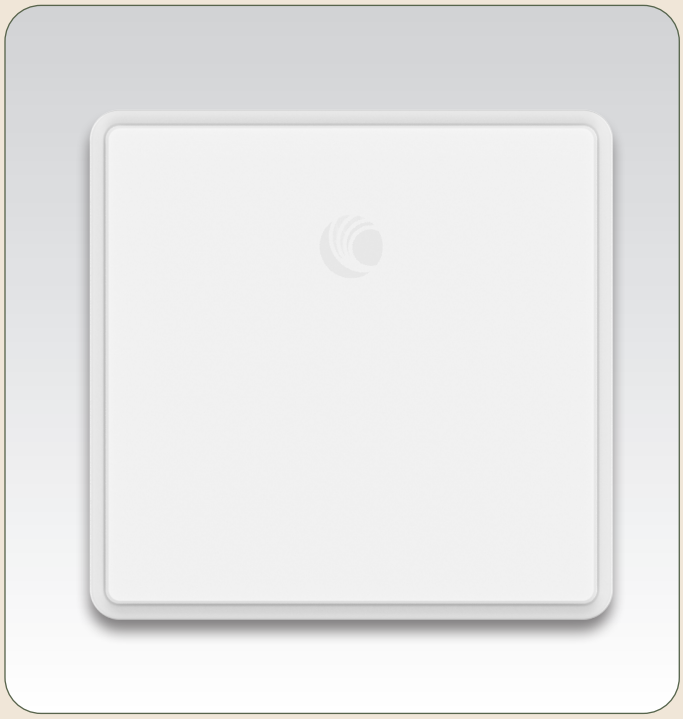
PTP 45700 Beam Steering ODU

QUICK LOOK:

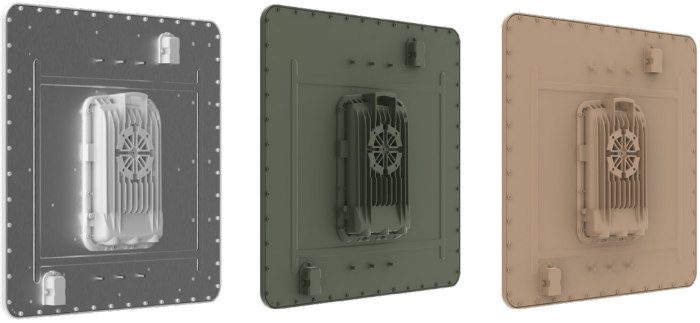
The PTP 45700 Beam Steering ODU with integrated Smart Antenna provides electronic beamforming that allows for easy tactical installation and best-in-class interference mitigation in addition to the industry-leading spectral efficiency and processing capabilities of the PTP 700 family of products.

- **120° azimuth and 30° elevation smart antenna for point-to-point links**
- **Maximizes gain through beamforming**
- **Reduces system cost, weight, and complexity, compared to mechanical positioners**
- **Supports quick tactical deployment**



FEATURES AND BENEFITS

- 4.4-5.875 GHz wideband radio
- Wide 120° azimuth and 30° elevation antenna, allowing for quick, tactical installation by pointing in the general direction of the desired radio
- High-gain antenna (up to 22 dBi at boresight)
- Reduced alignment time (seconds versus minutes) compared to manual alignment or mechanical positioners
- Reduced system cost (30% savings) and weight (60% lighter) without mechanical positioner
- Rugged design, tested to MIL-STD-810H and IP66/67 environmental specifications
- Commercial white and MIL-SPEC finishes
- Dynamic Spectrum Optimization (DSO), maximizing performance in dynamic spectrum environments
- Integrated Spectrum Analyzer, allowing real-time and historical monitoring of spectrum



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Radio	
RF Bands	Wide-band operation 4.4 to 5.875 GHz in a single SKU, support bands including: • NATO Band IV / NTIA Compliant (4.4 GHz to 4.99 GHz) • 4.9 GHz Public Safety Band • 5.1/5.2/5.4/5.8 GHz FCC/ETSI
Configuration	1+0, 2+0 (requires external switch)
Channel Sizes	5, 10, 15, 20, 30, 40, and 45 MHz channels. Channel sizes depend on individual country regulations
Spectral Efficiency	10 bps/Hz maximum
Channel Selection	By Dynamic Spectrum Optimization (DSO) or manual intervention Automatic selection on start-up and continual self-optimization to avoid interference
Maximum Transmit Power	Up to 29 dBm
System Gain	Up to 166 dB
Modulation / Error Correction	Fast Preemptive Adaptive Modulation featuring 13 modulation / FEC coding levels ranging from BPSK to 256 QAM dual payload MIMO
Duplex Scheme	Time Division Duplex (TDD) Adaptive or fixed transmit/receive duty cycles Split frequency operation allows separate transmit and receive frequencies where allowed by regulation. Optional TDD synchronization using PTP-SYNC Module
Antenna	Integrated flat panel Boresight gain (dBi): 21.4 @ 4.4, 22.1 @ 5.0, 21.0 @ 5.875 GHz + 60 / - 60° gain (dBi): 14-16 dBi
Security	128/256-bit AES Encryption (optional) HTTPS and SNMPv3, user authentication and RADIUS support Identity-based user accounts Configurable password rules Event logging and management; optional logging via syslog disaster recovery and vulnerability management FIPS-197 compliant

Ethernet Bridging	
Protocol	IEEE 802.3
Latency	1-3 ms one direction
QoS	Extensive QoS supporting up to 8 Queues (PTP mode) and 4 Queues (HCMP mode)
Packet Classification	Layer 2 and Layer 3 IEEE 802.1p, MPLS, Ethernet priority
Packet Performance	Line rate (>850K packets per second)
Timing Transport	Synchronous Ethernet; IEEE 1588v2
Frame Support	PTP Mode: Jumbo frame up to 9600 bytes;
Flexible I/O	2 x Gigabit Ethernet copper ports: **Gigabit Port 1:** Data + PoE power input **Gigabit Port 2:** Data + 802.3at PoE power output 1 x SFP port: single-mode fiber, multi-mode fiber or copper Gigabit Ethernet options available

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Management

Network Management	In-band and out-of-band management (OOBM)
System Management	IPv6/IPv4 dual-stack management support Web access via browser using HTTP or HTTPS/TLS SNMP v1, v2c and v3, MIB-II and proprietary PTP MIB Online spectrum analyzer (no impact on payload traffic or network operation)
Installation	Built-in audio and graphical assistance for link optimization (when automatic beam steering is disabled)

Mechanical Specifications

Dimensions (H x W x D)	581 x 595 x 84 mm (22.9 x 23.4 x 3.3 in)
Weight	9.1 kg (20.1 lbs)
Operating Temperature	-40° to 60°C (-40° to 140°F)
Enviromental Rating	IP66 and IP67
Shock/Vibration/Temperature	MIL-STD-810H
Wind Speed Survival	160 kph (99 mph)
Power Consumption	43W maximum (up to 70W with 802.3at device on auxiliary port)
Available Colors	Green, Desert Tan, White

Environmental and Regulatory

Protection and Safety	UL 62368-1 and UL 60950-22; EN IEC 62368-1 and IEC 62368-3; EN 60529; CSA C22.2 62368-1 and CSA C22.2 60950-22; CB approval for global use
Radio	4.9 GHz: FCC Part 90Y, RSS-111; 5.x GHz: FCC Part 15, sub-parts 15C and 15E; RSS 247 Issue 1; EN 302 502; EN 301 893; EN 302 625; Eire ComReg 02/71R1, UK Approval to IR2007; NTIA Redbook; RSS-210
EMC	EN 301 489-1, EN 301 489-17; FCC Part 15B Class A, ICES-003 Class A

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Receiver Sensitivity and Transmit Power dbm @ 4.7 GHz								
Modulation Mode	**5 MHz**	**10 MHz**	**15 MHz**	**20 MHz**	**30 MHz**	**40 MHz**	**45 MHz**	**Transmit Power (dBm)**
BPSK 0.63 Single	-93.5	-92.0	-90.2	-89.0	-87.2	-86.0	-85.5	28.0
QPSK 0.63 Single	-90.0	-88.5	-86.7	-85.5	-83.7	-82.5	-82.0	27.0
QPSK 0.87 Dual	-86.0	-84.5	-82.7	-81.5	-79.7	-78.5	-77.9	26.0
16QAM 0.63 Single	-84.1	-82.6	-80.8	-79.5	-77.8	-76.5	-76.0	25.0
16QAM 0.63 Dual	-81.0	-79.5	-77.8	-76.5	-74.8	-73.5	-73.0	25.0
16QAM 0.87 Single	-79.4	-77.9	-76.1	-74.8	-73.1	-71.8	-71.3	24.0
16QAM 0.87 Dual	-76.3	-74.8	-73.0	-71.8	-70.0	-68.8	-68.3	24.0
64QAM 0.75 Single	-76.4	-74.9	-73.1	-71.9	-70.1	-68.9	-68.4	23.0
64QAM 0.75 Dual	-73.3	-71.8	-70.0	-68.8	-67.0	-65.8	-65.3	23.0
64QAM 0.92 Single	-72.6	-71.1	-69.4	-68.1	-66.3	-65.1	-64.6	23.0
64QAM 0.92 Dual	-69.4	-67.9	-66.1	-64.8	-63.1	-61.8	-61.3	23.0
256QAM 0.81 Single	-69.4	-67.9	-66.1	-64.8	-63.1	-61.8	-61.3	23.0
256QAM 0.81 Dual	-65.8	-64.3	-62.5	-61.3	-59.5	-58.3	-57.8	23.0

Throughput (Mbps @ 5 km)							
Modulation Mode	**5 MHz**	**10 MHz**	**15 MHz**	**20 MHz**	**30 MHz**	**40 MHz**	**45 MHz**
BPSK 0.63 Single	2.3	4.8	7.2	9.6	14.5	19.8	21.7
QPSK 0.63 Single	4.7	9.6	14.5	19.2	29.1	39.7	43.5
QPSK 0.87 Dual	6.5	13.4	20.2	26.8	40.5	55.2	60.5
16QAM 0.63 Single	9.3	19.3	29.0	38.5	58.1	79.4	87.0
16QAM 0.63 Dual	12.9	26.8	40.3	53.5	80.9	110.4	121.0
16QAM 0.87 Single	16.6	34.5	51.8	68.8	103.9	141.9	155.5
16QAM 0.87 Dual	20.4	42.2	63.4	84.2	127.2	173.7	190.3
64QAM 0.75 Single	24.2	50.0	75.3	99.9	151.0	206.1	225.9
64QAM 0.75 Dual	18.6	38.5	58.0	77.0	116.3	158.7	173.9
64QAM 0.92 Single	25.9	53.6	80.7	107.1	161.7	220.8	241.9
64QAM 0.92 Dual	33.3	68.9	103.7	137.6	207.9	283.8	311.0
256QAM 0.81 Single	40.7	84.2	126.9	168.4	254.4	347.3	380.6
256QAM 0.81 Dual	48.4	100.1	150.6	199.9	301.9	412.2	451.7

ABOUT CAMBIUM NETWORKS

Cambium Networks enables service providers, enterprises, industrial organizations, and governments to deliver exceptional digital experiences, and device connectivity, with compelling economics. Our ONE Network platform simplifies management of Cambium Networks' wired and wireless broadband and network edge technologies. Our customers can focus more resources on managing their business rather than the network. We deliver connectivity that just works.

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