Cambium Networks™

Point-to-Multipoint (PMP) Accessories Guide

This Accessories Guide is designed to help you work out the details of tailoring your PMP Distribution and and Access Network to meet the needs of users.

All information provided in this guide is subject to change as solutions evolve.

Cambium Networks' PMP solutions provide enterprises and government agencies with consistently reliable data, voice and video applications so they can do their job effectively and efficiently. The portfolio offers high-speed backhaul, distribution and access networks that support data, voice and video communications, enabling a broad range of fixed and mobile applications for public and private systems. With Cambium's innovative software solutions, you can design, deploy and manage a wireless network, maximizing uptime and reliability while lowering installation costs.

Access Point Accessories

Cambium Networks' industry leading wireless broadband expertise helps to substantially reduce the effects of interference for Point-to- Multipoint wireless access and distribution networks in both licensed and unlicensed frequencies. The Access Point (AP) distributes network or Internet services in a sector for as many as 200 subscribers. A variety of accessories are available to work with the APs including the Cluster Management Modules, Universal GPS (UGPS) and power supplies.
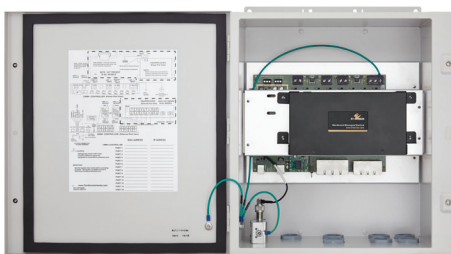
Cluster Management Module (CMM)

The CMM provides Global Positioning System (GPS) synchronization to the AP and all associated Subscriber Modules (SMs). The CMMmicro or CMM4 provides power, GPS timing and networking connections for an AP cluster. The CMM can be equipped with an internal switch, or purchased without a switch so that the network operator can install the switch of their choice. One CMM can communicate with a variety of different AP modules located at the same tower. If the CMM is also connected to a Point-to-Point (PTP) module, then the CMM is the central point of connectivity for the entire site. The CMM can connect as many as eight collocated modules and an Ethernet feed.

CMM3 (CMMmicro)

The Cluster Management Module 3 (CMM3), also known as the CMMmicro, allows network operators to reduce the time and labor cost of system installation and maintenance in AP Clusters. This management module reduces cabling between system modules and provides reliable network synchronization. There is only one cable going from the CMM3 to each module carrying the Ethernet connection, synchronization pulse and GPS data.

CMM4

Designed to deliver consistent and reliable wireless broadband service, the PMP system gracefully scales to support large deployments. The cluster management module is the heart of the system's synchronization capability which allows network operators to re-use frequencies and add capacity while ensuring consistency in the quality of service to

customers. As a result, subscribers can experience carrier-grade service even those at the outer edge of the network.

CMM4 without switch

This CMM includes all of the functionality listed above but there is no switch. This provides the network operator the flexibility to use the switch of their choice with the power and synchronization capabilities of the CMM4.

Rack-Mounted Cluster Management Module 4

The cluster management module (CMM) is the heart of the Cambium system's synchronization capability, which allows network operators to reuse frequencies and add capacity while ensuring consistency in the quality of service to customers. For operators who prefer indoor CMM mounting, Cambium offers the Rack-Mounted Cluster Management Module 4. The unit is designed to be mounted onto a standard 19-inch telecommunications rack and to allow the Cambium CMM4 to be collocated with other telecommunications equipment.

Universal GPS (UGPS)

The UGPS provides network synchronization for smaller networks where a CMM may not be cost effective. The UGPS provides synchronization for one or two modules so that even remote areas at the edge of the network can operate with synchronization for improved performance. The UGPS works with all Cambium PMP radios. The UGPS has a small footprint and is easy to deploy.

CAMBIUM PMP ACCESS POINT/CMM POWER SUPPLY MATRIX		
AP MODEL NUMBER	STANDALONE POWER SUPPLIES	CMM POWER SUPPLIES
PMP 100	30 VDC	ACPS120WA
PMP 400 (4.9 GHz)	56 VDC	SGPN4076 or SGPN4075
PMP 430	56 VDC	SGPN4076 or SGPN4075
PMP 450	30 VDC	ACPS120WA
PTP 100	30 VDC	ACPS120WA
PTP 450	50 VDC	ACPS120WA

Power Supplies

The Cambium PMP system is typically installed on outside infrastructure platforms with the AP centrally located on radio towers and roof top locations. Power is delivered to these devices either through a Power over Ethernet (PoE) standalone supply, or through the CMM via the data cable.

See the compatibility matrix at the back of this document for supplies that are compatible with specific radio models.

CAMBIUM PMP REMOTE MODULE POWER SUPPLY MATRIX	
RM MODEL NUMBER	STANDALONE POWER SUPPLIES
PMP 100	30 VDC
PMP 400 (4.9 GHz)	56 VDC
PMP 430	30 VDC
PMP 450	30 VDC
PTP 100	30 VDC
PTP 450	30 VDC

Recommended standalone power supplies for 30V APs are ACPSSW-20A and ACPSSW-21B. These are infrastructure grade supplies that have shielded cable connections and better RF immunity to outside interference.

Remote Module (RM) Accessories

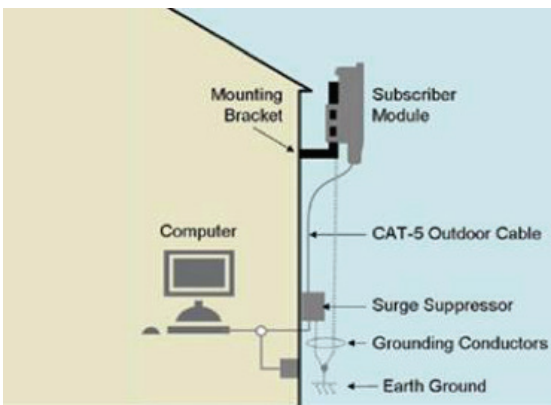The RM is the CPE installed at the customer location. The figure shows a typical installation.

• The SM can be mounted directly or via bracket to an outdoor face of the premises

• The SM is Powered over Ethernet (PoE) via CAT-5 cable

• The CAT-5 cable is routed to the interior via a surge suppressor

• Inside the premises, the CAT-5 cable connects to the end-user device via a wall-mounted DC power adaptor

• The DC power adapter requires standard 90-264 VAC, 50/60 Hz input

• For multi-user implementation the SM may be connected to an Ethernet switch

The PMP system is typically installed on outside infrastructure platforms with AP centrally located on radio towers and roof top locations. Customer premise equipment (CPE) or SMs are located outdoors on business or residential buildings. SMs are powered over Ethernet (POE) and have indoor power supplies.

See the compatibility matrix shown in the back of this document for supplies that are compatible with specific radio models.

Surge Suppressor

The 200SSH or 600SSH Surge Suppressor provides a path to ground (Protective Earth) that protects connected radio equipment from near-miss lightning strikes. The 200SSH is used for DC connections and used only with CMM3 and CMM4 DC lines. The 600SSH is compatible with all Cambium PMP models.
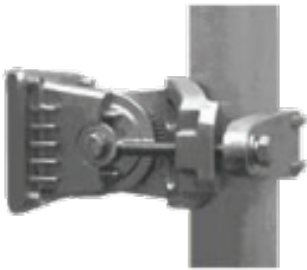
Mounting Kits

There are two types of mounting kits available for the Cambium PMP Subscriber Modules – the SMMB1 and the SMMB2.

SMMB1

The SMMB1A provides a mounting solution for standard radio deployments and is compatible with all Cambium PMP 100, PMP 430 and PMP 450 Subscriber Modules.

SMMB2

The SMMB2A provides a heavy-duty mounting solution for radio deployments. The SMMB2 is compatible with all Cambium PMP radios, and recommended for all Cambium PMP 400 and Cambium PMP 430 Access Points.

WB2289A

The WB2289A provides a heavy-duty mounting solution for the PMP 450 AP if needed. This is only necessary when using an alternative antenna solution. (Note: This part is the same one used to mount PTP 500/600 equipment.)

Extending Coverage and Range Extension

CLIP (Cassegrain Lens for Improved Performance)

The CLIP enables service providers to provide reliable data, video and VoIP services in areas that could not previously be reached due to range limitations. By focusing the antenna beam, the CLIP also results in a reduction of external RF noise. The CLIP easily mounts directly onto existing Cambium PMP 100, PMP 430 and PMP 450 Series SMs (5 GHz frequencies only) and requires no additional mounting hardware.

• Adds 9-10 dB of gain to signal for Cambium PMP 100

• Adds 6 dB of gain to signal for Cambium PMP 430

• Adds 8 dB of gain to signal for PMP 450

• Compresses beam to 18 degrees azimuth and elevation

Passive Reflector

The 27RD Passive Reflector Dish mounts at the Cambium PMP subscriber module and extends the range of a module by focusing the beam into a narrower angle. The internal patch antenna of the module illuminates the 27RD from an offset position. The module support tube provides the proper angle for this offset.

• Adds 18 dB of gain to signal at 5 GHz for Cambium PMP 100

• Adds 15 dB of gain to signal at 5 GHz for Cambium PMP 430

• Adds 12 dB to 2.4 GHz and 3 GHz, and 15 dB to 5 GHz for Cambium PMP 450

• Compresses beam to 6 degrees azimuth and elevation

PMP COMPATIBILITY MATRIX					
		CAMBIUM NETWORKS			
MODEL	**DESCRIPTION**	PMP 100	PTP 200 (5.4 GHz)	PTP 200 (4.9 GHz)	PTP 230
ACCESSORY CATEGORY: **POWER SUPPLY**					
ACPS120WA	120W 30VDC AT 60C 100-240VAC EL5	x	x		x
ACPS120W-02A	120W 30VDC AT 60C 100-240VAC EL5	x	x		x
N000900L001A	**Gigabit Enet Capable Pwr Supply**	x	x		x
N000900L007A	CABLE, UL POWER SUPPLY CORD SET, US	x	x		x
N000900L008A	CABLE, UL POWER SUPPLY CORD SET, EU	x	x		x
N000900L009A	CABLE, UL POWER SUPPLY CORD SET, UK	x	x		x
N000900L0010A	CABLE, UL POWER SUPPLY CORD SET, Brazil	x	x		x
SGPN4075	Rack Mount, CMM4 POWER Supply, 56VDC			x	
N000000L053A	LWN1740-6EM1 56 VDC, CMM4 Power Supply			x	
ACPSSW-15A	25W, 56V, 100-240VAC/50-60Hz			x	
ACPSSW-16A	25W, 56V, 100-240VAC/50-60Hz +C8 AC			x	
30010227001	POWER INJECTOR CORDSET ONLY, 29.5V	x	x		x
30010228001	POWER INJECTOR CORDSET ONLY, 56V			x	
30010253001	POWER INJECTOR CORDSET ONLY, 56V POE				
ACCESSORY CATEGORY: **ALIGNMENT TOOLS**					
ACATHS-01A	Alignment Tool Headset	x	x	x	x

PMP COMPATIBILITY MATRIX								
		CAMBIUM NETWORKS						
MODEL	**DESCRIPTION**	100 AP&SM	400 4.9 GHz	430 AP	430 SM	450 AP&SM	CMM3	CMM4
ACCESSORY CATEGORY: **POWER SUPPLY**								
ACPS120WA	120W 30VDC	x			x	x	x	x
ACPS120W-02A	120W 30VDC	x			x	x	x	x
N000900L001A	**Gigabit Enet Capable Pwr Supply**	x			x	x		
N000900L007A	CABLE, UL PSU CORD SET, US	x			x	x		
N000900L008A	CABLE, UL PSU CORD SET, EU	x			x	x		
N000900L009A	CABLE, UL PSU CORD SET, UK	x			x	x		
N000900L0010A	CABLE, UL PSU CORD SET, Brazil	x			x	x		
SGPN4075	CMM4 Rack Mount, PSU, 56VDC			x				x
N000000L053A	LWN1740-6EM1 56 VDC, CMM4 PSU			x				x

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