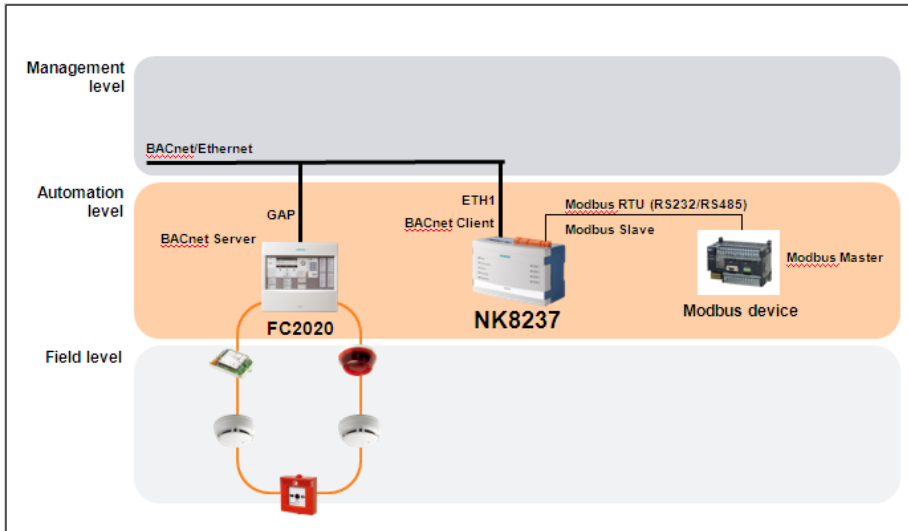# SIEMENS

Product Datasheet

NK8237 Modbus Gateway

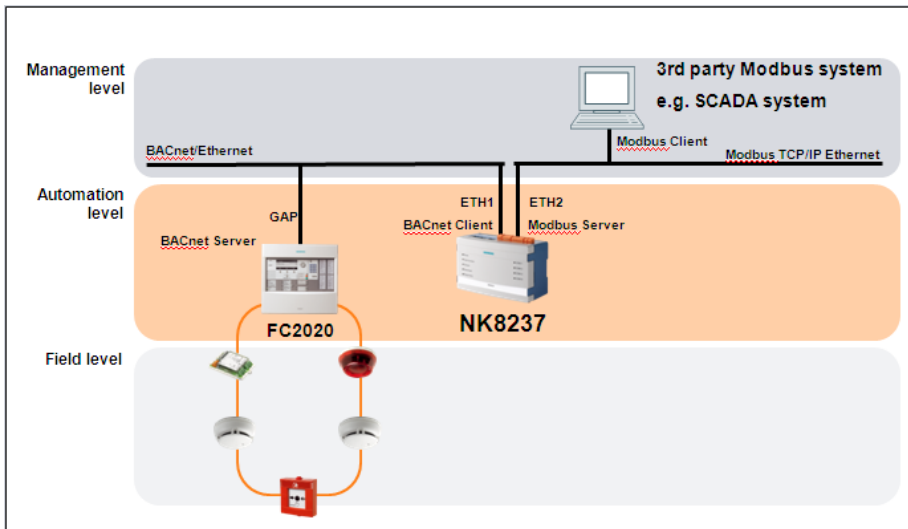**for Sinteso/Cerberus PRO, and STT20 fire detection systems**

The NK8237 is used as a gateway between Sinteso (or Cerberus PRO) and STT20fire detection systems, and Modbus head-end/automation systems on LAN or over a serial line. It provides for bi-directional Modbus RTU and TCP/IP connectivity to Sinteso or Cerberus PRO fire detection systems.

- **Cost-effective Modbus gateway for FS20 Sinteso™ or FS720 Cerberus© PRO and STT20 fire detection systems.**
- **Up to 16 FC20xx/FC72x control units or in Ethernet topologies. Up to 16 units in SAFEDLINK topologies or in mixed Ethernet/SAFEDLINK topologies.**
- **Modbus over Serial Lines: Modbus slave supporting RTU mode (over RS232 or RS485) on up to two serial lines.**
- **Modbus over TCP/IP: Modbus server supporting up to four TCP/IP client connections.**
- **Separate Ethernet ports can be used in combination with the built-in firewall for the fire network and Modbus TCP/IP connection for maximum protection of the safety network.**
- **Logging capabilities for upstream and downstream communication paths.**
- **Simplified FS20/FS720 status information representing fire object conditions organized in Modbus word, bit, and compact tables. Control commands including panel Acknowledgement and Reset as well as individual Include/Exclude commands.**
- **Easy PC configuration based on Composer GW Tool (no license required) or standard DMS8000 tools. Fast import of FS20/FS720 or STT20 object configurations (SiB-X file) and customizable default mapping for a flexible and efficient Modbus interface definition.**
- **Standard RoHS compliant NK8000 hardware equipped with watchdog and diagnostics LEDs. Supplied in a plastic box for easy installation on DIN-rails. Optional housing solutions with autonomous and supervised power supply.**
- **Web server interface for monitoring and diagnostic purposes**
- **SNMP protocol support for administrative management.**

Building Technologies

CPS Fire Safety
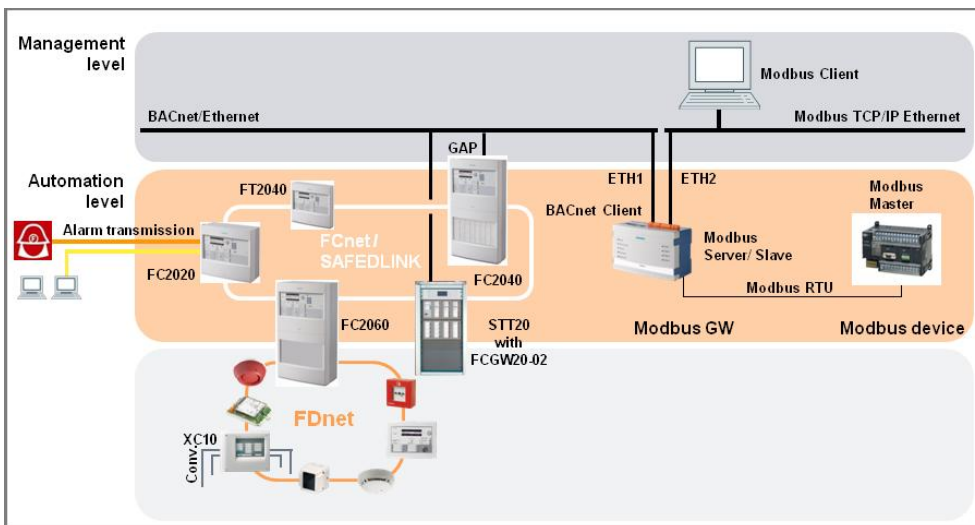
Single FC20 control unit with Modbus Serial RTU (max. 2 ser. connections)

Single FC20 control unit with Modbus TCP/IP (up to 4 Modbus clients)

FCnet SAFEDLINK network with Modbus Serial RTU and Modbus TCP/IP
(up to 4 Modbus connections in total)

Connectivity specifications

Modbus	Modbus serial (master) (NK8237 is Modbus slave)	RS485 or RS232	Modbus RTU mode (1 link per serial line, max. 2 serial lines) Master supports multiple slaves on RS485 1200 to 115K baud, default is 19200	DB9 female (RS232) Screw connector (RS485)
	AND/OR			
	Modbus TCP/IP (client) (NK8237 is Modbus server)	Ethernet	10/100 Base-T (up to 4 links)	RJ-45 connector
Fire control units	FS20 Sinteso BACnet/IP (NK8237 is BACnet client)	FC2020 FC2030 FC2040 FC2060 FC2080 FT2040 FT2080	Max. 16 units	RJ-45 connector
	FS720 Cerberus PRO BACnet/IP (NK8237 is BACnet client)	FC722 FC724 FC726 FT744	Max. 16 units	RJ-45 connector
	STT20 with FCGW20-02 Système de Télécommande et Télésignalisation (NK8237 is BACnet client)		FCnet/SAFEDLINK (max. 10 STT20 units and max. 12 FC20xx units)	
	Total detectors		Max 10,000 physical elements **Note:** Detector limit dependent on number of Modbus hosts. See FS20/FS720/STT20 system limits for NK8000 Modbus host connectivity p. 4 for details.	

Modbus functions and fire unit representation

Monitoring	0x02 Read Discreet Input	Bit tables	1-bit (on/off) for alarms, faults, and other events
	0x04 Read Input Register	Compact tables	2-bit (for fire detectors) and 4-bit (for fire zones) status
	0x04 Read Input Register	Status tables	16-bit rich status for all supported objects
	0x03 Read Holding Register	Date/Time Command tables	Day / Month, Year / Hour, Minute / Seconds Latest command: Ack, Reset, Manned/Unmanned; On/Off
Controlling	0x06 Write Single Register	Date/Time Command tables	Day / Month, Year / Hour, Minute / Seconds Ack, Reset, Manned/Unmanned; On/Off (Include/Exclude)
Supervising	0x07, 0x08, 0x0B, 0x11	Serial line status	Various functions for serial line supervision
	0x2B, 0x0E	Read device ID	General NK8237 information

Technical data

Power supply	Input voltage (DC power supply to NK8237)	10-33 Vdc
	Power consumption (including DF8090)	5 W
	NE8001	100-240 Vac, 50/60Hz
Digital Inputs	3 inputs for power supply supervision or other purposes E.g. for supervision of FP2003-A1 or FP2004-A1 Power supply kits	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
Relay Output	Modbus communication fault	NO or NC relay contacts, Max 1A at 30 Vdc
Operating conditions	Temperature range	0 to 50 °C
	Humidity	10 to 95 % non condensing
Dimensions	NK8237 board	W x H [mm] 160 x 100 (Euro-size PCB)
	NK8237 plastic housing for DIN-rail	W x H x D [mm] 180 x 108 (excluding connectors) x 80
	NK8237 in NE8001 / wall-mounted	W x H x D [mm] 385 x 450 x 150
Weight	NK8237 in plastic housing for DIN-rail	0.420 Kg
	NK8237 in NE8001	8.5 Kg (fully equipped)
Web server browser compatibility	– Internet Explorer V9 and higher – Mozilla Firefox 28 and higher – Google Chrome 34 and higher	

Administrative tools	SNMP support	Provides 2 sets of information variables using the community IDs – Public: A basic set of information – Engineer: Access to the complete set of information
	Web server	The Web Server has two different user levels: – Engineer: access to detailed diagnostic – Administrator: access to detailed diagnostic and IP configuration
Download	Two download modes for configuration data transfer from the configuration station	– Standard download mode based on FTP protocol in active mode (default) or passive mode – Secure download mode supporting authentication and encryption
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 **Note:** A 16 GB SD card is included
Firewall	Firewall functionality	Preconfigured firewall configurations can be selected: – 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: – 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.
Regulatory approvals (CE, EAC, FCC conformity)	EN 50581	RoHS
	EN 61000-6-3	EMC emission
	EN 50130-4	EMC immunity
	EN 60950-1	LVD (installed in NE8001)
	FCC Part 15 Class B	EMC emission

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

1 host	– Max. 10,000 detectors and – 16 FS20/FS720 units or – 12 FS20/FS720 units and 10 STT20 units in FCnet/SAFEDLINK topology
2 hosts	– Max. 5,000 detectors and – 8 FS20/FS720 units or – 6 FS20/FS720 units and 5 STT20 units in FCnet/SAFEDLINK topology
3 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	– Max. 2,500 detectors and – 4 FS20/FS720 units or – 3 FS20/FS720 units and 2 STT20 units in FCnet/SAFEDLINK topology

Technical Notes:	– 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.

Software

Engineering Tool	Composer GW Tool DMS8000 Composer MP4.80	No license required License required [1]	Windows 8.1, 7, Windows Server 2012 R2 and 2008 R2 Operating System	2 GHz PC hardware, at least 2 GB RAM

DF8090 Power Supply Supervision Module (option)

DF8090	Mains failure (missing 220 Vac) / Battery low / Power supply failure (AC/DC converter) / Battery protection fuse blown	Battery fuse is internal to DF8090 plastic box Micro-fuse type: MSF 3.15A/250V Battery: 12V, max 27 Ah

Details for ordering

S54461-C7-A1	NK8237.2	Modbus Gateway with plastic case
A6E600066	NE8001	Wall-mountable, metallic cabinet with DIN-rail and pre-wired electrical units
A6E600010	DF8090	Power supply supervision module
S54461-B4-A1	NKA8011-A1	Installation plate for NK8237 cards without plastic case

Technical documentation

A6V10316239	NK8237 Installation Sheet
A6V10316241	NK8237 Modbus GW Installation, Configuration and Commissioning Guide
A6V10403182	NK8237 Firewall Installation, Configuration and Commissioning Guide
A6V10316242	NK8237 Interface Specifications
A6V10062401	Composer Technical Manual
A6V10062453	NK8000 Release Notes

Disposal

This device includes electrical and electronic components **Current local legislation must be observed.**
and must not be disposed of as domestic waste.

Export restrictions

Cryptographic algorithms	Cryptographic export control regulations currently prohibit shipping and installing the NK8237 in the following countries: **Cuba, Iran, North Korea, Rwanda, Sudan, and Syria.**

---

[1] A HW key and SW license (either Service-key with annual license fee or Composer license for end customers) is required for DMS8000 Composer.