



DC-1000/SL DATA CONCENTRATOR

MODEL 78704



The DC-1000/SL Data Concentrator, an integral part of the Networked Energy Services (NES) system, manages devices on the power line network and provides the connectivity infrastructure between meters and the NES System Software. The DC-1000/SL automatically discovers meters (creating repeating chains as needed to ensure reliable communications), securely configures meters to communicate on the encrypted LONWORKS® network, coordinates the bi-directional delivery of metering data, and monitors the health and operation of the meters on an ongoing basis. The DC-1000/SL can be installed at any convenient point in the low voltage network topology—including co-location behind an NES meter if desirable. The DC-1000/SL interfaces with any standard TCP/IP-based WAN through an installer-provided standard modem. An internal modem bay provides power and connectivity for easy integration, and includes support for an external wireless modem antenna. Because the DC-1000/SL can use any WAN that uses a standard modem—including GSM, PSTN, CDMA, GPRS, or broadband—utilities can take advantage of today's range of wide area communications options, as well as tomorrow's choices.

F E A T U R E S

- Manages up to 1,024 NES meters and 4,096 associated M-Bus devices
- Can be installed at any point in the low voltage network topology, including co-location with poly-phase, transformer-operated and single-phase meters, to allow optimal modem connectivity and minimal installation costs
- Communicates with NES meters via CENELEC 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, CDMA, Ethernet, and traditional analog telephone service
- Automatically discovers meters on installation and as the result of dynamic network topology changes
- 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
- Broadcast capability enables time-critical services such as load-shedding
- 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
- Detects and reports trouble conditions such as line breaks and device failures
- Independently initiates connections to the NES System Software to report urgent events (configurable)
- Supports end-to-end data encryption (on both the power line and the WAN) to secure metering data and ensure customer privacy
- Intelligently compresses data to reduce WAN bandwidth usage
- Internal modem bay accepts and powers readily-available standard wireless modems
- External antenna mount allows local and remote antenna installation
- Enclosure tested to IP56; long-life severe-duty enclosure optional
- Remotely upgradeable firmware enables true zero-maintenance installations
- -40°C to +70°C operating temperature range
- Outstanding EMC performance to withstand harsh installation environments
- Compliant with European Directive 2002/95/EC on the restriction of the use of certain hazardous substances (RoHS) in electrical and electronic equipment
- Certified by TÜV, SEMKO, and KEMA-KEUR per EN60950
- Certified by TÜV per UL60950 and CSA60950
- CE Mark

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

Maximum NES Devices Managed	1,024 NES electricity meters and 4,096 associated M-Bus Devices (Model 78704-001K), or 5 NES electricity meters and 20 associated M-Bus Devices (Model 78704-001V)
Input Voltage	120/240VAC, -10% to +20%, 50/60Hz
Phase Coupling	Connections for 3 phases (L1Ø, L2Ø, L3Ø) and Neutral
Power Consumption	5W typical
Clock	Real-time clock and calendar accurate to ±1 minute per month; accuracy maintained by NES System Software
Local Area Network Interface	CENELEC A-band power line communication channel
Wide Area Network Interface	Standard Hayes-compatible modem or null modem interfacing to a TCP/IP-capable network
EIA-232C Serial Port	Operates at up to 115.2 kbps
Optical port	IEC 61107 (physical and electrical requirements)
Data Security	CHAP, MS-CHAP, PAP and 160-bit application-level authentication for WAN; 96-bit authentication on power line network; 128-bit RC4 encryption for WAN and power line communication; Password protection for optical communication
Data Storage	Non-volatile memory
EMC	EN50065-1:2001, EN55022:1998, EN61000-4-2, EN55024:1998, EN61000-4-4, EN61000-4-3, EN61000-4-6, EN61000-4-5, EN61000-4-11, EN61000-4-8
Temperature, specified operating range	-40° to +70°C
Humidity	25-90% @ 50°C (non-condensing)
Enclosure Type	Plastic; tested to IP56
Enclosure Dimensions	22.2cm L x 16.9cm W x 7.9cm H
Modem Dimensions	11cm x 7cm x 3cm (maximum)
Modem Power Supply	14VDC, 3W (maximum)
Antenna Connection	Supports internal, external and remote antennae; if an internal antenna is used, customer is responsible for compatibility testing
Mounting	DIN 43857; mounting points for an NES IEC meter are included on the front
Safety Ratings	Certified by TÜV, SEMKO, and KEMA-KEUR per EN60950; Certified by TÜV per UL60950 and CSA60950; CE Mark

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

PRODUCT	ECHELON MODEL NUMBER
DC-1000/SL Data Concentrator (5 Devices)	78704-001V
DC-1000/SL Data Concentrator (1,024 Devices)	78704-001K

Models 78704-001V and 78704-001K include a pre-assembled and attached power cable, and terminal covers suitable for use if an NES IEC poly-phase or single-phase meter is installed on top of this product. Customized versions of this product (including hardware, software, and provisioning options) may be available. Contact your Echelon sales representative for details.