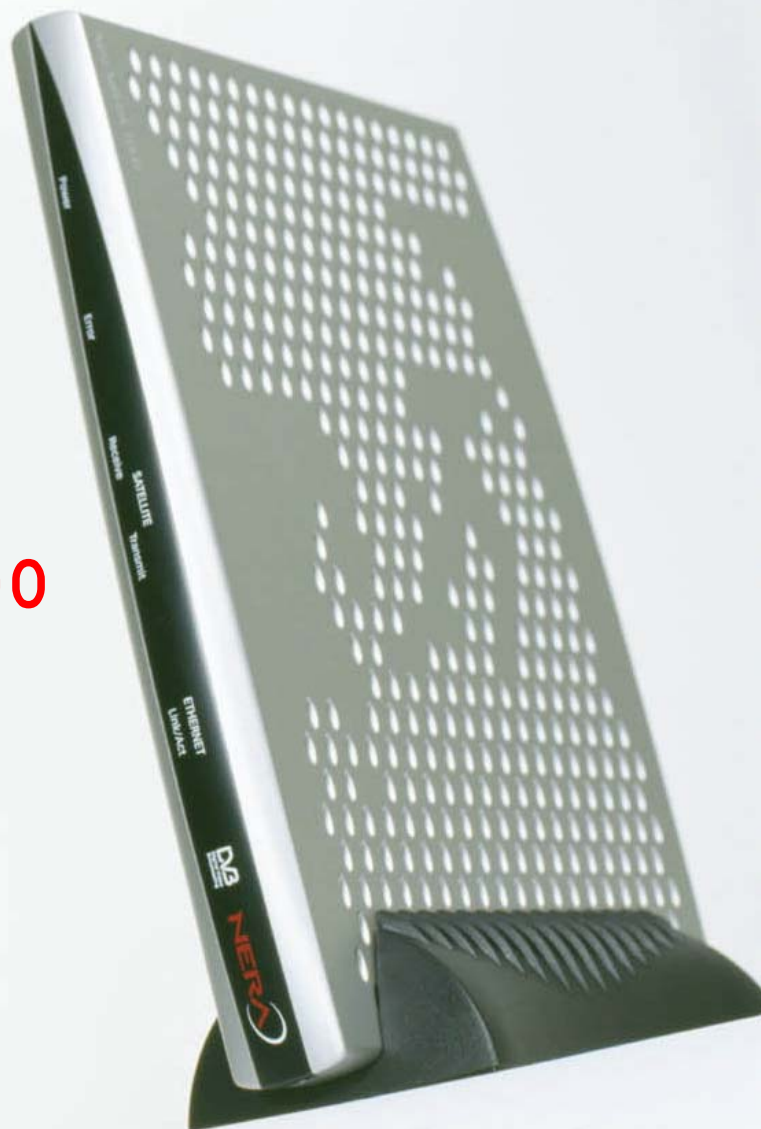


Nera SatLink 1000

Rapidly Establish
Two-way Broadband
Solutions



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Nera SatLink 1000

The Nera SatLink 1000 is a DVB-RCS compliant Indoor Unit (IDU) designed for connecting a single user or an end-user LAN to a DVB-RCS satellite network. The design is compact, lap-top sized, making it well suited for placement on the office desk in a SOHO environment. The Nera SatLink 1000 contains the DVB-S/DVB-RCS modems, an industry standard IP stack, and Ethernet interface – enabling connection to the services offered by a DVB-RCS Hub without any other external units or adapters. The Nera SatLink 1000 can be configured with a range of different antennas and Outdoor Units (ODUs).



Nera SatLink 1000

Key features of the Nera SatLink 1000 are:

- Up to 4 Mbps IP throughput
- Return link bit rates from 128 kbps to 2 Mbps
- DVB-RCS compliant
 - Compliant with version V1.3.1 of the DVB-RCS standard ETSI EN 301 790
 - Supports ATM and MPEG options on return link
 - Supports Turbo coding FEC on the return link
- Multicast support
 - Enabling of forward link multicast streams to the LAN via IGMP
 - Support for routing LAN multicast streams to the return link
- QoS
 - Supports classification of return link traffic into different quality of service classes based on IP addresses, protocol types, DSCP/TOS, and port numbers of the IP packets to be transmitted
- Can be managed from the Hub or from local LAN via
 - Web interface
 - Telnet
 - SNMP (option)
- Easy to upgrade SW
 - By administrative user via TFTP
 - From the Hub via TFTP or Multicast
- Industry standard IP stack
 - IP, ARP, ICMP, TCP, IGMP, TFTP client, Telnet server
 - Options for SNMP management, NAT, DHCP server on the local LAN, and GRE tunnels on the Air Interface.
- Prepared to interface with industry standard LNBS and transmitters
 - Enhanced DiSEqC support enabling very accurate control of the ODU output power when used together with the integrated power detector in the Nera SatLink 3000 transmitter
- Compact design (size of a lap-top)

Nera SatLink 1000	
Max throughput	
IP (after MAC filter)	4 Mbps ¹
MPEG2 (after PID filter)	10 Mbps
MPEG2 (before PID filter)	45 Mbps
Forward Link	
No. of forward link receivers	1
Symbol rates	2-45 Msps
Modulation	QPSK
Forward Error Correction	Reed-Solomon / convolutional (rates 188/204 x (1/2, 2/3, 3/4, 5/6, 7/8))
Return Link	
Symbol rates	128 ksps – 1.2 Msps ²
Bit rates	Up to 2 Mbps ¹
Modulation	QPSK
Forward Error Correction	Turbo (rates 2/5, 1/2, 2/3, 3/4, 4/5, 6/7)
Frequency hopping	Yes – Slow ³ , within a 36 MHz band
Traffic burst format	ATM and MPEG
MAC message formats	Prefix, DULM, SYNC, Contention Based SYNC
Capacity request types	CRA, RBDC, VBDC, FCA
QoS	Yes ⁴
IP Stack	
IP - RFC 791, 1191	Yes
ARP - RFC 826	Yes
ICMP - RFC 792	Yes
TCP - RFC 793, 896, 1122, 1323, 2018, 2488, 2581	Yes
IGMP (LAN interface) - RFC 2236	Yes
SNMP - RFC 1157, 2578, 2579, 2580	SW Option
DHCP Server - RFC 2131, 2132	SW Option
NAT ⁵ - RFC 1631, 2663	SW Option (NAPT)
IP Tunnelling / GRE - RFC 2784	SW Option
TCP/HTTP PEP ⁶	SW Option ⁷

¹ Maximum combined throughput on forward and return link is 4 Mbps

² The symbol rate may be set with a granularity of 1 sps with an accuracy of 20 ppm or better

³ Slow frequency hopping is the capability to switch frequency during a period of one traffic burst

⁴ The traffic destined to the return link can be given different priority and use different capacity request strategies based on examining the following parameters in the IP and TCP/UDP headers of the return link traffic: IP source and destination address, Diffserv DSCP/TOS, Protocol type, TCP/UDP source and destination port number. On the forward link QoS is taken care of by the DVB-RCS Hub.

⁵ Enabling this function may have influence on the throughput

⁶ Integrated Performance Enhancement Proxy to mitigate the negative effect on TCP/HTTP performance caused by the satellite delay. This function requires that the service is offered by the network operator.

⁷ Offered as SW client in end user PC. Will from Q4-2004 be available embedded into the SatLink 1000. All previously delivered terminals can be software upgraded to the new version with embedded PEP client.

Nera SatLink 1000	
Physical Interfaces	
Ethernet 10/100 Mb auto-detect	Yes
RS-232 ⁸	Yes
Management Interfaces	
CLI / RS-232	Yes
CLI / Telnet	Yes
Web / HTTP	Yes
SNMP	SW Option
Software Upgrade	
Unicast	Via TFTP from DVB-RCS HUB or Terminal LAN
Multicast	From DVB-RCS HUB
ODU Interface	
Number of cables	Two coaxial cables
Connector types	F-type, 75 Ω, female (both RX and TX connector)
Signals on TX cable	TX data, clock reference, 24V DC, control channel
Signals on RX cable	RX data, 13/18V DC, control channel
TX output frequency range	950-1450 MHz
TX output signal level	-35 dBm to +0 dBm
TX Phase noise	Compliant with DVB-RCS Guidelines
RX input signal level	-65 dBm to 0 dBm
RX input frequency range	950-2150 MHz
Control channel TX	Extended DiSEqC using 22 kHz PWK (compliant with DVB-RCS Guidelines)
Control channel RX	13/18V and 0/22 kHz signalling
TX power supply	24V, 1.2A max ⁹ Short circuit protected
RX power supply	13/18V, 300mA max Short circuit protected
ODU Equipment supported by Nera	
Transmitters (BUCs)	Nera SatLink 3000 Invacom TUL-204
LNBS	Universal LNBS (receive only) Invacom SPV1-SM
Antennas	Channel Master 0.96m Type 960 Channel Master 1.2m Type 123 Channel Master 1.8m Type 184 Visiosat Tx/Rx 75cm Offset Antenna
Cable lengths, max ¹⁰	60m using series 6 cables from Times Fiber 80m using series 11 cables from Times Fiber 160m using series 500 cables from Times Fiber

⁸ For specialised management functions only

⁹ Up to 2.5A with higher power external power supply option

¹⁰ Valid for receive symbol rates of 20 Msps and larger.

Nera SatLink 1000	
Physical & Environmental	
Power supply	110-240 VAC, 50-60 Hz, External
Power consumption, max	8 W - IDU only 11 W - Receive only, using Invacom SPV1-SM LNB 38 W - Transmitting at P1dB using Nera SatLink 3000 or Invacom TUL-204 BUC and Invacom SPV1-SM LNB.
Operating temperature	0 to +45° C
Storage temperature	-20 to +85° C
Humidity	20% to 90%, non-condensing
Size	33 x 22 x 3.5cm
Weight (without power supply)	945g

Nera SatLink 1000 Technical Specifications