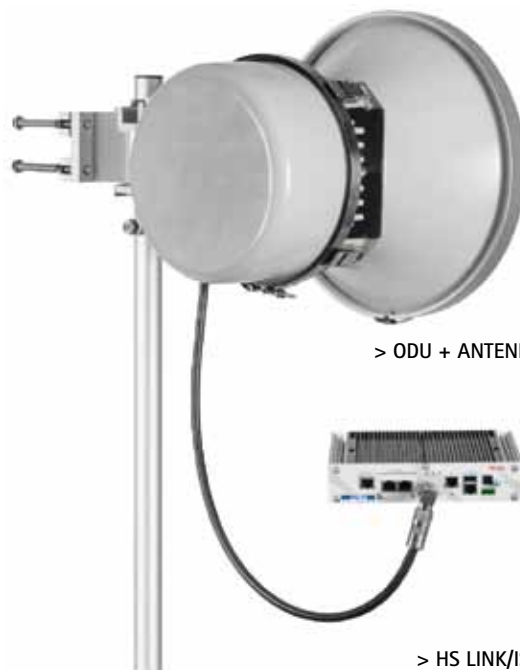


High Speed-Link/ISM Bands 17 and 24GHz License-Exempt



> HS LINK/ISM



> ODU + ANTENNA

> HS LINK/ISM

Main Features

- Up to 310Mbps data throughput, full duplex.
- Available modulation schemes:
 - Programmable QPSK/16QAM/32QAM/64QAM/128QAM/256QAM.
- Available channel bandwidth:
 - ETSI standards : 7/14/28/40 and 56 MHz
 - ANSI standards : 10/20/30/40 and 50 MHz.
- Customer network data interface:
 - 1 x Gigabit Ethernet (100/1000Base-T)
 - 1 x 10/100BaseTX for data or management

Options

- 2 or 4 x ASI (BNC input/output)
- 1-2 x E1 / T1 plug-in extension module
- 1 x E3 / DS3 plug-in extension module

Product Features

- Simple configuration reduces deployment time and lowers installation costs
- Compact and Lightweight
- Superior reliability - High MTBF
- Fully Calibrated Outdoor Unit with >30 dB Tx Dynamic Range
- 1U "half size" Indoor Unit

Default

Option

155 Mbps @ 128 QAM
28 MHz Ch BW

310Mbps @ 256QAM
56Mhz Ch BW

Hardware Available configurations

Full Duplex

Half Duplex
TX or RX

TX Power
Standard or High

System Available configurations

1 + 0



The SKYLINKS Digital Radio System HS/ISM™ provides a cost-effective solution to high capacity data transmission requirements. Operating in **the unlicensed bands 17 and 24GHz**, it is composed by new very compact IDU and ODU with enhanced features that include line interface, alarms and diagnostics and network management interfaces.

Easy-to-install, HS/ISM provides user accessibility functions including Transmit Power, Receive Signal Level (RSL), and operating frequency.

Additionally, HS/ISM features enhanced software allowing capacity / configuration upgrade, downloadable field upgrades and an optional embedded SNMP agent for advanced network management capabilities, making it the ideal solution for networks operated by internet service providers (ISP).

The ODU antenna front-end is equipped with a orthogonal circular WG transformer for operating in cross-polarization mode. This solution allows for wider available Bandwidth and low order branching filters for better Receive Sensitivity and higher Output Power

It supports links for high speed wireless Ethernet networking.

It is spectrum and data rate scalable from 5 to 310 Mbps, giving opportunity to service providers and companies to trade-off system gain with spectral efficiency and channel availability for optimal network connectivity.

SKYLINKS HS/ISM enables access service providers to provide a portfolio of secure, scalable wireless applications for data, video, and voice over IP (VoIP). This family includes the following blocks: Indoor Unit (IDU), Outdoor Unit (ODU) and Antenna. Antennas are directly connected through a patented WG interface.

The Software Defined Indoor Unit is designed to be frequency independent, the Outdoor Units are designed to offer the best alternative solution to the "bridging" equipments actually working in the saturated 5GHz Wi-Fi bands.

The ODU covers from QPSK up to 256QAM with very low Phase Noise and superior reliability (high MTBF).

The SDIDU supports 1+0 configuration and it is provided in a chassis arrangement 1U half-19" standard rack.

Additional features of the SDIDU is provision for a plug-in module to provide either 2xE1 or 1xE3 wayside channel interfaces.

The overall architecture consists of a single 1U "half size" rack mount Software Defined Indoor Unit (SDIDU) with a cable connecting to an Outdoor Unit (ODU) with an external antenna.

System Features

- The smallest IDU in the market! Possibility to place 2 IDUs in 1U 19" std. rack module.
- QPSK, 16 –256 QAM Modulation
- FEC – Forward Error Correction with Reed-Solomon Coding
- Built-in Adaptive Modulation system with dynamic capacity allocation and priority data transmission (PBPS – Packet Based Priority System)
- Asymmetrical data rates – different modulation setup for upstream and downstream
- On-line Ethernet packet compression with reduced length of frames allowing throughput efficiency increase up to 25%
- Two USB ports for connecting USB-flash disk or PC
- "In-Band"/"Out-of-Band" Management
- NAT, Proxy ARP support for effective IP management setup
- Large range of System and Ethernet Counters
- Adaptive Power Control ATCP
- Built-in Network Management System (NMS) – Web, SNMP, TELNET
- Built-in Bit Error Rate (BER) Tester + Built-in Spectrum analyzer
- **5.4–5.8GHz sub-bands available upon request**
- 30, 60 and 90 cm diameter parabolic antenna, according to the distance between the 2 link terminals and to the required payload/link availability %

SYSTEM PARAMETERS

Frequency	17 GHz	24 GHz
Standards	ETSI/FCC	ETSI/FCC
Operating Frequency (GHz)	17.10 to 17.30	24.00 to 25.24
Channel BW 28 MHz Channel BW 56 MHz	128 QAM 157 Mbps 32 QAM 157 Mbps / 128 QAM 310 Mbps	
Tx Power dBm (adjustable from/to) QPSK 16, 32, 64QAM 128, 256QAM	-24/+13 -24/+10 -24/+8	-24/+10 -24/+7 -24/+5
Rx Sensitivity dBm @ 10-6 BER/128QAM 20 MHz, 100Mbps 28 MHz, 157Mbps 40 MHz, 200Mbps 56 MHz, 300Mbps	-73 -70 -71 -66	-73 -70 -71 -66
Frequency Stability	0.0010%	
Background BER	< 10-12	
Standards Compliance	Radio ETSI EN 302 217, EN 301 216, EN 301 128, EN 300 198	
	Power Supply ETSI EN 300 132-2	
	EMC / Safety ETSI EN 301 489 / IEC EN 60950	

PAYLOAD INTERFACE PARAMETERS

Gigabit Ethernet	Line Rate	Full-Duplex, scalable up to 310 Mbps
	Interfaces	1 x 10/100/1000 Base-T (RJ45) 1 x 10/100 base-T (Rj45)
	Maximum packet length	1632 Bytes
E1 / E3	Line Rate	1-2 x 2.048 / 1 x 34.368 Mbps
	Interfaces	G703 RJ45 / BNC
	Test Utility	Loopback, Internal BER tester
ASI	Half-Duplex-TX	4 X AS TX
	Half-Duplex-RX	4 X ASI RX
	Full-Duplex	2X ASI TX + 2X ASI RX



MECHANICAL/ENVIRONMENTAL

Dimensions	IDU: "HALF"19" standard rack (1U), 210 x 44 x201mm ODU: D 260mm x H 160mm
Weight	IDU: 2 Kg; ODU: 6.0 Kg
Operating Temperature	IDU: -5° to +45°C; ODU: -33° to +55°C (Arctic option -50°C)
Altitude	Up to 4500 meters
Humidity	IDU: 95% condensing; ODU: 100% all-weather
Power Input	-48V DC (-36V to -60V DC)
Power Consumption	IDU + ODU < 40 Watts
Cooling	Natural convection
Coaxial Interfaces	IDU N-type female, ODU N-type female
IDU-ODU Cable	Belden 9913/RG-8, up to 300m
Antenna Interface	Proprietary direct mount (Circular Waveguide)
Standards Compliance	ETSI ETS 300 019, Part 1-3 Class 3.2 (IDU) - Part 1-4 Class 4.1 (ODU)

NETWORK MANAGEMENT

Support	SNMP, WEB based GUI, TELNET, ASCII console
Local Access	Ethernet 10/100 Base-T / RJ-45, RS232, USB-A, USB-B
Out-of-Band Management	115 Mbps
In-band Management	Via LAN
IP Addresses	Primary, secondary
IP Option	NAT, Proxy ARP
IP Utilities	Ping, telnet