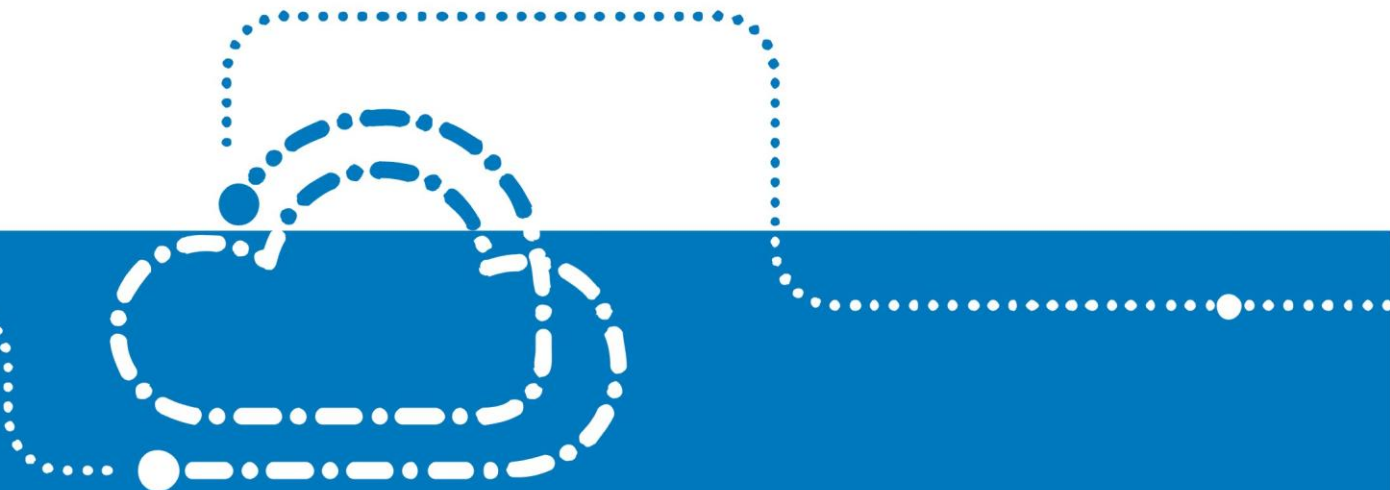




# ZXHN F3100 v2.0 Product Description





## ZXHN F3100 v2.0 Product Description

<b>Version</b>	<b>Date</b>	<b>Author</b>	<b>Reviewer</b>	<b>Notes</b>
V1.0	2015/12/16	ZTE		Not open to the third party

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# 1 Overview

## 1.1 Product Positioning

ZTE ZXHN F3100 v2.0 is the new generation of wall-mount P2P Optical Network Termination unit with for FTTH scenario including two subsidiary products, the first one is F3100 v2.0 which provides one GE interface and one P2P uplink interface, the second one is ZXHN F3100C v2.0 which not only provides one GE interface and one p2p interface uplink but also provides one RF interface and one CATV interface uplink. ZXHN F3100 v2.0 and ZXHN F3100C v2.0 are both customized for KPN and are well suited to KPN FTU architecture as Figure 1-1.

Within this product description F3100 v2.0 will be used as a total reference name for the two subsidiary products, only during elaborating the detailed difference will there be full name listed as ZXHN F3100 v2.0 and ZXHN F3100C v2.0.

Figure 1-1 KPN FTU architecture



ZXHN F3100 v2.0 is applicable to FTTH scenarios, connecting Alcatel-Lucent DSLAM or corridor optical switch upstream and the GE interface downstream connect to KPN ExperiaBox. Figure 1- shows the appearance of ZXHN F3100 v2.0 .

Figure 1-2 Casing Design of ZTE ZXHN F3100 v2.0

Remark: Below images are pure design, ZTE will update with real casing pictures after casing development finalized.



ZXHN F3100 v2.0



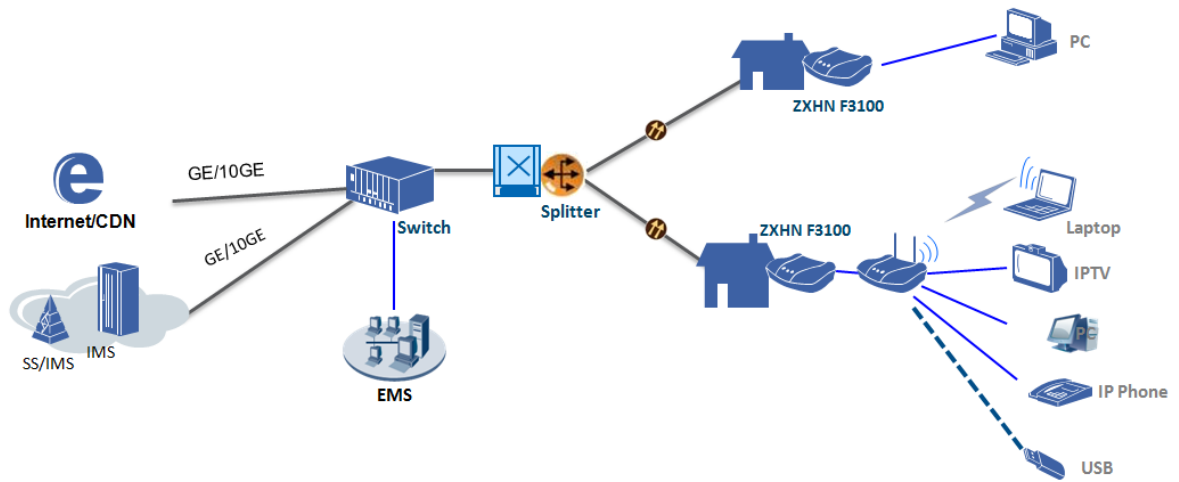
ZXHN F3100C v2.0

## 1.2 Network Topology

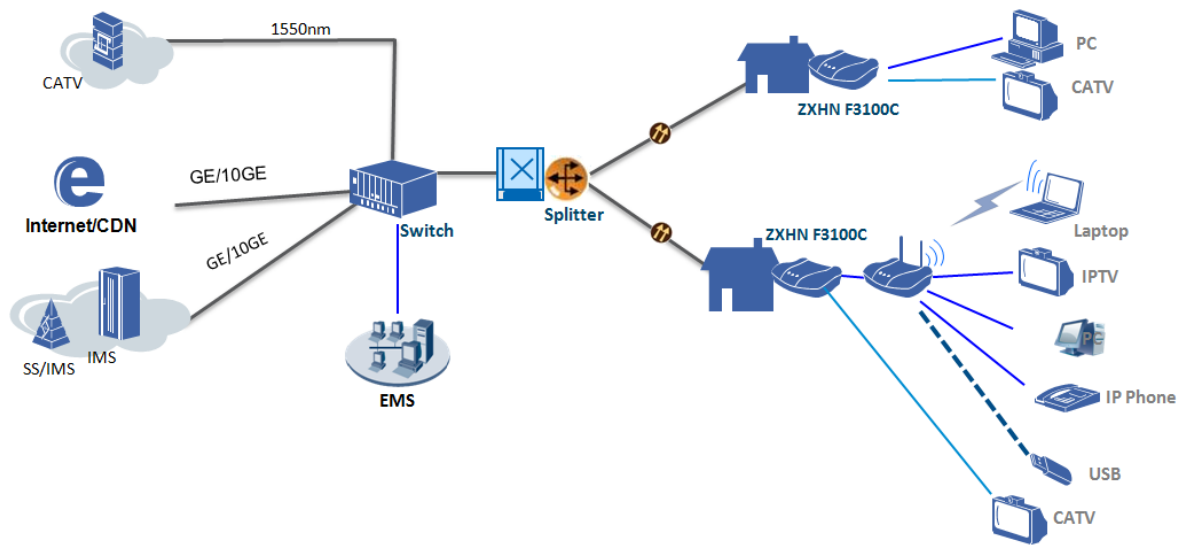
ZXHN F3100 v2.0 is a customized terminal device designed for FTTH application scenarios with one 10/100/1000M ethernet interface for end subscriber while F3100C v2.0 provides an extra RF interface for CATV application scenario. Figure 1- illustrates the standard network topology of these two devices.



Figure 1-3 Network Topology of ZTE ZXHN F3100 v2.0



ZTE ZXHN F3100 v2.0



ZTE ZXHN F3100C v2.0

## 2 Highlights

### 2.1 High Reliability

- The full-service access capabilities featuring high bandwidth, high performance, high reliability.
- The easy OAM and TR069 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.

## 3 Hardware Features

### 3.1 Interfaces

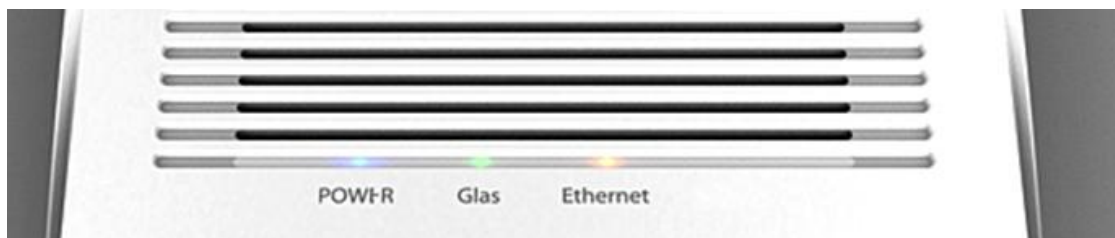
As shown in Figure1-2, ZTE ZXHN F3100 v2.0 provides one network-side interface (SC/APC optical interface), one user-side interface (10/100/1000M Ethernet interface), and one power input interface. ZTE ZXHN F3100C v2.0 provides two network-side interfaces (SC/APC optical interface and CATV), two user-side interfaces (10/100/1000M ethernet interface and RF interface), and one power input interface.

Table 3-1 Descriptions of ZTE ZXHN F3100 v2.0 Interfaces

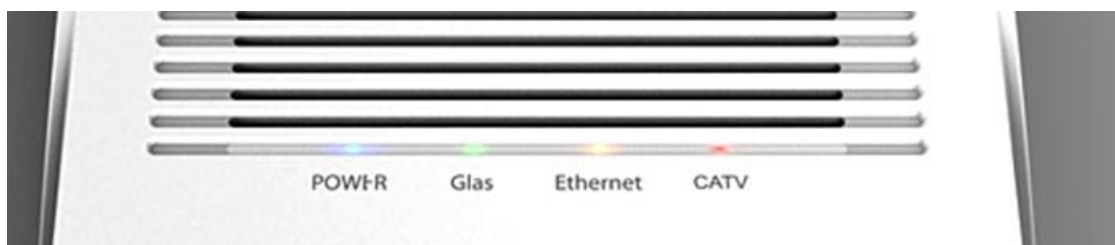
Interface	Function	
Optical fiber interface	Supports SC/APC connector	ZXHN F3100 v2.0 ZXHN F3100C v2.0
Ethernet interface	Supports 10/100/1000Base-T RJ-45 interface Supports full/half duplex and auto negotiation	ZXHN F3100 v2.0 ZXHN F3100C v2.0
Power input interface	Working voltage: 12 V DC The external AC/DC adapter inputs 90 - 264 V AC (50 - 60 Hz) and outputs +12 V DC	ZXHN F3100 v2.0 ZXHN F3100C v2.0
RF interface	Supports CATV	ZXHN F3100C v2.0
CATV input interface	Supports SC/APC connector	ZXHN F3100C v2.0

### 3.2 LED Indicators

Figure 3-1 LED Indicators of ZTE ZXHN F3100 v2.0



ZXHN F3100 v2.0



ZXHN F3100C v2.0

Table 3-2 Descriptions of ZTE ZXHN F3100 v2.0 LED Indicators

LED Indicator	Color	Remark
POWER	Green Blue	Green light for power on, off for power off. Red flashing for software upgrade. Blue for software upgrade
Glas	Green	Off for wan doesn't connect. Green light for WAN link on, Flashing for traffic activity.
Ethernet	Green Orange	Off for no ethernet link Green solid for Ethernet link is on 1000Mbps Green Flashing for transmitting/receiving data at 1000M Orange solid for Ethernet link is on 10/100M Orange flashing for transmitting/receiving data at 10/100M
CATV	Green Red	Red light for optical input below -12dBm. Green for 0~11dbm

## 4 Features

### 4.1 WAN Interface Features

- Provides P2P optical interfaces. The optical module applies BOSA on broad design and supports SC/APC 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 Class 1 laser product requirements
  - Transmission power: -5 – -9 dBm
- Receiving power: -3 – -22 dBm

## 4.2 CATV Input Interface Features

- Supports SC/APC connectors.
- Optical Wavelength 1290 ... 1600nm
- Optical Input Power -10 ... 0 dBm
- Optical Return Loss > 45dB
- Optical input status indicator (LED and Remote management) threshold -12dBm

## 4.3 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 auto-negotiating full/half duplex.
- Each LAN interface supports minimum 4 simultaneous VLAN connections.

## 4.4 RF Interface Features

- Type of connector F – female.
- RF Impedance 75
- RF Bandwidth 47-862 MHz

- RF Return Loss >18 dB (40 MHz / -1.5 dB/oct)
- Flatness  $\pm 1.5$  dB
- CNR >46 dB @ -10 dBm receiving, OMI 5%/ch  
CSO  $\geq 60$ dB @ -4 dBm receiving, OMI 5%/ch  
CTB  $\geq 60$ dB @ -4 dBm receiving, OMI 5%/ch
- "RF output level 66 ... 86 dB $\mu$ V typical (-10 dBm to 0 dBm, OMI 5%/ch)
  - 66 dB $\mu$ V typical @ -10 dBm receiving
  - 72 dB $\mu$ V typical @ -7 dBm receiving
  - 76 dB $\mu$ V typical @ -5 dBm receiving
- An internal over-voltage protector circuit MUST be used to protect the RF output interface compliant with IEC 61000-4-2 (protected to  $\pm 15$  kV).

## 4.5 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).

## 4.6 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.

## 4.7 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 dropping CRC error frames.

## 4.8 QoS Features

- Supports strict priority. The priority level 5-7 is higher than 0-4.
- The remote upgraded traffic must have high priority level (5-7).

## 4.9 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.

## 4.10 TR069 Features

- Supports optical input status checking remotely by TR069
- Support enable/disable CATV output
- Support enable or disable CATV output
- Support checking wan status, include Rx received power, Tx output power
- Support wan and lan speed checking remotely
- Support rebooting the MC remotely
- Support updating the software and checking the version remotely
- Support checking the MC mac and serial number remotely

# 5 Technical Indices and Parameters

## 5.1 Physical Architecture, Environmental and Electrical Indices

Table 5-1 Specifications and Environmental Indices of ZTE ZXHN F3100 v2.0

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)



Parameter	Nominal Value
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 v2.0

Parameter	Nominal Value
Connector type	SC/APC
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

## 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
GE	Gigabits Ethernet
IP	Internet Protocol
ITU	International Telecommunication Union

<b>Acronym</b>	<b>Full Term</b>
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