



# INNBOX F60

## Gigabit Ethernet FTTH Home Gateway

**By introducing latest design awarded fiber Ethernet access technology, Innbox brings carrier class high-end networking solution for advanced triple play services, including multiple HDTV channel support over local wireless network. Gigabit Ethernet FTTH Home Gateway Innbox F60 combines opto-electrical converter and powerful home networking engine in single device. It enables service providers to offer high-speed connections up to 1 Gbps in both directions with standard Ethernet technology. Furthermore, Innbox F60 enables multiple profile arrangement to gain symmetrical or asymmetrical connections from CO or remote access module deployments and to provide desired bandwidths even on longer subscriber loops – up to 20km with full throughput – since fiber optics technology enables it.**

The FTTH Home Gateway Innbox F60 supports delivery of all triple play services: internet data, Voice over IP (VoIP) and IP video including bandwidth consuming HDTV. It provides five full-gigabit Ethernet ports as well as wireless access point of the latest standard 802.11N/AC that brings relief to those troublesome wirings. Using concurrent dual-band (2.4GHz and 5GHz) WiFi technology, the delivery of user experience on all wireless devices is never compromised.

Two ports for telephony services are provided using Voice over IP technology compatible with SIP server environments. In addition, DECT base station is embedded in the Innbox F60 Home Gateway (optional).

With embedded firewall and IP sharing technology this Home Gateway delivers secure broadband Internet access to be shared by all connected clients.

Furthermore two USB2.0 host ports are available to enable value-added features such as file server, FTP server, printer server, hub or external 3G/LTE modem connectivity.

The FTTH Home Gateway Innbox F60 also embeds special Quality of Experience (QoE) monitoring client which enables on-line evaluation of data path all the way to HGW, which can reflect in significant lower OPEX of operator.

## Key Features and Benefits >

Powerfull Full Gigabit Home Gateway engine for offering 3Play services on broadband connectivity

Multiple interface options: USB2.0, Gigabit Ethernet, FXS for POTS, DECT, WiFi 802.11N/AC concurrent dual band 2.4GHz/5GHz, UPS, 3G/LTE (for backup connectivity)

Real 3Play proven Home Gateway to provide multiple HDTV IP streams

Fully featured Router and Firewall, secure wireless transmitting and authentication

Line rate routing performance

Embedded QoE monitoring solution

Support for centralized management node of multiple CPE (e.g. controlled mass remote SW upgrade and auto configuration provisioning), TR-069 compliant

Optional Fiber Termination Unit with RF Fiber-Coax converter

K.21 overvoltage protection on all wired interfaces

## TECHNICAL SPECIFICATIONS

Note: some features are hardware dependant;  
some feature may not be included in dedicated software release.

### WAN Specifications

#### FTTH P2P interface:

- 1x dual rate 100baseBX and 1000baseBX interface
- Interface type:
  - Bidirectional singlemode BiDi, 20km, Tx=1310nm / Rx=1490/1550nm
  - SFP cage (optional)
  - SC (for BiDi only) connector type

#### 3G Wireless/Mobile interface (optional, additional external module):

- 3G or LTE USB modem (external dongle)
- Networks supported: LTE FDD (Band 1/3/7/8/20), HSPA/UMTS (2100MHz, 900MHz), GSM/GPRS/ EDGE (850/900/1800/1900MHz)
- Data services supported: LTE-FDD R9 Cat 3 (100Mbps), HSPA+ (21 Mbps), HSUPA (5.76 Mbps), UMTS (384 Kbps), EDGE (237 Kbps), GPRS (85.6 Kbps)

### Local Interface

- 4 port Gigabit Ethernet 10/100/1000Base-TX (RJ-45)
- 1 port Gigabit Ethernet 10/100/1000Base-TX (RJ-45), reconfigurable to electrical Ethernet WAN
- Automatic MDI/MDIX crossover, Auto-negotiation and speed-auto-sensing, Half/Full duplex support
- Support for 802.1Q and 802.1p VLAN
- 2 port USB 2.0 host connectors
- Internal 802.11bgn WLAN Access Point, 2x2 MIMO, 2.4GHz (802.11an or 802.11ac 5GHz second band, concurrent operation; optional) internal antennas
- 2 port FXS (RJ-11) for POTS connection
- DECT base station, internal antenna (optional)

### Bridging

- Transparent Bridging (IEEE 802.1D)
- RFC2684 (RFC1483) Bridged
- VLAN tagging (IEEE 802.1Q)
- Service based tagging (SBT)
- Supporting QoS (IEEE 802.1p)
- Supporting IP and PPPoE packets filter function
- IGMP transparent snooping
- IGMP forking (optional)

### Routing

- IP routing: RIP1, RIP2, and static routing
- RFC2684 (RFC1483) Routed
- PPPoE client
- PPPoE pass-through
- DHCP client, server & relay (RFC2131)
- DDNS client & relay
- IP Multicast IGMP Proxy
- RTP Proxy

### Visual Indicators

- Broadband – indicates WAN connection status
- Internet – indicates IP connectivity status
- Data – indicates LAN connection status
- Wireless – indicates status of WLAN
- USB - indicates USB status
- Phone – indicates VoIP is ready
- DECT - indicates DECT operation
- Battery - indicates backup power operation

### USB2.0 applications

- File server (by using USB2.0 disk, flash or HDD), DLNA
- Printer server
- Hub connectivity
- 3G or LTE modem (optional)



reddot design award

### Security & QoS

- NAT (RFC3022) basic Firewall support with extensive ALG support
- Firewall with well known applications setup
- URL filtering
- Time Scheduler (parental control)
- DMZ/IP pass-through
- VPN pass-through
- ToS/DSCP to CoS mapping
- Bandwidth reservation
- Voice traffic prioritization

### Configuration & Network Management

- UPnP
- DLNA
- Simple port configuration
- DHCP server for IP management
- Telnet for local or remote management
- WEB for firmware upgrade and configuration
- WEB-based configuration and management (multi-level GUI)
- TR-069 data-frame model support, including TR-098, TR-104 and TR-106
- IxRave QoE monitoring client of Ixia® (optional) and TR-143 tools
- IPERF and TCP dump (optional)
- Buttons: WLAN, WPS, Reset

### Voice support

- Voice compressions G.711 (64kbps, A-law, u-law PCM), G.729ab (8kbps) - optional
- Line Echo Cancellation G.168 with configurable tail
- Voice Activity Detection (VAD), Comfort Noise Generation (CNG)
- Adaptive jitter buffer and Packet Loss Compensation (PLC)
- DTMF (tone) dialing, modem/fax tone detection and pass-through
- Supports SIPv2 (RFC 3261), RTP (RFC3550)
- Supports RTP Profile for Audio and Video Conferences with minimal control (RFC 3551)
- Supports RTP payload for DTMF events (RFC2833)
- Caller ID (Type-1 and 2)

### Wireless

- WiFi Protected Setup (WPS)
- WEP: 64 or 128 bits key length
- WPA/WPA2 (Wi-Fi Protected Access) in PSK mode or using EAP with RADIUS
- Access control list based on MAC address

### Power

- External 115-230 VAC, 50 - 60 Hz, 12VDC 2A - 2.5A (depends on variant)
- UPS connector (optional)
- Power consumption, less than 24W (depends on variant)
- K.21 overvoltage protection on all wired interfaces

### Physical dimensions

- 155mm x 230mm x 38mm (W x D x H), weight 0.5 kg

### Environment

- Operating Temperature: 5°C ~ 40°C, Humidity: 5% ~ 85% (non condensing), compliant with ETSI 300 019-1 -3, Class 3.1
- Storage Temperature: -25°C ~ +55°C, Humidity: 10% ~ 95% (non condensing), compliant with ETSI 300 019-1 -1, Class 1.2

### Optional accessories

- FTU with RF Fiber-Coax converter, Innbox C30
- 3G USB modem, Innbox WU520
- LTE USB modem, Coming soon...

### Certification

- CE, CB, RoHS, WEEE compliant

