32 non-supervised digital relay output (4 x DF8020) – Up to 16 balanced inputs (4 x DF8045) – Up to 16 balanced inputs (4 x DF8046)
	Note: Max. 4 DF80xx modules (any combination)	
	USB	– CS6 Guarto via Echelon U10 USB Network Interface - TP/FT-10 Channel

Technical data NK8235 Ethernet Port

Lines to local host	<ul style="list-style-type: none"> 1 RS232 line <ul style="list-style-type: none"> – Transport protocol: CMSDL – Host (single host only): – MM8000 or MK8000 equipped with NS8012 CDI-Net Driver – MT8001 2 RS232/RS485 lines <ul style="list-style-type: none"> – Modbus serial protocol (RTU mode) 	Up to 9600 baud
Web server browser compatibility	<ul style="list-style-type: none"> – Internet Explorer V9 and higher – Mozilla Firefox 28 and higher – Google Chrome 34 and higher 	
Lines to remote host(s)	<p>1st and 2nd Ethernet IEEE 802.3</p> <ul style="list-style-type: none"> – Transport protocol: BACnet/IP – Hosts (<i>up to four</i>): – MM8000 and/or MK8000 equipped with NS8011 Network Driver (supporting up to 64 NK823x or other BACnet devices) <p><i>And/Or</i></p> <ul style="list-style-type: none"> – Transport protocol: CMSDL/IP – Hosts (<i>up to four</i>): – MM8000 and/or MK8000, equipped with NS8210 Network Driver (supporting up to 500 NK823x) <p><i>And/Or</i></p> <ul style="list-style-type: none"> – TCP/IP Modbus protocol – Hosts (<i>up to four 3rd party Modbus clients</i>): – Modbus Gateway for Sinteso/Cerberus PRO <p><i>Or</i></p> <ul style="list-style-type: none"> – Transport protocol: CEI 79-5 type A and type B – Hosts (<i>up to two independent hosts</i>): – MM8000 or MK8000, equipped with NS8210 Network Driver (supporting up to 500 NK823x) – FEAL 64-bit encryption – Support of switched lines (type A) 	<p>10/100 Mbit/sec</p> <p>Note: Max. four hosts combined total</p> <p>Note: Only FS20/FS720/STT20, CS11 AlgoRex, FC700A, STT20/STT2410 (via Cerloop), XLS, SIGMASYS/D100, CS1115/FC330A, MK7022 Cerloop, CS6 Guarto, SI410, DF8000/CF9000, Philips-Burle CCTV switcher</p> <p>Note: Optional redundancy for CMSDL/IP or CEI 79-5 protocol</p> <p>Note: Please contact customer support for configurations above 100 NK823x</p> <p>Note: Only FS20 Sinteso/FS720 Cerberus PRO/STT20</p> <p>Note: Dial-up not supported on 2nd CEI host</p>
Lines to subsystems	<p>Up to 4 serial lines (2 RS232/RS485, 2 RS232) and Ethernet, protocol and baud rate options configured by NK8000 configuration tool (Composer):</p> <ul style="list-style-type: none"> – BACnet/IP: FS20 Sinteso / FS720 Cerberus PRO, STT20, Ethernet (see limitations page 10) – Cerban protocol: CS11 AlgoRex, CZ10, CZ12, CS4, CS440, CC60, RS232: 300 or 600 baud – CNDL protocol: CS1115, FC330A, RS232: 9600 baud – FSI protocol: XLS / XNET, RS232: 19200 baud – SI410/420 serial link protocol, RS232: 9600 baud – ISO1745 protocol: Connection to Cerloop via MK7022: CS11 AlgoRex, CZ10, CZ12, CS4, CS440, CC60, STT11, STT20, STT2410, DMS7000 units, RS232: 1200 or 2400 baud – CMXDL protocol: DF8003, RS485: up to 19200 baud – CMXDL protocol: CF9003, RS485: up to 9600 baud – Burle protocol: Philips-Burle, RS232: up to 9600 baud – CDDL/CDSF: CP100, RS232: 600 baud – CDDL/CDSF: Siemens SIMATRIX, RS232: 2400 baud – CDDL/CDSF: other control units, RS232: up to 9600 baud – Modbus: Fibrolaser, SIMATIC S7 and others, RS232/RS485: up to 19200 baud – VBF: SIGMASYS, D100, RS232: 9600 baud default; configurable – Autronica protocol: Autronica BSxxx, RS232: 1200 baud – Siemens Procedure 3964(R) protocol: LIST SCU 2000, RS232/RS485: 9600 baud – MAXSYS protocol: MAXSYS PC601, RS232: 115200 baud 	
Interactions	<p>Programmable interaction programs including single or multiple triggers (incoming events) and single or multiple effects (outgoing control actions). Interactions are possible between locally connected subsystems and digital I/Os (onboard or from DF80xx modules), and network-wide between subsystems connected to other NK8232 or NK8235 units.</p>	

	<ul style="list-style-type: none"> – Subsystems supported for local and network-wide interactions: FS20 Sinteso, FS710 Cerberus PRO, CS11 AI-goRex, FC700A, CS1115, FC330A, XLS, SIG-MASYS/D100, STT20, STT2410, SI410/420, DF8000/CF9000, DF80xx modules, MK7022, Philips-Burle, Autronica BSxx, MAXSYS PC601, CP100, LIST SCU 2000, CDDL/CDSF, Modbus units – Logical combinations: AND, OR, XOR, NOT – Delay of effects (wait): configurable 0...6500 sec. – Max. # of typical interactions: 500 (1-6 triggers, 1-4 effects) – Total # of field points used in triggers/effects: 5000 – Max. # of field points/interactions that can be combined in a trigger expression: 255 	
Ethernet data traffic	Very low network load: <ul style="list-style-type: none"> – Keep-alive message: 1 empty TCP/IP packet – Periodic authentication: (CEI 79-5 only) exchange of three packets with max. 30 bytes – Single alarm event: from 20 to 60 bytes 	Configurable, default every 30 s Configurable, default 10 min.
Administrative tools	SNMP support	Provides two sets of internal information variables using the community IDs <ul style="list-style-type: none"> – Public: A basic set of information – Engineer: Access to the complete set of information
Logging	Upstream and downstream communication can be logged on an external USB mass storage device or an internal 16 GB SD card	Log files can be uploaded from remote
Firewall	Firewall functionality	Preconfigured firewall configurations can be selected: <ul style="list-style-type: none"> – Standalone FW (no ETH1/ ETH2 routing) – Edge FW (ETH1 as external network, ETH1/ETH2 routing enabled) – Edge FW (ETH2 as external network, ETH1/ETH2 routing enabled) – Edge FW Advanced – Traffic from external network can be filtered by source/destination – IP addresses / Ports configurable Relay output diagnostics: <ul style="list-style-type: none"> – ETH1/ETH2 cable disconnected – NK823x failures (low memory, logging failed, and SW error)
Router	Routing functionality	The routing between ETH1 and ETH2 can be enabled / disabled. Static or dynamic routing with Open Shortest Path protocol (OSPF) is supported.
Connectors	<ul style="list-style-type: none"> – D-Sub 9 pin, female type (for serial and modem lines) – RJ-45 connector for Ethernet – Standard Type A connector for USB 	
Cables	– RS232 lines: two unshielded twisted pairs	Cat.3 UTP, max. 15 m
Power supply requirements	<ul style="list-style-type: none"> – Input voltage (DC power supply to NK8235 board) – Power (NK8235 only) – Power (including 4 DF80xx modules) – NE8001 	10-33 Vdc 4.3 W at 12V or 4.8 W at 24V 5.1 W at 12V or 6 W at 24V 100-240 Vac, 50/60Hz
Operating conditions	<ul style="list-style-type: none"> – Temperature range – Humidity 	0 to 50 °C 10 to 95 % non-condensing
Dimensions	<ul style="list-style-type: none"> – NK8235 boards – NK8235 plastic cabinet for DIN-rail – NK8235 in NE8001 / wall-mounted 	W x H [mm] 160 x 100 (Euro-size PCB) W x H x D [mm] 180 x 108* x 80 W x H x D [mm] 385 x 450 x 150 *Excluding connectors
Weight	<ul style="list-style-type: none"> – NK8235.2 plastic cabinet for DIN-rail – NK8235.4 plastic cabinet for DIN-rail – NK8235 in NE8001 	0.420 kg 0.454 kg 8.5 kg (fully equipped)
Local embedded Input	3 digital inputs	NO or NC dry contacts or open collector signals Max forward current: 7 mA at 33Vdc Over voltage protection on input lines: 1K V Input voltage limit: 33V

Local embedded Output	1 relay output	Relay contacts: NO or NC Max 1A at 30 Vdc
I²C Output	DF8020 8xOutput Module (max 4 modules)	Relay contacts: NO or NC Max 1A at 30 Vdc Relay lifetime: 100'000 cycles
I²C Input	DF8040 8xInput Module (max 4 modules)	NO or NC dry contacts or open collector signals Max forward current: 7 mA at 33Vdc Over voltage protection on input lines: 1K V Input voltage limit: 33V
I²C Input	DF8045 4xInput Module (max 4 modules)	General purpose NC supervised dry contacts Max forward current: 7 mA at 33 VDC
I²C Input	DF8046 4xInput Module (max 4 modules)	Normally open supervised dry contacts Max forward current: 7 mA at 33 VDC
Power Supply Supervision Module	DF8090 Power Supply Supervision Module	Supervision of power supply and battery backup
Regulatory Approvals (CE, EAC, FCC, ULC conformity)	EN 50581 EN 61000-6-3 EN 50130-4 EN 60950-1 FCC Part 15 Class B CAN-S527-99	RoHS EMC emission EMC immunity LVD (NK823x installed in NE8001) EMC emission ULC listing for NK8235

FS20/FS720/STT20 system limits for NK8000 Modbus host connectivity

1 host	DMS8000 or Modbus host (either type of host but not both types at the same time): – Max. 10,000 detectors and – 16 FS20/FS720 units or – 12 FS20/FS720 units and 10 STT20 units in FCnet/SAFEDLINK topology
2 hosts	DMS8000 and Modbus hosts (both types of host at the same time): – Max. 5,000 detectors and – 8 FS20/FS720 units or – 6 FS20/FS720 units and 5 STT20 units in FCnet/SAFEDLINK topology
3 hosts	– 1 DMS8000 and 2 Modbus hosts: – Max. 3,500 detectors and – 6 FS20/FS720 units or – 5 FS20/FS720 units and 3 STT20 units in FCnet/SAFEDLINK topology
4 hosts	– 1 DMS8000 and 3 Modbus hosts or 4 Modbus hosts: – Max. 2,500 detectors and – 4 FS20/FS720 units or – 3 FS20/FS720 units and 2 STT20 units in FCnet/SAFEDLINK topology

Technical Notes:

- DMS8000 host memory impact is the same for one or more DMS8000 hosts
- The limits listed in the preceding table are per NK832x unit
- Multiple NK823x units can be linked to a Modbus Master, with the following overall limits:
 - 14 NK823x units
 - 64 fire panels
- Due to the limit of two BACnet clients per FS20/FS720 site, there is a limit of two NK823x clients per site. For larger FS20/FS720 sites you may need to split the site into smaller sites.

Disposal



This device includes electrical and electronic components and must not be disposed of as domestic waste.

Current local legislation must be observed.

Technical data DF8090 Power Supply Supervision Module

DF8090	Power Supply Supervision Module	Battery fuse is internal to DF8090 plastic box Micro-fuse type: MSF 3.15A/250V
	<ul style="list-style-type: none"> – Mains failure: 220 Vac missing – Battery low – Power supply failure: trouble in AC/DC converter – Battery protection fuse blown – Battery: 12V, max 27 Ah 	

Related Products

NK8232	Ethernet Port for a single subsystem	(replacement for NK8222)
NK8237	Modbus Gateway for Sinteso and Cerberus PRO fire detection systems	
NS8210	Network Driver (MM8000, MK8000)	(CMSDL/IP and CEI 79-5 protocol)
NS8011	Network Driver (MM8000, MK8000)	(BACnet/IP protocol)
NS8012	CDI-Net Driver (MM8000, MK8000, MT8001)	(CMSDL ser. protocol)
MM8000	Management Station	
MK8000	OPC Server	
MT8001	Management Terminal	
WW8000	Composer	
DF8000 / CF9000 I/O Systems	Input/Output Multiplexing System (for I/O modules DF8020, DF8040, DF8045, DF8046)	

Details for ordering

NK8235		Ethernet Ports	–
S54461-C2-A1	NK8235.2	Ethernet Port, 2 Ser. IF	– 2 Ethernet lines for remote host(s) – 2 serial lines for subsystems / modem
S54461-C2-A2	NK8235.4	Ethernet Port, 4 Ser. IF	– 2 Ethernet lines for remote host(s) – 4 serial lines for subsystems / modem
		NK823x HW Accessories	–
A6E600066	NE8001	Wall-mountable, metallic cabinet with DIN-rail	The unit includes a pre-wired power supply unit Input: 220Vac; output: 12Vdc 3A
A6E600010	DF8090	Power supply supervision module	Supervision of power supply and battery backup
S54461-B4-A1	NKA8011-A1	Mounting plate for NK823x	
A6E600185	NZ8201	NK82xx Mounting kit for CS11	
		DF8000 – I/O Products	
A6E600195	DF8020	8-output module	
A6E600194	DF8040	8-input module	
A6E600196	DF8045	4-balanced input module	Normally closed supervised dry contacts
A6E600197	DF8046	4-balanced input module	Normally open supervised dry contacts

Configuration tools

WW8000 Composer and all necessary NK8000 configuration tools are included in the DMS8000 MP4.80 product DVD.

Sales and Technical documentation

See the *DMS8000 Documentation Resource Information and Glossary Guide* (doc.no.A6V10089056) for a complete list of all DMS8000 reference documents available.

Export restrictions

Cryptographic algorithms Cryptographic export control regulations currently prohibit shipping and installing the NK8235 in the following countries: **Cuba, Iran, North Korea, Rwanda, Sudan, and Syria.**

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Siemens Switzerland Ltd
Building Technologies Division
International Headquarters
Gubelstrasse 22
CH-6301 Zug
Tel. +41 41-724 24 24
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NK8000 Sales Material
Section 2