

A **smarter** approach
to cellular access
solutions...



...with Nera FlexLink

NERA

enabling a wireless future

Nera FlexLink

A smarter approach to wireless access solutions.

Flexibility and reliability are important features in our search for wireless solutions excellence. Flexibility comes along with innovation. Reliability is enabling rapidly built networks which meet the need for coverage, capacity and functionality from day one. That's Nera's definition of a smarter approach to wireless access solutions. The FlexLink is a low and medium capacity microwave access solution covering from 2x2 to 16x2 Mbit/s capacity, in the 7, 8, 13, 15, 18, 23, 26, 28, 32 and 38 GHz frequency bands.

50 years of experience in R&D, manufacturing, network planning and design, project implementation, support, maintenance and training has taken Nera into the 21st century as a leading player in Wireless Transmission Solutions. Flexibility, reliability, innovation and service has provided functional networks for Nera partners and clients. It is all about trust and confidence. With some 30 offices around the world, Nera provides a global reach with a local presence. Offering a full range of project implementation services such as network planning, network design, support, maintenance and training, Nera has a dedicated focus on the needs in the market. As a financially strong partner, Nera runs extensive research and development programs in co-operation with partners and clients, that will take Wireless Transmission further to meet the needs and create possibilities in a market where flexibility, reliability and functionality is in the front seat.

Applications

The FlexLink is ideally suited for several types of access networks. Several innovative features designed into the product make it an excellent choice for cellular base station transmission. In cellular networks which are typically star structured, the embedded cross connect makes routing of 2 Mbit/s circuits easy and convenient. Upgrade of capacity is easily performed by software configuration of the radio units and new circuits are easily created in the network without the need to visit the installation. The new Ethernet interface unit makes the FlexLink an ideal access solution in enterprise networks as well as mixed data and voice access networks. The aggregate link capacity can be allocated to a mixture of data traffic or 2 Mbit/s circuits.



Indoor Unit

The indoor unit is 2/3 U high and can be mounted in 19" racks. The indoor unit (IDU) has as standard two Flexbus interfaces for connection to two radio units in protected configurations, or two radios in two directions. The IDU has space for three plug-in units. These can be 2 Mbit/s interface units, Ethernet data interfaces, Auxiliary data interfaces or one Flexbus interface unit containing two Flexbus interfaces. For 16x2 Mbit/s termination an expansion unit is connected to the standard indoor unit.

radio units to one antenna. The RF hybrid is mounted on the integrated antenna except for the 7 & 8 GHz frequency bands where a short flexible waveguide is used between the RF hybrid and the antenna port.

Configurations

The FlexLink can be configured for 1+0 configuration, 1+1 Hot Standby configuration and 1+1 Hot Standby configuration with Space Diversity. In unprotected configuration, a single indoor unit is

Interfaces

The 2 Mbit/s interfaces are available as 120 ohm balanced or 75 ohm unbalanced interfaces. The Flexbus interface is a 75 ohm interface used between indoor unit and radio unit, and between indoor units.



Outdoor Unit

The FlexLink radio unit is a compact size unit containing all radio circuits and modem. The connection between the indoor unit and the outdoor unit is made by a single coaxial cable carrying the Flexbus data and power to the outdoor units. Maximum length between the indoor unit and the outdoor unit is 300 meters. The outdoor unit is normally mounted directly on the antenna using an integrated antenna support. In protected systems, an RF hybrid is used to combine the two

connected to the outdoor unit. A single indoor unit can support two ODUs and cross connect the 2 Mbit/s circuits in 3 directions. In protected configurations, a single indoor unit can be connected to two radio units with a built-in protection switch. In addition, the indoor units can also be protected by using two indoor units connected via the 1+1 back plane. The IDU in protected systems requires 2 U rack space.

This interface simplifies the site installation work and significantly reduces the problems related to cabling work. The AUX unit is a plug-in module which gives access to auxiliary data channels for up to 64 kbit/s capacity. The Ethernet interface enables new user applications for the FlexLink. The plug-in module gives access to two fast Ethernet ports which can be routed to any radio unit connected to the indoor unit, and the link capacity for IP-Traffic can be scaled in 2 Mbit/s steps.

Antennas and Accessories

Nera offers a wide range of antennas for the FlexLink product range. The high performance, low profile antennas offer an integrated antenna mount for various antenna sizes. The revolutionary antenna support arm simplifies the antenna installation and the antenna alignment. Integrated antenna sizes range from 0.2 m size to 0.6 m size. Larger antennas can be used with a separate mount for the FlexLink radio unit. In protected configurations single antenna solutions are offered with an

elements in the simplest possible manner, and intuitive drilldowns provide detailed views of the equipment.

Higher order management compatibility is achieved via integrated SNMP agent.

- Simplify radio network operation and maintenance
- Manage all Nera products for fault and performance



RF hybrid solution. Alternatively, a two antenna solution can be used offering increased system gain. Furthermore, Nera can supply all necessary accessories to make an easy and quick installation.

Nera Element view – Network Management System (NEW NMS)

NEW NMS client/server solution delivers full NMS functionality for all Nera radios to desktops throughout the enterprise. A comprehensive graphical user interface (GUI) presents the network

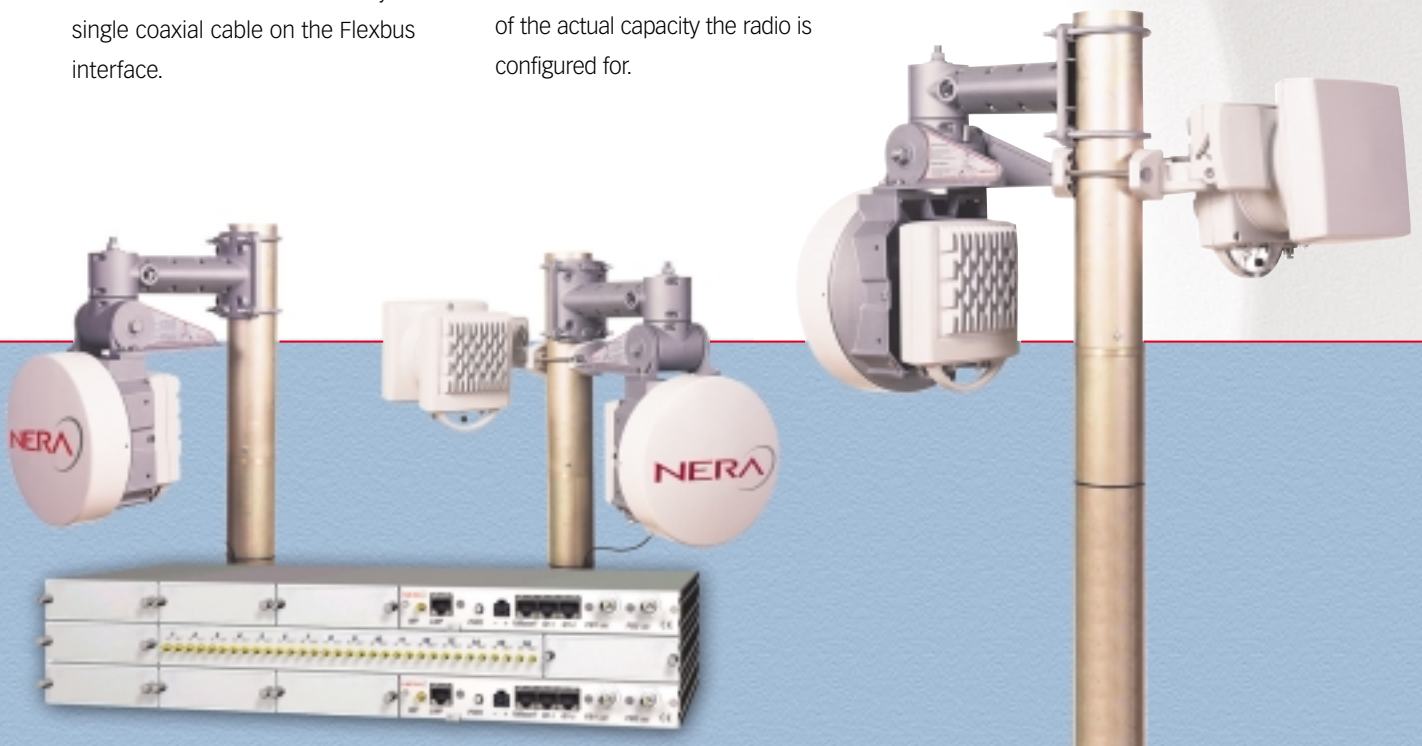
Products	Description
FlexLink Manager for WIN98/NT 4.0	Basic version for configuration of a single hop FlexLink
NEW Configurator for WIN98/NT 4.0/WIN2000	Single user management system scalable for 20-500 network elements
Client/Server Solutions for NT 4.0/WIN2000	As above for multiple users – up to 10 Clients
Connection to OSS	Connection to higher level management system (OSS) via agent for SNMP

Easy Installation

The FlexLink is a compact and space saving solution. The standard indoor unit is only 2/3 U high. A single coaxial cable is used to connect the indoor unit with the outdoor unit. Only the 2 Mbit/s circuits terminated at the site need to be wired, all 2 Mbit/s circuits for other sites are connected by a single coaxial cable on the Flexbus interface.

Maximum Flexibility

The built in cross connect in the FlexLink enables easy connection of traffic paths through a network. Traffic can easily be added or re-routed from the element manager without the need to visit the installation. The embedded cross connect can handle the complete capacity of 16x2 Mbit/s circuits regardless of the actual capacity the radio is configured for.



This feature ensures installation reliability and it removes a major source of problems. The use of a single coaxial cable for interconnect not only saves time at the initial installation, but also allows upgrades and traffic reconfigurations to be conducted remotely at a later stage. The outdoor unit is integrated on the antenna mount and the installation is quick and simple.



www.nera.no



EMEA

Nera Networks AS

Kokstadveien 23, PO Box 7090

N-5020 Bergen, Norway

Tel: + 47 55 22 51 00

Fax: + 47 55 22 52 99

E-mail: webmaster@nera.no

Americas

Nera Networks Inc.

200 Research Drive

Wilmington MA 01887, USA

Tel: + 1 617 476 8888

Fax: + 1 978 988 1094

E-mail: webmaster@nera.no

Asia

Nera Telecommunications Ltd.

109 Defu Lane 10

Singapore 539225

Tel: + 65 628 3388

Fax: + 65 6383 9566

E-mail: webmaster@neratel.com.sg