

SkyLink

Delivering Scalable Bandwidth Licensed Microwave Solutions

Features

- Licensed band PTP digital microwave system for all FCC/NTIA/ETSI bands at 6/7/8/11/13/15/18/23/26/39 GHz
- Scalable FE/GigE IP and TDM bandwidth - 20 to 670 Mbps Ethernet and 0 to 63 T1s
- Provides 10/100/1000Base-TX and SFP optical Ethernet interfaces
- Scalable modulation - QPSK/16QAM/32QAM/64QAM/128QAM/256QAM
- Up to 670 Mbps Ethernet in a single IDU with 2+0 configuration
- Up to 3xOC-3/STM-1 plus Ethernet. OC3 is native
- Up to 63xT1 on a single IDU with add/drop and ring protection capability. All T1's are native
- User defines specific number of native T1's per hop. All remaining link capacity assigned to Ethernet.
- Simple capacity upgrades with software key
- Dynamic Adaptive Modulation and advanced forward error correction techniques for improved link performance
- Protected (1+1) and 2+0 configurations available in single IDU with XPIC
- Common compatible IDU for all ODU RF bands; all interfaces modular
- Compact split mount design
- SNMP remote management with full-featured MIB
- User friendly Web GUI management solution - *SkyView*
- High performance & unrivaled cost effectiveness



Applications

- Fixed Wireless Access & Fiber Network Extension
- Cellular, WiMAX, and WISP Backhaul
- Enterprise and Private Networks
- Government, Defense, and Public Safety Networks
- Critical Infrastructure Communications Redundancy
- Star, Cascade ("daisy chain"), or Ring/Consecutive Point Network Topologies



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cielo®
NETWORKS

General Information	L6 / U6 GHz	11 GHz	18 GHz	23 GHz	39 GHz
Frequency Range	5.9-6.4 / 6.5-6.9 GHz	10.7 - 11.7 GHz	17.7 - 19.7 GHz	21.2 - 23.6 GHz	38.6 - 40.0 GHz
T-R Spacing	252.04 / 160 & 170 MHz	490 MHz	1560 MHz	1200 MHz	700 MHz
RF Channel Spacing	10/30 MHz	10/30/40 MHz	10/20/30/40/50/80 MHz	10/20/30/40/50 MHz	50 MHz
Emission Designator	10MOD7W/ 30MOD7W	10MOD7W/30MOD7W 40MOD7W	10MOD7W/20MOD7W/30MOD7W/ 40MOD7W/50MOD7W/56MOD7W	10MOD7W/20MOD7W/30MOD7W/ 40MOD7W/50MOD7W	50MOD7W
Frequency Accuracy	7 PPM				

Radio Information	6 GHz						11 GHz															
Modulation	QPSK	16QAM	32QAM	64QAM	128QAM	256QAM	QPSK	16QAM	32QAM	64QAM	128QAM	256QAM										
Transmit Power	N/A for FCC						N/A for FCC															
Receiver Sensitivity (BER 10e-6)													24 dBm		24 dBm		25 dBm		24 dBm		24 dBm	
Receiver Overload (BER 10e-6)													-69 dBm		-65 dBm		-76 dBm		-71 dBm		-68 dBm	
	-23 dBm		-23 dBm		-20 dBm		-23 dBm		-23 dBm		-23 dBm											

Radio Information	18 GHz						23 GHz					
Modulation	QPSK	16QAM	32QAM	64QAM	128QAM	256QAM	QPSK	16QAM	32QAM	64QAM	128QAM	256QAM
Transmit Power	25 dBm	25 dBm	25 dBm	23 dBm	20 dBm	17 dBm	24 dBm	23 dBm	22 dBm	21 dBm	21 dBm	17 dBm
Receiver Sensitivity (BER 10e-6)	-89 dBm	-82 dBm	-77 dBm	-73 dBm	-68 dBm	-64 dBm	-88 dBm	-81 dBm	-77 dBm	-71 dBm	-67 dBm	-64 dBm
Receiver Overload (BER 10e-6)	-20 dBm	-20 dBm	-20 dBm	-23 dBm	-23 dBm	-23 dBm	-20 dBm	-20 dBm	-20 dBm	-23 dBm	-23 dBm	-23 dBm

Radio Information	39 GHz					
Modulation	QPSK	16QAM	32QAM	64QAM	128QAM	256QAM
Transmit Power	22 dBm	19 dBm	19 dBm	15 dBm	15 dBm	15 dBm
Receiver Sensitivity (BER 10e-6)	-84 dBm	-76 dBm	-73 dBm	-70 dBm	-67 dBm	-61 dBm
Receiver Overload (BER 10e-6)	-20 dBm	-20 dBm	-20 dBm	-23 dBm	-23 dBm	-23 dBm

		Capacity Bandwidth										
		20 Mbps	50 Mbps	100 Mbps	150 Mbps	185 Mbps	200 Mbps	240 Mbps	250 Mbps	300 Mbps	335 Mbps	
RF Channel Size	10 MHz	16QAM	128QAM									
	20 MHz	QPSK	16QAM									
	30 MHz	QPSK	16QAM	32QAM	128QAM	256 QAM						
	40 MHz	QPSK		16QAM	64QAM	128QAM		256 QAM				
	50 MHz	QPSK		16QAM	32QAM	64QAM		128QAM		256 QAM		
	56 MHz	QPSK		16QAM	32QAM	64QAM		128QAM			256 QAM	

Payload

Ethernet: 20/50/100/150/200/240/250/300/335/400/500/600/670 Mbps

T1: Up to 63 T1's. All T1s are native

OC-3: Up to 3xOC-3 per IDU. OC3 is native

Physical Interfaces

GigE Module

Ethernet: 4xRJ-45 10/100/1000Base-TX, SFP

T1/E1: 2xRJ-48c

FE Module

Ethernet: 2xRJ-45 10/100Base-TX

T1/E1: 2xRJ48c, Molex DB60F (14xT1)

64 kbps: RS232/RS422, RJ-45

OC-3/STM-1 Module

Optical: OC3/STM-1: Type SC

Electrical: STM-1: BNC

SFP Slot

Modem/IF Module

IDU supports 2 modules for 1+1/2+0

IDU: TNC - Female

ODU: N - Female

Frequency: TX: 350 MHz / RX: 140 MHz

Additional User modules available based on network requirements. Contact Cielo Networks for more information

Management

Remote Access

SNMP

Full Featured MIB

Web-Based GUI

Telnet - Command Line Interface

Interface: 2x10/100Base-TX, RJ-45

Local Access

Serial: Command Line Interface

Interface: HDB-15

Alarms

Input: 4 x TTL-level

Output: 2 x Form C contacts, 2 x TTL-level

Interface: HDB-15

Topology

Out-of-Band Management with embedded 2x10/100 switch allows ring and cascaded network management topology

RSL Measurement

Voltage output at ODU with BNC Interface and Web-GUI

Environmental

Indoor Unit

Operating Temperature: -5° to +55°C

Relative Humidity: 0 to 95%, non-condensing

Altitude: 4,500 m

Outdoor Unit

Operating Temperature: -33° to +55°C

Relative Humidity: 0 to 100%

Altitude: 4,500 m

Mechanical

Indoor Unit

Size: 17.5W x 9.4D x 1.8H inches (1RU)

Weight: 7.5 pounds

Outdoor Unit

Size: 10.5 diameter x 3.5 deep inches

Weight: 10.1 pounds

Power

Input Voltage

-48VDC: -36 to -72 VDC

Interface: 2 Pin Phoenix Contact

Power Consumption

1+0: 76W

1+1/2+0: 137W

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