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**

cnMaestro READY

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 techology. ePMP 3000 Access Points interoperate with Force 300 Subscriber Modules (SM) and supports backward compatiblity. 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.

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ePMP™ 3000 Series

Spectrum and Interface

	3000	3000L	MP 3000 MicroPOP
Channel Width	10*| 20 | 40 | 80 MHz	20 | 40 | 80 MHz	20 | 40 | 80 MHz
Proprietary Physical Layer	4x4 MUMIMO/OFDM	2x2 MIMO/OFDM	2x2 MIMO/OFDM
Channel Spacing	Configurable in 5 MHz increments	Configurable in 5 MHz increments	Configurable in 5 MHz increments
Frequency Range (Note: Allowable frequencies and bands are dictated by individual country regulations.)	Wide Band Operation 4910 - 5970 MHz	Wide Band Operation 4910 - 6135 MHz	5150 - 5875 MHz
MAC Layer (Media Access Control)	Cambium Proprietary	Cambium Proprietary	Cambium Proprietary
Ethernet Interfaced	100/1000 BaseT, rate auto negotiated, 802.3at compliant & Aux SFP port	100/1000 BaseT, rate auto-negotiated	100/1000 BaseT, rate auto-negotiated
Supported Powering Methods	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)
Protocols Used	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
Network Management	HTTPS, SNMPv2c, SSH	HTTPS, SNMPv2c, SSH	HTTPS, SNMPv2c, SSH
VLAN	802.1Q with 802.1p priority	802.1Q with 802.1p priority	802.1Q with 802.1p priority

Performance

	3000	3000L	MP 3000 MicroPOP
Subscribers per Sector	Up to 120	Up to 64	Up to 32
ARQ	Yes	Yes	Yes
Nominal Receive Sensitivity (w/FEC) @20 MHz Channel	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)
Nominal Receive Sensitivity (w/FEC) @40 MHz Channel	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)
Nominal Receive Sensitivity (w/FEC) @80 MHz Channel	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)
Modulation Levels (Adaptive)	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)
GPS Synchronization	Yes, via Internal GPS or Cambium Sync	Yes, via Internal GPS Connector or external GPS puck antenna	n/a
QoS (Quality of Service)	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.

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ePMP™ 3000 Series

Link Budget

	3000	3000L	MP 3000 MicroPOP
Transmit Power Range	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)
Antenna	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

	3000	3000L	MP 3000 MicroPOP
Surge Supression*	1 Joule Integrated	1 Joule Integrated	1 Joule Integrated
Environmental	IP55	IP67 and IP68	IP67
Temperature	-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)
Weight	0.7 kg (1.5 lbs) without bracket	0.50 kg (1.1 lbs) without bracket	0.98 kg (2.15 lbs) without bracket
Dimensions (Dia x Depth)	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
Power Consumption	25 W Maximum**	12 W (Up to 15 W in extreme cold temperatures when heater is activated.)	13 W (Up to 15 W in extreme cold temperatures when heater is activated.)
Input Voltage	44 V to 59 V	30 V Nominal (14 V to 30 V Range) (Note: 14 V minimum must be maintained at radio connector under all conditions including long cable lengths)	56 V Nominal (input range 41 V to 59 V)
Sector Antenna Connection	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
Beamforming Antenna Connection	2 x 50 ohm, RP (Reverse Polarity) SMA, DC Coupled (powering antenna)	n/a	n/a
GPS Antenna Connection	1 x 50 ohm, RP (Reverse Polarity) SMA	1 x 50 ohm, RP (Reverse Polarity) SMA; Optional external GPS Puck Antenna Part # N000900L030A	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

Encryption	**All models:** 128-bit AES (CCMP mode)

Certifications

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

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ePMP™ 3000 Series

ePMP 3000 Radio Ordering Information

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

ePMP MP 3000 MicroPOP Ordering Information

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

ePMP 3000L Ordering Information

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

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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.

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