

DL 2E

2 Mbit/s Line Equipment for Symmetric Pair Cables

Efficient and cost-effective 2 Mbit/s HDB3-coded transport using standard, 2-wire local loop copper cable

Basic Concept

The Nokia DL2E is 2 Mbit/s line equipment for E1 transport over symmetric pair cables. It provides 2.048 Mbit/s user payload with an ETSI-compliant interface. The DL2E line equipment includes line terminals with their remote power supplies at the terminal stations and repeaters at the repeater stations. The DL2E employs HDB3 line coding.

The line equipment integrates fully into Nokia's DYNANET access product family; it shares the same mechanical racking, power and management systems.

Application areas

The DL2E is designed for flexible and economical solutions in

- low-capacity junction, metropolitan and rural networks
- subscriber PCM-extensions
- corporate networks that provide 2Mbit/s services for business users
- radio relay feeding systems

At the subscriber end, the DL2E can be connected either to a flexible multiplexer that provides interfaces to both voice and data services or to a POTS multiplexer for ordinary telephone connections. The line length determines the amount of intermediate repeaters needed on the line.

Network Management

Nokia's hand-held Service Terminal provides a cost-effective yet advanced way of communicating with the line equipment.

The management features consist of remote configuration, test loop activation, live quality monitoring, alarms and error performance monitoring from both the remote location and from each individual repeater along the route.

For centralised network management, the Nokia Network Management System (Nokia NMS) can be used.

Technical highlights

- All functions contained in a single plug-in module including optional remote power feed
- Simultaneous error performance monitoring of all repeaters
- Built-in end-to-end data channel
- Compatible with Nokia DYNANET equipment
- Compatible with the Nokia NMS Network Management System

Technical Data

Line Equipment DL 2E

Main Characteristics

ITU-T Recommendation
Bit Rate
Code
Pulse Shape
Peak Voltage and Impedance
Pulse Width
Input Signal Attenuation
- Repeater

Equipment Interface

G.703
2048 kbit/s +/-50 ppm
HDB3
Rectangular
3 V/120 ohm
2.37 V/75 ohm
244 +/-20 ns
6 dB/1 MHz

Line Interface

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2048 kbit/s +/-50 ppm
HDB3
Rectangular
3 V/120 ohm
244 +/-20 ns
0-40 dB/1 MHz
0-45 dB/1 MHz

Supervision Interfaces

Service Interface	V.11 up to 9600 baud
Auxiliary Data Channel	up to 600 baud (G.704 frame national bit)
Repeater Supervision Channel	Sub-band 1.2/2.4 kHz FSK

Power

Line Terminal	
Power Feed	On-board power supply
Power Supply Voltage	20...72 VDC
Power Consumption	3 W (max. 20 W with remote power feeding supply)
Repeater	
Power Feed	in-built DC/DC converter on line terminal board
Current	48 mA
Maximum Voltage	+/- 150 VDC (adjustable)
Voltage Drop-In Repeater	7.5 V

Mechanical Construction

Line Terminal	233x25x160mm (H X W X D)
Repeater	
- Standard	100x165x20mm (Euro 1)
- Steel-Box	140x237x30mm

Environment

	Operation	Transport and Storage
Line Terminal		
Temperature	-10° to +50°C	-40° to +70°C
Humidity	<95% at 30°C	up to 98%
Repeater		
Temperature	-40 to +60°C	-50 to +70°C
Humidity	100% at 33°C	up to 100%

Electromagnetic Requirements

Complies with the following requirement: prETS 300386 table 5