IPLINK HIGH PERFORMANCE ETHERNET BACKHAUL

- **Up to 1.5 Gbps Aggregate Capacity**
- **Hitless Adaptive Code Modulation**
- **Hitless 1+1 Hot Standby**
- **Frequency and Spatial Diversity**
- **Available in licensed bands from 2 to 40 GHz**
- **2 x GigE Fiber and 4 x GigE Copper Ports**
- **2 x STM-1/OC-3 Interfaces**
- **32x T1/E1 Ports**
- **Support for up to 8 Classes of Service**

PRODUCT APPLICATION:

The IPLINK family of Microwave Radio Links provides IP connectivity between two points at distances of up to 100 Kms. It is ideally suited for fixed and mobile 3G/4G network backhaul and other high-speed IP transport applications.

The links operate in any of the licensed bands between 2 to 40 GHz and can be used at line-of-sight distances of up to 100 Kilometers.

Each transceiver terminal consists of an Indoor Unit connected by cable to an Outdoor Unit, which is mechanically integrated with a high-directivity antenna.

Radio performance can be monitored and controlled remotely via Telnet, SNMP and HTTP access, allowing for asymmetrical bandwidth control and remote temperature and input voltage measurements.

Installation is easy thanks to a built-in LED alignment tool and easy to install mounting brackets designed to facilitate antenna pointing and alignment.

The links are available in fully protected (1+1) redundant configurations for high availability applications.

The dual-modem configuration option offers a highly reliable link due to its ability to seamlessly switch or aggregate traffic between two active ODUs. This architecture supports hitless 1+1 and Frequency/Spatial Diversity configurations.

Embedded software keys enable flexible speed and feature upgrades allowing speeds ranging from 100 to 750 Mbps.

The single modem version has a throughput of up to 375 Mbps full duplex, 4xGigE, 1 STM-1/OC-3, 16x T1/E1.

The dual modem version includes Hitless 1+1 Link Redundancy (375 Mbps full duplex), Bonded Channel (750 Mbps full duplex) and East/West mode for long haul relay links (375 Mbps full duplex).

IPLINK HIGH PERFORMANCE SPECIFICATIONS

General Parameters

Frequency Support	Licensed Bands, 6 to 38 GHz
Channel Size	3.5 MHz to 56 MHz
Modulation Format Selectable	QPSK, 16QAM, 32QAM, 64 QAM, 128QAM, 256QAM, ACM & non-ACM
Max Capacity	750 Mbps full duplex- Varies by modulation and bandwidth selected
Payload Latency	100 us typical
Payload Types	Ethernet, T1/E1, STM-1, OC3
Features	ATPC (Automatic Transmit Power Control), Hitless Adaptive Code Modulation Shifting, LDPC, Forward Error Correction
Regulatory	‡FCC/ANSI, ETSI

Ethernet Parameters

Packet Size	64-9600 bytes; Support for Super Jumbo packets [Up to 13K]
Flow Control	Yes, via Ethernet pause frames (GigE mode only)
Quality of Service (QoS)	802.1p Port prioritization, TOS, DSCP, MPLS
	Port mapping for traffic
	Support for up to 8 Classes of services (CoS)
	Bandwidth shaping, per port

Management

Security/ Authentication	2 level password (Read Only, Read White)
Configuration & Management	Telnet, SSH, HTTPS, Console (RS232), SNMPV2, Engineering Orderwire
Remote Firmware Update	SFTP / TFTP client in radio unit

Interface

Interface	Indoor Unit	Outdoor Unit (without antenna)
Indicators	Ethernet speed and activity for each port; Dual multifunction display, 2 status LEDs per ODU	2-digit LED "in dBm" RSSI for aligment (-SP)
Payload Interfaces	4x GigE RJ45 (10/100/1000BaseT	
	32xT1/E1 RJ45, 2x STM-1/OC -3/GigE Fiber SFP EOW/T1/E1 RJ45	TX IF, RX IF, Telemetry
Out of Band Management Port	1 Ethernet port RJ45 Via IDU	
Alarms	2 Inputs - CMOS; 2 outputs- Dry contact closure insolated 50V1	Loss of lock
Power Connector	3 Pin Terminal Block to support redundant power supplies	Provided by IDU
Console	DB6 RS232 Via IDU	

Power

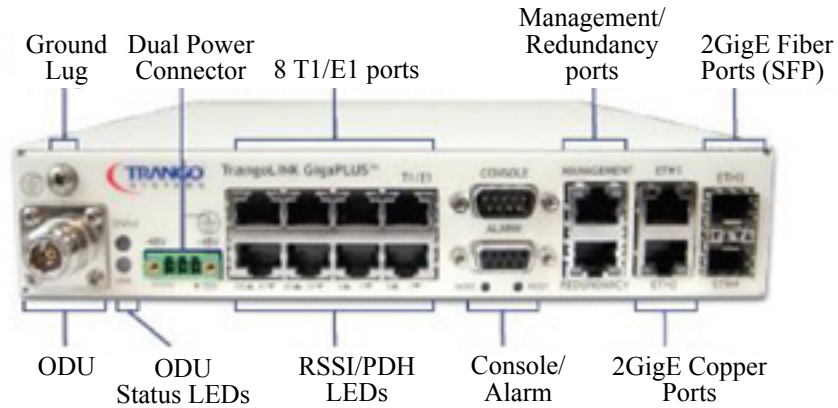| Power	Indoor Unit	Outdoor Unit
Power Input IDU Dual	-40 to -72 VDC	-40 to -72 VDC
Power Consumption	<70 Watts (all ports active)	Up to 52 Watts per ODU

Mechanical and Environmental

Mechanical and Environmental	Indoor Unit	Outdoor Unit (without antenna)
Enclosure	19-inch rackmount, 1U height	Cast aluminum
ODU If/Power/Control Connection	N-Female	N-Female(TX IF,RX IF, Telemetry) BNC-F for RSSI
Dimensions (height x with x length)	1.75 x 19 x 13 inches	12 x 12 x 6.8 Inches
Weight	9.3 lbs	13.5 lbs
Temperature Range (Operational)	14° to 122°F (-10° to +45° C)	-40° to 131° F/ -40 to + 55°C(-SP)
Humidity	95% non condensing	100% Condensing

[1] Specifications subject to change without prior notice.

Indoor Single Modem Back Panel Configuration

Ground Lug   Dual Power Connector   8 T1/E1 ports   Management/ Redundancy ports   2GigE Fiber Ports (SFP)

ODU   ODU Status LEDs   RSSI/PDH LEDs   Console/ Alarm   2GigE Copper Ports

Indoor Dual Modem Back Panel Configuration

ODU 1   Ground Lug   Dual Power Connector   T1/E1 ports 1-8 & 9-16   Management ports   4GigE ports   T1/E1 ports 17-24 & 25-32   ODU 2

ODU 1 Status LEDs   ODU 1 Fuse   Eng. Order Wire (EOW) T1/E1   2x Multi-function Display   Console/ Alarm   2x STM-1/OC-3/GigE Fiber ports (SFP)   ODU 2 Fuse   ODU 2 Status LEDs