EFS-02

G.fast to Gigabit Ethernet Bridge CPE
in a standard size
Small Form-factor Pluggable-SFP

Overview

The **EFS-02** is an extremely compact **G.fast** to Ethernet Bridge CPE integrated in a standard SFP (Small Form-factor Pluggable) housing. Fully compliant to ITU-T G.9700/9701 it can deliver up to 1 Gbps aggregate data over a twisted copper pair.

EFS-02 allows providers to upgrade their existing Routers and Home Gateways with G.fast technology in order to support fibre-like speeds over existing telephone installations in no time.

It is the size of **EFS-02**, which makes the breakthrough! **EFS-02** is the world's first G.fast CPE mounted in a standard size SFP. Thanks to standard SFP size, **EFS-02** can be plugged in any existing CPE Router or Home Gateway equipped with SFP cage.

EFS-02 will accelerate FTTx roll-out while keeping down ISP's installation and management costs.

Since it complies with ITU-T K.21 standard for overvoltage protection, the pertinent DPU may be installed anywhere: on a pole, in a manhole, distribution point, basement, hallway...

› Smallest G.fast CPE SFP on the market!

› Support G.fast with up to 1 Gbps* line rate (*106a profile in short loop condition; actual performance may vary depending on network configuration and link conditions)

› Overvoltage protection: ITU-T K.21

Main features & specifications

WAN Interface
- Two-wire loop with 100 ohms line impedance in RJ-45 connector
- Broadband Standards Compliance
  - Fully compliant with the ITU-T G.fast Recommendation (G.9700 / 9701)
  - Supports ITU-T G.994.1 G.hs
  - Supports ITU-T G.997.1 with future extensions for G.fast
  - Support for ITU-T G.997.2
  - Support for IEEE 1588 Time Synchronization
  - Supported profiles: 106a profile
- Full G.fast Performance
  - Bandwidth: 2 – 106MHz (programmable)
  - Maximum PHY rate: 1 Gbps per line
  - Flexible downlink / uplink bit rate ratio
  - Co-exist with legacy technologies, e.g., ADSL and VDSL

Local Interface
- MSA (Multi-Source Agreement) compliant SFP connector
- SGMII / SERDES interface

LED Indicator
- Power / G.fast – Slow blinking indicates device is functioning and no line signal is detected, solid GREEN when G.fast line is linked in showtime

Environment
- Operation Temperature: 0°C ~ +75°C (SFP cage)
- Operation Humidity: 10% ~ 90% (non-condensing)
- Storage Temperature: -20°C ~ +85°C
- Storage Humidity: 10% ~ 90% (non-condensing)

Power
- DC input 3.3V
- Power consumption: Less than 1.5 watts

Overvoltage protection:
- ITU-T K.21

Physical Dimensions
- (W x H x L) 13.7 mm x 13.8 mm x 68.5 mm

Functionality

PHY-related
- Very low noise receive path
- Under -150dBm/Hz line reflected noise
- Robust with high immunity to disturbers
- Fast Online Reconfiguration (OLR)
- Fast train/retrain time
- Flexible DTU size

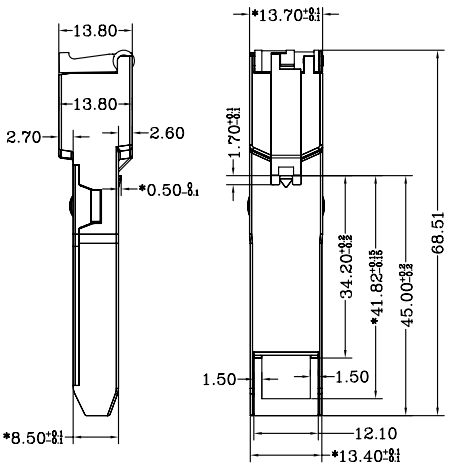
Interface
- SGMII over SERDES
- MDIO management master and slave with Clause 22 and Clause 45 support
- Ethernet MAC and PHY mode support

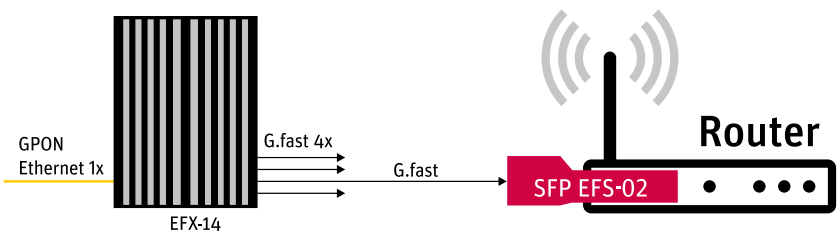
Time and Synchronization
- Time-of-Day (ToD) synchronization to external clock reference
- Synchronization using low accuracy management protocol, IEEE 1588 or one PPS signal
- 8KHz Network Time Reference (NTR) support between DP and CPE

Low Power Consumption
- Average active end-to-end transceiver power of < 1.5 watts
- Multiple power save modes lowering actual consumption under real life conditions
- Full discontinuous mode support for lower actual consumption under real-life conditions
- Support for L2.0, L2.1 low power states

L2+ Networking
- Up to 4 QoS priority queues per G.fast transceiver port
- "Learning Bridge" mode for DA to G.fast port mapping

Management and Configuration
- Unmanaged and managed (per G.997.2 via EoC) modes
- Configuration interface for customized functionality
- Upgradeable firmware, via EoC channel
- Full performance monitoring





Application with EFX-14 DPU/ONU: existing Router kept in place — future proof solution

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