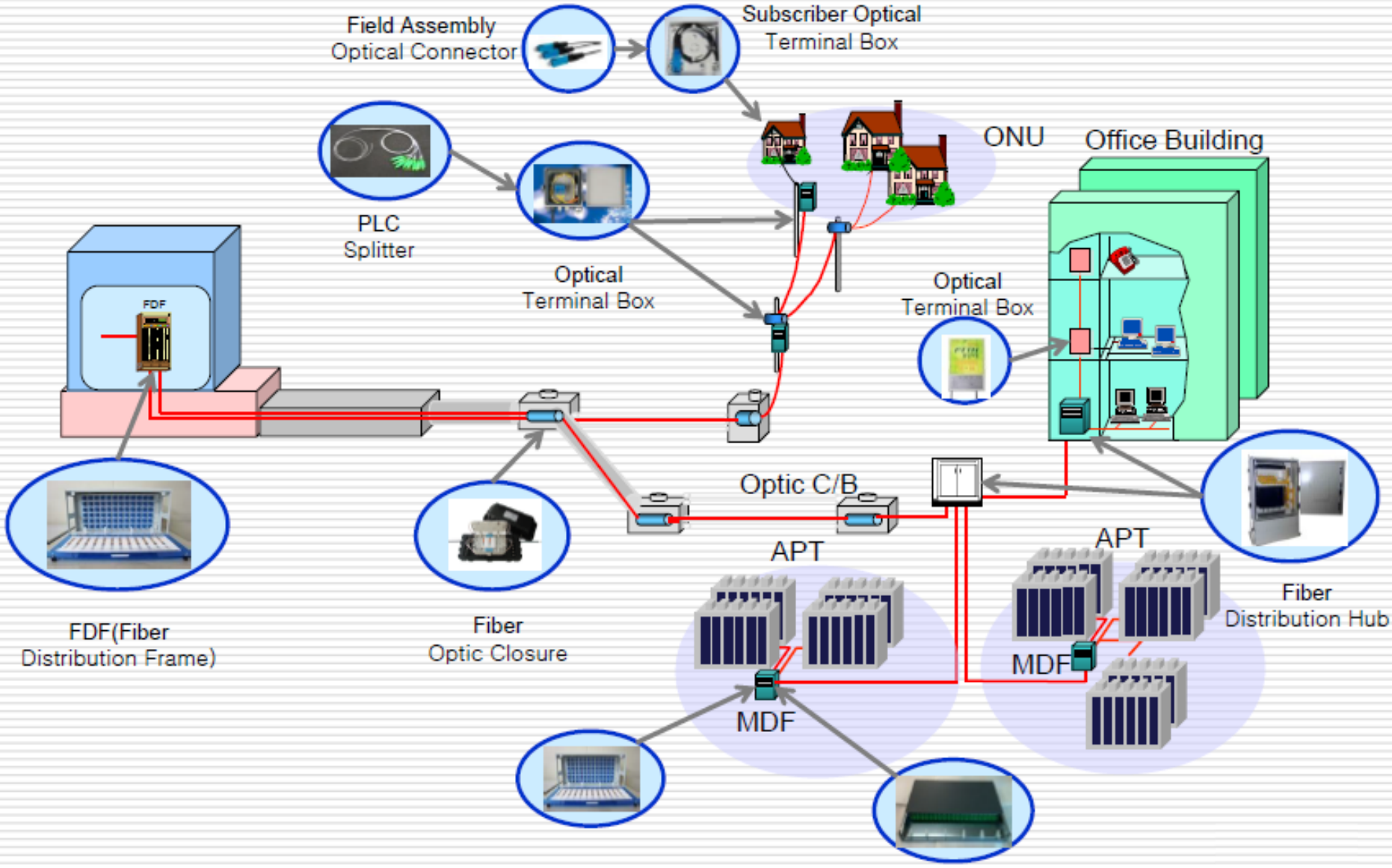
ITECO LTD.
Fiber Access Solution

For Indonesia FTTH Products

2013. 03. 03

FTTx Solution Overview

FTTx Networking



FTTx Solutions

No	Application	Products	
		Items	Specification
1	C.O (Central Office)	**PON OLT**	**Active Equipments**
2		Fiber Distribution Unit	OFD 24 SC/APC Adapter
3			OFD 48 SC/APC Adapter
4		High Density Rack (Up to 2,000 Connection)	Cabinet Rack 1.8m
5			Cabinet Rack 2.2m
6		Multi Patch Cable	8C SC/APC
7	Backbone Networks	Backbone Cable	
8		Fiber Optic Splice Closure	
9		PLC Splitter	2/1x4, 8, 16, 32, 64ch
10		Fiber Distribution Cabinet	438Connections Outdoor
11	Access Networks	Distribution point Box	Wall/Pole Mount Type
12		Drop Cable	
13		PLC Splitter	2/1x4, 8, 16, 32, 64ch
14		Field Installable Optical Connector	SC Type
15	In Building	**PON ONU**	**Active Equipments**
16		Optical Termination Box	Wall Mount Type
17		Subscriber Outlet	
18		PLC Splitter	2/1x4,8ch
19		Field Installable Optical Connector	SC Type

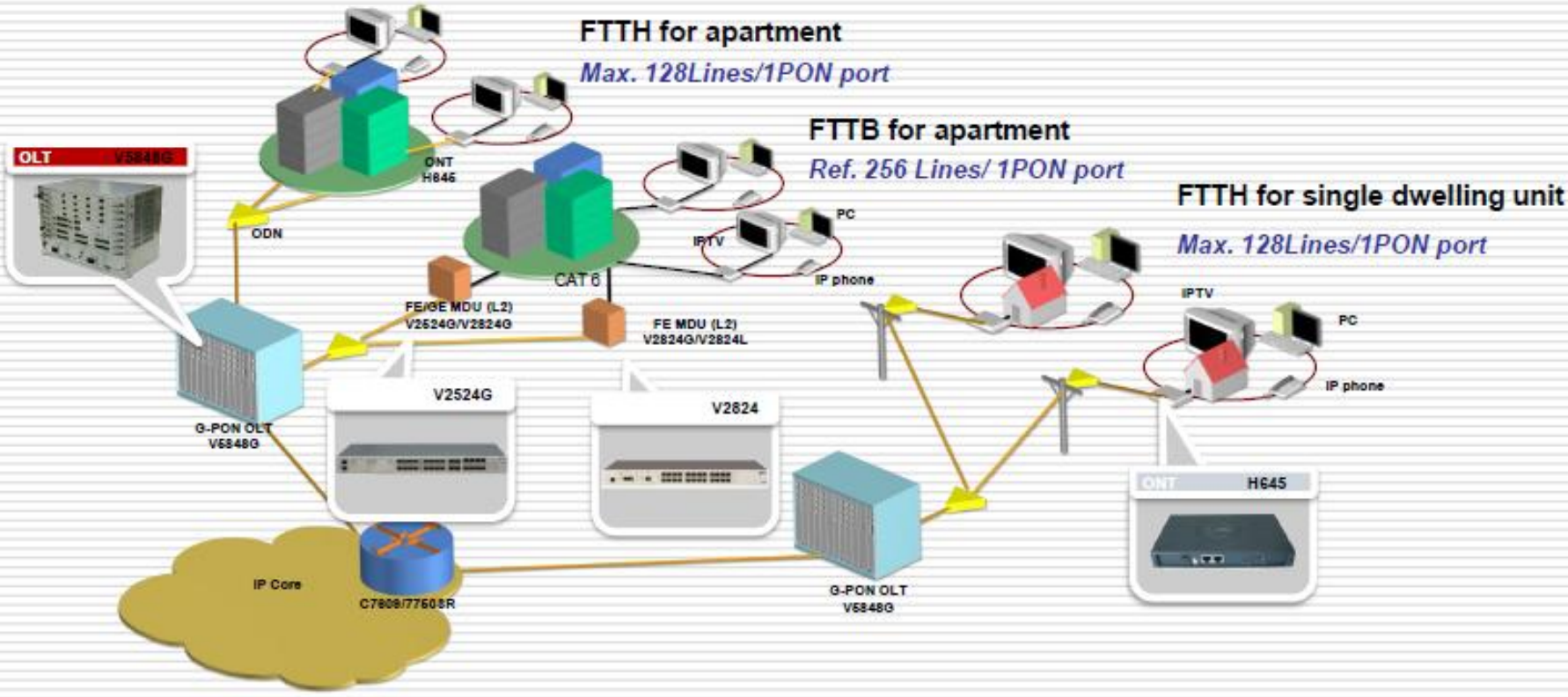
FTTH Applications

G-PON Products

- ✓ G-PON Service network overview
- ✓ FTTx Product Portfolio
- ✓ G-PON OLT Line up
- ✓ Various Applications
- ✓ Feature-Rich System
- ✓ V8272 System
- ✓ V8240 System
- ✓ Key Feature
- ✓ G-PON OLT V5848G
- ✓ G-PON OLT V5812G
- ✓ H690 ONT Overview
- ✓ G-PON ONUs
- ✓ G-PON ONTs
- ✓ G-PON ONT for Mobile Backhaul

G-PON Service network overview

- Shipped G-PON OLTs for over 400K subscriber lines since 2008
- L3 routing on OLT to reduce traffics and save L3 aggregation switches



FTTx Product Portfolio

OLT

Chassis

V5724G

- Small Chassis
  - 20 E-PON
  - 4 GbE Uplink
  - PWR Redundancy

V5848G

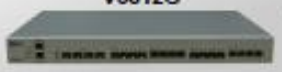
- Medium Chassis
  - 16 G-PON
  - MPLS/GRE
  - Full Redundancy

V8200

- Large Chassis
  - 72 G-PON
  - MPLS/PWE3
  - 1588v2, SyncE, BITS
  - Full Redundancy

Pizza-box

V5812G



- Pizza Box OLT
  - 4 G-PON
  - 8 Combo GbE

MDU

Fast Ethernet

V1816-R4

V2824

- FE MDU
  - 16/24 FE
  - G/E-PON Uplink

V2808

- Wall-mountable MDU
  - 8 FE
  - G/E-PON Uplink

Gigabit Ethernet

V2524G

- GbE MDU
  - 20 GbE SFP + 4 Combo
  - G/E-PON Uplink

xDSL

V5924C-R

- Pizza BoxVDSL2
  - 24 VDSL2

V5924N

V5908i

- Outdoor VDSL
  - 24 VDSL

- Wall-mountable VDSL2
  - 8 VDSL2
  - ADSL2+ BWC

H335

- VDSL2 CPE
  - 1 FE

ONT

Data ONT

H615G/H635G

- E-PON ONT
  - 1/4 FE

H625

- E-PON ONT
  - 1 GbE

H645A

- G-PON ONT
  - 2 GbE

VoIP ONT

H640V

- G-PON VoIP ONT
  - 4 FE + 2 POTS

Mobile Backhaul

Mobile Backhaul

M8100

- G-PON M-OLT
  - 16 G-PON
  - MPLS/GRE
  - BITS
  - Full Redundancy

M645

- G-PON CBU
  - 1 STM-1, 2 GbE
  - PWE3

G-PON OLT Line up

Feature, Scalability, Longevity

V5848G

Full Redundancy System
48 GbE + 2 x 10GbE + 16 x GbE
16 GPON

V5812G

4 GPON + 8 Combo GbE
Layer 2/3 features
Dual Modualr PWR

V8240

Full Redundancy System
40 GbE + 4 x 10GbE
40 GPON support
Layer 2/3 features

V8272

Full Redundancy System
864 GbE + 4 x 10GbE
72 GPON support
Layer 2/3 features

Small Medium Large

Number of Density

Various Applications

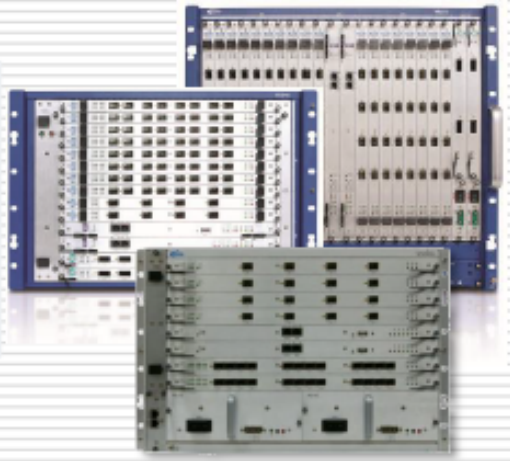
Mobile Backhaul

- 16~72 GPON Ports
- MPLS/PWE3 Supported
- PON Redundancy
- Fully Redundant Syster

Backhaul Software

Applications with One Chassis via Different Modules !!

OLT System



GPON OLT

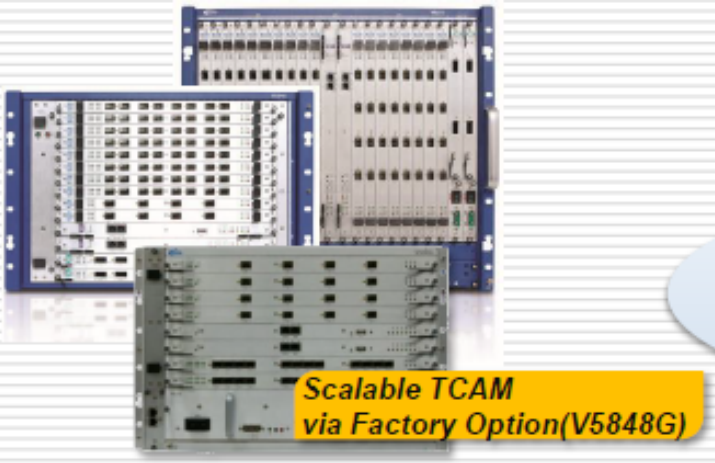
- 16~72 GPON Ports
- 1,024~9,216 Subscribers
- 4 x 10GbE
- Max. 60Km Reach

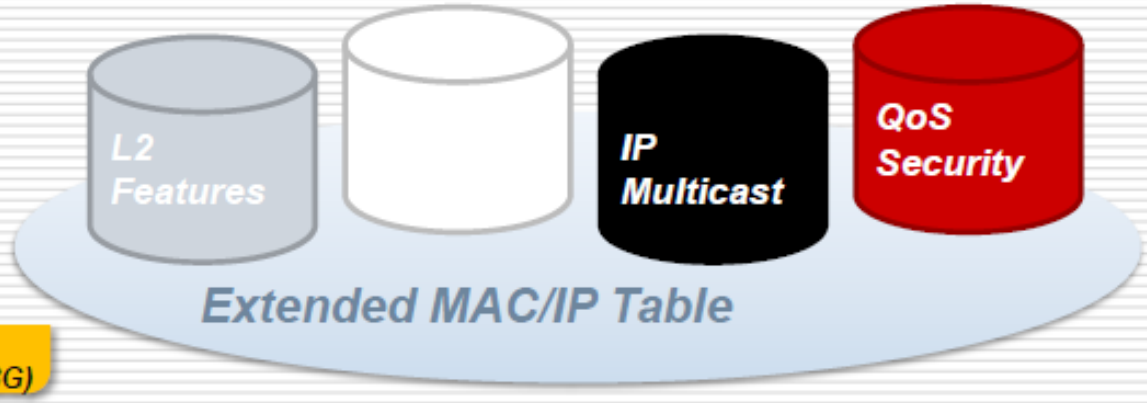
Carrier Switch

- 40~864 GbE Ports
- 4 x 10GbE Uplink
- Large-scale L2/L3 Table: 1M
- Rich L2/L3 Features
- MPLS Supported

Switch Software

Feature-Rich System





Layer 2 Features

- *Extended MAC Entry Table: Up to 512K*
- Link Aggregation, Spanning Tree
- VLAN Translation/Stacking
- Ethernet Ring Protection (ITU-T G.8032)

Layer 3 Features

- *Extended IP Entry Table: Up to 1M*
- RIPv2, BGPv4, OSPFv2, IS-IS, VRRP
- ECMP, WCMP, Policy-based Routing

IP-Multicast

- IGMPv2/v3, IGMP Snooping/Proxy
- PIM-SM/SSM
- *Multicast Load Sharing*

QoS & Security

- Scheduling: SP, WRR, DWRR
- Metering: CIR, PIR, CBS, EBS, PBS
- Anti ARP Spoofing, Security Filtering

V8272 System

V8272 Overview

- Large chassis: vertical type, 22 slot, 10 RU
- 72 G-PON ports: 9,216 subscribers (Max 128-split)
- 864 Gigabit Ethernet ports(AON)
- 10G E-PON & XG PON compatible backplane
- Switching Capacity: 1.7Tbps
- System remote control & syslog backup
- Fully redundant system
- Non-blocking architecture

V8272 System Feature

Image	Description	Switching Capacity
	▪ High-end 72 ports PON OLT ▪ 72 ports GPON OLT ▪ 19" Chassis with 10U Height ▪ 16 x 100/1000Base-X + 4 x 10G XFP ▪ Provide 16K L3 entry ▪ Redundant power supply (850W)	1.7Tbps

Key Features

General
- Flash: 72MB
- SDRAM: 1GB DDR2
- System Spec.
  - MAC: 32K
  - IPv4 LPM/Host: 12K/16K
  - L2/L3 Multicast: 1K/4K
  - ACL ingress/egress: 4K/4K
  - QoS: 8 Cos/port, SP, WRR, DWRR
- 19" Chassis with 10U Height
- Estimated Maximum Power Consumption
  - 466W
    (18 SIU_GE4+2 SFU+2 NIU_10GE2)

GPON Interface
- 72 G-PON

AON Interface
- Up to 864 GbE
- Up to 864 FE

Network Interface
- 16 x 100/1000Base-X or
- 4 x 10GbE
- Support various SFP/XFP Transceiver

Indicators/Alarms
- Link/Act , 1G Speed LED indicator

Management Interface
- 1 port 100BaseTx & 1port RS-232
- Remote control (CIU)

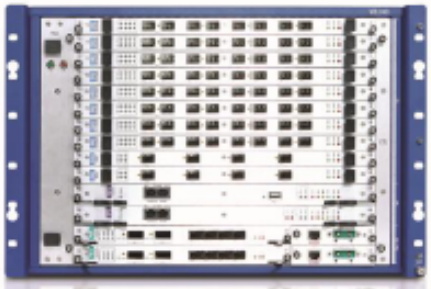
Function
- ITU-T G.984 GPON
- Standard Ethernet Bridging
- Active/standby redundancy
- Link Aggregation
- Spanning Tree: STP, RSTP, MSTP
- SP, WRR, DWRR
- Cos/QoS acc. to 802.1p, DSCP/TOS, IP SA/DA
- IGMP Snooping
- RIPv1/2, OSPFv2, BGPv4, IS-IS
- IGMPv3, PIM-SM/SSM
- SNMPv1/v2/v3
- Optical monitoring
- PON redundancy

V8240 System

V8240 OLT Overview

- Middle-size chassis : Horizontal type, 14 slot, 7U
- 40 G-PON ports : 5,120 subscribers (Max. 128-split)
- 40 Gigabit Ethernet ports
- 10G E-PON & XG-PON compatible backplane
- Switching Capacity : 296Gbps
- (Max: 40 x G-PON & 4 x 10GbE & 8 x GbE)
- System remote control & syslog backup
- Fully redundant system

V8240 System Feature

Image	Description	Switching Capacity
	▪ High-end 40 ports PON OLT ▪ 40 ports G-PON OLT ▪ 19" Chassis with 7U ▪ 8 x 100/1000Base-X + 4 x 10G XFP ▪ Provide 16K L3 entry ▪ Redundant power supply	**296 Gbps**

Key Features

General
- Flash: 72MB
- SDRAM: 1GB DDR2
- System Spec.
  - MAC: 32K
  - IPv4 LPM/Host: 12K/16K
  - L2/L3 Multicast: 1K/4K
  - ACL ingress/egress: 4K/4K
  - QoS: 8 Cos/port, SP, WRR, DWRR
- 19" Chassis with 7U Height
- Estimated Maximum Power Consumption
  - 390W (10 SIU_GPON4R+2 SFU+2 NIU)

G-PON Interface
- **40 x 2.5G G-PON**

Network Interface
- **8 x 100/1000Base-X**
- **4 x 10GbE**
- Support various XFP Transceiver

Indicators/Alarms
- Link/Act , 1G Speed LED indicator

Management Interface
- 1 port 100BaseTx & 1port RS-232
- Remote control (CIU)

Function
- ITU-T G.984 G-PON
- Standard Ethernet Bridging
- Active/standby redundancy
- Link Aggregation
- Spanning Tree: STP, RSTP, MSTP
- SP, WRR, DWRR
- Cos/QoS acc. to 802.1p, DSCP/TOS, IP SA/DA
- IGMP Snooping
- RIPv1/2, OSPFv2, BGPv4, IS-IS
- IGMPv3, PIM-SM/SSM
- SNMPv1/v2/v3
- Optical monitoring
- PON redundancy

Key Feature

■ Key Features (At Now)

L2 Features

- Supports 48 100/1000Base-X SFP or 16 2.5G G-PON
- Supports up to 32K MAC address entries (Full wire speed switching)
- Supports 8M-bytes for packet buffer size
- Supports VLAN 4K and Double 802.1Q(Q in Q) for stacking
- Supports 512 spanning tree (IEEE 802.1w , IEEE802.1s)
- Supports Jumbo Frames of up to 9Kbytes.

L3 Features

- Supports 16K next-hop entries
- Supports 12K IPv4 Subnets / 8K IPv6 Subnets
- Supports 32 targets ECMP/WCMP
- Supports 4K IPv4 Multicast

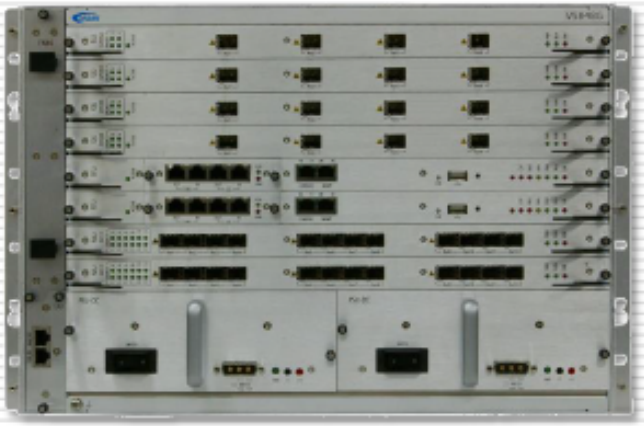
G-PON Features

- Support 4K port-ID
- Support 1K alloc-ID
- Support 60km Max Transmission Distance
- Support 128 Max Splitter Ratio
- Support all of T-CONT Type
- Support ITU-T 984.4 OMCI

Quality of Service

- Supports CoS with WRED, WRR and DSCP/802.1p priority
- Supports advanced traffic management – metering, shaping and scheduling (SP, RR, WRR, WFQ)

G-PON OLT V5848G



V5848G Overview

- Medium chassis: horizontal type, 8 slot, 7 RU
- 48 Gigabit Ethernet subscriber ports
- 16 GPON ports: 1,024 subscribers (64-split)
- Switching capacity: 88 Gbps / 131 Mpps
- Duplex 12 GE internal channels architecture
- Applicable for mobile backhaul solution
- Non-blocking architecture
- All interfaces are front access type
- 19” and ANSI/ETSI mounting
- Fully redundant
- Certification for Korea, Japan, and World market

V5848G System Feature

Image	Description	Switching Capacity
	▪ High End 48 ports L3 GES Switch ▪ 16 ports GPON OLT ▪ 19" Mid-chassis with 7RU Height ▪ 48 x 100/1000Base-X + 4 x 10G XFP ▪ Provide 16K L3 entry (Maximum 1M) ▪ Redundant power supply	88 Gbps

Key Features

General
- Flash: 72MB
- SDRAM: 512MB DDR SODIMM
- System Spec.
  - MAC: 32K (Max. 512K)
  - IPv4 LPM/Host: 16K/16K (Max. 1M)
  - L2/L3 Multicast: 4K/4K
  - ACL ingress/egress: 8K/1K
  - QoS: 8 Cos/port, SP, WRR, DWRR
- 19" Mid-chassis with 7U Height
- Estimated Maximum Power Consumption
  - 500W

GPON Interface
- 16 x 2.5G GPON

Ethernet Interface
- 48 x 100/1000Base-X
- 2 x 10GE + 16 x 100/1000Base-X
- Support various SFP/XFP Transceiver

Indicators/Alarms
- Link/Act , 1G Speed LED indicator

Management Interface
- 1 port 100BaseTx & 1port RS-232
- USB config backup interface

Function
- ITU-T G.984 GPON
- Standard Ethernet Bridging
- Active/standby redundancy
- Link Aggregation
- Spanning Tree: STP, RSTP, MSTP
- SP, WRR, DWRR
- Cos/QoS acc. to 802.1p, DSCP/TOS, IP SA/DA
- IGMP Snooping
- RIPv1/2, OSPFv2, BGPv4, IS-IS
- IGMPv3, PIM-SM/SSM
- SNMPv1/v2/v3
- PON redundancy (3Q/2009)
- PWE3 support (4Q/2009)

G-PON OLT V5812G

V5812G Overview

- Pizza-box type, 19-inch, 1 RU
- 8 Gigabit Ethernet combo ports (SFP/GTX)
- 4 GPON ports: 256 subscribers (64-split)
- Switching Capacity: 18 Gbps / 26.8 Mpps
- 10/100Base-T management interface
- RS232 console interface
- All interfaces are front access type
- 19” and ANSI/ETSI Mounting
- Non-blocking architecture
- Redundant modular AC or DC power
- Certification for Korea, World Market

V5812G System Feature

Image	Description	Switching Capacity
	▪ Stackable 19" Box with 1U Height ▪ 4 ports GPON OLT ▪ 8 x Combo GbE (SFP/GTX) ▪ Modular AC or DC power ▪ 432 x 300 x 43 (W x D x H)	18 Gbps

Key Features

General
- Flash: 40MB
- SDRAM: 512MB DDR SODIMM
- System Spec.
  - MAC: 16K
  - IPv4 LPM/Host: 4K/4K
  - L2 Multicast: 1K
  - QoS: 8 Cos/port, SP, WRR, DWRR
- Stackable 19" Box with 1U Height
- Estimated Maximum Power Consumption
  - 60W

GPON Interface
- 4 x 2.5G GPON SFP

Ethernet Interface
- 8 x Combo GbE (SFP/GTX)
- Support various SFP Transceiver

Indicators/Alarms
- Link/Act , 1G Speed LED indicator

Management Interface
- 1 port MGMT 10/100Base-T
- 1 port console RS-232

Power Supply
- Modular AC or DC power (Dual)

Function
- ITU-T G.984 GPON
- Standard Ethernet Bridging
- Link Aggregation
- Spanning Tree: STP, RSTP, MSTP
- SP, WRR, DWRR
- Cos/QoS acc. to 802.1p, DSCP/TOS, IP SA/DA
- IGMPv2/v3
- IGMP Snooping
- SNMPv1/v2/v3

H690 ONT Overview

H690 Overview

- Environmentally hardened for Outdoor deployments
- Compliant with ITU-T G.984 standards
- Full Class B+ Optics with 20Km reach
- 1port G-PON: uplink
- 4port 10/100/1000Base-Tx : Ethernet Interface
- 2port POTS: VoIP Interface
- 1port F-Connector or 1port POTS :HPNA Interface
- VoIP using SIP
- IPTV video support
- IEEE 802.1Q VLAN ID processing per port

H690 System Feature

Image	Description	Switching Capacity
	▪ 1 G-PON Uplink ▪ 4 GE ports ▪ 2 POTS ports ▪ Video overlay ▪ Home networking	12Gbps

Key Features

General

- Flash : 8MB
- SDRAM : 64MB
- Dimension: 10.2x13.4x3.7 in (260x340x95mm)
- Weight: 3kg
- Power: DC 12V , 2A
- Operating Temperature: -40 ~ +65도 (Non-condensing)

Uplink Interface

- 1 port G-PON

Ethernet Interface

- 4 ports 10/100/1000Base-TX

VoIP Interface

- 2 ports POTS

MoCA Interface

- 1 port type F connector

Home PNA Interface

- 1 port type F connector or 1 port POTS

- ITU-T G.984 기반
- Management support (TR-069, TR-098, TR-104, Telnet, SNMP)
- Voice support: SIP, G.711, G.723, G.729
- HomePNA (ITU G.9954) – Coax, Phone line
- MoCA 1.1 (Multimedia over Coax Alliance)
- IP bridging
- IPTV video support
- IGMP Multicast snooping
- Security
- QoS
- FCC, UL인증

G-PON ONUs

Gigabit Ethernet ONU	Fast Ethernet ONU	VDSL ONU
V2524G	V2824	V5924C-R

Available Now!!

Key Features

General
- Flash: 16MB
- SDRAM: 128MB
- System Spec.
  - MAC: 16K
  - L2 Multicast: 1K
  - QoS: 8 Cos/port, SP, WRR, DWRR
- Stackable 19" Box with 1U Height

Ethernet Interface
- 20 x 100/1000Base-X
- 4 x Combo (SFP/GTX)
- 2 Modular uplink
  - GPON (2G)
  - EPON
  - GTX
  - SFP

General
- Flash: 16MB
- SDRAM: 128MB
- System Spec.
  - MAC: 16K
  - L2 Multicast: 1K
  - QoS: 8 Cos/port, SP, WRR, DWRR
- Stackable 19" Box with 1U Height

Ethernet Interface
- 24 x 10/100Base-T
- 2 Modular uplink
  - GPON (2G)
  - EPON
  - GTX
  - SFP

General
- Flash: 16MB
- SDRAM: 128MB
- System Spec.
  - MAC: 16K
  - L2 Multicast: 4K
  - QoS: 8 Cos/port, SP, WRR, DWRR
- Stackable 19" Box with 1.25U Height

VDSL Interface
- 24 x VDSL2(up to 30a profile)
- Internal Splitter
- 2 Fixed GTX uplink
- 1 Modular uplink
  - 2 x SFP
  - GPON(2G)
  - EPON+SFP

G-PON ONTs

Gigabit ONT H645A	FE + VoIP ONT H640V	Gigabit + VoIP ONT H640GV

Available Now!!

Key Features

Interface
- 2 x 100/1000Base-T
- 1 x GPON (SC/APC)

Function
- ITU-T G.984.4 OMCI support
- Dying GASP
- VLAN manipulation
- IGMP snooping
- Classification by GEM port ID for QoS

Environment
- Operating temperature: -5 ~ 50°C

Interface
- 4 x 10/100Base-T
- 2 x FXS
- 1 x GPON (SC/APC)

Function
- ITU-T G.984.4 OMCI support
- Dying GASP
- VLAN manipulation
- IGMP snooping
- Classification by GEM port ID for QoS
- VoIP protocol: SIP, H.248
  - Echo canceling
  - Multiple codec, Fax

Environment
- Operating temperature: -5 ~ 50°C

Interface
- 4 x 10/100/1000Base-T
- 2 x FXS
- 1 x GPON (SC/APC)

Function
- ITU-T G.984.4 OMCI support
- Dying GASP
- VLAN manipulation
- IGMP snooping
- Classification by GEM port ID for QoS
- VoIP protocol: SIP, H.248
  - Echo canceling
  - Multiple codec, Fax

Environment
- Operating temperature: -5 ~ 50°C

G-PON ONT for Mobile Backhaul

Gigabit ONT M645S	Gigabit ONT H645T
	

Key Features

GPON Interface
- 1 x SFF class B+ (SC/PC)

ATM Interface
- 1 x STM-1 for ATM PW over GPON

Ethernet Interface
- 1 x 10/100/1000Base-T for Ethernet PW over GPON
- 1 x 10/100/1000Base-T for Pure Ethernet over GPON

Management Interface
- 1 x RS-232
- 1 x 10/100 Base-T

Clock-out Interface
- 1 x 2.048 MHz clock out (Coaxial)

Environment
- Operating temperature: -20 ~ 50°C

GPON Interface
- 1 x SFF class B+ (SC/PC)

ATM Interface
- 1 x STM-1 for ATM PW over GPON

Ethernet Interface
- 1 x 10/100/1000Base-T for Ethernet PW over GPON
- 4 x 10/100/1000Base-T for Pure Ethernet over GPON

Management Interface
- 1 x RS-232
- 1 x 10/100 Base-T

Clock-out Interface
- 1 x 2.048 MHz clock out (Coaxial)

Environment
- Operating temperature: -20 ~ 50°C

OSP Products

- ✓ PLC Splitter & Module
- ✓ Optical Patch Cords
- ✓ Optical Fiber Adapters
- ✓ Field Installable Optical Connector
- ✓ Optical Termination Cable
- ✓ Fiber Distribution Unit
- ✓ Indoor & Outdoor Rack
- ✓ Distribution Point Box
- ✓ Optical Termination Box
- ✓ Subscriber Outlet
- ✓ Optical Fiber Splice Closure
- ✓ Fiber Optic Cables
- ✓ NGN(Next Generation Network) Duct

PLC Splitter & Module

The 1xN & 2xN Splitters have high performance with very low insertion loss, excellent uniformity, low PDL and flat wavelength operation(1260~1650nm).
The splitters are pigtailed with single mode fibers and compact package. The Splitters are available in 4,8,16,32 and 64 channel configurations, with connector type open to customer specification.

Planar Splitter Modules	1 X 4	1 X 8	1 X 16	1 X 32	2 x 4	2 x 8	2 x 16	2 x 32
Insertion Loss (Typical) (dB)	7	10.5	14	17	7.6	10.8	14.0	17.5
Uniformity (≤ dB)	0.8	1	1.5	1.5	1.0	1.0	1.5	1.8
PDL (≤ dB)	0.1	0.2	0.3	0.3	0.3	0.3	0.3	0.3
Package Size (H x W x L, mm)	4x4x40	4x4x40	4x7x50	4x7x55	50x4x4	50x4x4	55x7x4	55x7x4
Return Loss(≥ dB)	55							
Directivity(≥ dB)	55							
Operating Temperature(℃)	-40 ~ +85							
Operating Wavelength (nm)	1260~1360/1480~1650							
Temperature Stability (dB)	±0.5							

Optical Patch Cords

Multi Fiber Assembled Indoor Cable

Characteristics	Condition	Values
Insertion Loss	≤0.3dB	
Return Loss	≥ 45dB(SPC), ≥ 55dB(UPC), ≥ 65dB(APC)	
Durability	500 mating	< 0.3dB
Temperature cycling	- 40 ℃ ~ +75 ℃ (336hr)	< 0.3dB

Optical Patch Cords

Article		SM		MM	
		1310nm	1550nm	850nm	1310nm
Insert Loss	PC	≤ 0.2dB	≤ 0.2dB	≤ 0.3dB	≤ 0.3dB
	APC	≤ 0.2dB	≤ 0.2dB	≤ 0.3dB	≤ 0.3dB
Return Loss	PC	≥ 50dB	≥ 50dB	-	-
	APC	≥ 60dB	≥ 60dB	-	-

Optical Patch cords are using for interconnection with transmission equipment.

Optical Fiber Adapters

The optical adapters support the connection of the backbone fiber cabling plant to the transceiver/optical electronics.

SC-SP	FC-RD	LC-DP	ST
			

Characteristics	Values
Structure	Satisfied Telcordia GR-326-Core
Insertion Loss	≤0.2dB
Mating duration	≤0.2dB (500times)
Operating Temperature stability	≤0.3dB (-40℃~85℃)

FIOC (Field Installable Optical Connector)

The Field installable fiber optic connector can provide quick and easy termination of fibers in the field and This connector is TIA/EIA-568-B and TIA/EIA 455 compliant.
This connector is available for 900 micron or 3mm drop cable allowing the installer to terminate and make connection in minutes at equipment and fiber patch panels. This connector system removes any requirement for epoxy, adhesives

Features

- No special assembling tool
- Easy for assembling with mechanical splice and no polishing
- Easy for learning technology by a simple assembling method.
- Minimize the defect rate by features of removal and reusable.

Parameter	Specification
Connector	SC/PC, SC/APC
Fiber Type	SM(9/125), MM(50/125, 62.5/125)
Insertion loss	Max. <0.5dB, Typical <0.3dB
Durability	<0.2dB (After 200mating)
Return loss	Min . 40dB (PC)

Optical Termination Cable

Item	Standard		Remark
Insertion Loss(dB)	0.2km<L<1km, ≤0.30L+0.5		1550nm
	0.2km 이하, ≤0.7dB		
Return Loss(dB)	PC	40dB 이상	
	APC	60dB 이상	

Feature

- Terminated with connectors
- Precision Ferrule end-face geometry
- Optical performance 100% factory tested
-Customized assemblies available including length

Application

- Telecommunication Network
- CATV Network
- Data communication Network and easy fiber
- termination in the field

Fiber Distribution Unit

FDF Rack (19")

FDF/OFD are the system that will be able to accomplish the function of connection, distribution and the termination of optical transmission equipment and the external optical cable.

FDF Shelf

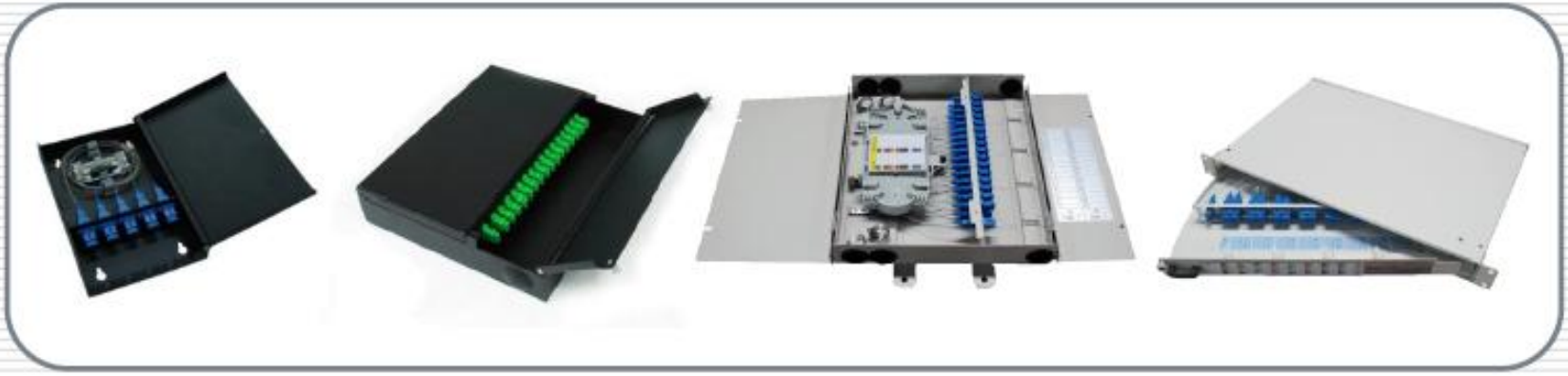
Specification

Items	Dimensions	Capacity
ODF-72C	480 X 470 X 132 (3U)	72Core
ODF-144C	480 X 470 X 177 (4U)	144Core

Indoor & Outdoor Rack

No	Item	Specification			Remark
		inch	WxDxH, mm	Unit	
1	Standard Rack	19"	600x750x1,950	40U	
2	Indoor Rack	19"	570x600x750	12U	
3			600x750x1200	22U	
4			600x750x1800	36U	
5			600x750x2000	40U	
6			600x750x2200	45U	
7		23"	700x750x750	12U	
8			700x750x1200	22U	
9			700x750x1800	36U	
10			700x750x2000	40U	
11			700x750x2200	45U	
12	Open Rack	19"	600x1800	36U	
13			600x2200	46U	
14		23"	700x1800	36U	
15			700x2200	46U	
16	Outdoor Rack	19"	670x900x1200	20U	
17			670x900x1500	27U	
18			670x900x1800	34U	
19		23"	770x900x1200	20U	
20			770x900x1500	27U	
21			770x900x1800	34U	

Distribution Point Box (Wall & Rack Mount)



Features

- DPB is made of top quality steel. It has solid structure for both aesthetic and functional.
- Fully-closed structure with the advantages of good performance of dust-proof, pleasing and neat appearance.
- Enough space for fiber distribution and storage space and very easy for installation and operations.
- Convenient for maintenances.
- Minimum bend radius is controlled of 40mm.

Distribution Point Box (Wall & Rack Mount)

FDF - (A) – (B) – (C)

A: Adapter type (SC, FC, ST ….)
B: Capacity
C: Height (Unit, 1U=44.4mm)

Features

- FDS is made of top quality steel. It has solid structure for both aesthetic and functional.
- Fully-closed structure with the advantages of good performance of dust-proof, pleasing and neat appearance.
- Enough space for fiber distribution and storage space and very easy for installation and operations.
- Convenient for maintenances.
- Minimum bend radius is controlled of 40mm.

OTB (Optical Termination Box)

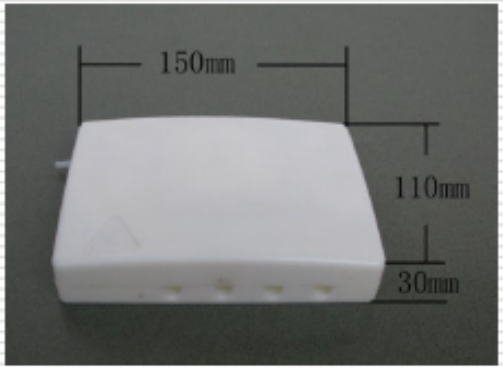
As a box type using in FTTH SYSTEM, it is manufactured for distributing the splitter and connecting in pre-subscriber, connecting the adaptor and protecting the fiber between subscriber in outdoor and splitter distributing.
It also have the resistance to ultraviolet and rain, capable of maintaining the structure of the exterior shape which can be mounted pole, wall and inside wall in middle-OTP, and further expansion of subscriber line circuits can be added easily.

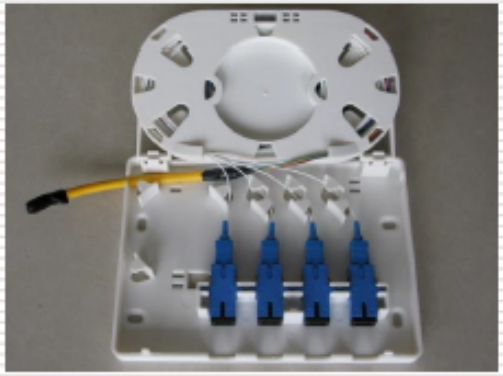
OTP-4C	OTP-8C	OTP-16C	OTP-32C
			

Product	Dimensions (L x W x D), mm	Inlet Ports	Outlet Ports	Max. Capacity
OTP-4C	186 x 130 x 40	1	4	4 Cores
OTP-8C	216 x 188 x 50	2	8	8 Cores
OTP-16C	336 x 267 x 102	2	16	16 Cores
OTP-32C	380 x 200 x 110	2	32	32 Cores

Subscriber Outlet

Fiber Optic Terminal Box is a newly developed by our company for application of FTTH. It is used for wall-mounted and rack-mounted applications, and mainly used in villas, commercial office buildings, Internet cafes, family and other users. It can be install FC and SC adapters, the max capacity is 4 fibers.





ITEM	Specifications
Dimensions(L×W×H)	150mm × 110mm × 30mm
Capacity	Max. 4 ports
Splicing capacity	Max. 4 Cores
Operation Temperature	-25℃ ~ +40℃

Features

-Compact size, light weight and compact structures.

- high impact resistant

- wall mounted and rack mounted applications.

- Easy to assemble

Subscriber Outlet

Fiber Optic Terminal Box is a newly developed by our company for application of FTTH. It is used for wall-mounted and rack-mounted applications, and mainly used in villas, commercial office buildings, Internet cafes, family and other users. It can be install FC and SC adapters, the max capacity is 2 fibers.

ITEM	Specifications
Dimensions(L×W×H)	86㎜ × 86㎜ × 30㎜
Capacity	Max. 2 ports
Splicing capacity	Max. 2 Cores
Operation Temperature	-25℃ ~ +40℃

Features

- Wall installation, space saving, easily installation
- Light weight, high intensity, Good crashworthiness and dustproof
- Clear management for the patch cord and easily find
- Sufficient space can be ensure the fiber bending rate

OFSC(Optical Fiber Splice Closure)

Optical Fiber Splice Closure protects fiber optic splice while providing fast and easy reentry. It is installed on wires, in manholes and mounted on poles.
The Closure provides reliable sealing performance and fiber splices are enclosed in a ribbed polypropylene body that has high mechanical and environment characteristics.

Dome Type Optical Splice Closure



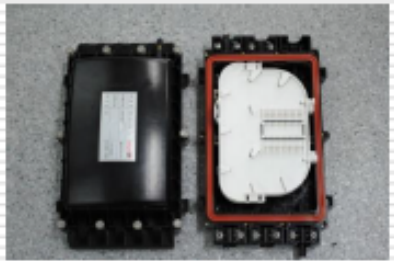
Item	Specification		
	BS604A	BS604C	BS810A
size , mm	522 X 211 X 174	522 X 211 X 174	Ø268 X 695
Weight (kg)	2	2.5	9
Inlet ports	8	8	8
Cable dia.	Ø 8~24	Ø 8~24	Ø 8~29
No. of splice trays	4	4	10
Tray capacity	12C (Max. 24C)	24C (Max. 48C)	60C (Max. 120C)
Splice capacity	48C (Max. 96C)	96C (Max. 192C)	600C (Max. 1200C)
Splice method	Fusion, mechanical		
Splice protector	Heat shrinkable sleeve, mechanical splicer		

OFSC(Optical Fiber Splice Closure)

In-Line Type Optical Splice Closure

BS606R

K806A



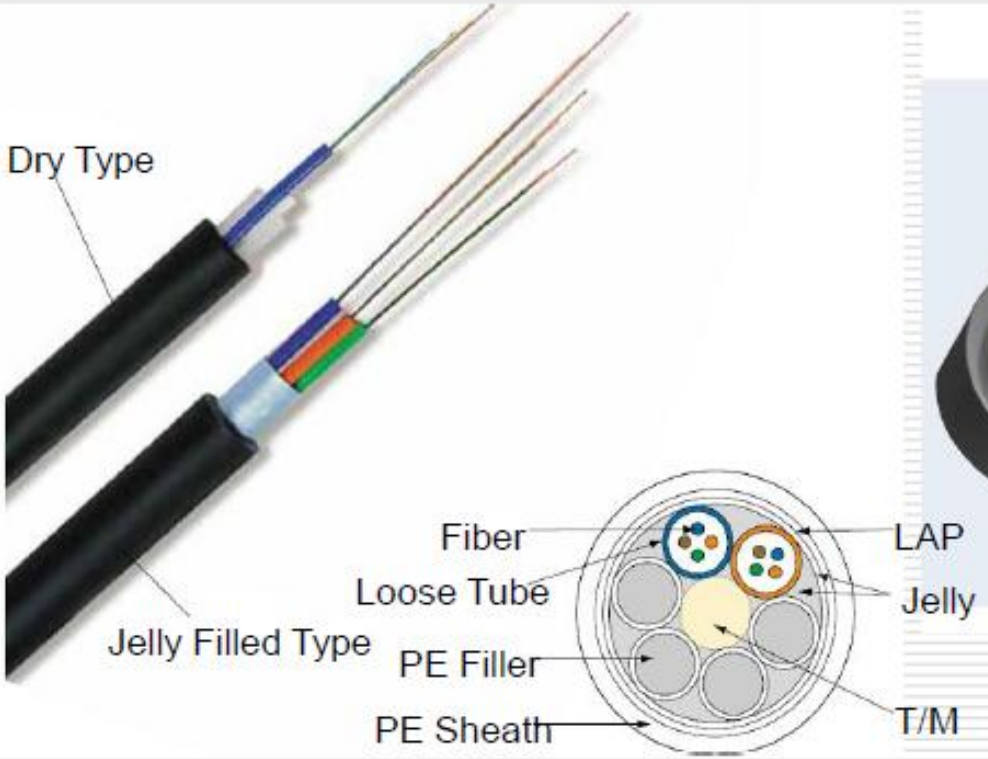
K605A

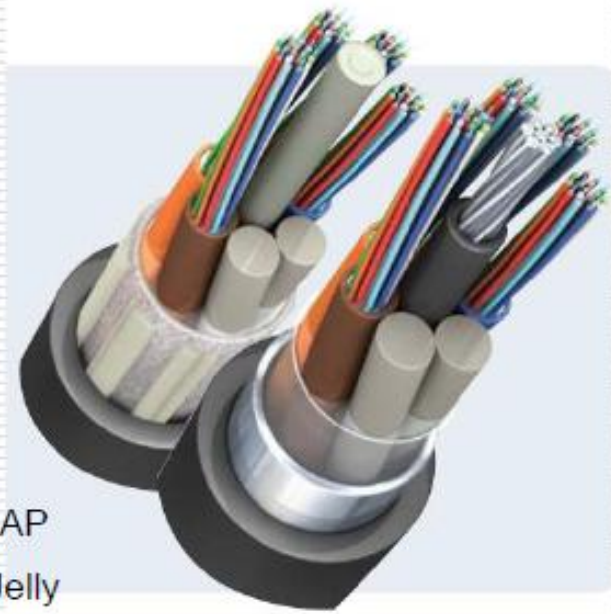
BS603BT

ITEM	SPECIFICATIONS			
	K605A	K806A	BS606R	BS603BT
Size (mm))	320×195×120	559×242×135	600×330×225	420×180×100
(Weight (kg))	2.5kg	4.5kg	8.0kg	2.5kg
Inlet Port	6	8(Max.10)	6	6
Cable Dia. (mm)	Ø3 ~ Ø16	Ø8 ~ Ø24	Ø8 ~ Ø27	Ø8 ~ Ø18
No. of Tray	5	6	6	3
Tray Capacity	12C (Max.24C)	24C (Max.48C)	Loose:32C, Ribbon:324C	24C (Max.48C)
Splicing Capacity	60C (Max. 120C)	144C (Max. 288C)	Loose:216C, Ribbon:1,944C	72C (Max. 144C)

Fiber Optic Cables

Fiber Optic Indoor / Outdoor Loose Tube Cables





Application

- Long haul Network
- Subscriber Network
- Home Network

NGN (Next Generation Network) Duct

Close/open metallic and aluminium ducting system that is used in floor and the air of communication machine room is difficult to spread cables.
When it needs to expand inner place, prefabricate ducting system that is easy to install, rearrange, remove can improve workplace and quality by minimizing bend and friction that happen to existing ducting system

Thank you very mcuh!