Innbox Home Gateways

www.innbox.net
Innbox Home Gateways

Complete Set of End User Devices

Innbox Home Gateway product line encompasses a collection of VDSL2 and FTTH based products, supporting enhanced features for a top end-user triple-play experience.

For maximum flexibility, cost efficiency and advanced triple-play support of FTTx networks, Iskratel offers a unique universal home gateway that supports the ADSL2+, VDSL2, Ethernet (FTTB) and FTTH scenarios, all in one single device. Dedicated VDSL2 and FTTH products are also available. For FTTH P2P networks a design awarded solution is proposed fully-supported triple-play FTTH Home Gateways and a wall-mounted fiber termination unit.

Why Innbox Home Gateways?

- Logistics saving and reduces OPEX
  Unique universal access CPE solution gives logistics saving and reduces OPEX to mid-size multi-technology telco operators

- Awarded mechanical design
  Cost saving and revenue boosting design awarded Home Gateways with an unique Fiber Termination Unit

- Vast selection of interfaces
  Cost saving and revenue boosting design awarded Home Gateways with an unique Fiber Termination Unit

- Ultimate performance
  All available home gateways offer line rate routing performance

- Reduced crosstalk and increase line performance
  Seamless VDSL2 Vectoring support gives the ability to leverage the existing copper plant to drive significantly higher speeds (up to 100Mbps)

- Troubleshooting support
  Embedded QoE monitoring solution gives operators the opportunity to monitor, isolate and troubleshoot potential networking issues
Innbox V41

Compact & Cost-effective VDSL2 solution for newcomers in high-speed internet

Innbox V41 is cost-effective VDSL2 Home Gateway for newcomers to high-speed internet and multi-channel IPTV service. Innbox V41 Home Gateway embeds powerful home networking engine with advanced multimedia capability, ease of use, line rate routing performance and state-of-the-art wireless capability in a single compact design device for affordable price.

By choosing Innbox V41 Home Gateway operator gets much more cost-efficient solution for faster deployment and its users receive better quality of experience (QoE) for advanced triple-play services.

WiFi access point with support for multiple SSIDs that logically divide the access point into several virtual access points

IPv6 protocol support for eliminating scalability and security issues of service provider

Vectoring support for significant reduction of crosstalk levels and improvement of VDSL line performance

Innbox V51

Versatile Home Gateway for traditional or modern DSL and FTTB deployments

Innbox V51 is standard VDSL2 Home Gateway for traditional triple-play users with high-level expectations on choice of physical interfaces and flexibility. Innbox V51 Home Gateway embeds powerful home networking engine with advanced multimedia capability, ease of use, line rate routing performance and state-of-the-art wireless capability in a single device for affordable price. In addition traditional POTS terminal adapter is implemented in order to connect standard analog phones or fax machines.

By choosing Innbox V51 Home Gateway operator gets very versatile integrated access device that can be used in traditional DSL, FTTC+VDSL2 or even FTTB+Ethernet deployment scenarios, where either VDSL2 or Ethernet interface is used to connect home or office into the access network. Even more: automatic WAN detection function provides instant auto-configuration of the device. This leads to significant OPEX and CAPEX savings for the dynamical operators.

WiFi access point with support for multiple SSIDs that logically divide the access point into several virtual access points

USB applications supported to store and share the content within a home network or share printer with all home users

IPv6 protocol support for eliminating scalability and security issues of service provider

Fully utilizes modern Gigabit Ethernet Access – powerful networking engine

Vectoring support for significant reduction of crosstalk levels and improvement of VDSL line performance
Innbox V60-U is the only real carrier-class Universal Home Gateway on the market that combines ADSL2+, VDSL2, FTTB and FTTH modem and powerful home networking engine in a single device. Furthermore, Innbox V60-U offers Advanced Multimedia Capability, extended choice of physical interfaces, low energy consumption, ease of use, line rate routing performance and Concurrent Dual Band Wireless Capability in a single device for affordable price.

By introducing Innbox V60-U, the operator needs only one single stock-keeping unit - universal home gateway - since ONE PRODUCT COVERS ALL ACCESS TECHNOLOGY SCENARIOS (ADSL2+, VDSL2, Ethernet and FTTH). In the case of UPGRADING THE ACCESS TECHNOLOGY from ADSL to VDSL or FTTH, HOME GATEWAY REPLACEMENT IS NOT NEEDED. Even more, AUTOMATIC WAN DETECTION function provides instant auto-configuration of the device. This leads to significant OPEX and CAPEX SAVINGS for the dynamical operators. Home and SOHO users can enjoy availability of integrated dual band WiFi access point (2.4GHz and 5GHz band simultaneously), which reflects in INCREASED THROUGHPUT PERFORMANCE and usability in environments with dense concurrent WiFi access point.

Beside reach set of user interfaces of latest technology, the Innbox V60-U universal home gateway provide support to connect an UNINTERRUPTIBLE POWER SUPPLY (UPS) for high availability. This enable all connected wireless clients with independent power supply (tablets, smartphones, laptops, DECT handsets) to ENJOY UNINTERRUPTED SERVICE in case of local power down.

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First Class Triple Play Experience at the speed of light for Maximum
End User Flexibility and Operator’s OPEX Savings

Innbox F60 is the only P2P FTTH HOME GATEWAY on the market that offers ADVANCED MULTIMEDIA CAPABILITY, extended choice of physical interfaces, line rate routing performance and concurrent DUAL BAND WIRELESS CAPABILITY in a single device for affordable price. This means that operator gets superior FTTH CPE solution based on the latest technology, which is much more cost efficient, promotes faster deployment and its users receive better quality of experience (QoE) for triple-play services.

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Innbox F60

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
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<tbody>
<tr>
<td>3G</td>
<td>DLNA support to share multimedia content in a home network</td>
</tr>
<tr>
<td>IPv6</td>
<td>3G USB dongle for backup network connectivity (optional)</td>
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<tr>
<td></td>
<td>USB applications supported to store and share the content within a home network or share printer with all home users</td>
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<td></td>
<td>IPv6 protocol support for eliminating scalability and security issues of service provider</td>
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<tr>
<td>Costs</td>
<td>Fully utilizes modern Gigabit Ethernet Access – powerfull networking engine</td>
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<tr>
<td></td>
<td>Two TEL ports to connect analog phones or fax machines</td>
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<tr>
<td></td>
<td>Low power consumption</td>
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<tr>
<td></td>
<td>Dual band WiFi standard implemented for better coverage and better performance</td>
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<tr>
<td></td>
<td>Ensures low installation costs by short installation and setup time due to unique mechanical design</td>
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<tr>
<td></td>
<td>Overvoltage protection</td>
</tr>
<tr>
<td></td>
<td>UPS support to utilize high availability and provide uninterrupted service to wireless clients at local power down</td>
</tr>
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</table>

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Innbox F60
Innovative design for fast and simple fiber termination

Fiber Termination Unit

The Innbox C30 Fiber Termination Unit (FTU) provides fast and simple fiber termination at home, with which operators gain significant advantages over competitors, lowering installation expenditures by half, increasing revenue due to an increased number of connected customers and increased spending on newer, faster and more interesting broadband services. Last but not least, high customer satisfaction leads to lower customer churn and an increased customer base due to positive customer testimonials.

Simple upgrade with Innbox FTTH CPE

The foundation for connection is the base plate, which is inserted into the FTU on one side and attached to the wall on the other side. Innbox optical CPE (Innbox V60-U or Innbox F60) is slided using the "click on" principle, while CPEs of other manufacturers are connected via patch cables.

Fast, Simple and Flexible Installation

The Innbox C30 Fiber Termination Unit (FTU) enables various usability and installation options due to its highly flexible and modular design:

- It can be used solely for the termination of the physical fiber medium in customer premises, waiting for the end user to subscribe to telecommunication services;
- By integration of dedicated RF CATV receiver into the FTU, the Innbox C30 can be used as a wall outlet for highest quality CATV service;
- The FTU can also be used for an in-house, fiber-network extension and finally for the connection of various types of Innbox customer premises equipment (Innbox F60/V60-U) to introduce value-added IP broadband services.

In addition, various fiber types, such as fixed tube, micro duct and blow fiber, can be terminated in the unit. The installation and mounting of the unit on the wall was designed to be as fast and easy as possible.

High level of Fiber Protection – Robust Design

Since fiber is very sensitive medium, effective and lasting protection is one of the critical requirements. Over time many things can affect reliability of fiber cables and connections due to different indoor activities related to house reconstruction or even daily cleaning. The robust design of the Innbox C30 guarantees excellent fiber protection for years to come.

Cost Savings and Increased Revenues

With the Innbox C30 unit, the time needed to connect homes and offices directly to a fiber network is significantly reduced, which reflects in lower installation costs of connecting the end user to the fiber network. This has a positive effect on the business where the time-to-market and reduced labor stake in total investment costs are biggest constraints.

When using Iskratel modems (e.g. a home gateway Innbox F60) with the FTU Innbox C30, end users can install the equipment by themselves, connecting the active service module (modem) to the FTU using a simple “click-on” principle, dramatically speeding-up rollout, which can lead to important competitive advantages. Increasing monthly revenues can also be achieved with ease, since service provider can charge for the internet connection and other broadband services earlier and to more potential customers than if current, traditional rollout approach is used.

Future-Safe Concept

The Innbox C30 Fiber Termination Unit is designed to be used with Iskratel FTTH CPE or any other vendor equipment. When used with Innbox FTTH CPE, the connection between the FTU and the particular CPE unit is achieved with the simple and reliable “click-on” principle. When using other vendor active equipment the connection between equipment is made with a standard fiber patch cable. In addition, the Innbox C30 FTU provides space for fiber cable amortization (fiber organizer), a splice cassette, a RF module for CATV and the attachment of various optical adapters, making the system open and ready for different installation options that may appear in the future.
FTU Fiber Manipulation

1. Section of the FTU
The FTU consists of three parts. The bottom part is fixed to the wall, designed for the input and coiling of any excess optical fiber and the installation of the optical coupler for fiber extension or for the connection of the Innbox Customer Premises Equipment (CPE). The second part represents a splice cassette used for securing optical splices and WDM filters. The third part is the cover of the FTU. Its modular design enables the removal of certain plastic parts - blinds. In the case of a fiber extension or a CPE connection the plastic cover can be adapted easily.

2. Coiling of Excess Fiber
The FTU provides a dedicated place where remaining field fiber can be coiled and stored. The fiber can enter through lateral openings into the FTU or through the dedicated opening in the bottom of the FTU. The FTU is attached to the wall with screws.

3. Securing the Connectors for a Fiber Extension and the Connection of the Innbox CPE
The first picture from top to bottom shows the installation of the connector adapter for a singlefiber extension, the second picture shows the dualfiber extension, and the third picture shows the installation of the connector for the “click on” connection of the Innbox FTTH CPE.

4. Splicing and Securing of Optical Cables
Splicing of optical fibers and securing of the splice is provided in a specially designed cassette.

5. WDM Filter Installation
The WDM filter has a dedicated place in the splice cassette. The installation of the WDM filter in case of a common single fiber for the transmission of the broadband and CATV traffic is a fast and simple operation.

6. Extension from the Original FTU to the Next FTU
A preview of the connectors’ installation for a fiber extension, the preparation of the FTU opening for the connector access and the connection of the fiber cables in the FTU is shown here.

7. Installation of the RF Module
The drawing shows the installation of the RF CATV module into the FTU, the fiber connection to the RF CATV module and the preparation for the installation of the Innbox CPE. In this case the RF CATV module is powered via the Innbox CPE communication interface (bottom drawing).

8. Connection of the CATV and Power Supply
The FTU can be optionally equipped with the RF CATV module. In this case the FTU is powered directly from the attached power supply.
Solutions for CATV providers

Standalone RF CATV Solution – Solution 1

This solution is used when end customer (subscriber to telco service) is interested in CATV-only service and a CATV operator is ready to upgrade its distribution network from traditional HFC infrastructure, where final drops are based on coaxial cable, to new FTTH infrastructure, where final drop is fiber cable. In this scenario the Fiber Termination Unit Inbox C30 with an integrated RF Fiber-Coax converter Inbox CRF-01 is used, which terminates a fiber CATV distribution network. The CATV receiver converts an optical signal into a standard TV signal on coaxial cable, which can be used directly on any standard TV, without use of additional set-top box.

Combined IP + RF CATV (Dual Fiber) Solution – Solution 2

This solution is used when end customer (subscriber to the telco service) is interested in both IP and CATV services. In this solution each user is connected to the central office with two dedicated fibers. Each fiber carries different types of services. Communication and data services are transmitted through the IP/Ethernet network, and video broadcast through a CATV network. A "CATV" fiber is connected directly to the CATV distribution system.

Combined IP + RF CATV (Single Fiber) Solution – Solution 3

In scenarios, where distribution / final drop network is limited to single fiber strand, a WDM solution with single fiber can be used. In this single fiber solution the two signals are combined on single transport medium (wavelength 1310/1490 nm for IP/Ethernet communication and wavelength 1550 nm for CATV distribution) using dedicated WDM splitters on the Central Office (CO) and at the end user premises, where the WDM filter is integrated in the Fiber Termination Unit Inbox C30.