TRANGO SYSTEMS

Innovating Microwave Backhaul™

ETSI MODEL
DATASHEET

POINT-TO-POINT

TrangoLINK Giga® 15 GHz

Split-Architecture Full Duplex Licensed Microwave IP/TDM Wireless Backhaul System

HIGH-CAPACITY POINT-TO-POINT WIRELESS NETWORK LINK

TrangoLINK Giga® is a high-performance 15 GHz licensed microwave wireless point-to-point system designed for carrier Ethernet, WiMAX/ISP broadband backhaul, mobile network backhaul, private enterprise WAN/LAN extensions, and municipal and public wireless networks.

TrangoLINK Giga® provides a full duplex wireless connection over the air that is ideal for mixed traffic that requires both IP and traditional TDM T1/E1 connectivity.

Each TrangoLINK Giga® consists of two indoor units (IDU) and two outdoor units (ODU). The ODU attaches easily to a 1-, 2-, 3- or 4-foot external antenna to achieve the desired link 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 1U rackmount IDU
- Easy alignment via real-time digital LED RSSI indicators directly on both ODU and IDU
- Easily upgrade throughput *as you need it*, with no hardware replacements and no forklift upgrades
- Pay-as-you-grow 2-tier throughput upgrade path

Highlights

- Up to 330+ Mbps (165+ Mbps full duplex)
- Extremely low latency: <150 µS (.15 ms), typical
- Supports ETSI channel sizes of 14 and 28 MHz ‡
- Standard 2-year manufacturer warranty

Performance

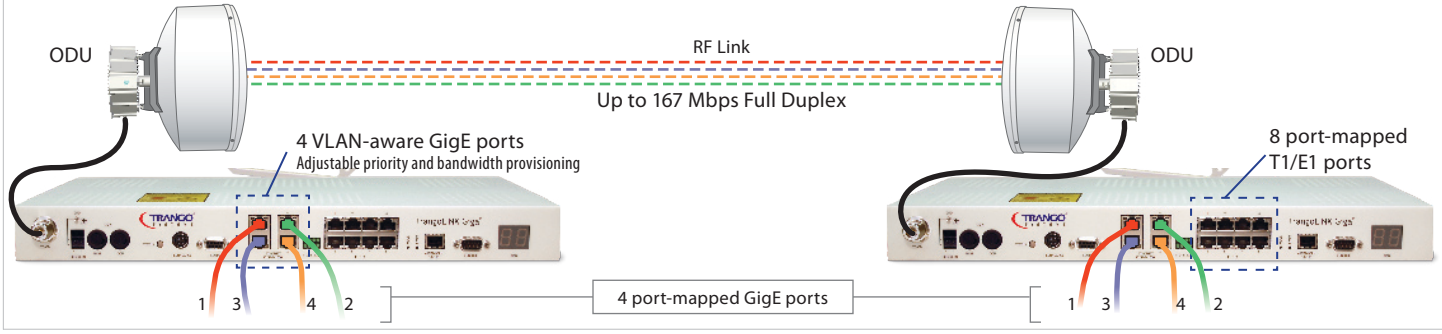
- Highly flexible bandwidth management options
- Selectable filters for improved sensitivity
- Flexible modulation for greater spectral efficiency
- Supports jumbo packets in GigE mode
- Port Priority assignment (VLAN) and QoS features
- Four configurable 10/100/1000 BaseT ports for payload
- Eight T1/E1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

Fail Safe Features for High Reliability

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

Management

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



TrangoLINK Giga® 15 GHz

Split-Architecture Point-to-Point Microwave Backhaul

ETSI Specifications

RADIO PARAMETERS			Band 1 (728 MHz duplex)		Band 2 (644 MHz duplex)	
Frequency of Operation (ODU) ‡	ITU-R F.387 for duplex spacing of 644 MHz and 728 MHz		***Band 1A ODU:*** 14.515 to 14.613 GHz ***Band 1B ODU:*** 15.159 to 15.341 GHz		***Band 2A ODU:*** 14.515 to 14.683 GHz ***Band 2B ODU:*** 15.159 to 15.327 GHz	
Channel Size ‡	14 MHz / 28 MHz					
RF Power Output (max per modulation)	**QPSK**	**16QAM**	**32QAM**	**64QAM**	**128QAM**	**256QAM**
	+23 dbm	+23 dbm	+22 dbm	+22 dbm	+21 dbm	+20 dbm
Modulation Format	Selectable from QPSK, 16QAM, 32QAM, 64QAM, 128QAM, 256QAM					
Receiver Sensitvity	-66 dBm (256 QAM maximum speed); -87 dBm (QPSK minimum speed)					
Features	ATPC (Automatic Transmit Power Control), Modulation Shifting, Forward Error Correction					
Regulatory Compliance ‡	**ETSI:** EN 302 217-2-1 V1.2.1, EN 302 217-2-2 V1.2.2, EN 301 489, ITU-R F.387-10, NZPIB22					

DATA						
Data Throughput/ RSSI (1E10^{-6} BER) ‡	Speeds are uni-directional. For aggregate full duplex speeds, multiply throughput numbers below by 2.					
Legend Basic Package = 108 Mbps maximum License Key 1 = 167 Mbps maximum *	**Channel Size**	**QPSK / RSSI**	**16QAM / RSSI**	**32QAM / RSSI**	**64QAM / RSSI**	**128QAM / RSSI**	**256QAM / RSSI**
	14 MHz	23 Mbps / -87 dBm	47 Mbps / -81 dBm	54 Mbps / -77 dBm	66 Mbps / -74 dBm	77 Mbps / -71 dBm	81 Mbps / -68 dBm
	28 MHz	45 Mbps / -85 dBm	95 Mbps / -78 dBm	108 Mbps / -74 dBm	132 Mbps / -72 dBm	155 Mbps / -68 dBm	167 Mbps / -66 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	AD15G-1 / 1-foot antenna with slip-fit mount	34.2 dBi	3.0°
	AD15G-2 / 2-foot antenna with slip-fit mount	38.6 dBi	2.0°
	AD15G-3 / 3-foot antenna with slip-fit mount	42.0 dBi	1.3°
	AD15G-4 / 4-foot antenna with slip-fit mount	44.5 dBi	1°

POWER	
Input for Indoor Unit (IDU)	-40.5 to –72 VDC
Power Consumption	IDU: < 70 Watts; ODU: < 30 Watts

MECHANICAL & ENVIRONMENTAL	INDOOR UNIT	OUTDOOR UNIT
Enclosure	19-inch rackmount, 1U height	Cast Aluminum with RSSI window
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 × width × length)	1.75 × 19 × 13 inches	12 × 12 × 6.8 inches
Weight	5.6 lbs	13.5 lbs
Temperature Range	14° to 122° F (-10° to +50° C)	-40° to 136° F (-40° to +55° 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	Slip-fit mount / Optional waveguide adapter: WR62 / UBR 140

* Based on purchasable Option Key. Contact sales for more information.

‡ Legal regulations for specific frequencies vary from region to region—users are responsible for complying with their local regulations.

RoHS Compliant

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