

# FTTx Solutions for Hotels and Resorts

Efficient Headends and service delivery with future-proof fiber optic solutions

## Abstract

---

Fiber optics systems have long been the chosen technology for high performance distributed networks when building solutions for high bandwidth services that are delivered in a variety of forms to multiple devices. PBN's flexible and space saving FTTx solutions are especially attractive due to the extreme efficiency of the high-density P2P / P2MP devices, ease of operation, and the comparatively low power consumption.

With a standard Ethernet (IEEE) solution, Fiber to the Room service is easily integrated using any existing ISP, connected either locally or hosted remotely. This offers simplicity and versatility in network management and provisioning for the owner.

PBN's FTTx system has a proven design that is simple and robust, tailored for the Hotel and Hospitality industry, resulting in a fast ramp-up time from design to deployment. In addition to having platform flexibility and a variety in service endpoint technologies, a custom design is possible even within the strict commercial deadlines required to by the demands of seasonal flows in the hospitality sector.

## Advantages

---

- Flexible Platform supporting both P2P and P2MP
- Low Power consumption
- Full end-to-end Quality of Service (QoS)
- High Density with a telecommunications grade 99.999% uptime
- Core network Layer 2 and 3 capabilities
- Open access network (OAN) supported
- 1 Gbps network endpoints supporting Bridge or Routing functions with Multi-SSID WiFi, VoIP, and CATV options
- Network management software and automatic customer provisioning
- Design and deployment support services

# FTTx Solutions for Hotels and Resorts

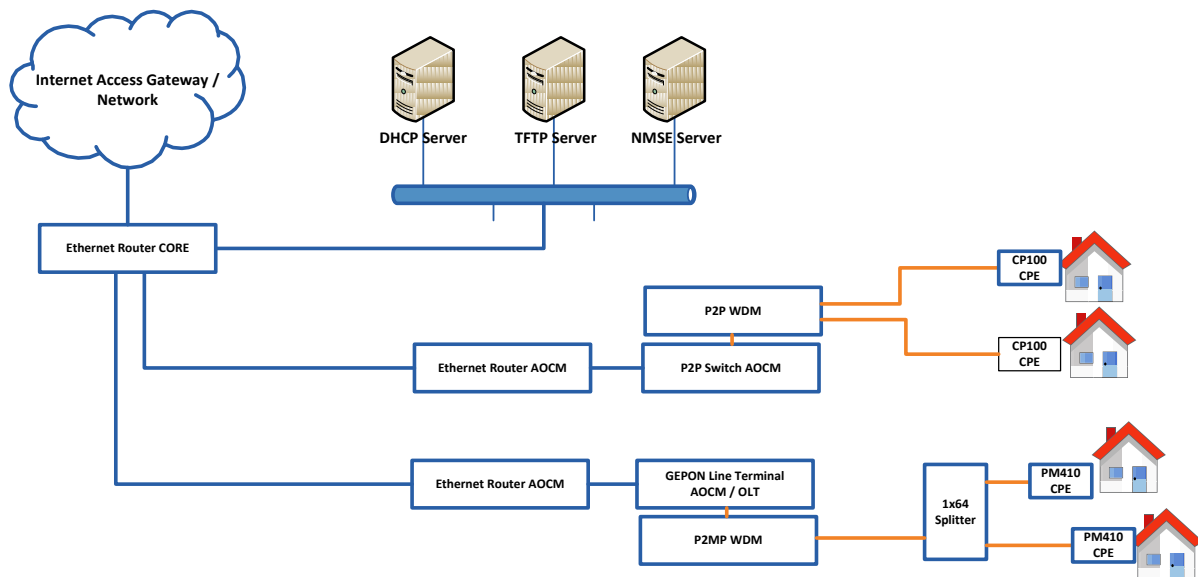
Efficient Headends and service delivery with future-proof fiber optic solutions

## Concept

The key to any FTTx solution is simplicity in design to maintain performance and uptime, especially when deployed in service critical environments.

For the Hotel and Hospitality industry, PBN's Fiber to the Room services are delivered with minimal cabling infrastructure (P2MP). In New Build and in existing facilities, ease of user access and flexibility can be assured by the use of multiple SSIDs over WiFi. Integrated endpoint features such as VOIP and PoE offer a diverse range of telecommunications solutions to the user. Multicasting protocol support enables Full HD IPTV delivery alongside traditional CATV (DVB) signal distribution over a single fiber.

The use of popular open source provisioning and monitoring mechanisms used in conjunction with well-known network architecture principles simplify operations and maintenance.

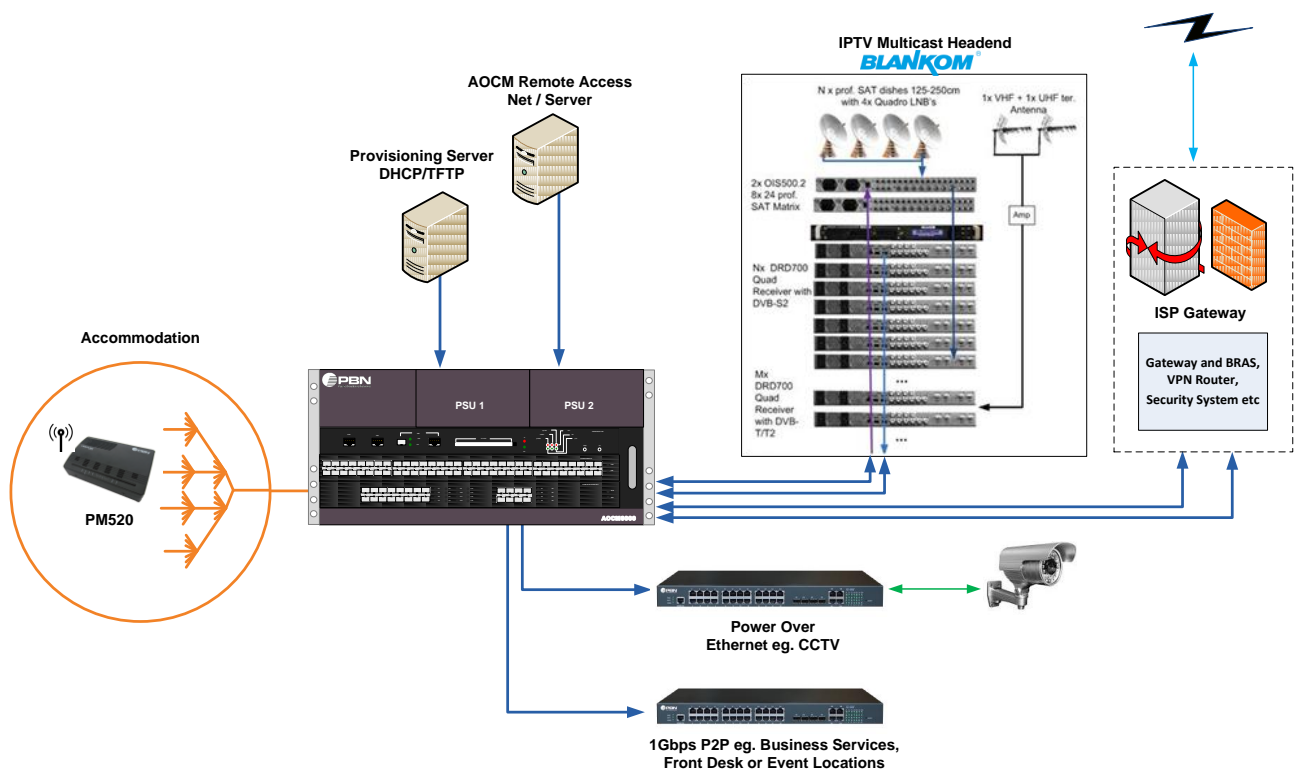


# FTTx Solutions for Hotels and Resorts

Efficient Headends and service delivery with future-proof fiber optic solutions

## Core Topology

Together with our partner Blankom, which already has extensive coverage in the fastest growing hotel sector in the Middle East, PBN is offering turn-key solutions from signal reception, processing, and distribution, from source to delivery on the guests' screen. Multiple options including traditional broadcast TV via DVB-C, linear TV broadcasting via IP, fully interactive systems with catch-up TV, video on demand as well as hotel portal and billing integration are available.



PBN's advanced fiber system core and well-integrated service components provide a light footprint solution, robust bandwidth, redundancy, and quality of service assurance, while maintaining flexibility and ease of maintenance.

- The AOCM product series provides managed and monitored network interfaces capable of directly connecting Local Area Networks (LAN) and servers as well as Wide Area Network (WAN) links
- Local services such as video servers or CCTV systems can stream High Definition IPTV and VOD content across the AOCM fiber network to accommodations, big screen entertainment areas, and hotel information systems
- Our Open-Source software solution approach allows for simplified comprehensive management at a low cost

# FTTx Solutions for Hotels and Resorts

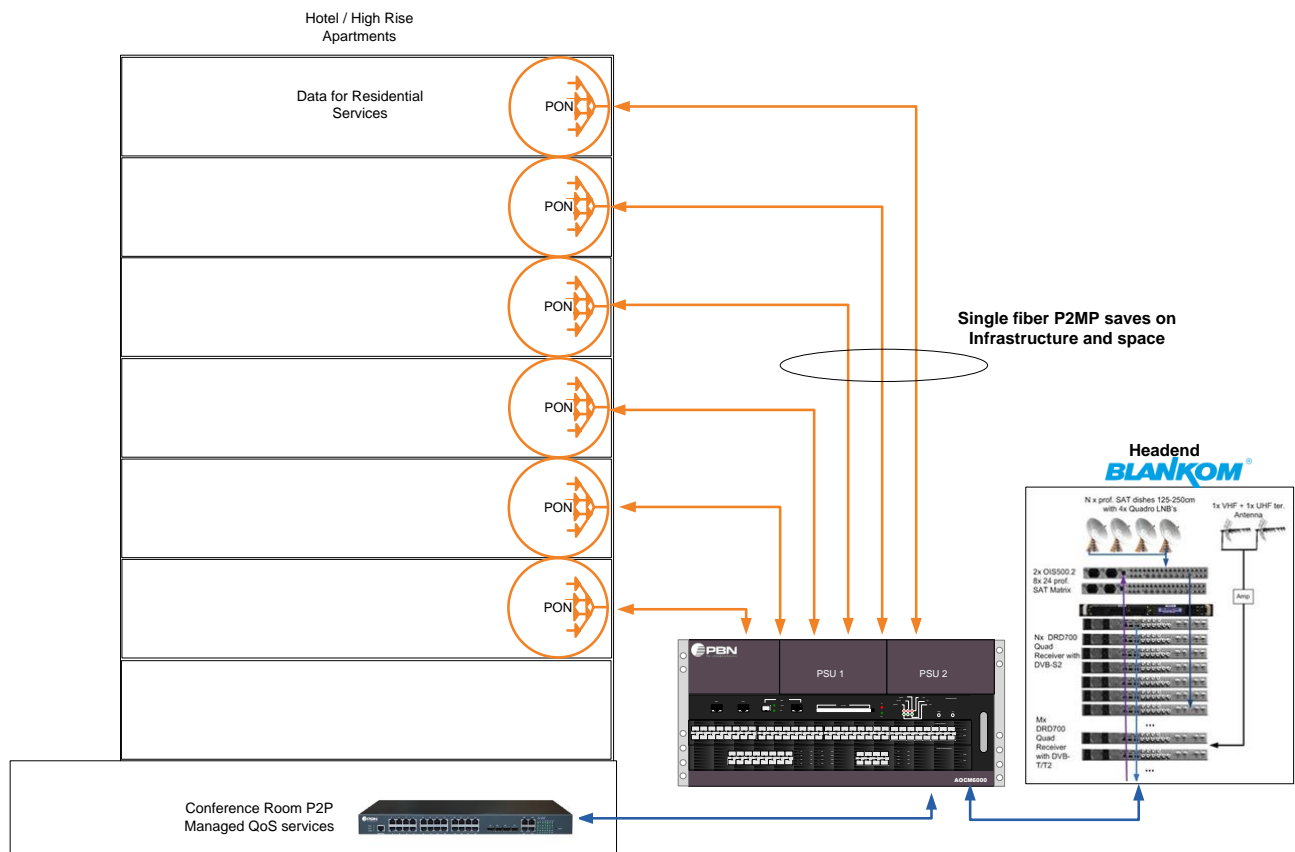
Efficient Headends and service delivery with future-proof fiber optic solutions

## Hotel High Rise - Fiber P2P / P2MP Hybrid

The AOCM's compact design enables distribution for all Hotel Services from a redundant core. A high-density port count and fiber distribution plant saves space, both in IT Back Offices as well as equipment cabinets within guest areas and corridors. Chassis are available in different sizes and are scalable.

In a typical high-rise installation, the AOCM would assign a PON port for each floor where passive optical splitters are located and connect the fibers to each room. Alternatively, the AOCM can be deployed for even more capacity and robustness using dedicated fibers and electrical cables for each room.

Nowadays, interactive TV systems deliver multicast and unicast streams through dedicated VLANs to TVs and set-top boxes. Based on actual operator needs, the solutions can be as simple as linear broadcast TV, or as complex as a fully integrated and interactive systems for video on demand services.



# FTTx Solutions for Hotels and Resorts

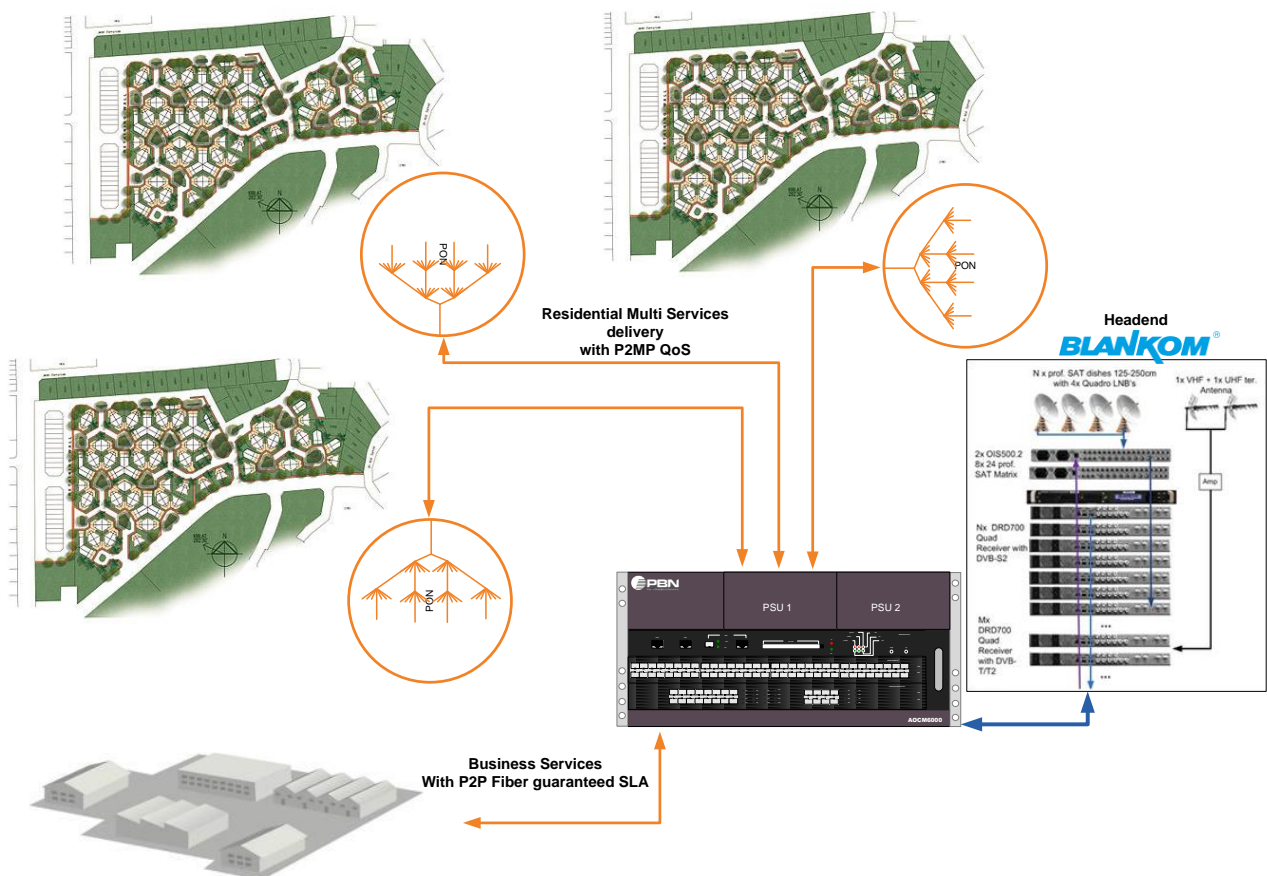
Efficient Headends and service delivery with future-proof fiber optic solutions

## Resort Cluster – P2MP / P2P Grouped Deployment

The ability to combine Multipoint (P2MP) and Point-to-Point (P2P) fiber links with the AOCM Platform provides flexibility in service delivery, quality of service, and adds the convenience of centralized management.

- Room services are grouped in symmetrical configurations for simple implementation, updates, and troubleshooting.
- Hotel services such as CCTV, IP Telephony, and Payment / Booking systems are reliably delivered over dedicated and redundant links.

In environments with longer links between clusters, the same technology applied in a high-rise deployment can be used. By default, PBN equipment supports a distance of up to 20 km between the central AOCM and an end-user device. Efficient use of fiber with passive optical distributed networks helps to reduce investment and operating costs (see diagram below).



# FTTx Solutions for Hotels and Resorts

Efficient Headends and service delivery with future-proof fiber optic solutions

## Related Products

### AOCM6000 Main Components – Chassis based ActiveEthernet & P2MP/GEPON solution

- AOCM-60-CH06** Chassis 19", 6RU, 2 line card slots, 1 controller slot, dual power supply slots, empty
- AOCM-60-CH09** Chassis 19", 9RU, 4 line card slots, 2 controller slots, dual power supply slots, empty
- AOCM-60-CH12** Chassis 19", 12RU, 8 line card slots, 2 controller slots, dual power supply slots, empty
- AOCM-60-B** Power supply unit 1 kVA 48 Vdc for AOCM-60-CH12
- AOCM-60-M** Power supply unit 1 kVA 110/230 Vac 50/60 Hz for AOCM-60-CH12
- AOCM-60-S** Power supply unit 600 W 110/230 Vac 50/60 Hz for AOCM-60-CH06/09
- AOCM-60-SCC-096** Switching and control card 96 Gbps (45 W)
- AOCM-60-SCC-192** Switching and control card 192 Gbps (50 W)
- AOCM-60-SCC-384** Switching and control card 384 Gbps (60 W)

### AOCM6000 Linecards

- AOCM-60-24FE-2GE** Line card, 24 ports 100 Mbps SFP + 2 combo ports 1 Gbps SFP/TX (52 W)
- AOCM-60-24GE-SFP** Line card, 20 ports 1 Gbps SFP + 4 combo ports 1 Gbps SFP/TX (55 W)
- AOCM-60-48GE-SFP** Line card (Enhanced), 48 ports 1 Gbps SFP, supports MPLS, Selective QinQ (109.13W).
- AOCM-60-24GE-TX** Line card, 20 ports 10/100/1000 Mbps TX + 4 combo ports 1 Gbps SFP/TX (46.47 W)
- AOCM-60-48GE-TX** Line card, 48 ports 10/100/1000 Mbps TX (88.48 W)
- AOCM-60-1x10GE** Line card, 1 port 10 Gbps SFP+ (37 W)
- AOCM-60-2x10GE** Line card, 2 port 10 Gbps SFP+ (46 W)
- AOCM-60-4x10GE** Line card, 4 port 10 Gbps SFP+ (60 W)
- AOCM-60-4x10GE-MPLS** Line card, 4 port 10 Gbps SFP+, supports MPLS (82.1W)
- AOCM-60-8PON-8GE-SFP** Line card, 8 OLT EPON interfaces and 8 gigabit SFP optical interfaces (excluding the OLT SFP optical module) (100 W incl. SFPs)
- AOCM-60-16PON-8GE-SFP** Line card, 16 OLT EPON interfaces and 8 gigabit SFP optical interfaces (excluding the OLT SFP optical module) (110 W incl. SFPs)

### CPE P2MP Devices

**PM520-00-VO-W-S-P (for installations with IPTV)**  
PM520 EPON-UPLINK+4GE+2POTS+WIFI/ROUTER

**PM520-TV-VO-W-S-S (for installations with DVB-C)**  
PM520 EPON-UPLINK+4GE+CATV+2POTS+WIFI/ROUTER

### CPE P2P Devices

**CP121-00-VO-0-S-P (data-only)**  
CP121 P2P CPE, 1xGE/FE Auto-Speed Uplink, 4xGE ports, 2xFXS telephone ports, single fiber, SC/PC, fiber organizer, PS order separately

**CP121-TV-VO-W-S-S (gateway and wi-fi solution – available single and dual-fiber)**  
CP121 P2P CPE, 1xGE/FE Auto-Speed Uplink, 4xGE ports, CATV 45MHz ~ 1GHz, 2xFXS telephone ports, 802.11b/g/n Wi-Fi, single fiber, SC/APC, fiber organizer, PS order separately

### AOCM3000 – 1RU Solutions for ActiveEthernet and P2MP (most popular models only)

- AOCM3948** AOCM3000 Aggregation Switch, 44x Gigabit SFP ports, 4x 10/100/1000TX/Gigabit SFP combo ports, 2 extendable 10G module slots (up to 4x 10G SFP+ ports), optional RPS backup interface, redundant RPS power supply not included
- AOCM3948TX** AOCM3000 Aggregation Switch, 44x 10/100/1000M TX ports, 4x ports 10/100/1000M TX/Gigabit SFP combo, 2 extendable 10G module slots (up to 4x 10G SFP+ ports), optional RPS backup interface, redundant RPS power supply not included
- AOCM3616-2x10GE** AOCM3600 OLT Series Switch, 16xGEPON OLT SFP ports, 4x 10/100/1000Mbit TX/Gigabit SFP combo ports, 2x 10Gbps SFP+ ports, PSU order separate

# FTTx Solutions for Hotels and Resorts

Efficient Headends and service delivery with future-proof fiber optic solutions

## POE Devices – for security (CCTV) and distributed Wi-Fi applications

### AOCM2408POE

AOCM2400 Access Series Switch, 8x 10/100 TX ports, 2x 10/100/1000 TX/Gigabit SFP combo ports, PoE Performance: 170W (including POE power supply) 8 ports at 802.3af or 5 ports at 802.3at power rating

### AOCM2416POE

AOCM2400 Access Series Switch, 16x 10/100 TX ports, 2x 10/100/1000 TX/Gigabit SFP combo ports, PoE Performance: 400W (including POE power supply) 16 ports at 802.3af or 12 ports at 802.3at power rating

### AOCM2424POE

AOCM2400 Access Series Switch, 24x 10/100M TX ports, 4x 10/100/1000M Gigabit/SFP combo ports, PoE Performance: 400W (including POE power supply) 24 ports at 802.3af or 12 ports at 802.3at power rating

## CATV Overlay Options – for traditional DVB-C broadcast TV

### LTE153-6000

Externally-modulated laser transmitters for larger networks or longer fiber distances.

### LT1550

Laser transmitter in 19" sub-rack 1RU, 1550 nm, 6~250 mW, for 45~1000 MHz CATV services, with SNMP/HTTP.

### EDFA

Erbium-doped fiber amplifier 19" sub-rack 1RU, 1550 nm, 20~1280 mW, up to 32 ports, with SNMP/HTTP.

### OSF-19

Optical splitters in 19" sub-rack. Standard units 4, 8, 16, 24, 32, 64 ports. Custom configurations made to order.

## Management Software

### NMS3-EPDM

*NMS3-EPDM software is required to configure customer service level agreements with upstream/downstream rate limiting, priorities and VLANs in EPON systems.*

### NMS3-Enterprise-II

Enterprise management software for larger networks.

*NMS3-Enterprise-II software is optional for the management of larger networks. The software features network mapping, schematics, alarm handling and a host of other features to enable networks to run smoothly.*

*(Refer to separate product datasheets for details.)*

## Headend Equipment from Blankom Antennentechnik GmbH and Hilkom Digital GmbH:

SAT-Router & Matrix:	Dishes, LNB's, OIS 500V2, SMA001
Professional Receiver: and streamer	DRD700 Quad Multi-stream Processor with selectable dual DVB-Frontends B-Nova - Modular Headend in a box (up to 24 DVB-Receiver in 1RU)
Encoder (4ch):	EMA 408 ... 708 (H.264 AVC or MPEG2-SD)
Compact Trans-Modulator:	SBL-Series (8to8), A-Line
Modulators:	A-Line EDGE Modulators (IP to PAL/QAM) B-Nova – IP to QAM/COFDM, DVB/ATSC and EPG de- & re-multiplexer



# FTTx Solutions for Hotels and Resorts

Efficient Headends and service delivery with future-proof fiber optic solutions

IPTV...

Partnering with several companies ... for different solutions and features from 1\* ... 5\*

## For more information

---

Please contact PBN for further information.

## Pacific Broadband Networks

### Offices

**Australia**, Melbourne : tel. +61-3-8561-1400  
**EMEA**, Netherlands : tel. +31-36-536-8011  
**China**, Beijing : tel. +86-10-5791-0655  
**Americas** : tel. +1-888-339-8805

[info@pbnglobal.com](mailto:info@pbnglobal.com)

[www.pbnglobal.com](http://www.pbnglobal.com)