

CP122 Triple-Play P2P Customer Premises Optical Node with WiFi

**Triple-Play residential and commercial 100/1000Mbit
subscriber access CPE with optional full-spectrum
CATV overlay, Wi-Fi, and home gateway functionality**



About the Product

Introducing the distinctively engineered CP122 Series Active Ethernet CPE. The unit provides future-proof 10/100/1000Mbps symmetrical bandwidth for fiber to the home services and works as a triple-play home gateway. At an attractive price, this device allows operators to deploy point to point (P2P) broadband access and video overlay via a single optical fiber (dual-fiber option also available).

The CP122 Series features four 10/100/1000Mbps full-duplex LAN data ports with an optional 45 MHz ~ 1 GHz CATV-overlay module in a small and unobtrusive enclosure. The CATV module incorporates an Automatic Gain Control (AGC) circuit to maintain a constant RF output level over an input optical power range of -8 dBm to +2 dBm. The CATV status can be turned on/off by using PBN's NMSE management software.

The package includes a fiber management tray, which has been customized for ease of installation as a stand-alone unit on a shelf or desktop, or wall-mounted inside a wiring closet.

The unit is available with HTTP, SNMP management and a full set of switching features including VLANs and Quality of Service (QoS) settings. Remote upgrade is supported to ensure ease of maintenance.



Key Features and Functions

- Optional high-performance optical CATV receiver delivering full bandwidth analog cable television 45 MHz to 1GHz (110 NTSC or 91 PAL channels), as well as DVB-C, DVB-T and HDTV digital television channels
- CATV module incorporates an Automatic Gain Control (AGC) circuit to maintain a level effective output voltage over -8 dBm to +2 dBm optical input power. The CATV receiver status can be turned on/off by management software
- Four Gigabit Ethernet LAN ports for 100/1000 Mbps, auto-negotiating, auto-crossover, auto half-duplex/full-duplex operation. The CP122 model includes a Fast/Gigabit Ethernet WAN port
- QoS / CoS packet prioritization for multi-services network with 802.1p and DiffServ supported VLAN 802.1Q supported

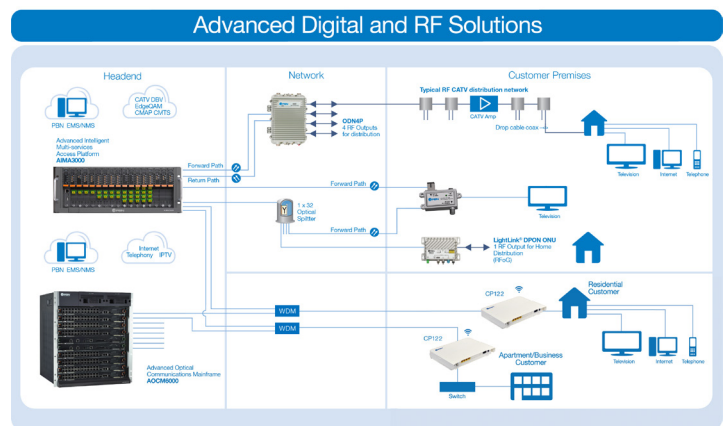
- SIP VoIP function with two POTS ports
- fully-featured Home Gateway functionality including NAT, Firewall and Access Control
- Wi-Fi capability 802.11 b/g/n
- Remote monitoring and management via configuration file download, SNMP v1/v2 (limited) and embedded web server
- Cost effective, compact unit. Ideal for in-home installation, either on a desktop or wall-mounted.
- Single-fiber network configuration, with dual-fiber option

Typical Application

The CP122 series devices are ideal for use in commercial as well as residential installations where cost-efficiency is of the essence. The application diagram represents a typical hybrid HFC-FTTx scenario with CATV overlay utilizing AIMA3000 technology from PBN.

When using PBN's NMS3 management system, the entire HFC-FTTx environment is able to be monitored and provisioned by the operator from a single screen.

For the CATV overlay components, the larger AIMA3000 carrier-grade RF headend solution can be scaled down based on operator needs to PBN's 1RU EDFA-R and LTE product line.



Specifications

Optical Interface

Operating wavelength	
CATV overlay	1550 nm ± 5 nm
Data TX	1261 ~ 1360 nm, typically 1310 nm
Data RX	1480 ~ 1500 nm, typically 1490 nm
CATV input	
Range	-8 dBm to +2 dBm @ 1550 nm
Nominal	-5 dBm @ 1550 nm
CATV control	ON/OFF
Data RX sensitivity	< -30 dBm @ 1490 nm
Data RX saturation	> -3dBm
Data TX output	> -14 dBm @ 1310 nm
Data speed	100/1000 Mbps
Typical link range	Up to 20 km on single-mode fiber
Optical isolation for CATV and data	> 30 dB
Optical connectors	
Single fiber	SC/APC (SC/PC for data only)
Dual fiber	LC/APC (LC/PC for data/voice only)

Ethernet Features

Interface	4x 10/100/1000 Mbps on RJ45, full/half-duplex, auto-negotiation, auto MDI/MDIX
VLAN	IEEE802.1Q
QoS	IEEE802.1p, Diffserv support
Frame size	64 to 10240 bytes
Management	SNMP v1/v2 (Limited) PBN EPSM NMS Remote firmware upgrade via Web & TFTP Auto-provisioning by DHCP option 66 and 67
IGMP	IGMP (V1, V2) proxy support
Security	Broadcast/Multicast storm suppression Access lists and filters

CATV Performance

RF output	20 dBmV (80 dBµV) ⁽¹⁾
RF bandwidth	45MHz ~ 1 GHz
RF flatness	± 1 dB typical; ± 1.5 dB maximum
RF return loss	> 14 dB
Control	ON / OFF by microcontroller (Data/CATV management)
RF connector	SCTE F-type

(1) Measured with PBN LTM15 test transmitter over 5 km fiber, set for -5 dBm optical input at 1550 nm with 4 % OMI.

CATV Link Performance

42 CENELEC channels (as per EN50083-3)	
CNR	> 48 dB
CSO	< -55 dBc
CTB	< -61 dBc
110 NTSC channels (as per NCTA standard)	
CNR	> 48 dB
CSO	< -55 dBc
CTB	< -61 dBc

VoIP Features

VoIP	SIP v2
Voice algorithms	G.711, G.723, G.726, G.729, GSM
Features	Call forward Call hold / release Call waiting Caller ID Line Echo Cancellation (LEC) Adaptive jitter buffer Packet Loss Concealment Comfortable Voice Generator Modem/Fax support (T.38)
DHCP	Option 66 & 67 Supports auto-provisioning
Phone connectors	2 x RJ11 (POTS)

Wi-Fi Features

Standards	802.11 b/g/n
WiFi Frequency	2.4 GHz
Wireless security	Wireless encryption: WPA2-PSK WPA-PSK WEP Open Other security features: Wireless MAC address filter
QoS	WMM-QoS (for multimedia applications)
Setup / configuration	WPS support (Wi-Fi Protected Setup) Configuration file Internal Web UI
Multiple SSIDs	Supports up to 4 SSIDs Default SSID pre-configured
Wi-Fi channel configuration	Automatic channel selection (based on congestion scan) – default Manual selection
Configurable parameters	Network mode Frequency (channel) Channel Width (MHz) Tx Burst Tx Power Toggle SSID Broadcast
Antennas	Internal Antennas

Specifications Cont.

Home Gateway Features

Gateway modes	Bridging mode Routing mode (NAT)
Configuration management	Internal Web interface Configuration file
DHCP server	Built-in DHCP server for consumer devices connected
Security features	Access lists & filters: IP address Protocol & port number MAC address filtering TCP flags
Routing features	NAPT, NAT, and pass-through (layer 2) RFC3489 (STUN) "port-restricted cone NAT" Static routes Port forwarding UPnP IGD 1.0 IPSec pass-through L2TP pass-through PPTP pass-through
Dynamic DNS	Dynamic DNS updates of outside NAT IP address to www.dyndns.org

General

Input voltage / current	12 Vdc, 1.5 A
Mains power adapter	100~240 Vac, 50~60 Hz, 0.5 A max.
Power consumption	< 16.0 W (fully loaded)
Operating temperature	-10 °C to +50 °C
Storage temperature	-20 °C to +70 °C
Operating / storage humidity	10 % to 90 % (non-condensing)
Carton dimensions (H x W x D)	400 x 240 x 95 mm
Packed weight *	1.85 kg
Shipping carton dimensions (contains 10 units)	500 x 500 x 400 mm
Shipping carton weight (contains 10 units)	20.5 kg

* Including AC Power Adapter and accessories.

Order Details

Model No.

CP122-00-VO-W-S-P	100/1000 M uplink, 4x GE, 2x POTS, Wi-Fi, 1x Fiber, SC/PC, no PS
CP122-TV-VO-W-D-S	100/1000 M uplink, 4x GE, 2x POTS, CATV 45~1000 MHz, WiFi, 2x Fiber, SC/APC @ CATV, LC/PC @ data, no PS
CP122-TV-VO-W-S-S	100/1000 M uplink, 4x GE, 2x POTS, CATV 45~1000 MHz, WiFi, 1x Fiber, SC/APC, no PS

Other model configurations available upon request (dual fiber). Minimum Order Quantities (MOQ) apply.

Accessories

AC Power Adapters

ONU10-PS-AU	PM/CP/DPON Power Adapter - with AU (Australia) plug
ONU10-PS-CN	PM/CP/DPON Power Adapter - with CN (China) plug
ONU10-PS-EU	PM/CP/DPON Power Adapter - with EU (Europe) plug
ONU10-PS-US	PM/CP/DPON Power Adapter - with US (United States) plug
ONU10-PS-CH	PM/CP/DPON Power Adapter - with CH (Switzerland) plug

Additional country-specific AC Power Adapters are available upon request.