

# Motorola Point-to-Point Bridges – PTP 600 Series

Reliable, High-Speed 5.4 and 5.8 GHz Wireless Ethernet Bridges for Challenging Non-Line-of-Sight and Long-Range Line-of-Sight Environments, Including Those Over Water





## You Shouldn't Need a License to Speed

With wireless Ethernet bridging, you typically have needed a license to go fast. Because a license reserved a part of the radio spectrum just for you, wireless links encountered less interference, and, as a result, could go farther, faster, at higher capacity and with greater reliability.

Motorola has changed all that with its PTP 600 Series wireless Ethernet bridges (formerly Orthogon Systems OS-Spectra). Operating in the 5.4 and 5.8 GHz bands, the PTP 600 Series bridges bring together the speed and reliability of licensed wireless with the flexibility of the unlicensed space. With a PTP 600 Series solution you no longer have to suffer the delay and expense of applying for a license to set up your IP and circuit-switched wireless networks. (It is recommended that regulatory conditions for radio-frequency bands be confirmed prior to system purchase.)

Incorporated in Motorola's **MOTOwi4™** portfolio, PTP 600 Series bridges are available in several models to meet your specific requirements:

- **Integrated:** With up to 300 Mbps Ethernet data rate and a built-in antenna, the PTP 600 Integrated system is the perfect choice for any environment – near- or non-line-of-sight, line-of-sight and high-interference environments – where high throughput is a major requirement and/or dual T1/E1 capability is needed.
- **Integrated Lite:** Operating in the 5.8 and 5.4 GHz frequencies, the Lite versions of the PTP 600 Series Integrated bridges include all the same robust technology of the full-speed versions, but at less cost. They are ideal solutions in any environment where you need more speed and bandwidth than the 43 Mbps provided by the Motorola PTP 400 Series bridges and/or single T1/E1 capability is required. With up to 150 Mbps Ethernet data rate, the Integrated Lite model is software upgradeable to 300 Mbps as throughput requirements increase.
- **Connectorized:** The Connectorized version of the PTP 600 Series bridge combines all the innovative technology found in the PTP 600 Integrated model with the extra advantage of external antennas. Over long distances and in extremely adverse environments, including deep non-line-of-sight, this solution lets you connect over greater distance and at a higher level of reliability and speed than comparable wireless bridges. (A list of approved antennas that meet FCC requirements is provided on our web site at [www.motorola.com/ptp](http://www.motorola.com/ptp).)
- **Connectorized Lite:** With all the performance and reliability of the PTP 600 Series Connectorized system, this solution delivers up to 150 Mbps in extremely adverse environments – at less cost. Then as bandwidth requirements grow, you can easily upgrade from 150 Mbps to 300 Mbps.

In non-line-of-sight environments, both Connectorized systems can increase link availability up to 99.999%. Prior to purchase, you can use Motorola's PTP Link Estimator to predict link reliability and throughput for your specific wireless application.

Motorola's **MOTOwi4** portfolio of innovative wireless broadband solutions create, complement and complete IP networks. Delivering IP coverage to virtually all spaces, the **MOTOwi4** portfolio includes Fixed Broadband, WiMAX, Mesh, and Broadband-over-Powerline solutions for private and public networks.

### Higher Spectrum Efficiency

Utilizing only 30 MHz of the 5.8 or 5.4 band and delivering up to 300 Mbps Ethernet data rates, the PTP 600 Series bridges are over 300% more spectrally efficient than our nearest competitor. Network performance is significantly improved as a result of less crowding within the band and subsequently less interference.

### Interference Mitigation

In the event a PTP 600 Series system does encounter interference, it automatically applies these mitigation techniques to vastly increase the likelihood that your wireless network will work:

- **Advanced Spectrum Management with *i*-DFS:** Our *intelligent* Dynamic Frequency Selection (*i*-DFS) is at the heart of our exceptional spectrum management capabilities. At power-up and all during operation, the PTP 600 bridge scans the band – 500 times a second – and automatically switches to the clearest channel. Our 25-hour, time-stamped database alerts you to any interference that does exist and provides statistics that help you pinpoint which channels offer the clearest data paths. This is virtually "licensed-band, interference-free performance in an unlicensed band!"

Typically, the PTP 600 system's performance means more productive users, less interference, lower cost of ownership and fewer connection points.

- **Adaptive Modulation:** Transmitter and receiver negotiate the highest mutually sustainable data rate – then dynamically “upshift” and “downshift” the rate as conditions change. PTP 600 Series bridges always provide the maximum performance possible within the current power limits.

### Very High Throughput

With 256 QAM modulation, PTP 600 systems deliver a faster data stream using less of the available 5.8 GHz or 5.4 GHz frequency band. Its dual transceivers at each end of the link allow you to send two parallel data streams at once. These transceivers can also send redundant streams, offering much greater range compared to comparable solutions, especially over water or in non-line-of-sight conditions.

**More Range to Anywhere:** PTP 600 links have class-leading sensitivity and power output, which enable the links to go farther, regardless of conditions. Plus, Motorola is the only manufacturer to combine Multiple-Input Multiple-Output (MIMO), *intelligent* Orthogonal Frequency Division Multiplexing (*i*-OFDM) and our advanced signal-processing algorithms. This combination allows the PTP 600 Series system to create four simultaneous channels between pairs of transceivers at each end of the link, without losing spectrum efficiency. This technique can increase signal integrity by an unprecedented 300 times.

In non-adverse environments, each pair of transceivers can operate in parallel, in effect creating two links and doubling throughput.

**T1/E1 Ports Mean More Ways to Use the Band:** In a crowded radio-frequency (RF) area, the unlicensed spectrum may not allow for a wide channel, but that does not narrow your options. The PTP 600’s innovative architecture combines an abundance of Ethernet and circuit-switched options. Whether your infrastructure is based on Ethernet over copper or multimode fiber...10/100/1000 Base T or 1000 Base SX...or even T1/E1 ports that bundle circuit switched connectivity with IP service, you can connect with one wireless solution, the Motorola PTP 600 Series point-to-point bridge.

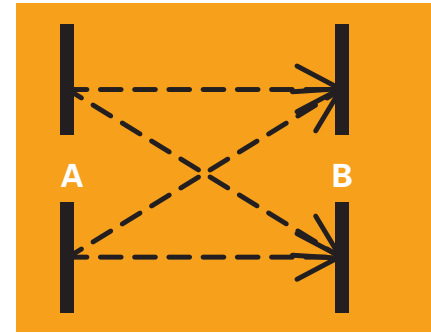
**Managing the Spectrum for Maximum Throughput and Reliability:** The PTP 600 Series bridge monitors all available channels and dynamically selects those over which it can sustain both the highest data rate and the most reliable availability. This means the bridge is very likely to find a clear channel (without operator intervention) even in a crowded space, allowing the transmitter and receiver to automatically use the frequency with the highest throughput. You can also lock the frequency manually (in either direction) and restrict each link to specified frequencies.

### Reassuring, Robust Security

With Motorola’s unique software, each wireless bridge will communicate only with its matched counterpart at the other end of the link – and with no other. That communication is also encoded using a unique scrambling mechanism to secure over-the-air transmissions. Another layer of security is provided with FIPS-197 compliant 128- and 256-bit AES encryption (optional).

### Power Up and Point

A Motorola PTP 600 Series link comprises two outdoor units (ODUs), two powered indoor units, called the PTP 600 Series PIDU Plus, and the required mounting equipment. Setup is simply “power up and point.” Large antenna beam-width simplifies the initial connection, and an audio tone helps the installer optimize link alignment. The systems contain embedded web servers to manage the link either locally or remotely. Plus, the bridges are designed to integrate with other WiMAX systems, allowing end-to-end management of your infrastructure.



Data from A to B – or B to A – is sent on four channels, increasing by 300 times the likelihood data will get through.



#### Motorola PTP 58600 Bridges 5.8 GHz Part Numbers

BP5830BH-2AA Integrated  
BP5830BHC-2AA Connectorized  
BP5830BH15-2AA Integrated Lite  
BP5830BHC15-2AA Connectorized Lite

#### Motorola PTP 54600 Bridges 5.4 GHz Part Numbers

BP5530BH-2AA Integrated  
BP5530BHC-2AA Connectorized  
BP5530BH15-2AA Integrated Lite  
BP5530BHC15-2AA Connectorized Lite

### Productivity Payoff

Typically, the PTP 600 system's performance means more productive users, less interference, lower cost of ownership and fewer connection points. In fact, Motorola PTP 600 Series solutions are often the lower-cost option when you consider:

- The business impact from being able to connect in an area already saturated with RF
- The capabilities to support more bandwidth-sensitive applications, such as multimedia or voice-over-IP
- The impact of reducing or eliminating the recurring costs associated with leased T1/E1 lines
- The ability to backhaul more local loops using a single link
- The capabilities to expand video surveillance applications beyond the constraints of a wired network
- The impact of having higher reliability and speed without having to pay licensed spectrum fees

### Put Motorola 600 Series Point-to-Point Bridges to Work for You

**Service Providers:** With its multi-level security, ability to connect T1/E1 ports for bundled connectivity and WiMAX backhaul capability, PTP 600 Series systems support sophisticated convergent, multimedia applications, supplying services to large, wide-spread customer bases.

**Vertical Markets:** Whether migrating from an analog to a digital network, linking separate networks within a building or linking networks in a campus setting, PTP 600 Series bridges offer high-throughput and reliability for multiple applications in a variety of markets, including utilities, transportation, healthcare, government and education.

**Enterprises:** PTP 600 Series solutions support high-bandwidth enterprise applications in environments where wired networks are either too expensive or impossible to implement. The systems efficiently use the frequency spectra to reduce interference and boost performance for business-critical applications.

**Locate a Partner:** Motorola PTP 600 Series products are available through value-added distributors around the world. Our authorized Point-to-Point Distributors can be found on our web site in our Partner section, listed under the "Where to Buy" links within each respective Geographic Territory.

**NOTE:** The 5.4 GHz version of this device has not been authorized as required by the rules of the Federal Communications Commission. That device is not, and may not be, offered for sale or lease, or sold or leased in the United States, until authorization is obtained. That device also is not authorized as required by Canada and may not be offered for sale or sold in Canada until authorization is obtained.



**For more information about the Motorola Point-to-Point Solutions:**

**Outside of North America:** +44 1364 655500

**In North America:** +1 877 515-0400

[www.motorola.com/ptp](http://www.motorola.com/ptp)