

## TeleGuard® 5GHz Point To Point Broadband Radio Ethernet

The TeleGuard® broadband wireless platform in the 5GHz frequency range is part of the TeleGuard® family of products from SLD Security & Communications. Superior features such as non-line-of-sight (NLOS), extended reach. High capacities in all packet sizes, encryption and end-to-end QoS for time critical applications are key to its success in deployments worldwide.

- High capacity, point-to-point wireless link
- Breakthrough speeds up to 300Mbps
- Ethernet bridging & back hauling in the 5GHz bands
- OFDM technology
- Outdoor radio with extra long range
- Robust performance in NLOS environments
- Multi level data security protection
- Operates in unlicensed frequency bands
- Simple installation and maintenance



### SLD Security & Communications

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# TeleGuard<sup>®</sup> 5GHz Point To Point Broadband Radio Ethernet

## Product Highlights & Advantages

- Cost effective alternative to leased lines with fast ROI
- Breakthrough speeds and quality-of-service to support triple play services; data, voice and video
- Robust outdoor architecture – ensures unprecedented range and reliability
- Superior OFDM radio – enables non line-of-sight (NLOS) capabilities in dense urban environments
- High throughput – up to 300Mbps
- Turbo mode for improved performance
- Variety of unlicensed and light licensed frequencies
- Non-compromising security – 128 bit and 256 bit key encryption AES FIPS 197 (optional), FIPS 140-2
- Easy to install and adjust – full LED diagnostics, 10-LED bar display for antenna alignment, user-friendly management tool application
- Simple to upgrade – updates software and reconfigure settings over the air
- Built-in remote diagnostics – minimise maintenance costs and downtime
- E1/T1 leased line replacement using external gateway
- Supports dynamic frequency selection (DFS) and automatic transmit power control (ATPC)
- Automatic clear channel selection (ACCS) – Built-in spectrum analyzer that detects noise characteristics per channel with an option for automatic clearest channel selection

## TeleGuard<sup>®</sup>: The optimal Point-to-Point Solution

The TeleGuard<sup>®</sup> family of wireless point-to-point bridging solutions operate in unlicensed bands and provide an efficient and highly secure solution for building-to-building connectivity and backhauling. It is an ideal alternative to expensive leased lines, providing a near-instant link for connecting remote local offices to headquarters, isolated buildings on campus and industrial zones.

Moreover, ISPs can leverage TeleGuard<sup>®</sup> wireless point-to-point bridging solutions as a powerful and cost-effective wireless link to backhaul their point-to-multipoint networks to their Internet point of presence, avoiding the need for expensive leased lines over wire line infrastructures.

## Operating Beyond the Line of Sight

SLD developed this TeleGuard<sup>®</sup> system in recognition of the need to provide a viable and cost-effective solution for dense urban and industrial environments where a clear line of sight for point-to-point applications is not always available. To that end, the system leverages both robust outdoor technologies and Orthogonal Frequency Division Multiplexing (OFDM) modulation in the same product. With features such as Forward Error Correction (FEC) used to combat multi-path and noisy environments, the product operates seamlessly and efficiently in non-line-of-sight (NLOS) environments with good throughput. The system also features adaptive modulation for automatic modulation selection to maximise the data rate and improve spectral efficiency. These inherent advantages of our system enable service providers to connect an effective PTP solution to a significantly higher percentage of their subscriber base than would otherwise be inaccessible due to LOS restrictions.

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## **Crossing the Digital Divide for a Wide Range of Point-to-Point Environments**

Business enterprises, municipalities, university campuses, law enforcement agencies and other private and public institutions typically have multiple facilities or buildings that are spread over a wide urban or rural area. Our point-to-point solutions can achieve a near-instant building-to-building link. Organisations that rely upon Ethernet/LAN connections no longer need to worry about their remote buildings/branches being left out of the network loop; our systems provide a seamless, efficient and secure wireless bridge with high-bandwidth transmissions, covering large distances in harsh and adverse environments and weather conditions.

## **Highly Secure Air Interface**

TeleGuard® systems also support security sensitive applications through the optional use of authentication and data encryption utilizing AES algorithm options with 128 or 256 bit keys. The Platinum variant offers another layer of security – AES-based encryption through optional FIPS 197 or FIPS 140-2, available with a licensed upgrade. The system also supports VLAN at connections based in IEEE 802.1Q, facilitating secure operation and virtual private networking (VPN) services and enabling remote employees or offices to conveniently access their enterprise networks.

## **Product Variations**

The TeleGuard® point to point wireless broadband Ethernet system is available in four main variations, Bronze, Silver, Gold and Platinum, with range and throughput as the primary variants among the four products. Each is available with a high gain integrated antenna or with a standard RF connector supporting detached external antenna (in which case it can be used with either a 23 or 28 dBi flat panel antenna). With a choice of three products, users can achieve an optimal cost/performance solution in every deployment.

## **Built to Last**

All TeleGuard® products consist of robust outdoor units that are built to perform in even the most difficult climates and withstand the harshest weather conditions. Outdoor units typically maintain a significant higher link budget than their indoor counterparts and therefore achieve higher performance and availability. Unlike point-to-point indoor units, which employ RF cables to run signals to rooftop antenna, outdoor units utilise a simple CAT-5 connection, which enables a significant reduction in the loss of power/DB levels. CAT-5 cables are also far easier to install and cost considerably less.

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## **System Components**

### **Base Unit (BU)**

The BU is installed at one end of the PTP link and connects to a central server or to the Internet. The BU is composed of two parts, a universal indoor unit (IDU) and an outdoor unit (ODU). By combining the radio and the modem in the outdoor unit, we offer a true outdoor device with no power loss associated with expensive and lossy indoor/outdoor cable.

The outdoor unit is available with an integrated antenna or without (in which case an external antenna can be used).

### **Remote Bridge (RB)**

The RB is placed at the far end of the PTP link, connecting the end user to the centrally located BU. It is also composed of two parts, an identical universal indoor unit, like the one used in the BU and an outdoor unit that is also available with or without the integrated antenna. For logistical efficiency, each unit is shipped as a BU and is changeable by software to be an RB.

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# TeleGuard<sup>®</sup> 5GHz Point To Point Broadband Radio Ethernet

## Specification

### Radio

#### **Frequency**

5.15-5.35GHz (not Platinum), 5.47-5.725GHz, 5.725-5.850GHz\*

#### **Radio type**

Orthogonal Frequency Division Multiplexing (OFDM), Time Division Duplex (TDD)

#### **Channel bandwidth**

20MHz standard / 40MHz in turbo mode (30MHz Platinum)

#### **Radio Data Rate**

54/108Mbps Bronze and Silver (300Mbps Gold and Platinum)

#### **Output power (at antenna port)**

Up to 25 dBm (dependant upon regulation)

#### **Modulation**

BPSK, QPSK, 16QAM, 64QAM, (256QAM Gold and Platinum)

#### **Antenna**

BU and RB Integrated antenna

21dBi, 10.5° horizontal x 10.5° vertical, flat

EN 302 085, Class TS 1,2,3,4,5 compliant

BU and RB Detached antenna

23dBi, 9° flat

28dBi, 4.5° flat

#### **Antenna port (detached model)**

N-Type 50 ohm

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## **Data Communication**

### **Standards compliance**

IEEE 802.3 CSMA/CD

### **VLAN support**

Based on IEE 802.1p

### **Security**

- a. Association protocol - ESSID
- b. AES 128 and 256 (FIPS-197 and FIPS 140-2 licensed upgrade on Platinum only)
- c. IP level filtering for user addresses or protocols
- d. Access direction and IP address filtering for management

## **Configuration and Management**

### **Management options**

Via Telnet

SNMP based configuration utility

Configuration upload/download

### **Remote management access**

From wired LAN, wireless link

### **Management access protection**

- a. Multilevel password
- b. Configuration of remote direction (from Ethernet only, wireless only or both sides)
- c. Configuration of IP addresses of authorised stations

### **Allocation of IP parameters**

Configurable or automatic (DHCP client)

### **Software upgrade and configuration upload/download**

FTP/TFTP download

### **SNMP agents**

SNMP v1 client, MIB II, Bridge MIB, Private MIB

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## **Electrical Characteristics – RB and BU**

### **Power consumption**

6W (up to 55W Platinum)

### **Input power**

AC, 100-240VAC, 50-60Hz

### **Indoor to outdoor cable**

CAT-5 shielded, 90m max

### **Indicators**

Indoor unit

Power, Link and Ethernet LEDs

Outdoor unit

Status, Ethernet and W-Link LEDs

### **Connectors**

Data

RJ-45

AC Power

3 pin AC power plug (indoor unit only)

## **Physical and Environmental**

### **Dimensions – RB and BU**

Indoor unit

16 x 9 x 6 cm (0.55 kg)

Outdoor unit with integrated antenna

43.2 x 30.2 x 5.9 cm (2.9 kg)

Outdoor unit detached (w/o antenna)

30.6 x 12 x 4.7 cm (1.85 kg)

### **Operating temperature**

Outdoor unit

-40C to +60C

Indoor unit

0C to 40C

### **Operating humidity**

Outdoor unit

5%-95% non condensing, weather protected

Indoor unit

5%-95% non condensing

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## **Standards Compliance**

### **Radio**

FCC part 15, ETSI: EN 301 753, EN 301 893, EN 300440-1/2

### **EMC**

FCC Part 15 class B, CE ETSI EN 301 489-1

### **Safety**

UL 60950-1, EN 60950-1

### **Environmental**

#### Operational

ETS 300 019 part 2-3 class 3.2E for indoor units

ETS 300 019 part 2-4 class 4.1E for outdoor units

#### Storage

ETS 300 019-2-1 class 1.2E

#### Transportation

ETS 300 019-2-2 class 2.3

### **Lightning protection**

EN 61000-4-5, class 3 (2kV)

Please note: Not all options are available in all regions and some features require software licensing key.

\*5.15-5.35GHz is only for the Bronze, Silver and Gold units (not the Platinum variant)

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