



# Motorola PTP 25600 Bridge

## Point-to-point connectivity for 2.5 GHz EBS applications

In 2004, the U.S. Federal Communications Commission (FCC) established the Educational Broadband Service (EBS), with the primary purpose being the “transmission of instructional material...utilizing low-power broadband systems while also providing high-speed Internet access.” Today hundreds of schools, colleges, universities and businesses hold 2.5 GHz EBS licenses. Many of these organizations are developing forward-looking, strategic EBS plans to enrich their educational programs with broadband wireless technology.

### **Broadening Learning with Broadband**

To support EBS programs, educators and corporate trainers need systems that operate in the 2.5 GHz band and deliver the bandwidth, security and reliability that today’s learning environments require. Motorola has responded with its PTP 25600 broadband wireless solutions designed to support the stringent requirements of a wide variety of EBS applications, including:

- Backhaul for point-to-multipoint, WiMAX and mesh networks
- Building-to-building and campus connectivity
- Last-mile access and backbone operations
- Internet access and email
- Distance-learning
- Voice-over-IP and video surveillance

### **The ABCs: High-Performance Access, Mega Bandwidth, Affordable Cost**

Based on technology that has become number one in the global unlicensed Ethernet bridge market, the Motorola wi4 Fixed 2.5 GHz Point-to-Point Wireless Ethernet Bridges – PTP 25600 model – can deliver 99.995% availability in non-line-of-sight environments, across long-distance line-of-sight paths, over water or open terrain, even through extreme weather conditions. These capabilities allow you to connect previously inaccessible locations, facilitating:

- Network connections around buildings and hills, through trees and over water
- Single-hop, long-range line-of-sight links
- High-bandwidth voice, video and data communications without trenching new fiber

## DATA SHEET

MOTOROLA PTP 25600 BRIDGE  
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### Lesson Plan: Choice and Flexibility

Recognizing that there are a number of internal and external factors (e.g., infrastructure complexities, budget, bandwidth requirements, path obstructions, applications, etc.) that will influence your solution choice, the Motorola PTP 25600 bridges are available in two models to meet your specific requirements:

Model	Description
PTP 25600 Integrated	With ranges up to 30 miles (50 km) and dual built-in antennas, the Integrated model is an excellent choice for near- and non-line-of-sight environments and over long distances.
PTP 25600 Connectorized	The PTP 25600 Connectorized bridges combine all the innovative technology of the Integrated model with the high-gain advantage of external antennas, enabling connections up to 124 miles (200 km) in extremely adverse environments including deep-non-line-of-sight and long-range line-of-sight.

Both models offer selectable 5, 10, 15 and 30 MHz channel sizes and varying Ethernet data rates:

PTP 25600 Channel Size	Maximum Ethernet Data Rate
5 MHz Channel	Up to 45 Mbps
10 MHz Channel	Up to 90 Mbps
15 MHz Channel	Up to 135 Mbps
30 MHz Channel*	Up to 300 Mbps

\*Not FCC compliant.

In addition, PTP 25600 radios can operate as stand-alone systems or integrate easily with Motorola's Point-to-Multipoint, WiMAX, Mesh or Broadband-over-Powerline (BPL) solutions, offering even more flexibility to acquire the best solution, or combination of solutions, for your individual situation.

### Content Delivery: Powerful Technologies

The system's carrier-class reliability and high-speed throughput are possible because of a unique combination of key technologies built in to PTP 25600 bridges:

- Multiple-Input Multiple-Output (MIMO) – minimizes signal fading due to path obstructions or atmospheric disturbances
- *Intelligent* Orthogonal Frequency Division Multiplexing (*i*-OFDM) – transmits data on multiple frequencies, resulting in higher channel bandwidth and greater resistance to interference and signal fading
- Adaptive Modulation – continually optimizes modulation to transmit the maximum amount of data while maintaining the highest levels of link quality
- High System Gain – enables connections over greater distances, providing a higher level of reliability and speed
- Advanced Spectrum Management with *Intelligent* Dynamic Frequency Selection – self-selects the frequency over which the bridge can sustain the highest data rate at the highest availability
- Time Division Duplexing (TDD) Synchronization – times and synchronizes transmit and receive signals; frequency reuse allows users to co-locate multiple radios on a rooftop or tower without the radios interfering with each other

To ensure secure transmissions, each PTP 25600 radio is pre-programmed to communicate only with a matched partner, eliminating "man-in-the-middle attacks." Added security is provided through a unique scrambling mechanism that secures over-the-air transmissions. Plus an optional layer of security can be applied with FIPS-197-compliant, 128- or 256-bit AES encryption.

A robust feature set makes it easy to configure, deploy and manage the systems:

- Audio alignment capability, enabling fast, easy installation
- Small footprint and lightweight form factor, allowing deployment in space-constrained environments
- Motorola PTP Link Estimator, accurately predicting before-purchase performance
- Web- or SNMP-based, or Canopy® Prizm system management
- WiMAX MIB support for end-to-end management of a WiMAX network

## DATA SHEET

MOTOROLA PTP 25600 BRIDGE  
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### A+ for Value

A Motorola wireless broadband network can give educators a dedicated broadband Internet connection, creating instant access to library and laboratory research...online work assignments... media-rich content for housebound, home-schooled and hospitalized students or employees in remote and home offices...lecture supplements in slide, audio or video presentations...online testing and performance-tracking...virtual field trips...individual tutoring or mentoring...the possibilities are endless.

Academic institutions and businesses that hold a 2.5 GHz license can become the center of the network, offering broadband wireless Internet and intranet access to surrounding constituents. In fact, student access to broadband Internet is already a prerequisite for many college and university courses and a real asset to employees and employers as they strengthen their knowledge base and capabilities.

### In Summary: Fast Delivery, Fast ROI

With high throughput, low latency and consistently high availability, Motorola's PTP 25600 solutions deliver the richest educational applications flawlessly. Whether deployed as a stand-alone system or integrated with Motorola's Point-to-Multipoint, WiMAX, Mesh or BPL solutions, the PTP 25600 is designed to perform at top grade in virtually any environment, under even the toughest conditions. Because the PTP 25600 is so cost-effective, most educational institutions and corporate training centers can realize a return on their investment within a year.

### PTP 25600 Part Numbers\*

WB2782	PTP 25600 Integrated – 5 MHz Channel
WB2783	PTP 25600 Connectorized – 5 MHz Channel
WB2786	Upgrade Key – 10 MHz Channel
WB2787	Upgrade Key – 15 MHz Channel
WB2789	Upgrade Key – 30 MHz Channel**

\* Currently the PTP 25600 is not available in Canada.

\*\* Not FCC compliant.



The PTP 25600 bridges are incorporated in Motorola's MOTOwi4 portfolio of innovative wireless broadband solutions that create, complement and complete IP networks. Operating in a wide variety of licensed and unlicensed radio frequencies, Motorola's MOTOwi4 portfolio of Fixed Broadband, WiMAX, Mesh and Broadband-over-Powerline systems provides end-to-end solutions for private and public networks worldwide.



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Motorola, Inc., Unit A1, Linhay Business Park, Eastern Road, Ashburton, Devon, TQ13 7UP, UK +1 877 515-0400 • [www.motorola.com/ptp](http://www.motorola.com/ptp)

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