About the Product

The PBN Multiple Access Unit (MAU) is a networking device designed for multiple apartment buildings, where existing coaxial cabling is used for in-house distribution.

The MAU functions as a receive-only or a bi-directional HFC optical node, together with a Gigabit EPON or an Active Ethernet* uplink and a master unit for Ethernet over Coaxial cable, all together in one small and sturdy enclosure.

The MAU is well suited for HFC networks. It provides high performance CATV delivery together with controlled high-speed broadband data access. Different configurations can be used to allow the MAU to function as a line extender, optical node, optical receiver, and EPON-ONU platform.

The unit integrates many distinct technologies. For the uplinks these are: Conventional Hybrid Fibre Coax (HFC), RF over Glass, Ethernet Passive Optical Networks (EPON), and Active Ethernet*.

The MAU integrates all of these technologies into one advanced and flexible networking solution.

* Contact PBN for Active Ethernet availability details.
MAU
Multiple Access Unit for HFC, RFoG, EPON

Features

- Advanced GaAs FET hybrid technology provides excellent performance.
- Several uplink technologies over one shared fibre core for multiple buildings, or multiple cores to each building.
- High performance CATV full bandwidth analogue cable television 45 ~ 870 MHz.
- Suits NTSC, PAL, DVB-C, DVB-T, SD (Standard Definition) and HD (High Definition) television standards.
- Optional RF return path optical transmitter, with 4.5 MHz pilot, and with FSK node status monitoring to suit RPQRM headend return path receivers. An RFoG uplink option is also available.
- Network monitoring and management via PBN NMS3 software.
- The unit can also be managed via a web browser. No specialised software is required.
Application Diagram – Using coax for CATV and Cat-5 for data distribution

Application Diagram – MAU on two fibres – with RF return path for DOCSIS

MAU-1-6585-DFB-S-0-0

Forward Path Receiver
85-870 MHz
DPX 6585
44 dBmV
5-65 / 85-870 MHz
KS – 5/8"

Return Path Transmitter
5-65 MHz
10/100

1310-1550 nm

1310 nm nm

110-240 Vac

Safety Earth

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Specifications

Optical Interface (Option Y = 1C, 1E, 2C, 2E)

**EPON Standard:** IEEE802.3ah

**Operating wavelengths**
- **RF forward:** 1550 nm ±5 nm
- **RF return:** 1310 / 1590 / 1610 nm ±5 nm
- **Data RX:** 1490 nm ±10 nm
- **Data TX:** 1310 nm ±20 nm

**Data RX sensitivity:** < -24 dBm @ 1490 nm
**Data RX saturation:** > -3 dBm @ 1490 nm
**Data TX output:** -1 ~ 4 dBm @ 1310 nm

**Line speed:** 1.25 Gbps duplex

**CATV input range:** -5 dBm ~ +2 dBm

**Nominal input:** -3 dBm @ 1550 nm

**Optical connectors:** SC/APC

**Data Ports (Option Y = 1C, 1E, 2C, 2E)**

**Fast Ethernet ports:** 4 x 10/100 Mbps copper ports on RJ45

**CATV Optical Receiver**

**RF bandwidth Option [V] =**
- **3045** 45 ~ 870 MHz
- **4254** 54 ~ 870 MHz
- **6585** 85 ~ 870 MHz

**RF output:** 44 dBmV

**RF flatness:** ± 0.75 dB

**RF return loss:** ≥ 16 dB

**RF output connectors:** KS 5/8”
MAU
Multiple Access Unit for HFC, RFoG, EPON

Forward-Path Link Performance

CNR: > 48 dB *
CSO: < -63 dBC
CTB: < -65 dBC

* Measured with 4% OMI, -5 dBm input, 44 dBmV per channel output, 5 MHz equivalent noise bandwidth, 42 CENELEC carriers (870 MHz).

HFC Return-Path Transmitter (Option W)

Laser types Option [W] =

<table>
<thead>
<tr>
<th>Laser Type</th>
<th>Description</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>FP</td>
<td>1 mW, 1310 nm, Isolated FP</td>
<td>1 mW, 1310 nm, Isolated FP</td>
</tr>
<tr>
<td>DFB</td>
<td>2 mW, 1310 nm, Isolated DFB</td>
<td>2 mW, 1590 nm, Isolated DFB</td>
</tr>
<tr>
<td>1590</td>
<td>2 mW, 1590 nm, Isolated DFB</td>
<td>2 mW, 1590 nm, Isolated DFB</td>
</tr>
<tr>
<td>R61</td>
<td>2 mW, 1610 nm, Isolated DFB with DOCSIS gating for RFOG</td>
<td>2 mW, 1610 nm, Isolated DFB with DOCSIS gating for RFOG</td>
</tr>
</tbody>
</table>

Option for RFOG compliant uplink transmitter without Pilot/SMS but instead with DOCSIS gated laser. Call for details.

RF bandwidth Option [V] =

<table>
<thead>
<tr>
<th>Bandwidth</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>3045</td>
<td>5 ~ 30 MHz</td>
</tr>
<tr>
<td>4254</td>
<td>5 ~ 42 MHz</td>
</tr>
<tr>
<td>6585</td>
<td>5 ~ 65 MHz</td>
</tr>
</tbody>
</table>

Return-path pilot: 4.5 MHz at -13 dBC
Status monitoring: Via FSK on 4.5 MHz pilot

General

Mains power supply: 110 ~ 240 Vac 0.2 ~ 0.5 A
Operating temperature: -10 ~ +45 °C ambient
Dimensions: 95 x 200 x 330 mm
Unit weight: 5 kg
Ship size: 320 x 400 x 160 mm
Ship weight & volume: 6 kg - 20.5 dm3
MAU
Multiple Access Unit for HFC, RFoG, EPON

Order Details

MAU-[U]-[V]-[W]-[X]-[Y]  Multiple Access Unit

**U** 1  1 x RF output port 44 dBmV (104 dBµV) on KS 5/8” - universal mains power supply

**V** 870  45 ~ 870 MHz – forward-path receiver only
3045  5 ~ 30 / 45 ~ 870 MHz RF diplexer
4254  5 ~ 42 / 54 ~ 870 MHz RF diplexer
6585  5 ~ 65 / 85 ~ 870 MHz RF diplexer

**W** 0  No return path

FP  Return-path transmitter with FP laser 1 mW (0 dBm) 1310 nm Pilot 4.5 MHz SMS
DFB0  Return-path transmitter with DFB laser 1 mW (0 dBm) 1310 nm Pilot 4.5 MHz SMS
DFB  Return-path transmitter with DFB laser 2 mW (3 dBm) 1310 nm Pilot 4.5 MHz SMS
R31  RFoG compliant return-path transmitter 2 mW (3 dBm) 1310 nm
R61  RFoG compliant return-path transmitter 2 mW (3 dBm) 1610 nm
1590  Return-path transmitter with CWDM laser 2 mW (3 dBm) 1590 nm Pilot 4.5 MHz SMS
1610  Return-path transmitter with CWDM laser 2 mW (3 dBm) 1610 nm Pilot 4.5 MHz SMS

**X** 0  No AGC, no SNMP agent

S  With AGC and with SNMP agent (for HFC part only)

**Y** 0  No data uplink

1C  With China Standard EPON uplink (point-to-multipoint), 4 x 10/100 Mbps local ports, with CWDM for CATV and EPON over a single shared fibre. (Requires OLT or OCTL in the headend).
1E  With IEEE802.3ah Standard EPON uplink (point-to-multipoint), 4 x 10/100 Mbps local ports, with CWDM for CATV and EPON over a single shared fibre. (Requires OLT or OCTL in the headend).
2C  With China Standard EPON uplink (point-to-multipoint) and 4 x 10/100 Mbps local ports, EPON and CATV over two separate fibres (or 3 fibres if there is an optional RF return).
2E  With EPON uplink (point-to-multipoint) and 4 x 10/100 Mbps local ports, EPON and CATV over two separate fibres (or 3 fibres if there is an optional RF return).
Accessories

MAU-ATT-[dB]  Plug-in attenuator pad, 0 dB to 18 dB in 1 dB increments.
MAU-FEQ-870-[dB]  Plug-in forward-path equalizer, 0 dB to 18 dB in 1 dB increments.
MAU-WDMR  Optical wavelength division multiplexer to connect MAU with EPON and duplex HFC to one uplink fibre core *(requires Option W=1590).*

For more information

Contact PBN for further information.

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