

# ePMP™ 3000 Series

## QUICK LOOK:

- **High-performance, scalable and reliable access points for fixed wireless broadband**
- **ePMP 3000 features MU-MIMO for up to 1.2 Gbps capacity for more than 120 Subscribers**
- **Low TCO with three-year hardware warranty**
- **Interoperable with all Force 300 Subscriber Modules and supports backward compatibility to Force**



Cambium Networks' ePMP product line has set the standard for high performance, scalability and reliability in harsh interference environments, all at a compelling price. The ePMP 3000 Access Point series is the third generation based on 802.11ac Wave 2 technology. ePMP 3000 Access Points interoperate with Force 300 Subscriber Modules (SM) and supports backward compatibility. ePMP 3000 Access Points can deliver up to 600 Mbps aggregate to each Force 300 SM. A sophisticated scheduling and QoS engine combined with TDD synchronization allows the ePMP 3000 and 3000L to deliver consistently high-quality service plans to a large number of end users.

All ePMP 3000 Access Points are managed with cnMaestro™, and networks can be planned with LINKPlanner. Both are available from Cambium Networks at no charge.

### ePMP 3000

The flagship product is the ePMP 3000, which can deliver 1.2 Gbps serving 120 or more subscribers. Featuring 4x4 MU-MIMO and dual overlapping sectors, the ePMP 3000 can transmit to two SM's at the same time. This effectively doubles the capacity of 2x2 systems and

in the process, increases link budgets by 3 dB with downlink beamsteering. The ePMP 3000 can be fitted with either a 90° MU-MIMO sector or a 60° MU-MIMO horn antenna. An optional smart uplink beamsteering antenna can be added for additional uplink isolation. For additional interference mitigation, the ePMP 3000 supports dynamic filtering for neighboring channel interference. With TDD synchronization, ePMP 3000 networks can scale to thousands of end users leveraging a small number of channels.

### ePMP 3000L

The ePMP 3000L is a 2x2 MIMO Access Point that delivers up to 600 Mbps to as many as 64 end users. The ePMP 3000L supports GPS synchronization for mitigating self-interference and increasing subscriber density. The ePMP 3000L can be deployed with either the 90° MIMO sector antenna or any third-party 2x2 horn, dish or sector antenna.

### ePMP 3000 MicroPOP

The ePMP 3000 MicroPOP can be deployed as a complement to the ePMP 3000 or ePMP 3000L for low-density, short-range applications as a hole filler or to inject capacity in a small area. The MicroPOP has an integrated omni antenna but does not support synchronization.

## ePMP™ 3000 Series

Spectrum and Interface			
	3000	3000L	MP 3000 MicroPOP
<b>Channel Width</b>	10*   20   40   80 MHz	20   40   80 MHz	20   40   80 MHz
<b>Proprietary Physical Layer</b>	4x4 MUMIMO/OFDM	2x2 MIMO/OFDM	2x2 MIMO/OFDM
<b>Channel Spacing</b>	Configurable in 5 MHz increments	Configurable in 5 MHz increments	Configurable in 5 MHz increments
<b>Frequency Range</b> <small>(Note: Allowable frequencies and bands are dictated by individual country regulations.)</small>	Wide Band Operation 4910 - 5970 MHz	Wide Band Operation 4910 - 6135 MHz	5150 - 5875 MHz
<b>MAC Layer (Media Access Control)</b>	Cambium Proprietary	Cambium Proprietary	Cambium Proprietary
<b>Ethernet Interfaced</b>	100/1000 BaseT, rate auto negotiated, 802.3at compliant & Aux SFP port	100/1000 BaseT, rate auto-negotiated	100/1000 BaseT, rate auto-negotiated
<b>Supported Powering Methods</b>	56 V PoE (included), standard 802.3at PoE Supply, or CMM5 with 56 V and 5 pin to 7 pin cross over cable adapter	29 V Cambium PoE (included)	802.3af or 802.3at Powered Device; 56 VDC Passive PoE Injector (included)
<b>Protocols Used</b>	IPv4/IPV6 , UDP, TCP, IP, ICMP, SNMPv2c, HTTPs, STP, SSH, IGMP Snooping	IPv4/IPV6 , UDP, TCP, IP, ICMP, SNMPv2c, HTTPs, STP, SSH, IGMP Snooping	IPv4/IPV6 , UDP, TCP, IP, ICMP, SNMPv2c, HTTPs, STP, SSH, IGMP Snooping
<b>Network Management</b>	HTTPS, SNMPv2c, SSH	HTTPS, SNMPv2c, SSH	HTTPS, SNMPv2c, SSH
<b>VLAN</b>	802.1Q with 802.1p priority	802.1Q with 802.1p priority	802.1Q with 802.1p priority
Performance			
	3000	3000L	MP 3000 MicroPOP
<b>Subscribers per Sector</b>	Up to 120	Up to 64	Up to 32
<b>ARQ</b>	Yes	Yes	Yes
<b>Nominal Receive Sensitivity (w/FEC) @20 MHz Channel</b>	MCS 0 , -92 MCS 8 supported by Wi-Fi -68	MCS 0 = -89 dBm to MCS 8 (256 QAM-3/4) = -66 dBm (per chain)	MCS 0 = -89 dBm to MCS 8 (256 QAM-3/4) = -66 dBm (per chain)
<b>Nominal Receive Sensitivity (w/FEC) @40 MHz Channel</b>	MCS0, -89 MCS9, -64	MCS 0 = -87 dBm to MCS 9 (256 QAM-5/6) = -64 dBm (per chain)	MCS 0 = -87 dBm to MCS 9 (256 QAM-5/6) = -64 dBm (per chain)
<b>Nominal Receive Sensitivity (w/FEC) @80 MHz Channel</b>	MCS0, -86, MCS9 - 61	MCS 0 = -84 dBm to MCS 9 (256 QAM-5/6) = -59 dBm (per chain)	MCS 0 = -84 dBm to MCS 9 (256 QAM-5/6) = -59 dBm (per chain)
<b>Modulation Levels (Adaptive)</b>	MCS 0 (BPSK) to MCS 9 (256 QAM-5/6)	MCS 0 (BPSK) to MCS 9 (256 QAM-5/6)	MCS 0 (BPSK) to MCS 9 (256 QAM-5/6)
<b>GPS Synchronization</b>	Yes, via Internal GPS or Cambium Sync	Yes, via Internal GPS Connector or external GPS puck antenna	n/a
<b>QoS (Quality of Service)</b>	Three level priority (Voice, High, Low) with packet classification by DSCP, COS, VLAN ID, IP & MAC Address, Broadcast, Multicast and Station Priority  DSO DFS	Three level priority (Voice, High, Low) with packet classification by DSCP, COS, VLAN ID, IP & MAC Address, Broadcast, Multicast and Station Priority, MIR/CIR support	Three level priority (Voice, High, Low) with packet classification by DSCP, COS, VLAN ID, IP & MAC Address, Broadcast, Multicast and Station Priority, MIR/CIR support

\*10 MHz bandwidth is supported only with Force 300-19R SM. Also note that 11n SM's can connect and operate in 10MHz.

## ePMP™ 3000 Series

Link Budget			
	<b>3000</b>	<b>3000L</b>	<b>MP 3000 MicroPOP</b>
<b>Transmit Power Range</b>	0 to +32 dBm (combined, to regional EIRP limit) (1 dB interval)	0 to +29 dBm (combined, to regional EIRP limit) (1 dB interval)	0 to +29 dBm (combined, to regional EIRP limit) (1 dB interval)
<b>Antenna</b>	Sector Antenna Available Part # C050910D301A Optional Smart Antenna for UL Beamforming part #C050900D020A	90/120 Degree 2x2 Sector Antenna Available Part # C050900D021B	n/a

Physical			
	<b>3000</b>	<b>3000L</b>	<b>MP 3000 MicroPOP</b>
<b>Surge Supression*</b>	1 Joule Integrated	1 Joule Integrated	1 Joule Integrated
<b>Environmental</b>	IP55	IP67 and IP68	IP67
<b>Temperature</b>	-30°C to 55°C (-22°F to 131°F)	-30°C to 60°C (-22°F to 140°F)	-40°C to 65°C (-40°F to 149°F)
<b>Weight</b>	0.7 kg (1.5 lbs) without bracket	0.50 kg (1.1 lbs) without bracket	0.98 kg (2.15 lbs) without bracket
<b>Dimensions (Dia x Depth)</b>	22.2 x 12.4 x 4.5 cm (8.75 x 4.9 x 1.75 in) without brackets	84 x 223 x 32 mm (3.3 x 8.8 x 1.3 in) without brackets	73 x 289 x 210 mm (2.9 x 11.4 x 8.3 in) without brackets
<b>Power Consumption</b>	25W Maximum**	12W (Up to 15W in extreme cold temperatures when heater is activated.)	13W (Up to 15W in extreme cold temperatures when heater is activated.)
<b>Input Voltage</b>	44V to 59V	30 V Nominal (14 V to 30 V Range) (Note: 14V minimum must be maintained at radio connector under all conditions including long cable lengths)	56 V Nominal (input range 41 V to 59 V)
<b>Sector Antenna Connection</b>	4 x 50 ohm, RP (Reverse Polarity) SMA	2 x 50 ohm, RP (Reverse Polarity) SMA Also compatible with RF Elements Twistport™ Adaptor for ePMP	n/a
<b>Beamforming Antenna Connection</b>	2 x 50 ohm, RP (Reverse Polarity) SMA, DC Coupled (powering antenna)	n/a	n/a
<b>GPS Antenna Connection</b>	1 x 50 ohm	1 x 50 ohm; GPS Puck included in package	n/a

\* 30 V Gigabit surge suppressor recommended for optimal surge protection. Part # C000000L065A

\*\*The maximum power consumption of the Access Point is the same regardless of whether the optional Smart Beamforming Antenna is equipped or not. This is because the Beamforming Antenna draws its power during the uplink cycle when the Access Point power consumption is not at its maximum.

Security	
<b>Encryption</b>	<b>All models:</b> 128-bit AES (CCMP mode)

Certifications			
	<b>3000</b>	<b>3000L</b>	<b>MP 3000 MicroPOP</b>
<b>FCCID</b>	Z8H-89FT0024	Z8H-89FT0047	Z8H89FT0051
<b>Industry Canada Cert</b>	109W-0024	109W-0047	109W-0051
<b>CE</b>	See Cambium Website for Declaration of Conformity	See Cambium Website for Declaration of Conformity	See Cambium Website for Declaration of Conformity

## ePMP™ 3000 Series

### ePMP 3000 Radio Ordering Information

<b>C050910A001A</b>	5 GHz Access Point Radio (ROW) (no cord)
<b>C050910A101A</b>	5 GHz Access Point Radio (ROW) (US cord)
<b>C050910A104A</b>	5 GHz Access Point Radio (IC) (Canada/US cord)
<b>C050910A201A</b>	5 GHz Access Point Radio (ROW) (EU cord)
<b>C050910A203A</b>	5 GHz Access Point Radio (EU) (EU cord)
<b>C050910A301A</b>	5 GHz Access Point Radio (ROW) (UK cord)
<b>C050910A303A</b>	5 GHz Access Point Radio (EU) (UK cord)
<b>C050910A401A</b>	5 GHz Access Point Radio (ROW) (India cord)
<b>C050910A402A</b>	5 GHz Access Point Radio (India) (India Cord)
<b>C050910A501A</b>	5 GHz Access Point Radio (ROW) (China cord)
<b>C050910A601A</b>	5 GHz Access Point Radio (ROW) (Brazil cord)
<b>C050910A701A</b>	5 GHz Access Point Radio (ROW) (Argentina cord)
<b>C050910A801A</b>	5 GHz Access Point Radio (ROW) (ANZ cord)
<b>C050910A901A</b>	5 GHz Access Point Radio (ROW) (South Africa cord)
<b>C050910AZ01A</b>	5 GHz Access Point Radio (ROW) (No PSU)
<b>C058910A102A</b>	5 GHz Access Point Radio (FCC) (US cord)
<b>C050910D301A</b>	ePMP 4x4 MU-MIMO Sector Antenna (for ePMP3000AP)

### ePMP 3000L Ordering Information

<b>C058910A122A</b>	5 GHz 3000L Access Point Radio FCC US cord
<b>C050910A124A</b>	5 GHz 3000L Access Point Radio IC Canada/US cord
<b>C050910A223A</b>	5 GHz 3000L Access Point Radio EU EU cord
<b>C050910A323A</b>	5 GHz 3000L Access Point Radio EU UK cord
<b>C050910A021A</b>	5 GHz 3000L Access Point Radio ROW no cord
<b>C050910A121A</b>	5 GHz 3000L Access Point Radio ROW US cord
<b>C050910A221A</b>	5 GHz 3000L Access Point Radio ROW EU cord
<b>C050910A321A</b>	5 GHz 3000L Access Point Radio ROW UK cord
<b>C050910A421A</b>	5 GHz 3000L Access Point Radio ROW India cord
<b>C050910A422A</b>	5 GHz 3000L Access Point Radio India India Cord
<b>C050910A521A</b>	5 GHz 3000L Access Point Radio ROW China cord
<b>C050910A621A</b>	5 GHz 3000L Access Point Radio ROW Brazil cord
<b>C050910A721A</b>	5 GHz 3000L Access Point Radio ROW Argentina cord
<b>C050910A821A</b>	5 GHz 3000L Access Point Radio ROW ANZ cord
<b>C050910A921A</b>	5 GHz 3000L Access Point Radio ROW South Africa cord
<b>C050910AZ21A</b>	5 GHz 3000L Access Point Radio ROW No PSU

### ePMP MP 3000 MicroPOP Ordering Information

<b>C050910A031A</b>	5 GHz MP 3000 MicroPOP Radio ROW no cord
<b>C050910A131A</b>	5 GHz MP 3000 MicroPOP Radio ROW US cord
<b>C058910A134A</b>	5 GHz MP 3000 MicroPOP Radio IC Canada/US cord
<b>C050910A231A</b>	5 GHz MP 3000 MicroPOP Radio ROW EU cord
<b>C050910A233A</b>	5 GHz MP 3000 MicroPOP Radio EU EU cord
<b>C050910A331A</b>	5 GHz MP 3000 MicroPOP Radio ROW UK cord
<b>C050910A333A</b>	5 GHz MP 3000 MicroPOP Radio EU UK cord
<b>C050910A431A</b>	5 GHz MP 3000 MicroPOP Radio ROW India cord
<b>C050910A432A</b>	5 GHz MP 3000 MicroPOP Radio India India Cord
<b>C050910A531A</b>	5 GHz MP 3000 MicroPOP Radio ROW China cord
<b>C050910A631A</b>	5 GHz MP 3000 MicroPOP Radio ROW Brazil cord
<b>C050910A731A</b>	5 GHz MP 3000 MicroPOP Radio ROW Argentina cord
<b>C050910A831A</b>	5 GHz MP 3000 MicroPOP Radio ROW ANZ cord
<b>C050910A931A</b>	5 GHz MP 3000 MicroPOP Radio ROW South Africa cord
<b>C050910AZ31A</b>	5 GHz MP 3000 MicroPOP Radio ROW No PSU
<b>C058910A132A</b>	5 GHz MP 3000 MicroPOP Radio FCC US cord

## ePMP™ 3000 Series



ePMP 3000

ePMP MP 3000  
MicroPOP

ePMP 3000L

### ABOUT CAMBIUM NETWORKS

Cambium Networks empowers millions of people with wireless connectivity worldwide. Its wireless portfolio is used by commercial and government network operators as well as broadband service providers to connect people, places and things. With a single network architecture spanning fixed wireless and Wi-Fi, Cambium Networks enables operators to achieve maximum performance with minimal spectrum. End-to-end cloud management transforms networks into dynamic environments that evolve to meet changing needs with minimal physical human intervention. Cambium Networks empowers a growing ecosystem of partners who design and deliver gigabit wireless solutions that just work.

[cambiumnetworks.com](http://cambiumnetworks.com)

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