Product Catalogue of ODN

Si-GOU Technologies Co., Ltd.

1. Contents

2. Revision history

1. Revision 0 First official release @07-02-2013
2. Revision 1 release @15-03-2015
3. Revision 2 to add segment 8, the contact information @05-06-2020
4. Revision 3 to update document with new Logo and Company name @11-11-2020

3. Introduction

This catalogue covers the telecommunication infrastructure products between OLT (Optical line terminal) and ONT (Optical network terminal) for building an FTTx ODN network.
Basically, an ODN (Optical Distribution Network) network is totally a passive fiber optic access network, if don't consider the power supply for OLT and ONT.
This file shows FTTH and FTTB+DSLAM top-logical structures, and then lists rang of the ODN product from OLT to ONT.

4. FTTx solutions

1. Figure 4.1 shows the top-logical structure of FTTH combined with FTTB for new high-rise resident building, both RJ45 cable and fiber optic cable are already available.
   Project introduction:
   A residential building of 30 floors, and four apartments each floor. Most of the resident are young people, who want to access high speed broadband and have ability to afford it, some of them require FTTH access, and else need to share ONT.
   In consideration of the condition, we propose deploying an FTTH but partly combined with FTTB.

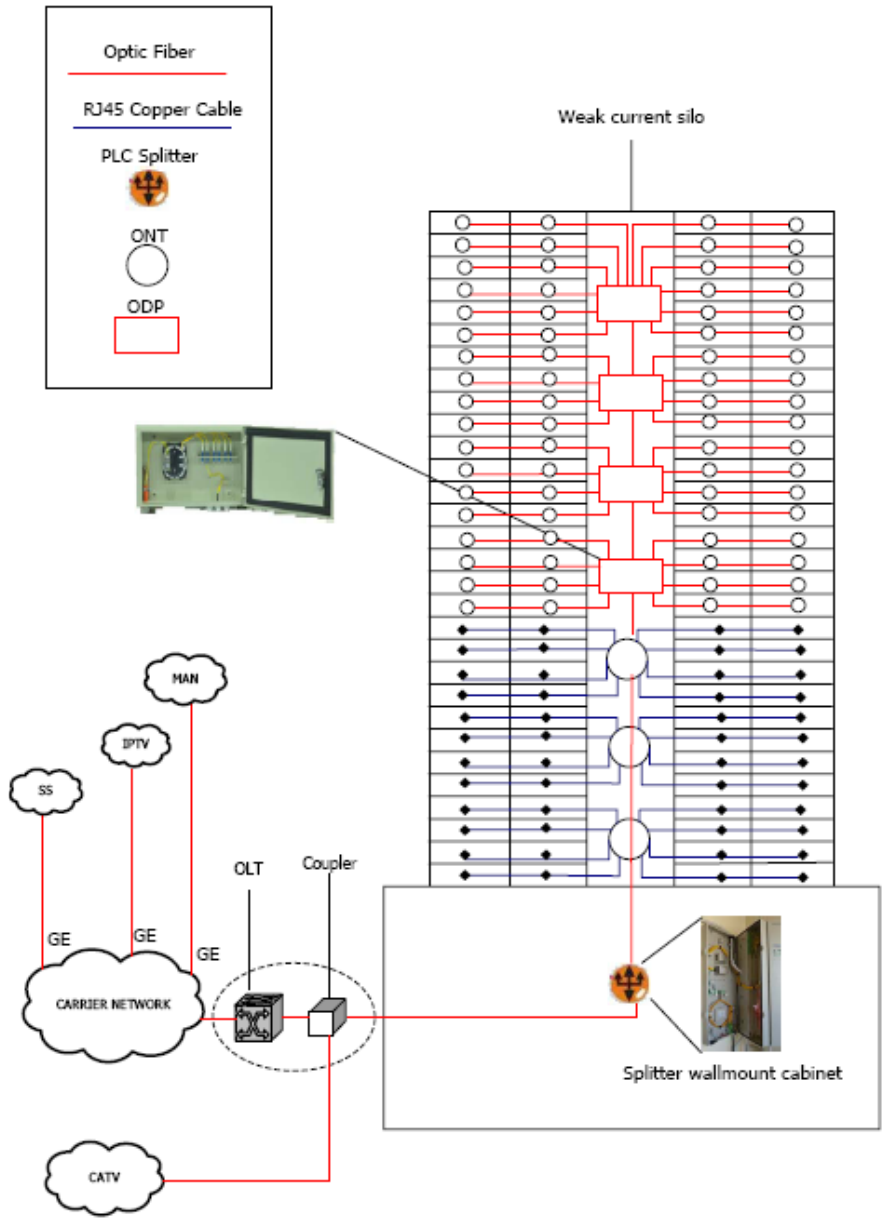


Figure 4.1, FTTH combined with FTTB for high-rise resident

2. Figure 4.2 shows the top-logical structure of FTTB+LAN for low-rise resident with RJ45 copper cable (Cat5) available or it is easy to build a new network with RJ45 cable.
   Project introduction:
   A residential building of 10 floors, and four apartments each floor. RJ45 cable is available for every apartment, for the reason of cost saving, we recommend to deploy an FTTB+LAN network. Because customer need to share the ONT, so it is also a LAN.
   Most of the physical access layer have been replaced by optic fiber except the last segment of RJ45 copper cable

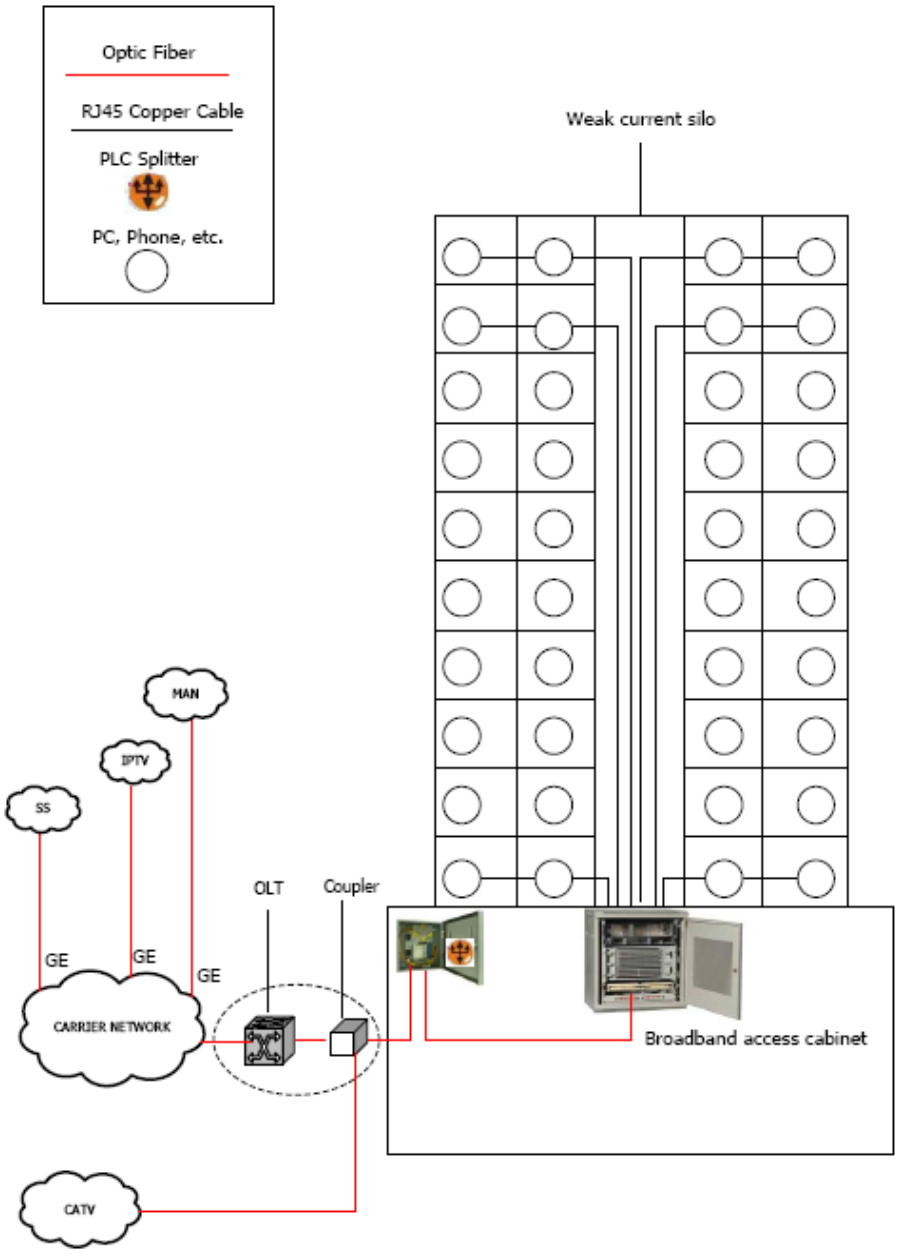


Figure 4.2, FTTB+LAN for high-rise resident

3. Figure 4.3 shows the top-logical structure of FTTH for High-rise resident and villa area.
   Project introduction:
   As the ultimate aim of broadband, it is FTTH without doubt.
   Figure 4.3 shows a path from OLT to ONT, fiber optic cable route both aerial and underground

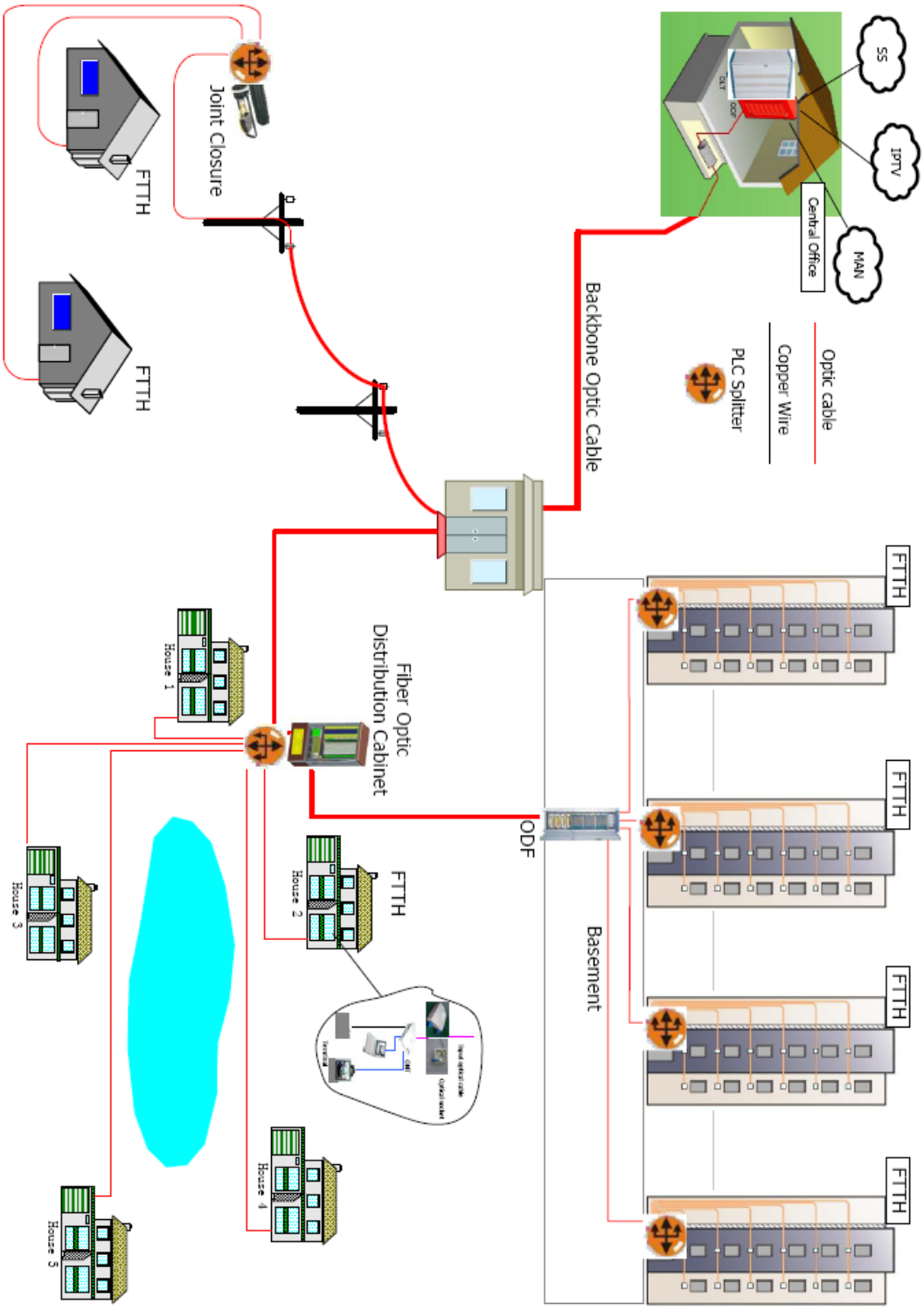


Figure 4.3, FTTH for high-rise resident and villa area

4. Figure 4.4 shows the top-logical structure of FTTN+DSLAM for a old resident building/area.
   Project introduction:
   Before: Over 2KM copper cable, no way to supply high broadband over it.
   Six residential buildings of 10 floors, and four apartments each floor. Because it is a old residential area, there is only RJ11 copper cable (telephone wire) is available and difficult to build a optical access network. For these reason of cost saving, we recommend to deploy an FTTN+DSLAM network there.
   It is same as the ADSL access from the sight of subscriber, who always needs a modem to connect computer by RJ11 copper cable (telephone line), However, most of the access physical layer have been replaced by optic fiber except the last segment of RJ11 copper cable.
   The DSALM euipment is installed in a outdoor enclosure, which is nereby the cross-connect cabinet, for the downstream output, such as ADSL2/2+ or VDSL will connect to the cross-connect cabinet directly. It reduces the length of copper cable sharply and ensure a more higher broadband transiting over it than before.

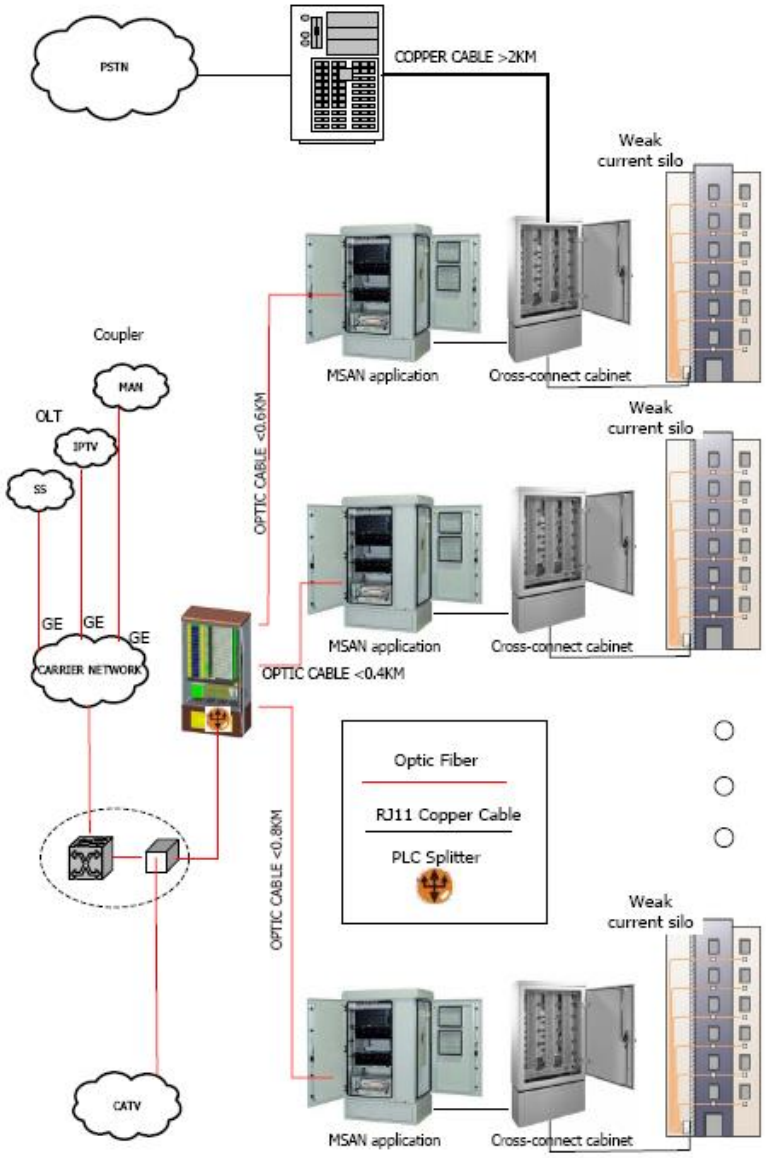


Figure 4.4, FTTB+DSLAM for old residential area

5. Indoor ODF product series

Overview:

The ODF (Optical-fiber Distribution Frame) are used for connection and patching of optical cables, mainly used as the interface between optical transmit network and optical transmit equipment and between optical cables in access network of optical fiber subscribers.

Operation indices：

- Nominal wavelength: 850nm, 1310nm, 1490nm and 1550nm.
- Optical connector: conforms to the specifications in YD/T826-1996, YD/T895-1997, YD/T896-1997 and related standards.
- Fiber / cable: conforms to the specifications in GB/T15972-1998 and GB/T7424-1998.

Product Features:

- Flexible configuration, and smooth expansion and upgrade.
- Configuration of optical entry unit, which makes entry, grounding and mounting of optical cable reliable.
- Off-frame operation on the fiber splice tray, protect fiber splicing points and store redundant fibers.
- Clear identification for the termination and distribution of each fiber.
- Provision of fiber storage for redundant patch cords.
- Whole cabling protection design to guarantee fiber-bending radius is more than 40mm.
- Provision various accessories to protect fiber from accidental damage.

Performance Indexes:

- Adapter loss (insertion, interchange, repetition) ≤ 0.3dB.
- Return loss PC≥45dB, APC≥55dB.
- Push-pull durability life>1000 times.
- Insulation resistance between high-voltage protection ground and rack (cabinet) >1000MΩ (DC 500V).
- Dielectric withstanding voltage between high-voltage protection ground and rack (cabinet) ≥ DC 3000V for 1min without arcing and breakdown.

OMDF (Optical Main fiber Distribution Frame)

Table 1 product list of OMDF

Models	Subscriber side			Equipment side	
H×W×D, mm	72C unit	12C splicing tray	Max capacity	96C Patch Panel	Max Capacity
2000×720×600	9	54	648	6	576
2200×720×600	10	60	720	7	672
2600×720×600	12	72	864	8	768

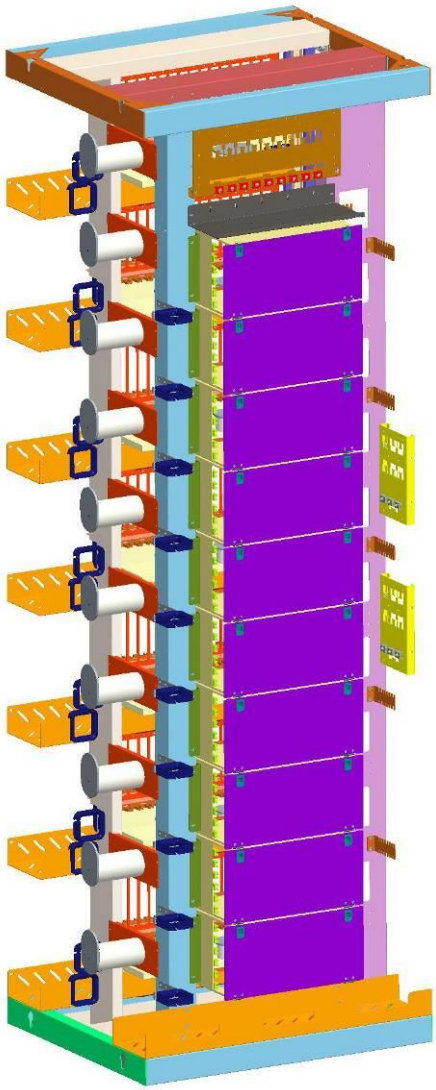
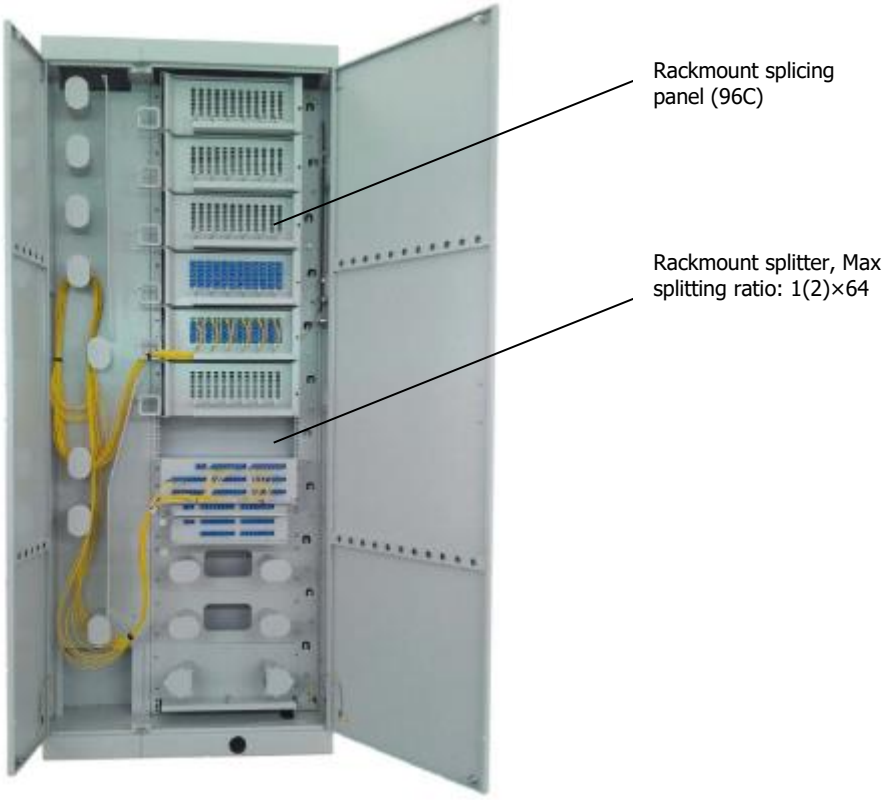


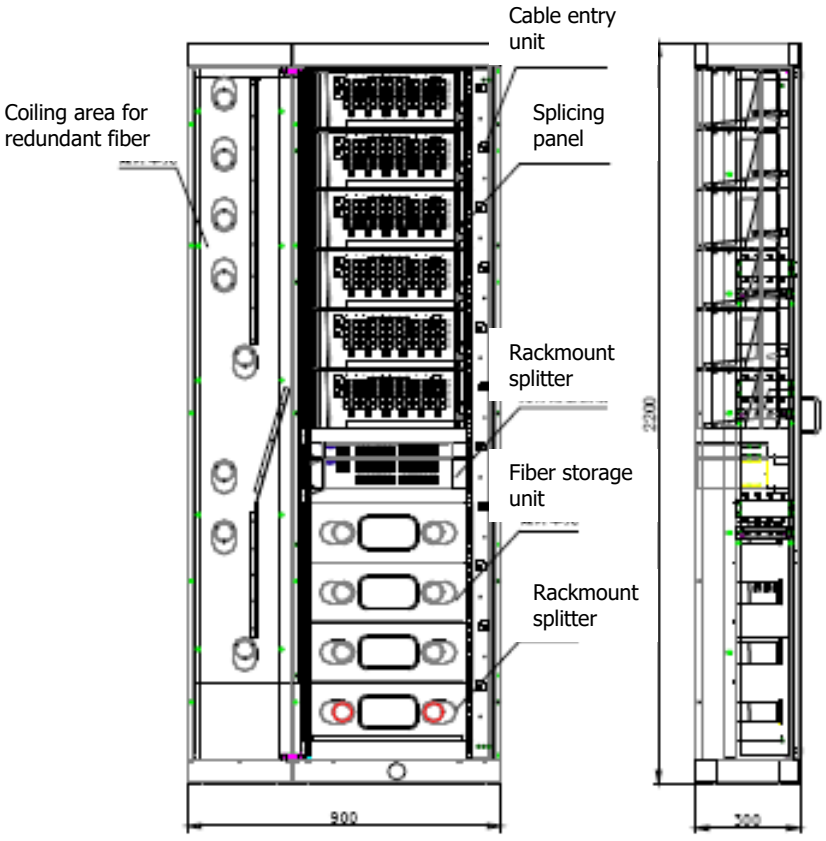
Figure 1 product structure of OMDF

ODF (Optical fiber Distribution Frame, for splicing and splitting, close style)

Table 2 product list

Models, H×W×D, mm	remarks
2200×900×300	19" mounting rack, 47U

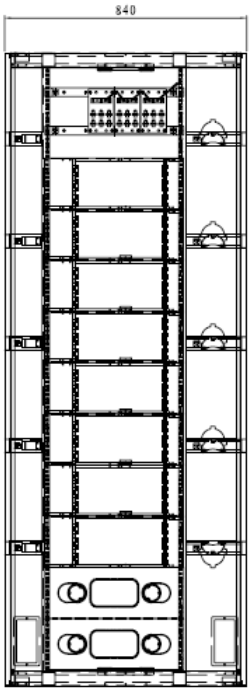


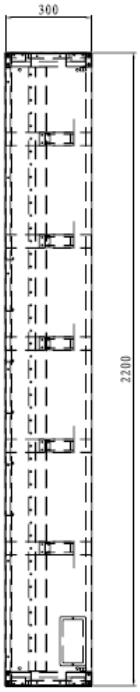


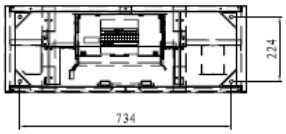
ODF (Optical fiber Distribution Frame, for splicing, open style)

Table 3 product list

Models, H×W×D, mm	Max capacity (Cores)	remarks
2000×840×300	504	19" mounting rack, 47U
2200×840×300	576	19" mounting rack, 47U
2600×840×300	720	19" mounting rack, 47U



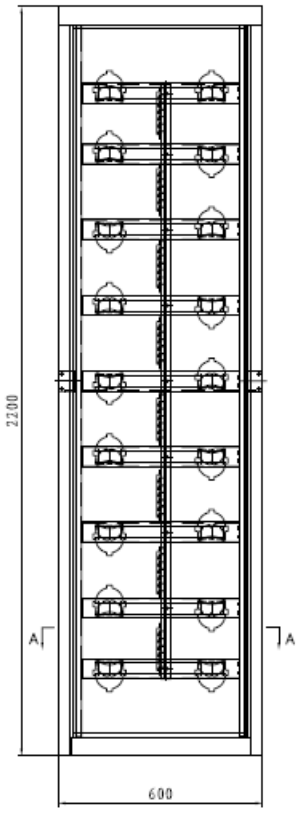




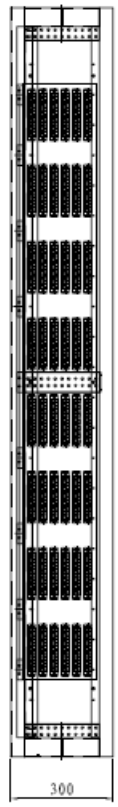
ODF (Optical fiber Distribution Frame, for distribution and dispatching only)

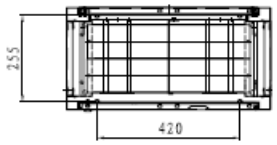
Table 4 product list

Models, H×W×D, mm	Max capacity (Cores)	remarks
2200×600×300	288	For fiber jumper and dispatching only



Front door removed



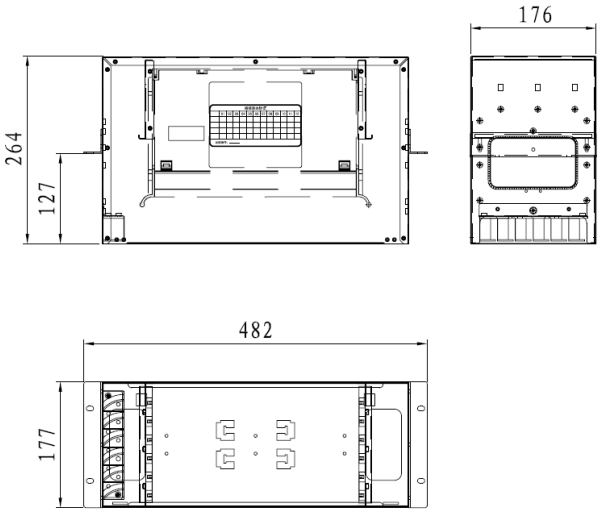


View A—A

FDB (Integrated Splicing & Termination Unit)

Table 5 product list

Models, H×W×D, mm	Max capacity (Cores)	remarks
2U×482×266	24	19" rackmount, for splicing
3U×482×266	48	19" rackmount, for splicing
4U×482×266	72	19" rackmount, for splicing



Fiber adapter

Product Features:

- Low insert loss; high intensity; counter-connection with high precision.
- Zirconia ceramic mating-sleeve of split type.
- Realizing core alignment with high precision.
- Good interchangeability.
- Good repeatability.
- Stable environment performance.

Performance Indexes:

- Adapter loss (insertion, interchange, repetition) ⩽0.3dB.

Table 6 product list

Models, H×W×D, mm	Housing	Sleeve material
SC-SC	Blue, plastic	Zirconia
FC-FC	Silver white, metal	Zirconia
ST-ST	Silver white, metal	Zirconia
Duplex LC-LC	Blue, plastic	Zirconia

Pigtail

Product Features:

- One end of pigtail is SC connector.
- Low insertion loss.
- Good hardiness.
- Good conversion performance.
- High temperature stability.

Performance Indexes:

- Completely meet with IEC 60874-14, FTZ TL6060-3016, CECC 86265-801/802, IEC60874-14-1 and YD/T 895-1997.
- The insertion loss is less than 0.3dB when made out of G.652 single-mode fiber (1310nm or1490nm or 1550nm).




Table 7 product list of PC polish

Models	Retainer material	Ferrule	Description
FC/PC-1m-ø2-SM	Metal	Zirconia	Optical fiber connector-FC/PC-single-mode-ø2-1m
SC/PC-1m-ø2-SM	Engineering plastics	Zirconia	Optical fiber connector-SC/PC-single-mode-ø2-1m
LC/PC-1m-ø2-SM	Engineering plastics	Zirconia	Optical fiber connector-LC/PC-single-mode-ø2-1m
ST/PC-1m-ø2-SM	metal	Zirconia	Optical fiber connector-SC/PC-single-mode-ø2-1m

Return loss of single-mode fiber: SC/PC≥45dB,SC/UPC≥50dB,SC/APC≥60dB.

Patch cord

Product Features:

- Both ends of pigtail is jumper.
- Low insertion loss.
- Good hardiness.
- Good conversion performance.
- High temperature stability.

Performance Indexes:

- Completely meet with IEC 60874-14, FTZ TL6060-3016, CECC 86265-801/802, IEC60874-14-1 and YD/T895-1997 standard.
- The insert loss is less than 0.3dB when used with G.652 single-mode fiber (1310nm or1490nm or 1550nm).


FC-FC Connectors


LC -LC (Duplex) Connectors


SC-SC Connectors


ST-ST Connectors

Table 8 product list of PC polish

Models	Retainer material	Ferrule	Description
FC/PC-FC/PC-3m-ø2-SM	Metal	Zirconia	Optical fiber connector-FC/PC-single-mode-ø2-3m
SC/PC-SC/PC-3m-ø2-SM	Engineering plastics	Zirconia	Optical fiber connector-SC/PC-single-mode-ø2-3m
LC/PC-LC/PC-3m-ø2-SM	Engineering plastics	Zirconia	Optical fiber connector-LC/PC-single-mode-ø2-3m
ST/PC-ST/ST-3m-ø2-SM	metal	Zirconia	Optical fiber connector-SC/PC-single-mode-ø2-3m

Return loss of single-mode fiber: SC/PC≥45dB,SC/UPC≥50dB,SC/APC≥60dB.

Fiber Optic Wall-mounted Distribution Box

Product Features:

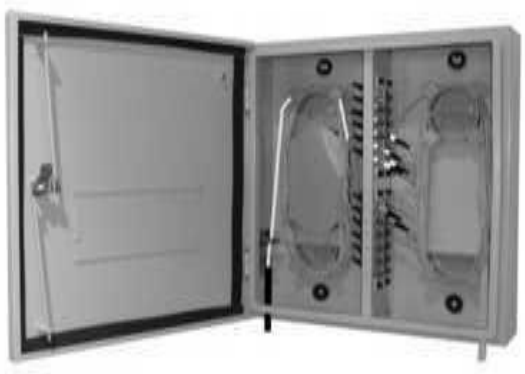
- With fixation and grounding protection devices for optical cable.
- Convenient and reliable splicing and termination, storage of redundant fibers, connection and patching of optical cable.
- Standard 12-fiber splicing tray, which is convenient for off-frame operation and flexible for capacity increasing just by adding splicing tray.
- Wall-mounted.
- Flexible lead-in and lead-out, the cabinet can lead excessive cables from top or bottom at the same time.
- Adapters including FC and SC type and so on can be used, adopting a convenient installation mode with a tilt of 35° .
- Provision of function such as splicing, termination, as well as direct-connection of fibers.
- Clear identification for connection and termination of each fiber in cabinet.

Performance Indexes:

- Insertion loss (including adapter and patch cord) ≤0.3dB.
- Return loss: PC≥45dB, APC≥55dB.
- Push-pull durability life: for more than 1000 times.
- Insulation resistance between high-voltage protection ground and rack (cabinet): >1000MΩ (DC 500V).
- Dielectric withstanding voltage between high-voltage protection ground and rack (cabinet): ≥DC 3000V for 1min without arc or breakdown.

Table 9 product list

Models, H×W×D, mm	Max capacity (Cores)	remarks
450×420×120	24	19" rackmount, for splicing
450×420×170	48	19" rackmount, for splicing



6. Outdoor ODF

Product Features:

- Inside cabling protection design to guarantee that fiber-bending radius is no less than 40 mm, which satisfy the requirements of ribbon fiber and non ribbon fiber.
- Configuration of optical cable entry unit, which makes entry, grounding and mounting of optical cable reliable.
- Clear identification for the termination and distribution of each fiber.
- Safe and reliable performance of fiber storage and protection.
- The entry and fix of optical cable make good use of the space of bottom, increase the number of the entry fiber cable greatly.
- Configured optical split unit inside.

Performance Indexes:

- Dielectric withstanding voltage between the rack and its high-voltage protection ground :> DC 3000V, in 1 min, without breakdown and arc.
- Insulation resistance between rack and its high-voltage protection ground: R>2×10^4MΩ / DC 500V.
- Mechanical strength: Each surface of the cabinet can bear a vertical pressure of more than 980N and the edge of the door can bear a vertical pressure of over 200 N when the door is open.

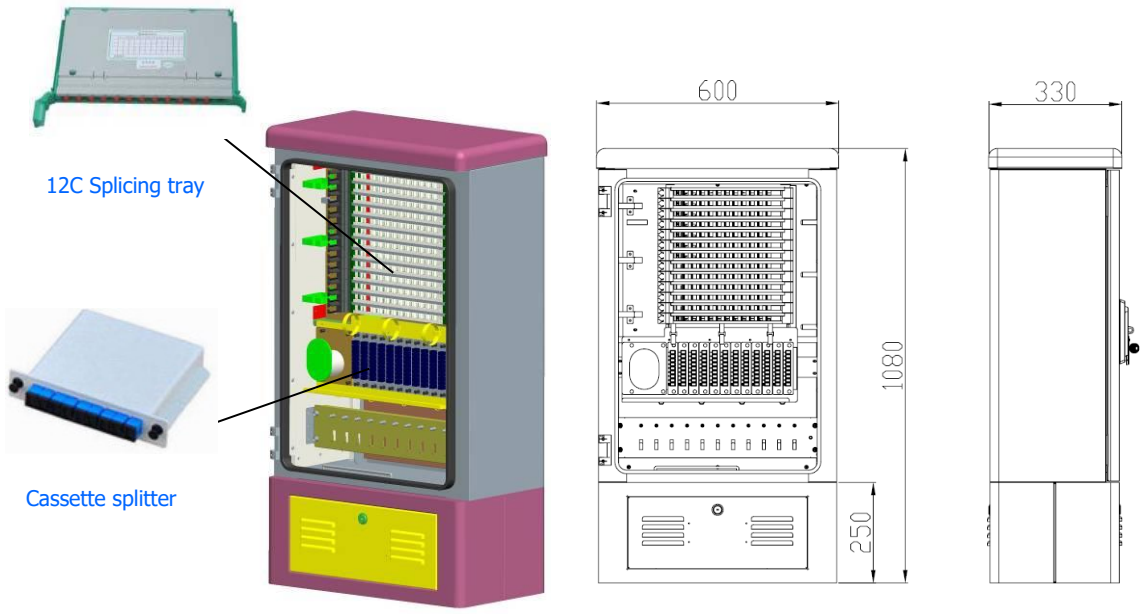
  The mounting position of the optical cable can bear a axial pull of 1000 N and three times of circular rotation by $\pm90^\circ$ in total.
- Fireproof level: in conformity with the requirement for level UL 94 V0.

  - Compressor cooling
  - Heat exchanger
  - Free air cooling
  - Earth cooling
  - Etc.

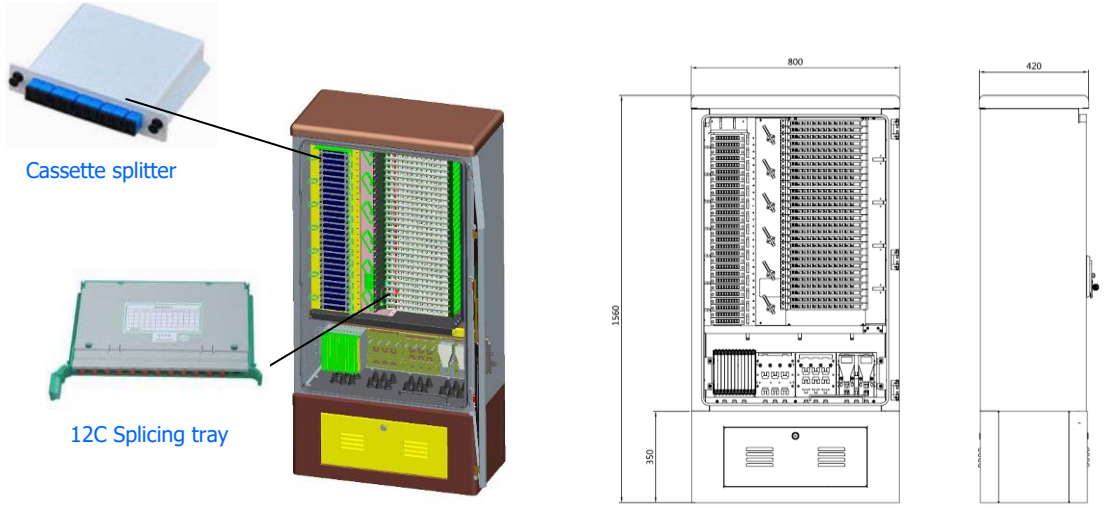
Fiber Optic Distribution Hub (Cassette installation)

Table 10 product list

Models, H×W×D, mm	Splicing capacity (Cores)	12C Straight splicing panel	1×8 cassette splitter
1080×600×330	144 (output)+ 12 (input)	Nil	Max 12
1560×800×420	288 (output)+ 48 (input)	Max 12	Max 28



144 cores ODB



288 cores ODB

Fiber Optic Distribution Hub (Rack mounted)

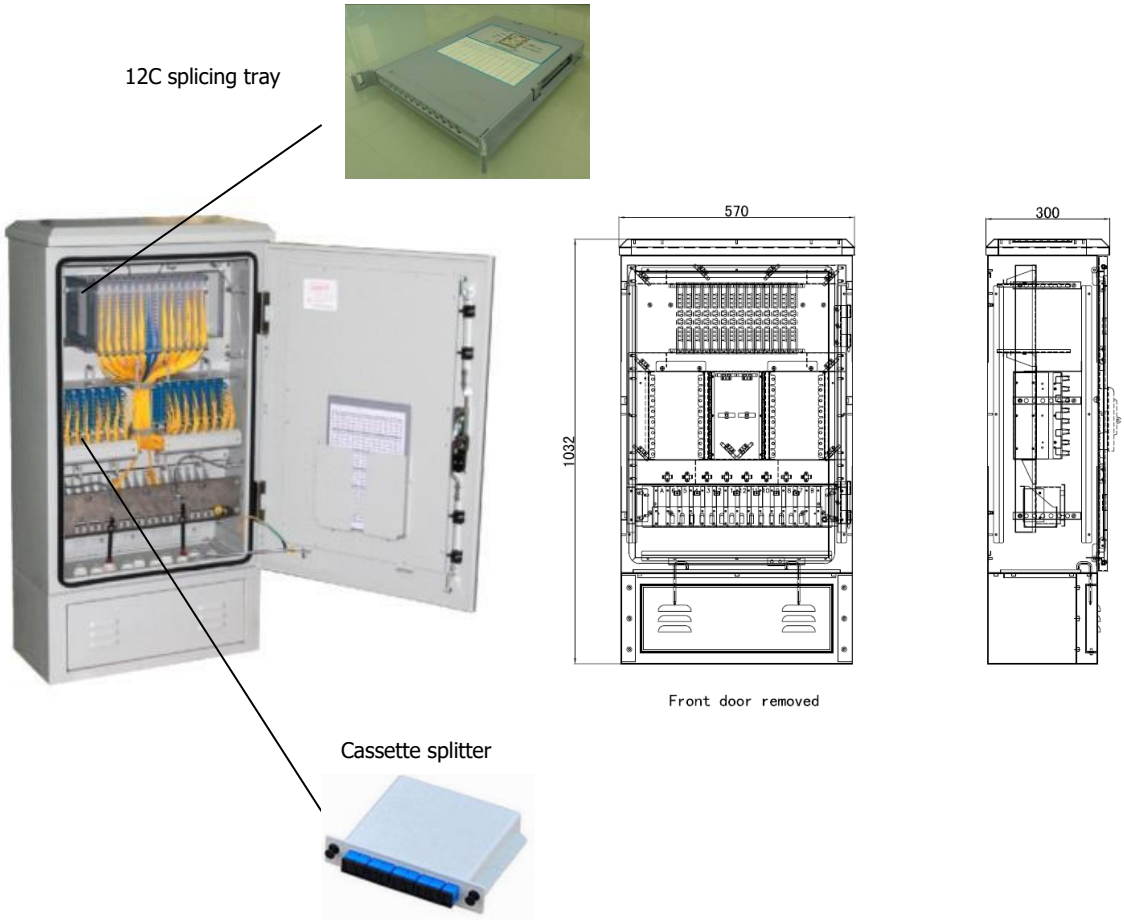
Table 11 product list

Models, H×W×D, mm	19"1RU 1×32 splitter panel	19"1RU 24C splicing panel
1050×1200×450, double 19RU	As per requirement	As per requirement

Fiber Optic Distribution Hub (cassette application)

Table 12 product list

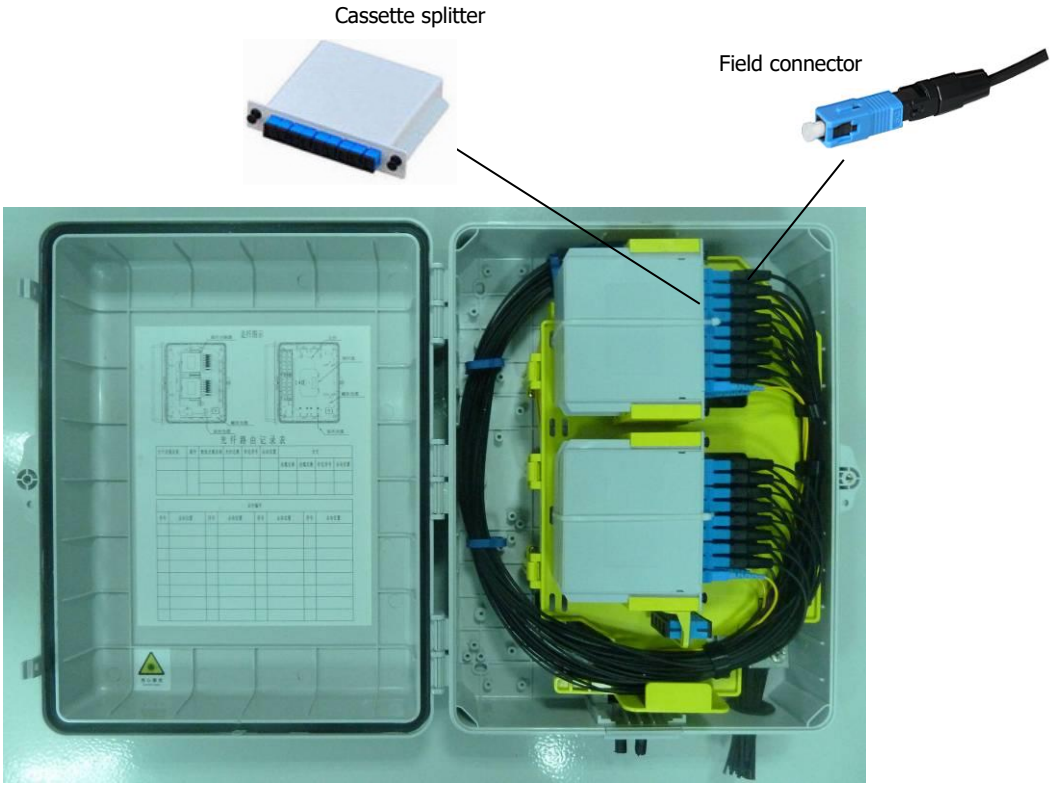
Models, H×W×D, mm	Splicing capacity (Cores)	1×8 cassette splitter
1032×570×300	144 (output)+ 24 (input)	Max 16

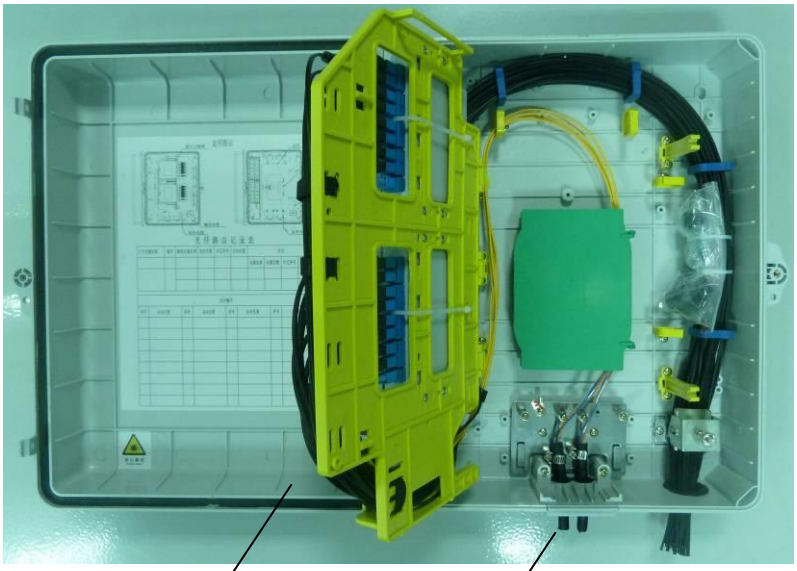


Wallmount Splitter Box

Table 13 product list

Models, H×W×D, mm	Splicing capacity (Cores)	1×8 cassette splitter
400×350×150	12 (Backbone fiber splicing)	Max 4

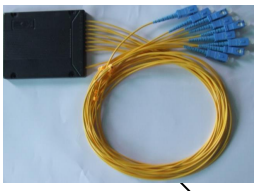




Fiber Optic Joint Closure (Dome style)

Table 14 product list

Models, H×D, mm	Splicing capacity (Cores)	1×16 splitter Module
410×190	24	1



Splitter module

7. Passive optical components

PLC splitter

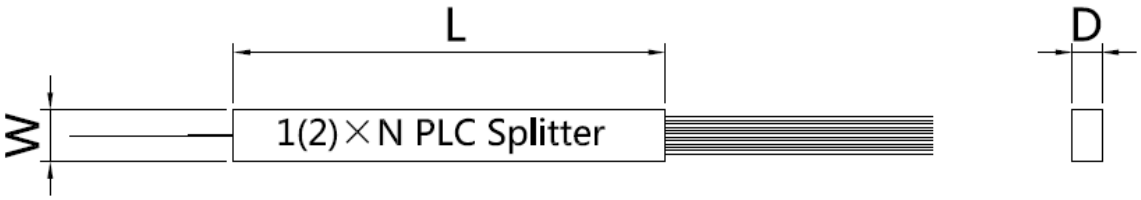
Blockness PLC Splitter Module

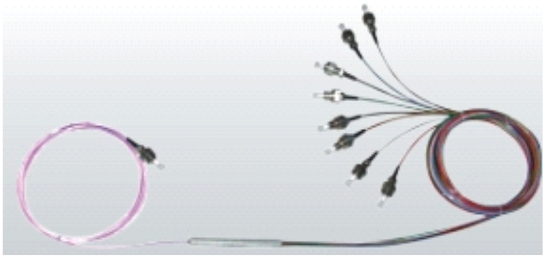
Generally speaking, there are two kinds of technologies splitter used in FTTx industrial, one is FBT (Fused Biconical Taper), and another is PLC (Planar Lightwave Circuit).

Given that PLC splitter has a wider wavelength spectrum, and it is the only way to compatible with EPON and GPON network, so in most situations, the PLC splitter is the first choice for telcos, for this reason, Only PLC splitter will be induced in this file.

Table 15 product list

Dim, mm	1X2	1X4	1X8	1X16	1X32	2X2	2X4	2X8	2X16	2X32
L×W×H	58X7X4			80X20X6		58X7X4			80X20X6	

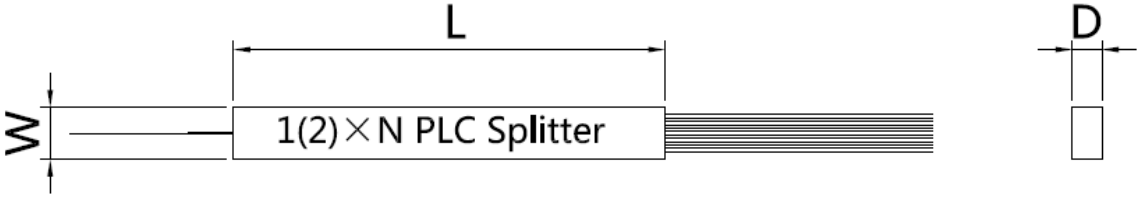


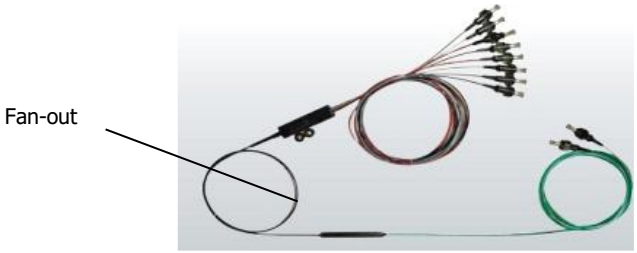


PLC Splitter with Fan-out

Table 15 product list

Dim, mm	1X2	1X4	1X8	1X16	1X32	1X64	2X2	2X4	2X8	2X16	2X32
L×W×H	40×4×4			50×7×4		58×12×4	50×4×4			58×7×4	

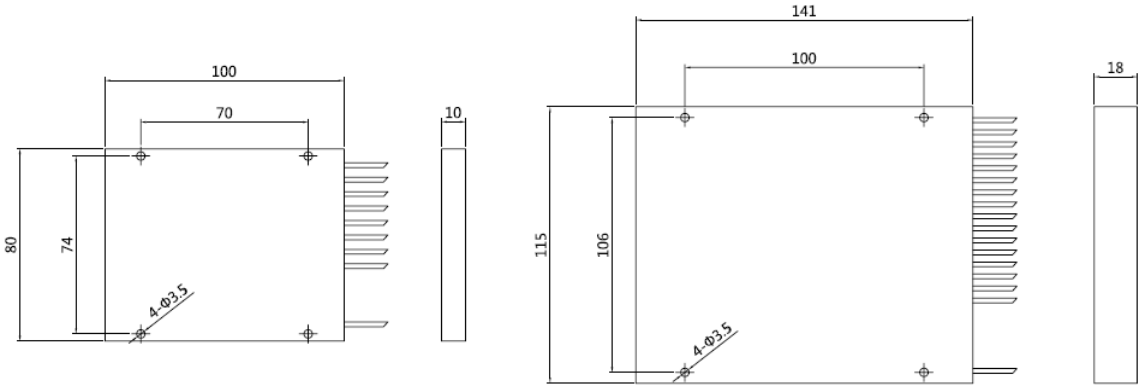


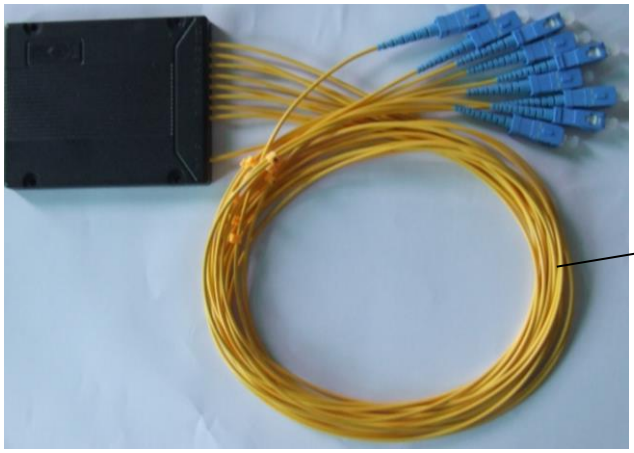


PLC Splitter Module

Table 16 product list

Dim, mm	1×2	1×4	1×8	1×16	1×32	2×2	2×4	2×8	2×16	2×32
L×W×H	100×80×10			141×115×18		100×80×10			141×115×18	





Cassette splitter

Table 17 product

model	Cassette slots occupied	Housing material
1×4	1	Plastic
1×8	1	Plastic
1×16	2	Plastic
1×32	4	Mild steel



PLC Splitter Parameter

Table 18 parameter of 1 Table 1×N PLC splitter

Parameters	1×2	1×4	1×8	1×16	1×32	1×64
Wavelength (nm)	1260-1650nm					
Insertion Loss (dB)	3.6	7.1	10.2	13.5	16.5	20.0
Uniformity (dB)	0.4	0.5	0.8	1.0	1.3	2.5
Return loss(dB)	50	50	50	50	50	50
PDL(dB)	0.1	0.2	0.3	0.3	0.3	0.4
Directivity (dB)	55	55	55	55	55	55
Fiber Type	SM-G.657 or customer specified					
Operating Temperature (℃)	-40~85					
Storage Temperature (℃)	-40~85					
Packaging Size(mm) (output fiber ribbon)	40×4×4	40×4×4	40×4×4	40×4×4	50×7×4	60×12×4
Package dimension (L)X(B)X(H)	58×7×4	58×7×4	58×7×4	80×20×6	80×20×6	N/A

Note： All the parameter of insertion loss referenced without connectors.

Table 19 parameter of 1 Table 2×N PLC splitter

Parameters	2×4	2×8	2×16	2×32
Wavelength (nm)	1260-1650nm			
Insertion Loss (dB)	7.4	11.0	14.5	17.5
Uniformity (dB)	1.2	1.5	2.0	2.5
Return loss(dB)	50	50	50	50
PDL(dB)	0.2	0.4	0.4	0.4
Directivity (dB)	55	55	55	55
Fiber Type	SM-G.657			
Operating Temperature (℃)	-40~85			
Storage Temperature (℃)	-40~85			
Packaging Size(mm) (output fiber ribbon)	50×4×4	50×4×4	58×7×4	58×7×4
Package dimension (L)X(B)X(H)	58×7×4	58×7×4	80×20×6	80×20×6

Note： All the parameter of insertion loss referenced without connectors.

Field connector

Table 20 product list

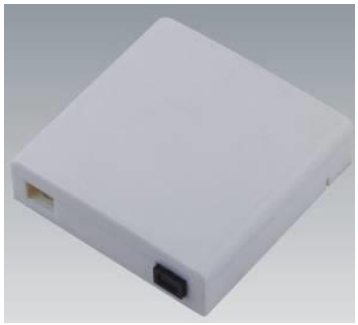
Model	Length
SC/PC	≤60mm

Parameter	SC/PC
Fiber type	SM-G.657
Cable type	Bow-type cable
Insertion loss (dB)	<0.5dB (Normally <0.3dB)
Return loss (dB)	>40dB (PC)
Tensile strength	5N (900μm)、30N (3mm)、20N (for bow-type cable)
Operating Temperature (℃)	-40° C~+75℃

Fiber socket (or faceplate)

Table 21 product list

model	Dim, L×W, mm	Housing material	Adapter type
Flush-type	86×86	Plastic	SC
Surface type	86×86	plastic	SC



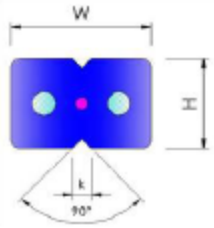
Bow-type optical cable

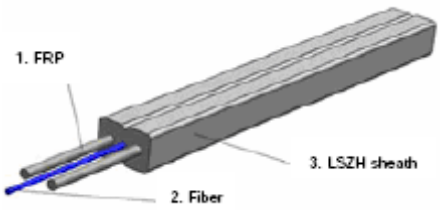
Main features:

- Adopting small winding radius fiber with 15mm and even 10mm. especially suitable for indoor routing under the instance of sudden turning, for instance wall-pole corner and indoor smooth panel.
- The sheath material adopts LSZH with better characteristic of low-mist halogen-free fire-retardant.
- Tore easily sheath structure and small allow winding radius.
- Portability, flexible and easy to deploy, is a prepared product for bottom routing in the solution of FTTH optical cable routing.

Table 22 product list

Model (core)	Dim, mm	Weight, kg/km	Tensile strength (N) Long time/short time	Crush strength (N/100mm) Long time/short time
1	3.0×1.9×0.4	6.95	20/100	1000/2000
2	3.0×1.9×0.4	6.95	20/100	1000/2000
3	3.0×1.9×0.4	6.95	20/100	1000/2000





8. Contact us

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