



ZXHN F3100 Product Description



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Version	Date	Author	Reviewer	Notes
V1.0	2013/1/28	Yan Hong	Xiong Gang, Dong Weijie	Not open to the third party
V1.1	2013/4/16	Yan Hong	Xiong Gang, Dong Weijie	Updated Figure 1-1. Modified the descriptions of LED indicators in Table 3-2
V1.2	2013/4/19	Yan Hong	Xiong Gang, Dong Weijie	Modified as per the opinions of Wireline Product R&D Institute Updated Figure 3-2
V1.3	2013/5/30	Yan Hong	Xiong Gang, Dong Weijie	Modified as per the opinions of KPN: Increased all requirements description of KPN; Deleted 4.2 "Each LAN interface supports minimum 4 simultaneous VLAN connections"; Changed the product picture. Increased the standards compliance.

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1 Overview

1.1 Product Positioning

ZTE ZXHN F3100 V1.0 is a wall-mount P2P MC that leverages Realtek RTL8213M MC controller and RTX181-447 Optical Module of Wuhan Research Institute of Posts and Telecommunications. It is customized for KPN and is well suited to KPN U-FTU architecture (the U-FTU architecture is supported in the first phase and the FTU architecture will be supported later).

ZTE ZXHN F3100 V1.0 is applicable to FTTH scenarios, connecting Alcatel-Lucent DSLAM or corridor optical switch upstream and providing one GE interface to connect ZTE H220N and H368N CPE downstream. Figure 1-1 shows the appearance of ZTE ZXHN F3100.

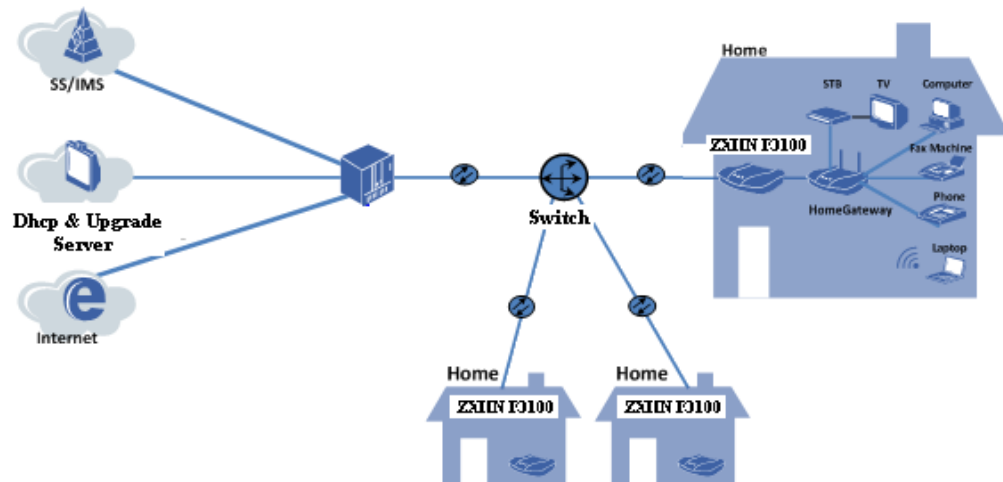
Figure 1-1 ZTE ZXHN F3100



1.2 Network Topology

ZTE ZXHN F3100 is a terminal device designed for FTTH application scenarios and provides one 10/100/1000M network interface for the subscribers. 错误！未找到引用源。 illustrates the network topology of ZTE ZXHN F3100.

Figure 1-2 Network Topology of ZTE ZXHN F3100



2 Highlights

2.1 High Reliability

- The full-service access capabilities featuring high bandwidth, high performance, high reliability, and easy OAM meet diversified requirements of the customer, protect the legacy investment, and enhance the value of the operator's network.
- The dual-image ensures uninterrupted services during software downloading or upgrading, thereby enhancing system reliability.
- The highly reliable lightning protection design provides lightning and surge protection of 4 kV for the adapter and 1.5 kV for the Ethernet port.

2.2 Green Design

- Complies with RoHS standard.
- Supports Code of Conduct on Energy Consumption of Broadband Equipment, version 4, 10 February 2011.

3 Hardware Features

3.1 Interfaces

As shown in Figure 3-1, ZTE ZXHN F3100 contains one network-side interface (SC/PC optical interface), one user-side interface (10/100/1000M Ethernet interface), and one power input interface.

Figure 3-1 Interface of ZTE ZXHN F3100



Table 3-1 Descriptions of ZTE ZXHN F3100 Interfaces

Interface	Function
Optical fiber interface	Supports SC/PC connector.
Ethernet interface	Supports 10/100/1000Base-T RJ-45 interface. Supports full/half duplex auto negotiation.
Power input interface	Working voltage: 12 V DC. The external AC/DC adapter inputs 90 - 264 V AC (50 - 60 Hz) and outputs +12 V DC for ZTE ZXHN F3100.

ZTE ZXHN F3100 uses the European standard power adapter with CE certification.

3.2 LED Indicators

Figure 3-2 LED Indicators of ZTE ZXHN F3100



Table 3-2 Descriptions of ZTE ZXHN F3100 LED Indicators

LED Indicator	Color	Description
Power	Green	Solid ON: Powered on. OFF: Powered off.
Glas	Green	Solid ON: WAN link on. Blinking: Traffic activity.
Ethernet	Green & Orange	Green LED solid ON: GbE link&activity. Orange LED solid ON: 10/100M link and activity.

4 Features

4.1 WAN Interface Features

- Provides P2P optical interfaces. The optical module uses SFF encapsulation and supports SC/PC connectors.
- Supports and is compatible with IEEE802.3 (1000Base-BX-10-U/100Base-BX10-U).
- 1310 (Tx)/1490 (Rx) nm wavelength for 1000M speed rate.
1310 (Tx)/1550 (Rx) nm for 100M speed rate.
- Supports IEEE802.3ah and WAN interface loopback.

- Meets 12 dBm optical power budget.
- Meets Class 1 laser product requirements.
- Transmission power: -3 – -9 dBm.
Receiving power: -3 – -22 dBm.
- Supports interworking with Alcatel_lucent ISAM PtP-fibercards and is compatible with IEEE 100BASE-FX and 100BASE-X.

4.2 LAN Interface Features

- Supports one IEEE802.3 10/100/1000 Base-T RJ45 LAN interface.
- Supports autosensing (10/100/1000M) and auto-MDI/MDIX functionalities at 1Gb/s. Supports full/half duplex auto negotiation.

4.3 LAN Interface Speed Following WAN Interface Speed

- The LAN speed follows DSLAM line speed.

If the WAN runs at 1Gbit, the LAN will select from 1000/100/10M using auto negotiation with the Route Gateway (RG).

If the WAN runs at 100M, the LAN will select from 100/10M using auto negotiation with the Route Gateway (RG).

4.4 VLAN Features

- Supports IEEE 802.1q VLAN.
- When ZTE ZXHN F3100 is updating its software, each Network Node Interface (NNI) and User Network Interface (UNI) supports double-layer VLAN tags (2 x 4 bytes).
- ZTE ZXHN F3100 webpage cannot be visited from the LAN side but can be visited via VLAN 255 from the WAN side.

- Each LAN interface simultaneously supports minimum 4 VLANs.

4.5 Ethernet Features

- Supports L2 protocol transparent transmission except for:

Pause

Ethernet EFM OAM

- The length of the forwarded Ethernet frames is no less than 1534 bytes.
- When VLAN and QoS functions are enabled, the processing capabilities of ZTE ZXHN F3100 meet 1000M full duplex requirements.
- Supports line-rate forwarding the packets with the packet length supported by ZTE ZXHN F3100.
- Supports dropping CRC error frames.

4.6 QoS Features

- Supports strict priority. The priority level 5-7 is higher than 0-4.

4.7 Version Upgrading Features

- The remote upgraded data traffic must have high priority level (5-7).
- Version upgrading can only be implemented on the WAN side. Only VLAN255 upgrading packets can pass and other packets are dropped.
- ZTE ZXHN F3100 supports obtaining IP addresses through DHCP option 60 that includes the software and hardware version information of ZTE ZXHN F3100.
- The DHCP request cycles include 1h, 2h, 4h, 8h, 16h, 24h.... After ZTE ZXHN F3100 is rebooted, the DHCP request cycle starts from 1h.

4.8 Security Features

- On the LAN side, ZTE ZXHN F3100 information cannot be viewed through logging in ZTE ZXHN F3100 webpage via the GE interface. When ZTE ZXHN F3100 is upgrading its software, ZTE ZXHN F3100 webpage can be visited via VLAN255 from the WAN side.
- ZTE ZXHN F3100 webpage does not need password protection. ZTE ZXHN F3100 webpage only supports upgrading and does not support configuration.

5 Technical Indices and Parameters

5.1 Physical Architecture, Environmental and Electrical Indices

Table 5-1 Specifications and Environmental Indices of ZTE ZXHN F3100

Parameter	Nominal Value
Net dimensions	211 mm x 103 mm x 33 mm (L x w x H)
Net weight	< 0.4 kg
Typical power consumption	< 3 W
Noise	None
Heat dissipation	Natural heat dissipation
Power supply	Rated 12 V DC (through external AC/DC adapter)
Mounting mode	Wall mounted on KPN mounting trays
Operating temperature	-5°C - 45°C
Operating humidity	10% - 85% RH (non-condensing)
MTBF	350,000 hrs
MTTR	30 mins

5.2 Optical Interface Indices and Parameters

Table 5-2 Optical Interface Indices and Parameters of ZTE ZXHN F3100

Parameter	Nominal Value
Connector type	SC/PC
Number of PON interface	1
Fiber type	Single-mode fiber
Wavelength	1310 (Tx)/1490 (Rx) wavelength at 1000M speed rate 1310 (Tx)/1550 (Rx) wavelength at 100M speed rate
Standard compliance of the PON interface	IEEE802.3 (1000Base-BX-10-U/100Base-BX10-U)
Output optical power	Minimum: -9 dBm Maximum: -3 dBm
Receiving optical power	-3 - -22dBm

6 Standards Compliance

Table 6-1 Standards Compliance

IEEE Std 802.3ah-2004	Media Access Control Parameters, Physical Layers and Management Parameters for Subscriber Access Networks
IEEE Std 802.1D-2004	Media Access Control (MAC) Bridges
IEEE Std 802.1Q-2005	Virtual Bridged Local Area Networks
IEEE Std 802.1ad-2005	IEEE Standards for Local and Metropolitan Area Networks—Virtual Bridged Local Area Networks—Revision—Amendment 4: Provider Bridges(Amendment to 802.1Q-2005)

IEEE 802.3-2005	IEEE Standard for Information technology—Telecommunications and information exchange between systems—Local and metropolitan area networks—Specific requirements Part 3: Carrier sense multiple access with collision detection (CSMA/CD) access method and physical layer specifications (Includes: IEEE Std 802.3ae-2002, IEEE Std 802.3af-2003, IEEE Std 802.3ah-2004, IEEE Std 802.3aj-2003, IEEE Std 802.3ak-2004)(Revision of IEEE 802.3-2002)
ITU_T K.21	Resistibility of Telecommunication Equipment Installed in Customer Premises to Overvoltages and Overcurrents
IEC/TS 61000-3-4	Limits - Limitation of Emission of Harmonic Currents in Low-Voltage Power Supply Systems for Equipment with Rated Current Greater Than 16 A First Edition
EN60950	Information technology equipment. Safety, General requirements
EN60825-1	Safety of laser products - Part 1: Equipment classification and requirements
EN60825-2	Safety of laser products - Part 2: Safety of optical fibre communication systems
EN55022	Information technology equipment. Radio disturbance characteristics. Limits and methods of measurement
EN55024	Information technology equipment. Immunity characteristics. Limits and methods of measurement

7 Acronyms

Table 7-1 Acronyms

Acronym	Full Term
FE	Fast Ethernet
FTTB	Fiber to the Building
FTTB/C	Fiber to the Building/Curb
FTTC	Fiber to the Curb
FTTCab	Fiber to the Cabinet
FTTH	Fiber to the Home

Acronym	Full Term
GE	Gigabits Ethernet
IP	Internet Protocol
ITU	International Telecommunication Union
L2	Layer 2
L3	Layer 3
LAN	Local Area Network
MAC	Media Access Control
OAM	Operations, Administration and Maintenance
QoS	Quality of Service
SFF	Small Form-Factor
TCP	Transmission Control Protocol
UDP	User Datagram Protocol
UNI	User Network Interface
VLAN	Virtual Local Area Network