



# DC-1000 DATA CONCENTRATOR

MODEL 78703-XXXV AND 78703-XXXX



Data concentrators, an integral part of the Networked Energy Services (NES) system, manage devices on the power line network and provide the connectivity infrastructure between meters and the NES System Software. They automatically manage operations, discovering meters (creating repeating chains as needed), securely configuring them to communicate on the LONWORKS® network, and monitoring their health and operation on an ongoing basis. Data concentrators interface with the TCP/IP WAN through an installer-provided modem connected via serial port. Because data concentrators can use any WAN that uses a standard modem—such as GSM, PSTN, GPRS, or broadband - utilities can take advantage of today's range of wide area communications options, as well tomorrow's choices.

## FEATURES

- Manages up to 1,024 NES meters
- Collects and reports meter data, including consumption and power quality
- Ensures consistent, reliable communication with all meters by dynamically determining proxies for meters out of direct communication
- Downloads tariff tables and configuration data to devices
- Uses authenticated transactions with devices for enhanced power line communications security
- Maintains accurate date and time in NES devices
- Monitors and reports theft and tampering, including phase inversion for single-phase meters
- Sums total daily energy consumption by supervised meters for use in line-tap detection
- Reports trouble conditions such as line breaks and device failures
- Communicates with NES meters via A-band power line communications channel with automatic repeating function
- Communicates with the NES System Software using standard TCP/IP-capable wide area networks such as GSM, GPRS, and traditional analog telephone service
- Independently initiates connections to the NES System Software to report urgent events
- Supports MS-CHAP, PAP, and 160-bit application-level security on the wide area network port
- Includes serial port and +12/24VDC output power for use with standard Hayes-compatible external modems
- Remotely upgradeable
- -40°C to +70°C operating temperature range
- Outstanding EMC performance to withstand harsh installation environments
- Certified by TÜV, Semko, and KEMA-KEUR per EN-60950; CE Marked

## S P E C I F I C A T I O N S

Maximum NES Devices Managed	1,024 devices (Model 78703-xxxK) or 5 devices (78703-xxxV)
Input Voltage	115/230 VAC, -10% to +30%, 50/60Hz +1%
Phase Coupling	Connections for 3 phases (R, S, T) and Neutral
Power Consumption	5W typical at nominal 230VAC input
Clock	Real-time clock and calendar accurate to $\pm 1$ minute per month; accuracy maintained by NES System Software
EMC Specifications	8kV contact, 15kV air electrostatic discharge; 6 kV common, 4kV differential mode surge immunity; 4kV electrical fast transient per IEC 62052-11
Wide Area Network Interface	Standard Hayes-compatible modem or null modem interfacing to a TCP/IP network
EIA-232C Serial Port	Used for the wide area network connection, operating at up to 115.2 kbps per second; can also operate at 9.6 kbps in direct serial connection (null modem) mode.
Modem Power Output	+24 VDC @ 300mA (variation range: +10.9 VDC to +30 VDC) or +12VDC @ 600mA (variation range: +4.4 VDC to +16 VDC); voltage ripple = 10%
Optical port	IEC 61107 (physical and electrical requirements)
Data Communications (local area network)	A-band power line communication channel
Data Security	Password protection for optical communication; authenticated, password protected transactions for wide area and power line network communication
Data Storage	Non-volatile memory
EMC	IEC 62052-11 (7.5.2-7.5.6); IEC 61000-4-8; EN 55022 Class B; EN 50065-1 Class B
Temperature, specified operating range	-40° to +70° C
Temperature, limited operating range	-40° to +70° C
Temperature, limit range for storage and transport	-40° to +70° C
Humidity	25-90% @ 50° C (non-condensing)
Dimensions	25 cm L x 14.5 cm W x 7 cm H; <1.3kgs
Enclosure	Printed circuit board with plastic wall mount enclosure
Mounting	Four M6 screw tabs provided for wall or panel mounting
Safety Ratings	Certified by TÜV, Semko, KEMA-KEUR per EN 60950; CE Marked

## O R D E R I N G I N F O R M A T I O N

PRODUCT	ECHELON MODEL NUMBER
NES Data Concentrator DC-1000 (1,024 Devices)	78703-XXXX
NES Data Concentrator DC-1000 (5 Devices)	78703-XXXV