

## Trinity-300 TDD Series—Time Division Duplex

Provides robust, high-speed links to far away locations

Operating in the 5 GHz unlicensed band at a data rate up to 190 Mbps aggregated throughput, the Trinity-300 Series are designed to reliably transport your data, voice and video communications in virtually any environment – high-interference and long-range line-of-sight paths, over water and open terrain, even in extreme weather conditions. The TDD technology together with dual polarization radio greatly enhances link performance in a wide variety of applications, including:

- Building-to-building and campus connectivity
- High-speed wireless backhaul
- Single-hop, long-range line-of-sight links
- Extending video surveillance beyond the constraints of a wired network

### TDD based software

Trinity-300 Series uses TDD technology to emulate full duplex links over a half duplex communication link. The radio link operates symmetric or asymmetric and optimizes the link for low latency. The proprietary TDD-based protocol greatly reduces the impact of long distances compared with other technologies.

By using TDD based technology we enhance and strengthen the link against interference.

### MIMO technology

Trinity-300 Series uses 802.11N MIMO technology to achieve wire-line speeds over radio. The built in antenna is dual polarised to achieve either higher throughput with dual streams or better link budget with single stream.

### All—Automatic Interference Immunity

Proprietary algorithm that increases Noise Immunity, this eliminates false detection to maintain high throughput and low latency.

### ACM—Automatic Coding and Modulation

The radio link automatically adapts to the current radio environment by changing the modulation. Manual configuration is also possible.

### ARQ—Advanced Retransmission request

In all unlicensed bands where interference-free spectrum is rare there is a need for retransmissions. The Trinity TDD software implements a proprietary retransmission algorithm that immediately retransmits lost radio frames. The retransmission is performed at the link layer and reacts before any higher layers have noticed the initial lost frame. The proprietary retransmission algorithm ensures low latency, high reliability and that frames are delivered

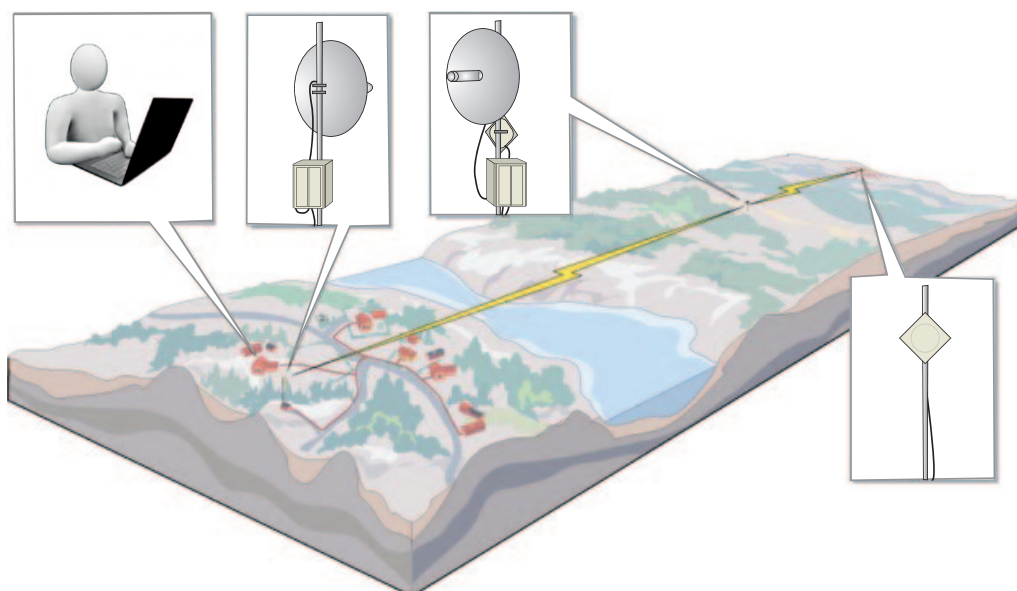
in correct order. The number of retransmissions is configurable to fit the needs of the link.

### Easy setup

The signal strength is presented to the installer visually. This enables the installer to easily align the antennas to achieve the best performance of the link.

### Product Highlights

- 190 Mbps aggregated throughput
- 23 dBi Dual Polarized 5 GHz antenna (N-type version is without antennas).
- Supporting a variety of channel widths: 10, 20 and 40 MHz
- Build-in RF ESD/Surge protection up to 15 kV
- Local and remote network management
- Speed Test
- Advanced spectrum analyser
- QoS: Four traffic classes prioritise traffic



REPEAT IT



	Trinity-323TDD	Trinity-323TDD Plus	Trinity-300TDD Plus
<b>Radio</b>			
Frequency Bands	5.150 – 5.845 GHz	5.150 – 5.845 GHz	5.150 – 5.845 GHz
Channel widths supported	10/20 MHz	10/20/40 MHz	10/20/40 MHz
Capacity	100 Mbps	190 Mbps	190 Mbps
Duplex Technique	TDD	TDD	TDD
Modulation	OFDM, BPSK/QPSK/16QAM/64QAM	OFDM, BPSK/QPSK/16QAM/64QAM	OFDM, PSK/QPSK/16QAM/64QAM
Max Tx Power	23 dBm	23 dBm	23 dBm
Max Rx sensitivity	-97 dBm	-97 dBm	-97 dBm
Error Correction	FEC; k=1/2, 2/3, 3/4, 5/6	FEC; k=1/2, 2/3, 3/4, 5/6	FEC; k=1/2, 2/3, 3/4, 5/6
Encryption	128 bit AES & MAC level Authentication	128 bit AES & MAC level Authentication	128 bit AES & MAC level Authentication
Surge Protection	15kV	15kV	15kV
Antenna Protection	Internal DC Grounding	Internal DC Grounding	Internal DC Grounding
DFS	Yes	Yes	Yes
QoS	Four Access Categories (AC) Voice, Video, Best Effort, and Background Traffic classification according to WMM	Four Access Categories (AC) Voice, Video, Best Effort, and Background Traffic classification according to WMM	Four Access Categories (AC) Voice, Video, Best Effort, and Background Traffic classification according to WMM
Bandwidth control	Yes	Yes	Yes
<b>Internal Antenna</b>			<b>External Antenna</b>
Gain	typ. 23 dBi	typ. 23 dBi	
VSWR	max. 1.5:1	max. 1.5:1	
3 dB Beam-Width, H-Plane	7°	7°	
3 dB Beam-Width, V-Plane	7°	7°	
Polarization	Horizontal and Vertical	Horizontal and Vertical	Horizontal and Vertical
Connector	N/A	N/A	2 x N-female
Antenna Cable	N/A	N/A	
<b>Ethernet Interface</b>			
Type	10/100/1000 BaseT Interface with Auto-negotiation (IEEE 802.3), Manual	10/100/1000 BaseT Interface with Auto-negotiation (IEEE 802.3), Manual	10/100/1000 BaseT Interface with Auto-negotiation (IEEE 802.3), Manual
Number of Ethernet Ports	1	1	1
Framing/Coding	IEEE 802.3u	IEEE 802.3u	IEEE 802.3u
Traffic Handling	MAC layer bridging, self learning, 802.1q transparent	MAC layer bridging, self learning, 802.1q transparent	MAC layer bridging, self-learning 802.1q transparent
Data Latency	< 2ms (typical)	< 2ms (typical)	< 2ms (typical)
Packets/second	> 40 000	> 40 000	> 40 000
VLAN ID for Management	Supported	Supported	Supported
Power over Ethernet Connector	48V DC, 802.3af, <6W typical RJ-45	48V DC, 802.3af, <6W typical RJ-45	48V DC, 802.3af, <6W typical RJ-45
<b>Management</b>			
Link Management Protocol	Web interface SNMP	Web interface SNMP	Web interface SNMP
NMS Application	Repeatit Cloud Network RCS Management Service	Repeatit Cloud Network RCS Management Service	Repeatit Cloud Network RCS Management Service
Tools in web interface	Spectrum Analyser Speed Test	Spectrum Analyser Speed Test	Spectrum Analyser Speed Test
<b>Environment</b>			
IP Code	IP65	IP65	IP67
Temperature	-40° / +55° C	-40° / +55° C	-40° / +55° C
Size	370 x 370 x 40 mm	370 x 370 x 40 mm	284 x 174 x 81 mm
Weight per unit	2.7 Kg	2.7 Kg	2.0 Kg

Distance	Trinity-323TDD	Trinity-323TDD Plus	Trinity-300TDD Plus
< 2 km	100 Mbit	190 Mbit	N/A
3 km	100 Mbit	190 Mbit	N/A
4 km	100 Mbit	190 Mbit	N/A
5 km	100 Mbit	185 Mbit	N/A
6 km	100 Mbit	180 Mbit	N/A
7 km	100 Mbit	125 Mbit	N/A
8 km	100 Mbit	124 Mbit	N/A
9 km	100 Mbit	122 Mbit	N/A
10 km	100 Mbit	120 Mbit	N/A
15 km	80 Mbit	80 Mbit	N/A
20 km	60 Mbit	60 Mbit	N/A

Throughput UDP, 30dB max ETSI EIRP, 6dB margin

