

POINT-TO-POINT

TrangoLINK Giga™

11 GHz Licensed Full Duplex Wireless Microwave System

POINT-TO-POINT HIGH-CAPACITY MICROWAVE BACKHAUL NETWORKS

TrangoLINK Giga™ is a high-performance point-to-point wireless microwave system designed for Service Provider backhaul and Enterprise networks using the licensed 11 GHz spectrum.

TrangoLINK Giga™ provides a full duplex wireless connection over the air that is ideal for mixed traffic that requires both IP and traditional T1/E1 connectivity. It is most suitable for cellular and WiMAX backhaul, Enterprise LAN extension, and public and private networks.

Each TrangoLINK Giga™ consists of two In-Door Units (IDU) and two Out-Door Units (ODU). The ODU attaches easily to an external antenna that delivers high link gain and availability.

Benefits

- » Low cost of ownership
- » Excellent system gain for longer range and higher availability
- » No right-of-way issues, unlike fiber deployment
- » Fast ROI relative to fiber and other traditional options

Easy Setup and Deployment

- » Minimal maintenance, "set and forget"
- » Split-mount architecture with direct-mount slip-fit ODU and 1 rackmount unit IDU
- » Easily upgrade throughput with purchase of license Option Key for existing hardware
- » Easy alignment via digital LED RSSI indicators on ODU and IDU

Highlights

- Up to 480+ Mbps (240+ Mbps full duplex)
- Extremely low latency, <math><160 \mu\text{s}</math> (typical)
- Supports FCC/IC channel sizes of 10, 20, 30 and 40 MHz

Performance

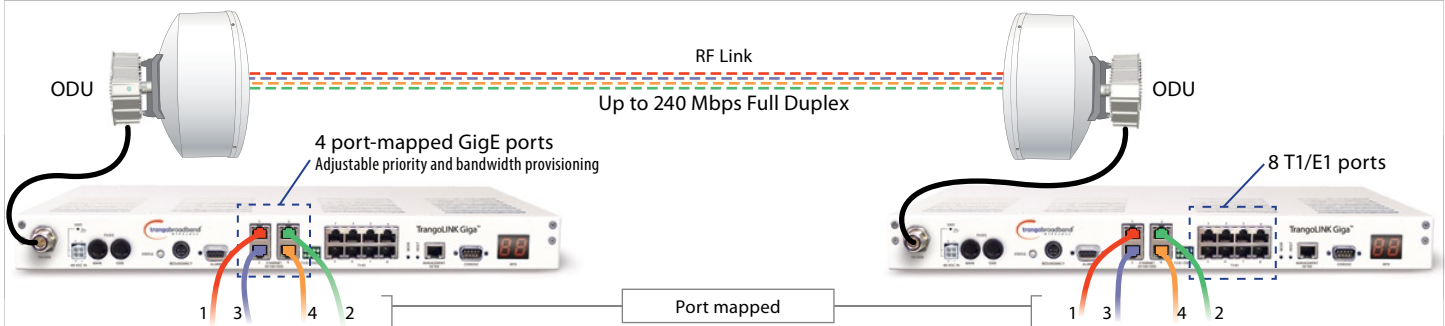
- » Highly flexible bandwidth management options
- » Selectable filters for improved sensitivity
- » Flexible modulation for greater spectral efficiency
- » Supports jumbo packets in GigE mode
- » Port Priority assignment (VLAN) and QoS features
- » Four configurable 10/100/1000 BaseT ports for payload
- » Eight T1/E1 ports that are automatically added to or dropped from the data stream when connected or disconnected

Fail Safe Features for High Reliability

- » Supports dual power supplies for power redundancy
- » Hot standby configuration for protection against equipment failure

Management

- » Network management through SSH, SNMP, HTTP, and Serial port
- » Built in loop back and far end monitoring



Specifications

RADIO PARAMETERS							
Frequency of Operation (ODU)	Band 1A: 10.715 to 10.945 GHz Band 1B: 11.215 to 11.445 GHz		Band 2A: 10.955 to 11.185 GHz Band 2B: 11.445 to 11.685 GHz				
Channel Size	10 MHz / 20 MHz / 30 MHz / 40 MHz						
RF Power Output (max per modulation)	QPSK	16QAM	32QAM	64QAM	128QAM	256QAM	
	+22 dBm	+22 dBm	+22 dBm	+21 dBm	+20 dBm	+19 dBm	
Modulation Format	Selectable from QPSK, 16QAM, 32QAM, 64QAM, 128QAM, 256QAM						
Receiver Sensitivity	-64 dBm (256 QAM maximum speed); -89 dBm (QPSK minimum speed)						
Features	ATPC (Automatic Transmit Power Control), Forward Error Correction						
Compliance	FCC Part 101, Part 15 Class B Unintentional Radiator Canada SRSP-310.7 Issue 2, ETSI EN302 217-2-1, and EN302 217-2-2						
Channel Plans	FCC Part 101.147 (o); ITU F.387-10						
DATA							
Data Throughput/ RSSI (1E10 ⁻⁶ BER)	Speeds are uni-directional. For aggregate full duplex speeds, multiply numbers below by 2. (based on Option Key upgrade)						
Legend Basic Package = 108 Mbps max. Option Key Upgrade = max. throughput*	Channel Size	QPSK / RSSI	16QAM / RSSI	32QAM / RSSI	64QAM / RSSI	128QAM / RSSI	256QAM / RSSI
	10 MHz	15 Mbps / -89 dBm	32 Mbps / -82 dBm	36 Mbps / -79 dBm	44 Mbps / -76 dBm	52 Mbps / -73 dBm	56 Mbps / -70 dBm
	20 MHz	32 Mbps / -86 dBm	68 Mbps / -79 dBm	76 Mbps / -76 dBm	93 Mbps / -73 dBm	110 Mbps / -70 dBm	118 Mbps / -67 dBm
	30/28 MHz	45 Mbps / -84 dBm	95 Mbps / -78 dBm	108 Mbps / -74 dBm	132 Mbps / -72 dBm	155 Mbps / -68 dBm	167 Mbps / -66 dBm
	40 MHz	65 Mbps / -83 dBm	137 Mbps / -76 dBm	155 Mbps / -72 dBm	190 Mbps / -70 dBm	223 Mbps / -66 dBm	240 Mbps / -64 dBm
Packet Size	64-9600 bytes						
Flow Control	Yes, via Ethernet pause frames (GigE mode only)						
Security	Authentication uses 2 level password						
Configuration & Management	SSH, HTTPS, Console (RS232), Ethernet, SNMPV2						
Remote firmware update	TFTP client in radio unit						
ANTENNA	Model/Description	Gain	3 dB Beamwidth				
Antenna options	AD11G-2 / 2-foot antenna with slip-fit mount	33.4 dBi mid-band	3.4°				
	AD11G-4 / 4-foot antenna with slip-fit mount	39.4 dBi mid-band	1.7°				
	AD11G-6 / 6-foot antenna with slip-fit mount	42.5 dBi mid-band	1.0°				
POWER							
Input for Indoor Unit (IDU)	-40.5 to -57 VDC						
Power Consumption	IDU: < 70 Watts; ODU: < 20 Watts						
MECHANICAL & ENVIRONMENTAL	INDOOR UNIT			OUTDOOR UNIT (without antenna)			
Enclosure	19-inch rackmount, 1U height			Cast Aluminum			
Indicators	2-digit LED RSSI indicator; Ethernet speed and activity for each port; Backup OK indicator; Fault indicator; Power indicator			2-digit LED "in dBm" RSSI indicator for alignment			
IF/power/control connection	N-Female			N-Female			
Dimensions (height x width x length)	1.75 x 19 x 13 inches			12 x 12 x 6.8 inches			
Weight	6 lbs			13.5 lbs			
Temperature Range (operational)	14° to 122° F (-10° to +50° C)			-40° to 136° F (-40° to +58° C)			
Humidity	95% non condensing			100% condensing			
Interfaces	4 GigaEthernet ports RJ45 (10/100/1000BaseT ports) 8 T1/DS1 ports RJ45			N/A			
Out of band Management port	1 Ethernet port RJ45			N/A			
Alarms	2 inputs – TTL ; 2 outputs – Dry contact closure isolated 50V 1A			N/A			
Power connector	4 Pin Terminal Block to support redundant power supplies			N/A			
Redundancy (1+1)	4 pin circular			N/A			
Console	DB9			N/A			
Antenna Connector	N/A			WR75/UDR120			
1+1 Protection Coupler	N/A			< -17 dB Return Loss, 3.8 dB Insertion Loss (typical) 20 dB port-to-port Isolation			



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