

## Alcatel 1521 FL LN

### Fibre Optical Line Systems for Linear Networks

The Alcatel 1521 FL LN is a 4x2 Mbit/s fibre optical line system, especially designed for use in linear networks.

The equipment is targeted for connections in chains between different base stations. Each chain can have a length of 16 terminals, i.e. 8 base stations + a central office terminal. Configurations include transparent (G.703) or unequipped.

The NEC management card, Network Element Controller, is located at the central office side and can manage a total of 12 chains.

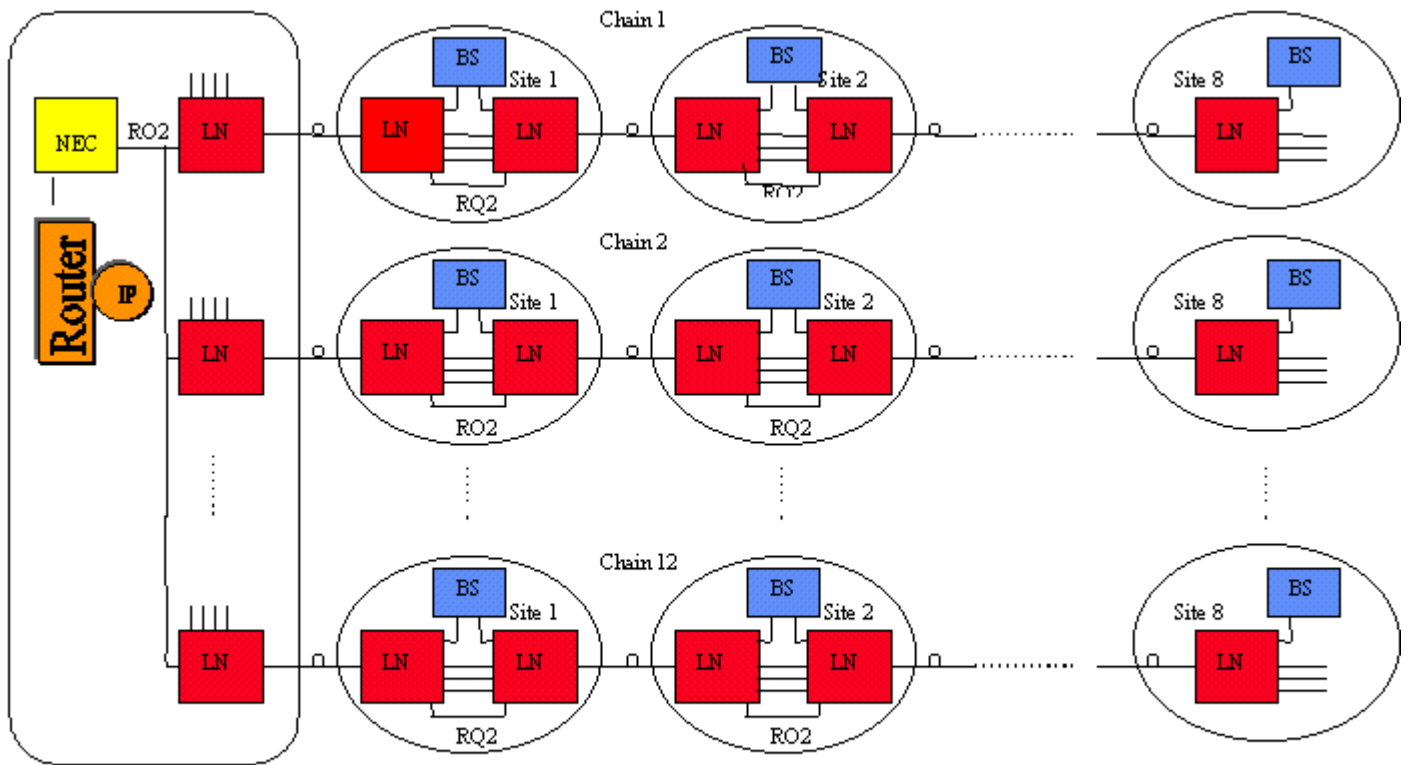
The management channel is embedded in the line signal carried over the fibre, but has to be physically connected with a cable between terminals at intermediate stations and between terminal(s) and the management card, NEC, at the central office.

For all locations, the 1521FL LN and NEC are housed in a metal casing suitable for mounting in a 19" or ETSI rack. The height of both units is 1U. Between base stations the 1521FL LN is connected via optical fibres. At the intermediate stations two 1521FL LN are connected back to back.

## Applications

- ▽ Individual configuration of each of the 4x2Mbit/s interfaces.
- ▽ Selectable transparent transfer (G.703) or unequipped.
- ▽ Two fibre Single Mode (SM) transmission at 1310nm (1550nm on request).
- ▽ One fibre bi-directional Single Mode (SM) transmission.





## Features

**AUX channels in optical signal:**  
Two 704 kHz oversampled data channels (V.11). V.11 channel #1 is intended for communication between the NEC and underlying 1521FL LNs in the network.

### Upgrade:

Upgrading of the firmware of the 1521FL LN can be done either by connecting a PC directly to a 1521FL LN, with a possibility to upgrade both the local and remote terminal, or by connecting a PC to the NEC, upgrading all 1521FL LNs connected to that NEC.

A micro disc containing the PC application program together with the HEX file intended for loading is available.

### Supervision:

A Hand Held Terminal (HHT) can be connected to each 1521FL LN. The HHT will enable configuration of the local terminal as well as provide an alarm state of the local and remote terminal. In addition, quality information about the optical link can be read.

In addition, four external alarms can be connected for transfer to central TMN or HHT. Two outputs for indication of urgent and non-urgent alarms.

When the 1521FL LNs are connected to a NEC, they can all be completely managed as a stand-alone subnetwork by use of an ordinary WEB browser. An SNMP agent,

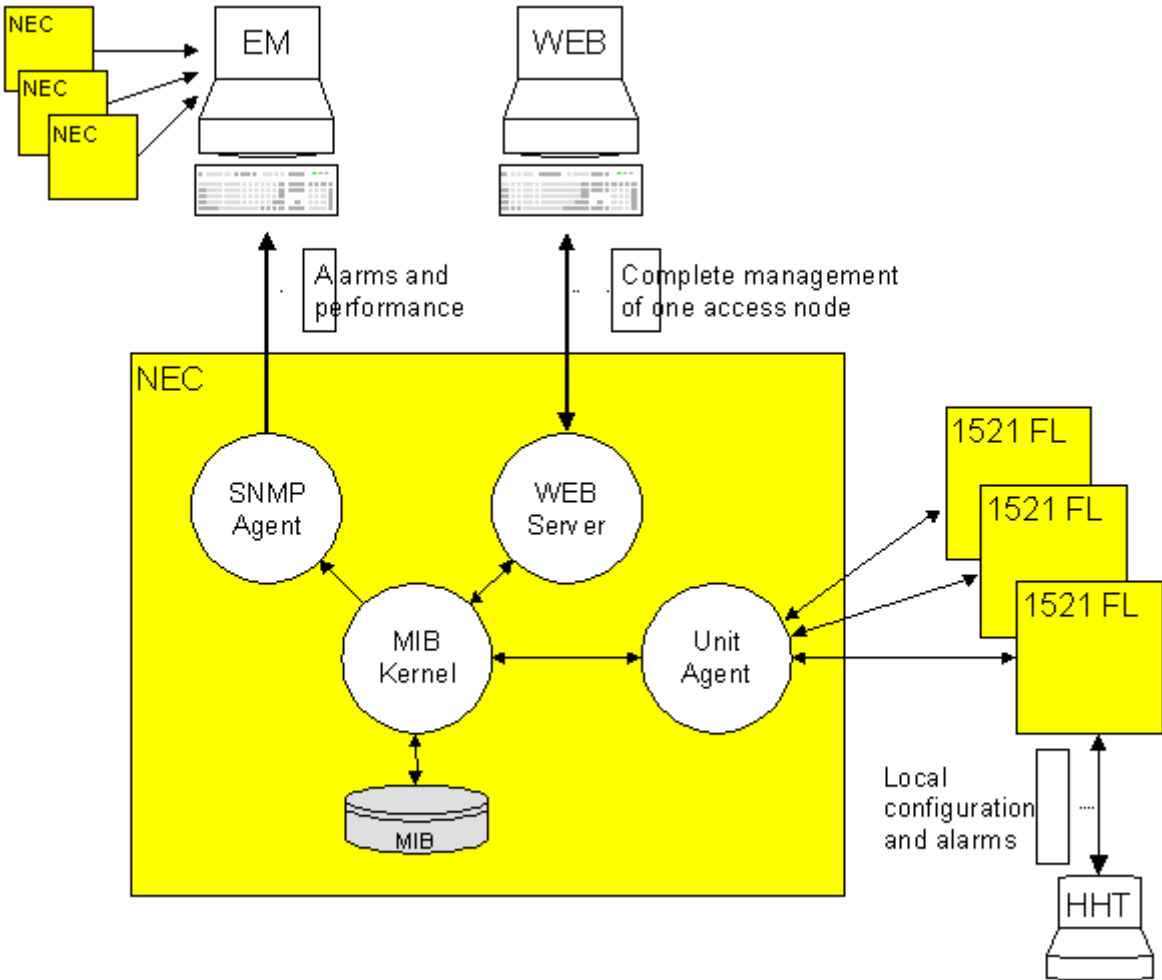
residing in each NEC, serves as an interface to an Element Manager (EM). The agent transmits alarm traps and offers performance data to the SNMP agent residing in the EM. A typical EM is based on HP OpenView.

### Installation:

The 1521FL LN and NEC terminals are delivered with brackets for mounting in 19" (or ETSI) racks. The brackets can be mounted on either side of the cabinet. The front or the rear side can face outwards depending on whether rear or front cabling in the rack is foreseen. The man-machine-interfaces (LEDs and HHT connector) are available on both sides.



Rear view of 1521 FL LN and NEC



System management principle.

# Technical Data

## Electrical Interfaces:

Bitrate: 2048 kbit/s +50 ppm  
Line code: HDB3  
Impedance: 75Ω or 120Ω  
Connectors: BNC - 75Ω  
RJ45 - 120Ω  
9 pin DSUB – V.11  
RJ45 – Ethernet NEC  
Jitter performance according to ITU-T  
Rec. G.823 and G.921

## Optical Interface:

Transmitter:  
Laser (SM): 1270-1340 nm  
Laser (SM): 1480-1580 nm  
Nom. power: -10 dBm  
  
Modulation: 16.896 MBaud  
(5B8B code)  
  
Receiver : PIN diode with  
transimp. amplifier.  
  
Input range: -10 to -39 dBm  
(BER <  $1 \cdot 10^{-10}$  at  
point R)

Optical connectors: FC/PC

## Multiplexing:

Multiplexing according to ITU-T  
Rec. G.742

## Optical Line Requirements:

Two SM fibres (ITU-T Rec.  
G.652): Max. loss 24 dB.  
One SM fibre (ITU-T Rec.  
G.652): Max. loss 19 dB.

## Power:

Supply voltage:  
-32 to -72 VDC or 230 VAC  
with external mains adapter.

Power consumption: < 5 W

MTBF figures:  
1521FL LN: 40 years  
NEC: 50 years

## Environment:

Climatic and mechanical  
conditions:  
In use: ETS 300 019,  
Class 3.2

Transportation:  
ETS 300 019,  
Class 2.3

Storage: ETS 300 019,  
Class 1.2

EMC: EN 55022/24

Overvoltage protection:  
ETS 300 046

## Mechanical Characteristics:

1521FL LN: 43 x 430 x 240  
NEC: 43 x 430 x 240

(figures H x W x D in mm)

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