



POINT-TO-POINT 300 SERIES SOLUTIONS



Frequently, small businesses, wireless ISPs and municipalities have had to sacrifice performance for price when expanding their communication networks. The challenges of meeting bandwidth and environmental requirements within tight budgets often meant having to buy less capability than needed or to postpone the purchase entirely. Not anymore.

Our Point-to-Point (PTP) 300 Series Ethernet Microwave Radios, models PTP 54300 and PTP 58300, are designed to give you wireless connectivity and backhaul at an affordable price. The ruggedized radios deliver carrier-grade, secure, high-throughput connectivity even in the most challenging environments. So, you can have the right performance at the right price

ENGINEERED FOR THE REAL WORLD

Our PTP 300 radios can transport your data, voice and video communications in virtually any environment: non-line-of-sight (NLOS), high-interference and long-range line-of-sight (LOS), over water and desert terrain, even in extreme weather conditions. With a projected elapsed time between equipment failures (Mean Time Between Failures or MTBF) averaging 141 years, systems are built to take the abuse of outdoor

environments. So, you have the freedom to deploy systems wherever you need them. We offer several models to meet a wide variety of requirements.

- 5.4 and 5.8 GHz Integrated: Integrated systems have dual built-in antennas and are the perfect choice for obstructed and high-interference environments where high availability is key.
- 5.4 and 5.8 GHz Connectorized: Over long distances and in extremely adverse environments, Connectorized radios can be equipped with external antennas, allowing you to connect over greater distances and at a higher level of reliability and speed than comparable systems.

FLEXIBILITY AND SCALABILITY

All PTP 300 models offer selectable channel sizes, varying data rates and an optional Line-of-Sight (LOS) mode to let you configure the best solution for your requirements, path conditions and budget.

PTP 300	Standard Mode	LOS Option
Channel Sizes*	Max. Ethernet Data Rate	Max. Ethernet Data Rate
5 MHz	13 Mbps	18 Mbps
10 MHz	25 Mbps	35 Mbps
15 MHz	25 Mbps	50 Mbps

With a LOS path, your PTP 300 link can achieve up to 50 Mbps aggregate throughput over a distance of less than six miles (10 km). If your path is not within that distance or not totally LOS, you should operate the link in the Standard Mode to obtain the best performance in challenging environments. The LOS mode is an optional feature that requires the purchase of a license key.

When throughput needs grow beyond what your PTP 300 system can support, you can increase capacity

Key PTP 300 Features

- 5.4 and 5.8 GHz license-exempt bands
- User data throughput to 25 Mbps
- 50 Mbps LOS option
- Distances up to 155 miles (250 km)
- Wind speed survival to 202 mph (325 kph)
- Operating temperatures -40° and 140° F (-40° and 60° C)
- Upgradable to PTP 500

* Local regulations should be confirmed prior to system purchase.

DATA SHEET 300 SERIES SOLUTIONS

PTP 300-to-500 Upgrade

A standard PTP 300 system, Release 04-00 or higher, can be upgraded to a PTP 500 system with the purchase of a license key, increasing throughput from 25 Mbps to 52 or 105 Mbps.

from 25 Mbps to 52 Mbps or 105 Mbps with a PTP 500 license-key upgrade. Since our systems are software-enabled, you can accomplish the 300-to-500 upgrade without replacing your existing hardware. This upgrade is available on standard 25-Mbps PTP 300 systems, Release 04-00 or higher.

PUT THE PTP 300 TO WORK FOR YOU

PTP 300 systems can serve a variety of connectivity and backhaul needs, including but not limited to:

- **Leased-Line Replacement:** PTP 300 radios support T1/E1, allowing you to replace or supplement your leased-line service. By replacing a leased line, you can reduce or eliminate recurring service fees and/or extend connectivity to a location where wired service is not available.
- **Building-to-Building and Campus Connectivity:** Whether you need to connect between two buildings or connect buildings in a campus setting, PTP 300 systems can work around obstacles, overcome interference and withstand extreme weather conditions.
- **Video Surveillance Backhaul:** PTP 300 systems can cost-effectively and reliably stream video from surveillance cameras to a dispatch or command center.
- **High-Speed Internet Access:** You can provide high-speed Internet access to support on-the-road staff and field workers with real-time access to your databases.

MARKET-LEADING TECHNOLOGY

PTP 300 radios utilize the same, proven combination of technologies that earned us the number one market share in the unlicensed point-to-point global marketplace. Together these technologies enable the robustness and high performance of your links:

- **Multiple-Input, Multiple-Output (MIMO):** Transmits multiple signals to enable high performance and link availability
- **Intelligent Orthogonal Frequency Division Multiplexing (i-OFDM):** Transmits signals over

multiple frequencies or sub-carriers to provide higher spectral efficiency and greater resistance to interference and fading

- **Advanced Spectrum Management with intelligent Dynamic Frequency Selection (i-DFS):** Scans the band up to 400 times a second and automatically switches to the clearest channel to combat interference and fading
- **Adaptive Modulation:** Dynamically up-shifts and down-shifts the modulation rate to adapt to changing (RF) conditions and ensure maximum throughput
- **Best-in-Class Radios:** Deliver the highest system gain in the industry through high-powered transmitters and ultra-sensitive receivers

ROBUST, MULTI-LAYERED SECURITY

All PTP systems are inherently secure with a unique scrambling mechanism designed to protect your over-the-air communications. Another layer of security can be applied with FIPS-197 compliant 128-bit or 256-bit AES encryption, an optional feature.

EFFORTLESS INSTALLATION AND OPERATION

Sophisticated deployment-assistance features help installers complete a stress-free installation – typically in a day or two. Our intuitive graphical user interface greatly simplifies operations. Plus, PTP 300 systems provide advanced metrics to help you get the best possible performance out of your links. Those metrics include antenna alignment information, measurements of interference, throughput, signal level and signal quality, and troubleshooting diagnostics.

WIRELESS NETWORK SOLUTIONS

At Motorola, our unrivaled wireless network solutions include indoor WLAN, outdoor wireless mesh, point-to-multipoint and point-to-point networks as well as voice over WLAN systems, giving you the agility and seamless connectivity you need to grow your business or better protect and serve the public. Combined with powerful software for wireless network design, security and management, our solutions deliver trusted networking and anywhere access to organizations worldwide.



PTP 300 Integrated



PTP 300 Connectorized



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POINT-TO-POINT (PTP) 500 SERIES SOLUTIONS



To succeed in today's economy, you need the ability to respond quickly to changes in demand, staffing and financial resources. Having the right information at the right time is often the difference between making an informed, insightful decision and a best-guess decision. So, your communication network has to provide relevant information when you need it. For 80-plus years, we have been helping organizations of all types communicate more effectively.

Our Point-to-Point (PTP) 500 Series Ethernet Microwave Radios, models PTP 54500 and PTP 58500, are designed to give you the information access you need to accomplish your goals. In non-line-of-sight (NLOS), long-distance line-of-sight (LOS) and high-interference environments, over water and desert terrain and through severe weather conditions, you can rely on our ruggedized radios to deliver carrier-grade, high-speed and secure connectivity where and when you need it.

CHOICE AND SCALABILITY

PTP 500 radios average 141 years projected elapsed time between equipment failures (Mean Time Between Failures or MTBF). So, they are built to withstand the abuse of outdoor conditions, giving you full freedom to deploy systems wherever you need them. We offer several models to allow you the flexibility to choose the best system for your individual requirements.

• 5.4 and 5.8 GHz Lite and Full Integrated:

Integrated models have dual built-in antennas. You can choose either the Lite version with up to 52 Mbps or the full-speed version with up to 105 Mbps. If 105 Mbps is more throughput than you need initially, you can start with the more affordable Lite Integrated system. Then as your needs grow, you can move up to the full-speed version through a license-key upgrade, without changing hardware or incurring a costly tower climb.

• 5.4 and 5.8 GHz Lite and Full Connectorized:

Connectorized models are based on the same combination of technologies as the Integrated systems and can deliver the same high performance. However, Connectorized models can be equipped with external antennas, allowing you to connect over greater distances and at a higher level of reliability and speed than comparable systems. The Lite versions give you the option to start with up to 52 Mbps throughput and a lower capital investment. When your needs grow, you can move to the full version with up to 105 Mbps through a license-key upgrade. The Connectorized models are perfect for long-distance hops or deep NLOS environments.

Our PTP 500 systems offer selectable channel sizes and varying data rates, allowing you to configure the best solution for your individual infrastructure, applications and budget.

PTP 500	Lite	Full
Channel Sizes*	Max. Ethernet Data Rate	Max. Ethernet Data Rate
5 MHz	17 Mbps	35 Mbps
10 MHz	35 Mbps	70 Mbps
15 MHz	52 Mbps	105 Mbps

PUT THE PTP 500 TO WORK FOR YOU

PTP 500 solutions are excellent connectivity and backhaul options for a variety of businesses: wireless service providers (WISPs); local, state and federal government agencies; medical centers; schools and

Key PTP 500 Features

- 5.4 and 5.8 GHz license-exempt bands
- User data throughput to 105 Mbps
- Distances up to 155 miles (250 km)
- Wind speed survival to 202 mph (325 kph)
- Operating temperatures -40° and 140° F (-40° and 60° C)

* Local regulations should be confirmed prior to system purchase.



PTP 500 Integrated



PTP 500 Connectorized

TDD Synchronization

PTP 500, version 04-00, supports TDD synchronization, allowing you to deploy multiple radios on a tower or rooftop with greatly reduced interference. The configuration requires our PTP-SYNC unit to provide the PTP 500 with an accurate timing reference.

universities; and transportation companies. Typical applications which can be supported with PTP connectivity and backhaul include:

- **Leased-Line Replacement:** Each PTP 500 radio will support T1/E1, allowing you to replace or supplement your leased-line service. By replacing a leased line, you can eliminate the recurring fees and/or extend communications to a location where wired service is not available.
- **Deploy Multiple Radios on a Tower or Rooftop:** With the PTP 500's Time Division Duplex (TDD) enabled, TDD functionality can synchronize transmit and receive signals to greatly reduce the cross interference that normally occurs between collocated radios. Each TDD-enabled link requires our PTP-SYNC synchronization unit to provide the PTP 500 with an accurate timing reference.
- **Cost-Effective Backhaul:** PTP 500 systems can affordably and reliably stream video from your surveillance cameras to a dispatch or command center.
- **Building-to-Building and Campus Connectivity:** Whether you need to connect between separate buildings or connect buildings in a campus setting, PTP 500 systems can work around obstacles, mitigate interference and withstand extreme weather conditions.
- **Remote Connectivity:** As the number of on-the-road and remote workers continues to increase, you can support your mobile personnel with reliable, secure and high-speed database access and collaborative communications.
- **Network Redundancy:** PTP 500 systems can provide valuable network redundancy for wired or fiber networks.

MARKET-LEADING TECHNOLOGY

PTP 500 radios are based on the same combination of technologies that earned us the number one market share in the unlicensed point-to-point global marketplace. These technologies work together to enable the high performance, high availability and efficient spectrum utilization of our radios:

- **Multiple-Input, Multiple-Output (MIMO):** Transmits multiple signals to enable high performance and link availability
- **Intelligent Orthogonal Frequency Division Multiplexing (i-OFDM):** Transmits signals over

multiple frequencies or sub-carriers to provide higher spectral efficiency and greater resistance to interference and fading

- **Advanced Spectrum Management with intelligent Dynamic Frequency Selection (i-DFS):** Scans the band up to 400 times a second and automatically switches to the clearest channel to combat interference and fading
- **Adaptive Modulation:** Dynamically up-shifts and down-shifts the modulation rate to adapt to changing (RF) conditions and ensure maximum throughput
- **Best-in-Class Radios:** Deliver the highest system gain in the industry through high-powered transmitters and ultra-sensitive receivers
- **Inherent Spatial Diversity:** Minimizes the effects of fading through the use of two or more vertically separated antennas – especially valuable for communications over water and desert

ROBUST, MULTI-LAYERED SECURITY

All PTP systems include our unique scrambling mechanism designed to protect your over-the-air communications. Another layer of security can be applied with FIPS-197 compliant 128-bit or 256-bit AES encryption, an optional feature.

INSTALL AND OPERATE WITH EASE

Our sophisticated deployment-assistance features help installers complete a stress-free installation, typically in a day or two, and our intuitive graphical user interface greatly simplifies operations. In addition, you have the flexibility to manage the network via the Internet using a standard web browser, your existing network management system, and/or our Wireless Manager, version 2.2 or higher.

WIRELESS NETWORK SOLUTIONS

At Motorola, our unrivaled wireless network solutions include indoor WLAN, outdoor wireless mesh, point-to-multipoint and point-to-point networks as well as voice over WLAN systems, giving you the agility and seamless connectivity you need to grow your business or better protect and serve the public. Combined with powerful software for wireless network design, security and management, our solutions deliver trusted networking and anywhere access to organizations worldwide.



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