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Iskratel Innbox G11

GPON FTTH ONT in SFP format

Iskratel Innbox G11 is a complete, fully functional GPON ONT built into a standard SFP (Small Form-Factor Pluggable) enclosure that delivers a high-end home-networking solution for advanced triple play services to service providers demanding high-speed network connections.

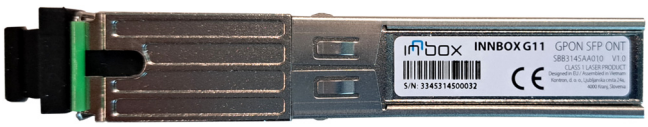
Iskratel Innbox G11 is compliant with ITU-T G.984 GPON standard, and designed for bridging applications. These are now easy to deploy by just inserting this SFP module into a suitable host device. Iskratel Innbox G11 delivers a full range of advanced IP voice, data and video services over a fibre-based broadband access network.

Iskratel Innbox G11 GPON ONT in SFP format delivers a full range of services: internet data, voice over IP and streaming video, including the bandwidth-consuming ultra-high-definition TV. Assured QoS and multicast video are supported in this smallest possible form-factor.

Iskratel Innbox G11 is ideal for converting an Ethernet WAN on a legacy device into a high-speed GPON uplink.

This pluggable device is the simplest way to provide a GPON ONU function to an Ethernet switch, an IP router, a set-top box, or to another home gateway or CPE device.

To extend these devices (hosting an on-board SFP port) with a GPON uplink conveniently, the end side of Iskratel Innbox G11 is a full-duplex, full-gigabit link with wire-speed throughput.



The device is hot pluggable and easy to install, while its small size makes it ideal in limited spaces. The support for dying gasp alerts the operator of loss of power to the host device, or removal of the Iskratel Innbox G11, which help pinpointing problems at a distance.

Iskratel Innbox G11 is compliant with standard OMCI and remotely manageable, supporting the full FCAPS including supervision, monitoring and maintenance.

Full gigabit throughput

Extreme versatility of deployment

Robustness and efficiency

WAN specifications

- Full compliance with ITU-T G.984 GPON
- Full compliance with ITU-T G.984.2 Amd2, Class B+
- Full compliance with ITU-T G.989.3
- Full compliance with ITU-T G.985 with WBF for interoperability with NG wavelengths
- Single bi-directional receptacle, with SC/APC connector
- DFB transmitter, 1310 nm, 1.25 Gbps upstream
  - Launch power from 0.5 dBm to 5 dBm
  - Mean launch power from 1.5 dBm to 4.5 dBm
  - Extinction ratio from 11 dB to 15 dB
  - SMSR > 35 dB
  - Turn on/off time at burst mode < 12.8 ns
- APD receiver, 1490 nm, 2.5 Gbps downstream
  - Input overload –8 dBm, sensitivity –28 dBm
  - Isolation to (1440..1450 nm), (1530..1540 nm) > 25 dB
  - Isolation to (1400..1440 nm), (1540..1625 nm) > 36 dB

GPON

- Eight T-CONTs per device
- 1–5 TCONT defined in G.984.3
- 32 TCONT (including OMCI TCONT)
- 32 GEM ports per device
- Multicast GEM Port
- Traffic mapping from one or more GEM ports to a UNI interface (physical or virtual) in downstream
- Traffic mapping from one or more UNIs (physical or virtual) to a GEM port in upstream
- Flexible mapping between GEM ports and T-CONTs in accordance with ITU-T Rec G.984.3
- Dynamic Bandwidth Assignment (DBA) payload processing in accordance with ITU-T Rec G.984.3
- Activation with auto-discovery of SN and password in conformance with ITU-T G.984.3
- AES-128 decryption with key generation and switching
- FEC (Forward Error Correction) per ONT in downstream and upstream
- 802.1p service-profile mapper on upstream
- Bi-directional GEM port per each class of service on UNI
- NRZ coding and encryption for the line code
- Performance monitoring
  - Defects and BIP errors
  - GEM port counters (transmitted/received frames/bytes)
  - Ethernet port counters
- Dying gasp support

SFP interface

- 1000Base-X Ethernet or SGMII, compliant with IEEE 802.3
  - Compliance with IEEE 802.3
- Supports rogue ONT messages
- Message-based transmit power on/off switching
- Emergency stop state with laser switch-off (DIS ONU)

Bridging

- Ethernet bridging/switching per IEEE 802.1Q
- Four traffic classes as per IEEE 802.1p
- Flow control as per IEEE 802.3n
- 128 MAC address entries
- No MAC learning, forwarding based on VLAN rules
- VLAN tag filter, tag operation, multicast based on G.988
- VLAN tagging/untagging
- VLAN stacking (Q-in-Q)
- MAC filtering, MAC binding
- 2000-byte max Ethernet frame size
- 4096-byte MTU
- Transparent pass-through of IPv6 frames
- GEM port, Bridge port, UNI port rate limit

Quality of service

- SP, WRR, SP+WRR in upstream
- SP in downstream
- 8 queues per R/S interface, one per traffic class (CoS)
- DSCP to CoS (802.1p) mapping

IPTV

- IGMP multicast
- IGMP v1/v2/v3 snooping
- Up to 256 multicast groups

Configuration and network management

- CLI
- OMCI
- Firmware upgrade from WAN side via TFTP, FTP
- Working and alternative image, with image rollback
- Restore to factory defaults via telnet
- Upstream fragmentation of data and OMCI packets
- OMCI messages (48-byte fixed or variable length)
- Built-in digital diagnostics (SFF-8472)

Power

- 3.3 V DC ±5%
- Consumption 1.7 W idle, 2.0 W full load at 25 °C
- Consumption 1.8 W idle, 2.2 W full load at 60 °C

Physical dimensions

- MSA-compliant SFP enclosure, hot pluggable, compliant with SFF-8472
- 74.7 mm × 14.1 mm × 12.4 mm
- Weight 31 g (with dust plug)
- Protrusion beyond SFP cage 27 mm

Environment

- Operating case temperature 0..85 °C, relative humidity 5..95% non-condensing

Standards compliance

- SFF-8472
- FDA 21 CFR 1040.10 & 1040.11, Class I
- IEEE 802.3
- ITU-T G.984.2 Amd2, Class B+, G.984.5, G.988, G.989.3
- IETF RFC 25168, RFC 281910 RMON-MIB, RFC 363511 EtherLike-MIB, RFC 26139 SMON-MIB
- BBF TR-15614
- Laser safety standard IEC-60825 Class I

Certification

- CE, FCC, IC, UL, CB, CDRH, UL, RoHS 3.0
- EN 55032/EN 55035
- ICS003
- FCC 15B
- UL 62368
- IEC 60825, IEC 62368

Some features are hardware-dependent.
Some features might not be included in dedicated software releases.

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