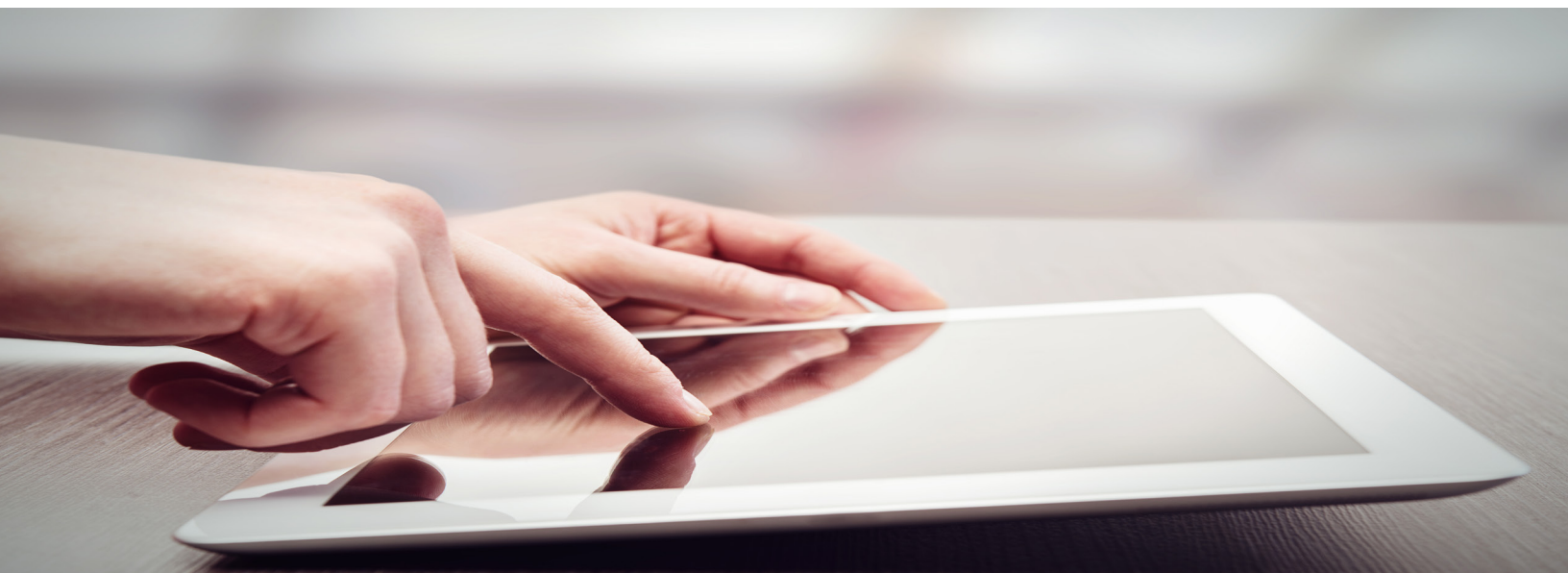# MICROCHIP

PoE Wireless Networks

The Network Challenge

Increased Wireless Data Traffic

The proliferation of Wi-Fi® based devices, together with the growing number of data-intensive mobile applications, has created an astounding demand for powerful wireless Wi-Fi access points, 3G/4G/5G small cells and wireless backhaul equipment. These require fast and cost-effective installations, as well as secure, reliable power sources.

Fast and Cost-Effective Installation

WLAN access points, small cells and wireless backhaul equipment are typically installed in hard-to-reach places, like ceilings, street furniture and building roofs, where AC power is rarely available. In campus environments with multiple buildings and facilities, the installation of these devices must be fast, simple and cost-effective.

From 1G Ethernet to 10G and the Bottleneck

The rapid adoption of IEEE 802.11ac Wave 1 and especially Wave 2 are shattering the 1 Gbps throughput barrier of 1000BASE-T Ethernet. Enterprises seeking throughput beyond Gigabit Ethernet for client access are bumping up against a real problem: the nominal 1 Gbps limitation of legacy Category 5e/6 cabling in most of the installed infrastructure worldwide today. Retrofitting buildings with the newer Cat 6A cabling needed for 10GBASE-T is an option but can be prohibitively disruptive and costly. With a cost outlay of $200 to $800 USD per new cable for hundreds of access points, the cost of retrofitting an established campus or office building can easily exceed $100,000s.

Transitioning to 5G

5G is the latest generation of cellular mobile communications. It targets significantly higher data rates than its predecessors, reduced latency, increased energy savings, higher system capacity and massive device connectivity. 5G requires a larger number of cells to be deployed in closer proximity to the users, a suitable data and PoE infrastructure. The fundamental challenge is to be able to reliably and efficiently power a significant number of small cells being installed. The latest IEEE 802.3bt PoE standard facilitates 5G deployments by delivering the necessary power in a simple and cost-effective way.

Why Choose Microchip PoE for Wireless Networks?

- Fast and cost-effective upgrade of 1000BASE-T Ethernet infrastructure to support the 2.5G applications using the 2.5G PoE Mux
- Save installation costs by leveraging existing switch and Cat5 cabling infrastructure to carry power over the same cables as data
- Power savings through remote power shutdown during time off periods and secure networks with complete power shutdown at sensitive times

NBASE-T and PoE Solutions

The NBASE-T standard defines 2.5G and 5G speeds over Cat 5e/Cat 6, with the 2.5G speed reaching the same 100 meters using the existing 1000BASE-T switch. Microchip offers a 2.5G NBASE-T-compliant mux that connects to an existing 1000BASE-T switch to provide a 2.5G link as well as standard PoE to connect the 802.11 Wave 2 WLAN access point. Microchip's PoE solutions also include 2.5G and 10G PoE midspans used to upgrade NBASE-T networks without PoE capabilities.

PoE Wireless Solutions

Outdoor

PoE technology has been implemented in outdoor environments over the last few years. With Microchip's industry-leading outdoor PoE solutions, customers can leverage PoE's well-known advantages in extreme weather conditions typically associated with microwave point-to-point, small cells and surveillance camera installations.

Indoor

Adding PoE to data infrastructures is made easy with PoE midspans installed in communication rooms in conjunction with Ethernet switches. Microchip's PoE midspans offer full PoE of up to 95W per device to allow smooth powering of wireless LAN access points, small cells and other network devices.

Microchip: The Market Leader in PoE

As pioneers of PoE technology, Microchip has been instrumental in implementing the IEEE 802.3af, IEEE 802.3at, IEEE 802.3bt, and HDBaseT standards. Microchip continues to innovate PoE solutions with the aim of supporting newer applications demanding higher power, greater speed and challenging environment specifications, while ensuring lower OpEx and faster deployments.

Empower Partner Program

Partnerships are at the core of Microchip's success. Microchip offers Empower, a comprehensive channel partner program designed to educate and inspire our partners with industry leading PoE solutions. For more information, please email empower@microchip.com.

High-Power Product Selection Guide

Indoor

Power Per Port	Product	Number of Ports	Data Rate	Managed	Input Power	Warranty
30W	PD-9001GR/AT/AC	1	1G		AC	1 year
30W	PD-9001GR/SP/AC**	1	1G		AC	1 year
30W	PD-5501G/12-24VDC	1	1G		DC	1 year
30W	PD-9001-25GR/AC	1	2.5G		AC	1 year
30W	PD-9001-10GR/AC	1	10G		AC	1 year
30W	PD-9004G/AC	4	1G		AC	1 year
30W	PD-9006G/ACDC/M, PD-9012G/ACDC/M, PD-9024G/ACDC/M	6/12/24	1G	Yes	AC and DC	Limited lifetime***
30W	PDS-208G/AC*	8	1G	Yes	AC	3 years
30W	PD-5524G/ACDC/M	24	1G	Yes	AC and DC	Limited lifetime***
60W	PD-9501GR/AC	1	1G		AC	1 year
60W	PD-9501GR/SP/AC**	1	1G		AC	1 year
60W	PD-9501G/SFP/AC	1	1G		AC	1 year
60W	PD-9501G/24VDC	1	1G		DC	1 year
60W	PD-9501G/48VDC	1	1G		DC	1 year
60W	PD-9506G/ACDC/M, PD-9512G/ACDC/M, PD-9524G/ACDC/M*	6/12/24	1G	Yes	AC and DC	Limited lifetime***
95W	PD-9601G/AC	1	1G		AC	1 year
95W	PD-9606G/ACDC/M, PD-9612G/ACDC/M	6/12	1G	Yes	AC and DC	Limited lifetime***

*Any individual port can operate at up to 72 W.
**Includes integrated surge protection.
***Limited lifetime includes a limitation of 16 years warranty on the power supply and fans.

Outdoor

Power Per Port	Product	Number of Ports	Data Rate	Managed	Input Power	Warranty
30W	PD-9001GO-ET/AC	1	1G		AC	5 years
60W	PD-9501GO-ET/AC	1	1G		AC	5 years
60W	PD-9501GO/12-24VDC	1	1G		DC	5 years
60W	PD-9501GO/48VDC	1	1G		DC	5 years
60W	PDS-104GO/AC/M	4	1G	Yes	AC	5 years
90W	PD-9601GO/AC	1	1G		AC	5 years

Industrial

Power Per Port	Product	Number of Ports	Data Rate	Managed	Input Power	Warranty
30W	PD-9001GI/DC	1	1G		DC	5 years
60W	PD-9501GI/DCF	1	1G		DC	5 years

For more information please visit www.microsemi.com

Support

Microchip is committed to supporting its customers in developing products faster and more efficiently. We maintain a worldwide network of field applications engineers and technical support ready to provide product and system assistance. For more information, please visit www.microchip.com:

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If additional training interests you, Microchip offers several resources including in-depth technical training and reference material, self-paced tutorials and significant online resources.

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