# GR240LHR
## Fiber Gateway Wi-Fi 7

**GPON CPE Solution**

## Description

Targeted to PON FTTH termination scenarios, this compact multi-play Fiber Gateway Wi-Fi 7 features services such as High-Speed Internet, VoIP, and IPTV from a single box, being the right choice for Operators and Service Providers that want to deliver multiple and advanced services to residential customers and SMEs.

The architecture of this FGW is based on the ITU G.984.x recommendations, supporting full in-house multi-play services, enabling Data, Voice, and Video services through Ethernet, Wi-Fi, FXS, and USB standard interfaces. Four built-in RJ-45 Copper Ethernet interfaces are available for the LAN side, while Wi-Fi 802.11a/b/g/n/ac/ax/be is available for the WLAN side. FXS ports allow the connection of voice or fax devices featuring the SIP protocol. A valuable set of built-in LEDs provides fast and pertinent information to the user or the installer. This ultimate and low-power consumption device also delivers embedded IoT interfacing complying with Thread, Bluetooth, Zigbee and Matter interfaces.

This equipment includes a high-performance Wi-Fi technology that supports tri-band concurrent operation, complying with 802.11a/b/g/n/ac/ax/be standards, operating simultaneously on the 2.4GHz, 5GHz, and 6GHz frequency bands. Advanced MU-MIMO and Dynamic Frequency Selection (DFS) techniques allow an increase in the air interface throughput and range by mitigating the multi-user interference and the utilization of frequency bands allocated to weather radars.

This FGW is fully interoperable with 3rd party OLTs. The device can be remotely managed and configured, allowing operators to optimize OPEX and scale-up deployments by featuring auto-provisioning mechanisms (e.g., TR-069, OMCI, and DHCP).

## Business Benefits

- Compact, high-speed, and low-power consumption device for residential customers and SMEs;
- Multi-play services including Data, High-Speed Internet, VoIP and IPTV;
- Powerful tri-band concurrent WLAN interface, Wi-Fi 7 compliant;
- Explores the IoT business oportunities by exposing Bluetooth, Thread, Zigbee and Matter standardized interfaces;
- EasyMesh™ Wi-Fi compliance;
- Home Network Security (HNS);
- Mass remote management through OMCI (G.988), TR-069 and Matter standards, thus offering full remote control without user intervention.

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## Scenario
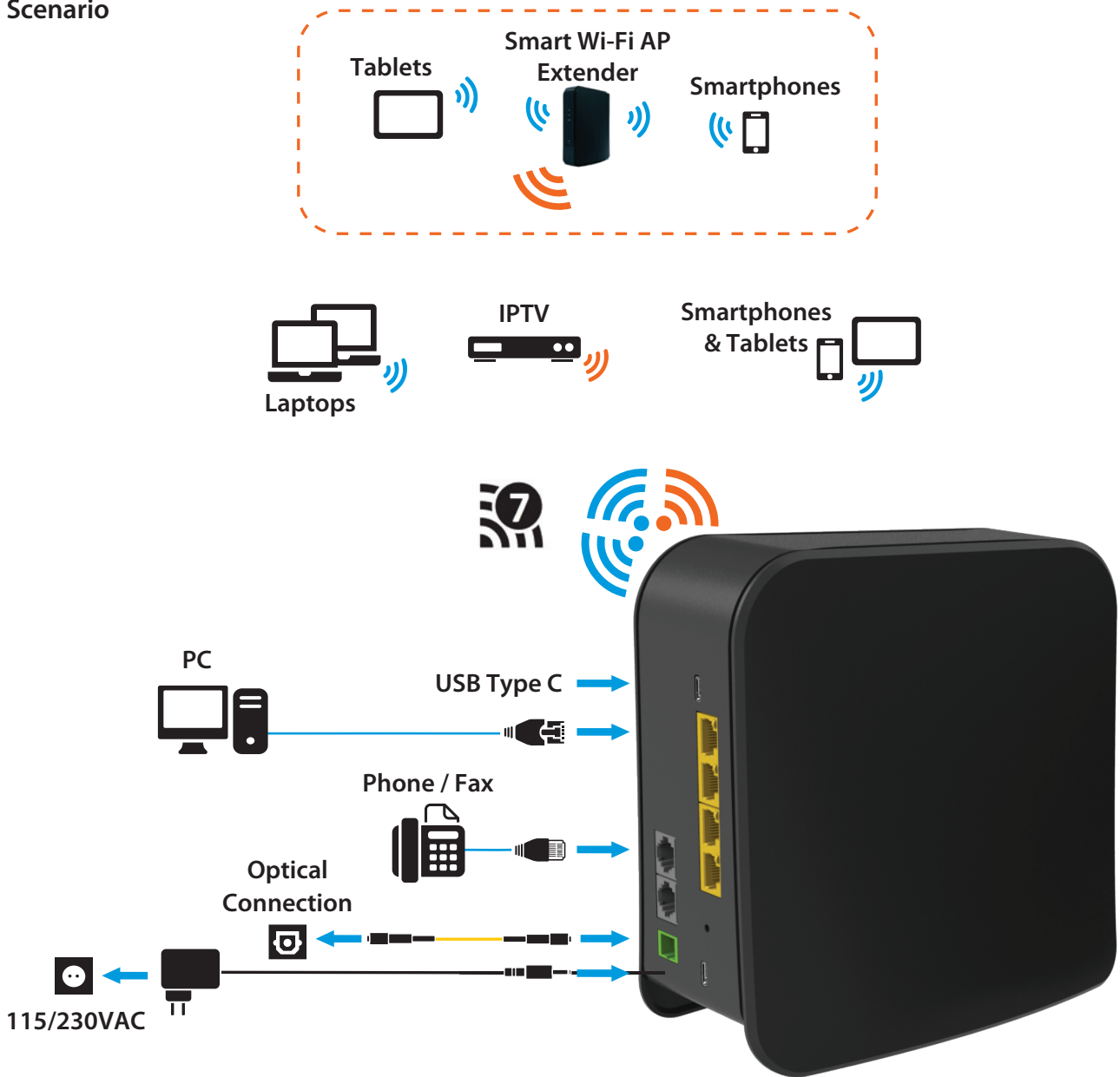


| Wi-Fi 2.4GHz 802.11b/g/n/ax/be | 2.4GHz @ 3x3 |
|---|---|
| Wi-Fi 5GHz 802.11a/n/ac/ax/be | 5GHz @ 4x4 |
| Wi-Fi 6GHz 802.11ax/be | 6GHz @ 4x4 |
| Thread | Open source mesh network IP-based protocol |
| Matter | Open source IP-based connectivity standard |
| Bluetooth Low Energy | Point-to-point, broadcast and mesh topologies |
| Zigbee | IoT |
| USB Type C | 1 |
| FXS Ports | 2 |
| ETH Ports | 3x10/100/1000Base-T<br>1x2.5GBase-T |

## Specifications

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|---|---|
| **WAN Uplink Interfaces** | G.984.2 GPON |
| **GPON layer per G984.x** | Compliant with GPON standards: ITU-T G.984.1 /G.984.2 /G.984.3 /G.984.4 /G.984.5 /G.988;<br>GPON Encapsulation Method (GEM) supports Ethernet;<br>Configurable AES (Downstream) and FEC (Downstream and Upstream);<br>Bitrates: 2.488Gbps (Downstream) /1.244Gbps (Upstream);<br>Support ODN loss up to 32dB;<br>T-CONTs: 32;<br>GEM Port-IDs: 255. |
| **L2/L3 layer** | VLAN-ID to GEM port-ID mapping (per TR-156i3):<br>   1:1, N:1 VLAN;<br>Transparent VLAN;<br>Classification: DSCP/TOS, 802.1p TCI, VLAN-ID, MAC address;<br>Traffic Management: up to 8 queues per T-CONT in priority-controlled mode or up to 16 queues per T-CONT in rate-controlled scheduling mode;<br>802.1q VLAN processing: Q-in-Q, tagging, removing tag, replacing tag or transparent forwarding;<br>IPv4; IPv6;<br>Routing: Network Access Translation (NAT) and Network Access Port Translation (NAPT);<br>Firewall; VPN;<br>DHCP Client and Server;<br>PPPoE Client;<br>Performance: 1 Gbps bidirectional;<br>Quality of Service (QoS) prioritization using 802.1p. |
| **IPTV** | IGMP v2/v3, and MLD (IPv6) snooping and proxy;<br>IGMP processing per VLAN ID to support group of channels;<br>Interactive services (Video On Demand);<br>Simultaneous IPTV streams: 128. |
| **VoIP specifications** | Call control: SIPv1/v2; T.38 Fax relay; Fax/Data bypass;<br>Echo canceller; Echo canceller length; Jitter buffer;<br>Caller ID generation; G.711 PCMU;<br>G.711 PCMA; G.723.1; G.726;<br>G.729; VAD and CNG; Caller ID and call waiting;<br>RTP/RTCP packet encapsulation; RFC 2833 Support;<br>In-band signaling detection and generation (DTMF, call progress tones);<br>Automatic Tone generation (dial, busy, ring back, stutter, distinctive ring); 3-Way conferencing. |
| **Services** | Content sharing:<br>  - UPnP Media Server;<br>  - DLNA DMS;<br>  - Metadata Support;<br>OSGI (Open Service Gateway Interface);<br>Internet of Thing (IoT);<br>Home Network Security (HNS). |

### Wi-Fi 7

Functionalities:
- 802.11be compliance;
- 802.1x authentication; External RADIUS authentication;
- WPA/WPA2/WPA3;
- AES and TKIP Encryption;
- Wi-Fi multimedia support: WMM and WMM-PS;
- Multi Link Operation (MLO);

- Additional 320MHz channels at 6GHz band;
- Additional 4096QAM modulation;
- Multiple SSIDs profiles;
- MAC address filtering integrated;
- WPS (Pushbutton and PIN entry);
- Hotspot 2.0;
- Band steering;
- Smart Mesh Wi-Fi.

Interfaces:
- Concurrent Mode 2.4GHz + 5GHz + 6GHz via internal antennas

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|---|---|
| - 2.4GHz: Compliant with IEEE 802.11b/g/n/ax/be with 3x3 MIMO | up to +20dBm EIRP(ETSI)<br>or up to +34dBm EIRP (FCC) |
| - 5GHz: Compliant with IEEE 802.11a/n/ac/ax/be and with 4x4 MIMO | up to +30dBm EIRP (ETSI)<br>or up to +34dBm EIRP (FCC) |
| - 6GHz: Compliant with IEEE 802.11ax/be and with 4x4 MIMO | EIRP[1]@6GHz: uup to +23dBm EIRP (ETSI) or up to +27dBm EIRP (FCC) |

[1] Wi-Fi power upper limit value depends on the country

- Channel Bandwidth: 20, 40, 80, 80+80, 160, 320
- Support of zero wait Dynamic Frequency Selection (DFS): 4x4 with weather radar detection
- Multi-User MIMO for better performance per user

Data rates:

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|---|---|---|
| 802.11a : 6, 9, 12, 18, 24, 36, 48, 54 Mbps | 802.11ac : up to 3400 Mbps | 802.11be (2.4 GHz): up to 1375 Mbps |
| 802.11b : 1, 2, 5.5, 11 Mbps | 802.11ax (2.4 GHz): up to 900 Mbps | 802.11be (5 GHz): up to 5760 Mbps |
| 802.11g : 6, 9, 12, 18, 24, 36, 48, 54 Mbps | 802.11ax (5 GHz): up to 4800 Mbps | 802.11be (6 GHz): up to 11500 Mbps |
| 802.11n : up to 600 Mbps | 802.11ax (6 GHz): up to 4800 Mbps | |

# GR240LHR

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|---|---|
| **POTS** | RJ-45 FXS port |
| **USB** | USB Type C |
| **Management** | Web-based with GUI;<br>Remote management through OMCI, PLOAM, OAM and Connected Home:<br>TR-069/098/104/111/140/142/143/181<br>Secure software download upgrade via OMCI or TR-069;<br>Embedded Telnet server for remote management;<br>SNMP V3; Zero-touch configuration; CLI. |
| **LAN**<br>**Ethernet interfaces** | RJ-45 10/100/1000Base-T;  Auto-negotiation support; Auto MDI/MDIX support;<br>RJ-45 1/2.5GBase-T; Auto-negotiation support; Auto MDI/MDIX support. |
| **Energy Efficiency** | EU CoC V8, EN 50563, EN 50564, EN 50581 |
| **Environment** | Temperature Range: +5ºC to +40ºC<br>Relative Humidity: 5% to 95% |

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|---|---|
| **EMC** | EN 301 489-1, EN 301 489-17, EN 55032, EN 61000-3-2, EN 61000-3-3, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-11 |
| **Safety** | IEC/EN 60950-1/62368-1 |
| **Radio** | EN 300 328, EN 301 893 and EN 62311 |

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|---|---|
| **Equipment Size (HxWxD)** | 184 x 94 x 184mm / 7.3 x 3.7 x 7.3" |
| **Net Weight** | 1081g / 2.4lb |
| **Power Supply** [1] | Primary: 230VAC, 50Hz or 115VAC, 60Hz;<br>Secondary: 12VDC/3A ± 15% |

[1] An LPS power source is used to power the ONT equipment:

- The ONT must be powered by an External CB approved  Limited Power Source (LPS).

**altice labs**