

FTTX Solutions Product Catalogue

Comprehensive Solution for High Grade Communication

Fiber Access Switch | Fiber CPE Switch | Fiber Gateway

Table Of Contents

CTS

About CTS	03
Why CTS	04
Successful Case	05

Fiber Switch Solutions

Application of Fiber Switch Solutions	15
Access Switch Solutions	
• 19-inch 10G Fiber Managed	17
• 19-inch 1G Fiber Managed	18
• 8.5-inch 1G Fiber Managed	20
• 10/19-inch Ethernet Managed	21
• 13/19-inch PoE Managed	22
Fiber CPE Switch Solutions	
• Fiber Managed CPE	23
Long Reach PoE Solutions	
• Long Reach PoE Extender	25

Fiber Gateway Solutions

Application of Fiber Gateway Solutions	27
Fiber Gateway Solutions	
• Fiber Managed Gateway	29

Accessory

SFP/SFP+ Transceiver	
• 10G Ethernet	30
• Gigabit Ethernet	31
• Fast Ethernet	32
Lightning Protector	32
External Battery Unit	32

Professional Network Solution Provider

Founded in 1998, Connection Technology System Inc. (CTS) consists of a group of design, technical, and marketing professionals with diverse backgrounds in the communication field and focuses on the professional FTTX and Industrial networking solutions to telcos, network operators, and broadband service providers all over the world. In 2017, with the advantages and experiences accumulated from FTTX markets, CTS launched SIMPNIC* to dedicate to the most cutting-edge IoT integrated solutions to meet the trend of smart living.



FTTX, Industrial
Network Solutions



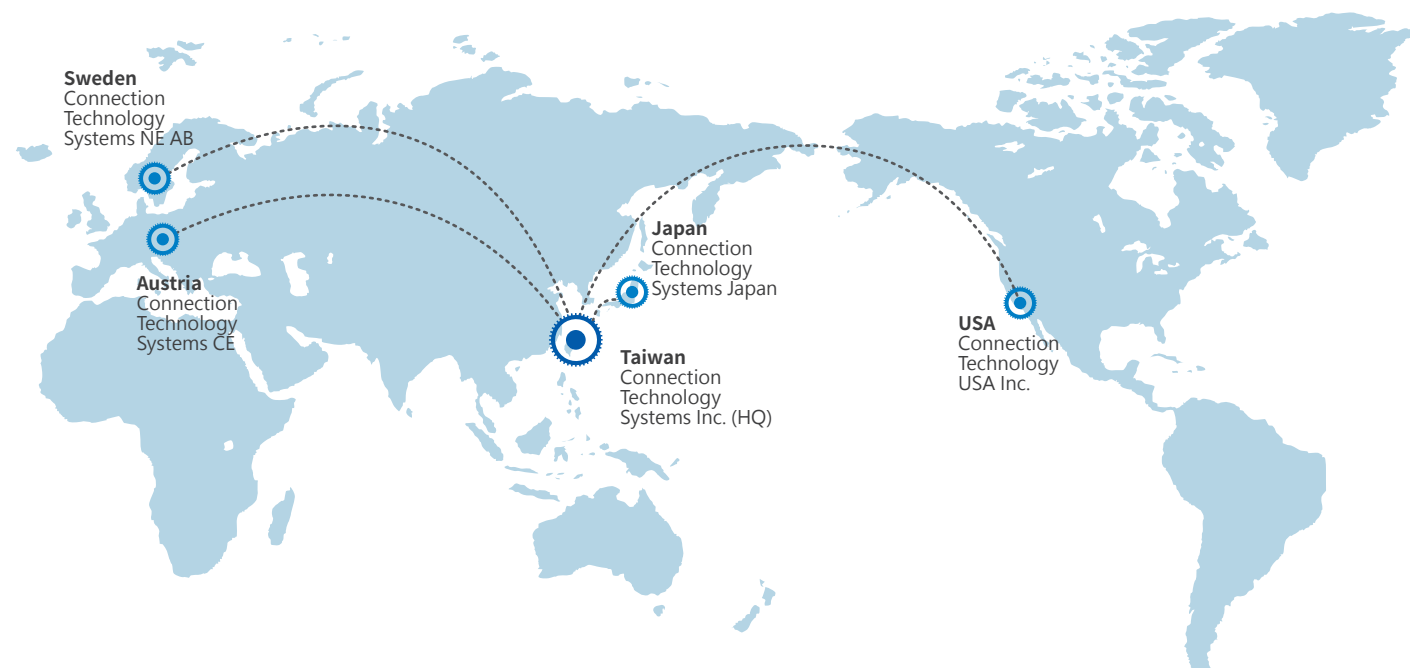
IoT Integrated Solutions
(*www.simpnic.com)

In close cooperation with our partners, CTS has achieved:

- Over **1,4 Million** FTTX Last Mile Deployments
- Over **750,000** Fiber Ethernet Connectivity Deployments
- Over **100,000** FTTB Access-Side Deployments

With in-house design capability and over 20 years of FTTX domain knowledge, CTS has been a reliable partner who always acts proactively to understand customers needs in order to provide the most innovative and valuable solution. While our business is growing in different parts of the world, CTS established local branches in Sweden, USA, Japan and Austria since 2010 to provide fast and efficient response as well as to form a deeper understand and closer relationship with regional markets.

Throughout the past two decades, CTS has seamlessly teamed up with our customers and delivered a wide range of professional fiber connectivity solutions. We will continue to keep our customer in mind and think steps-ahead to develop flexible, high-quality and efficient solutions that create the most value to our customers around the world.



About CTS

Why CTS

The Spirit of Pursuing Excellence

For CTS, our achievement is defined by each successful story our customers have experienced. Until this day, with 20 years experiences in the field, CTS' innovative spirit and passion still driving the company to pursue excellence. Through continuously interact with the clients and the markets, CTS has insisted on keeping "Differentiation and Glocalization" which has make us one of the leading solution providers for telecom companies, network operators, and broadband service providers all over the world.

Networking Consultant

- With more than 20 years of FTTX experiences, our "Smart-consult Team" combines the best of CTS members who work closely with customers.
- Local professional team in CTS branches offers quick and regional-specific assist and allows us to response value-added information and can think steps ahead.

In-house Designer

- With the ability to design and manufacture by ourselves, CTS continuously pursues to optimize the solution for better fiber connectivity deployment and future applications.
- Conscientiously research on the market in order to create innovative differentiations to fulfill the ever-growing expectation from the customers worldwide.

Trustworthy Partner

- CTS is not just a vender but partner to our client because we always keep our customer's goal in mind to develop the most fitted solution.
- 0.07% DOA rate is a result of CTS' high-standard quality control program that demonstrate throughout the design, manufacturing, customer service process.

Flexible FTTB Solution for Mid-size Apartment Buildings in Middle East

Background

The client is the top Telecom in Middle East whose main service including telephony, Internet, and TV/IPTV services. This company started its Fiber to the Apartment Building deployment project in hope to reach out to its end customer to provide a reliable, secure, and fast network connectivity to home premises...

CTS Products



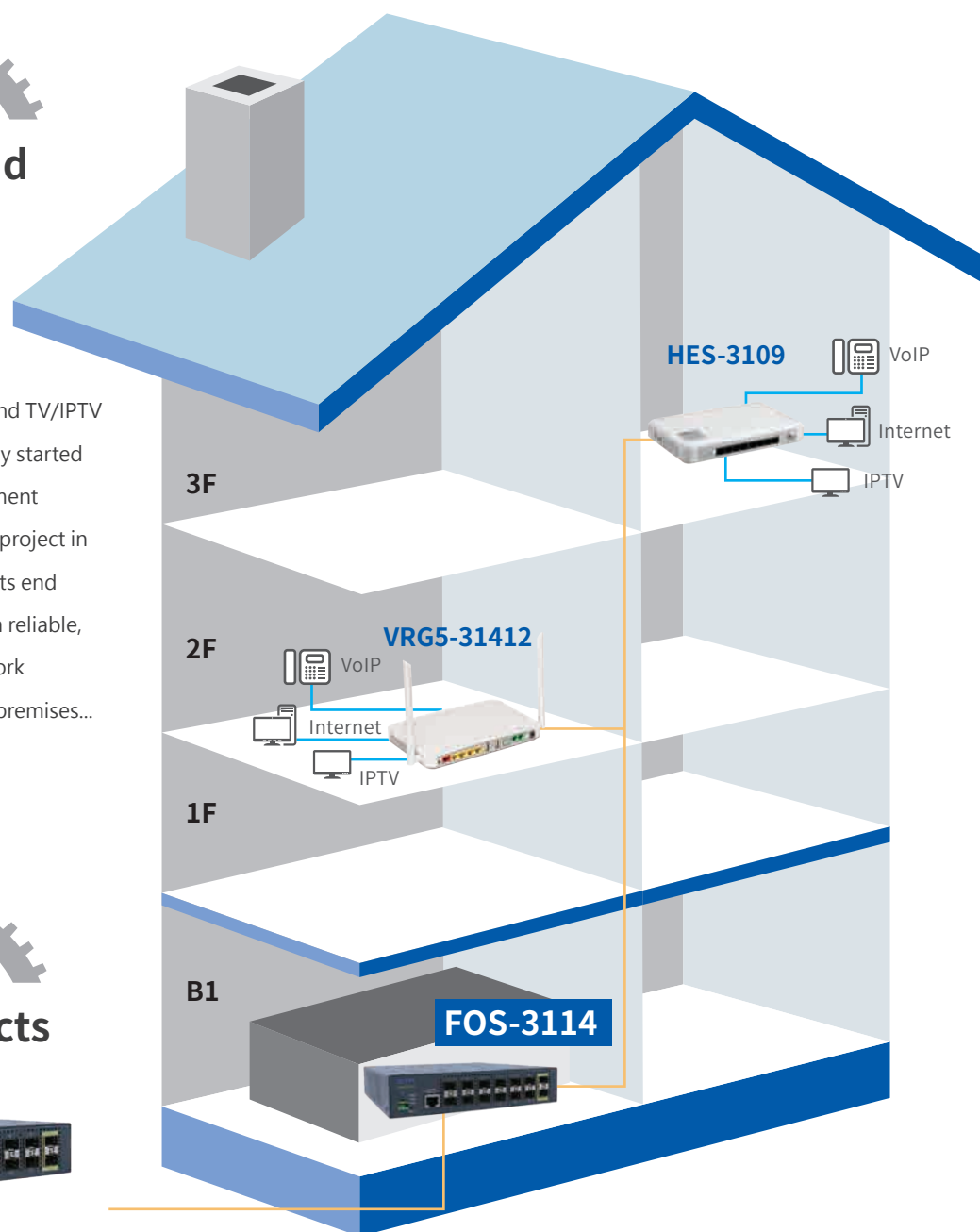
FOS-3114

14-Port Gigabit Fiber Managed Switch



FOS-3110

10-Port Gigabit Fiber Managed Switch



Challenge

- ① Average 8~10 units in the apartment building.
- ② Confine installation space.
- ③ Limited DC power sources.
- ④ Low noise tolerance.
- ⑤ Need to manage large amount of devices.
- ⑥ Collect usage data in order to improve its service.

Solution & Benefit

- ① 8 and 10 dual rate fiber LAN port support for up to 1G speed.
- ② Supports cabinet-mount or rack-mount of 9, 12 and standard 19-inch rack.
- ③ Built-in AC PSU require less hassles to find DC power source in residential environment.
- ④ Fanless design eliminates residents' complaint on noise, also ensures longer life span.
- ⑤ VLAN, QoS, DHCP and IGMP Snooping for service provision.
- ⑥ Remote management through IP Telnet, WEB, SNMP and SSH to reduce maintenance cost.



Networking Consultant

Advise application layout and plan for two solutions within three month.



Trustworthy Partner

Constant communication and field research aimed to pin point customer's problem.



In-house Designer

Collaborate with customers to create the most fitted solution to address the issue.

Localized FTTX Solution for Broadband Service Provider in Southern India

Background

ACT started as a content and cable service provider in Bangalore, India. In around 2010, the company was eager to expand to broadband business but was lack of technical and deploying experiences. CTS since plays a key role in ACT 's business expansion by providing crucial technical support. We are committed to provide a suitable solution for local environment that create the most value for customer.

CTS Products



FOS-3148-BAT

48-Port Gigabit Fiber Managed Switch



FOS-3114

14-Port Gigabit Fiber Managed Switch



HES-3109/HES-3106

8/5-Port Gigabit Copper + 1-Port Gigabit Fiber Managed CPE Switch



Networking Consultant

CTS smart-consult team provides effective solution and on-time support.



Trustworthy Partner

CTS not only is a FTTX vender, we also consult with our expertise.

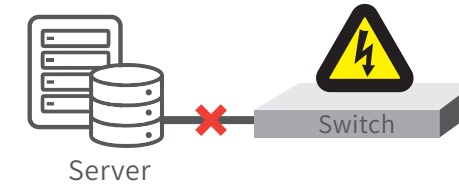


In-house Designer

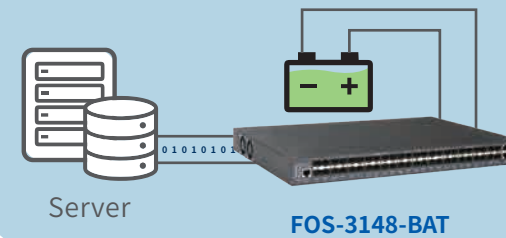
Created most value for the customer by successfully targeting their pain point.

Challenge 1: Power Outage

Power shortage and electricity theft are common issues in India. Battery-backup solution can help to lessen end user complain on internet shutdown due to power outage.

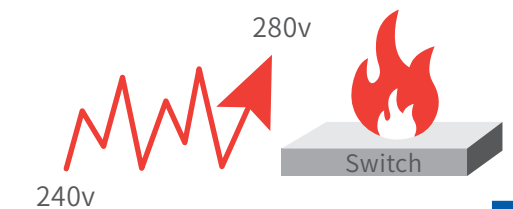


Solution 1: Industrial Battery Backup

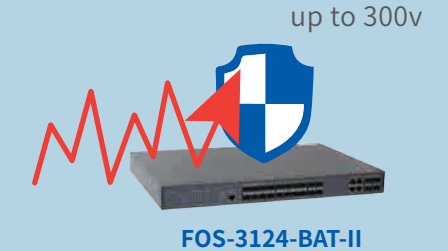


Challenge 2: Unstable Input Voltage

The power supply in the service area is not stable, which can damage any connected devices. To address this issue, CTS implanted high-voltage cut to protect devices from damage by cutting off power supply when detecting abnormality.

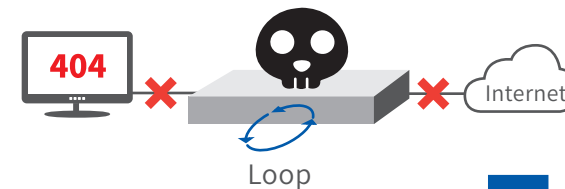


Solution 2: High Piezoelectric Protection

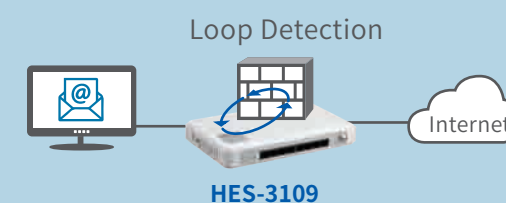


Challenge 3: Unpredictable Faulty Connection

Unauthorized connection may create broadcast loop to obstruct internet service. Loop Detection has been customized into CTS product to isolate the loop to minimize the affected service area.



Solution 3: Loop Detection

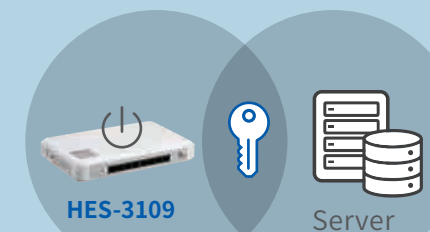


Challenge 4: Theft

Theft problem occurs in some cities where devices could be stolen and sold to black market. The Anti-theft function requires all devices to verify with the server when booting. The unverified devices will not able to function which can lower the intention of theft.



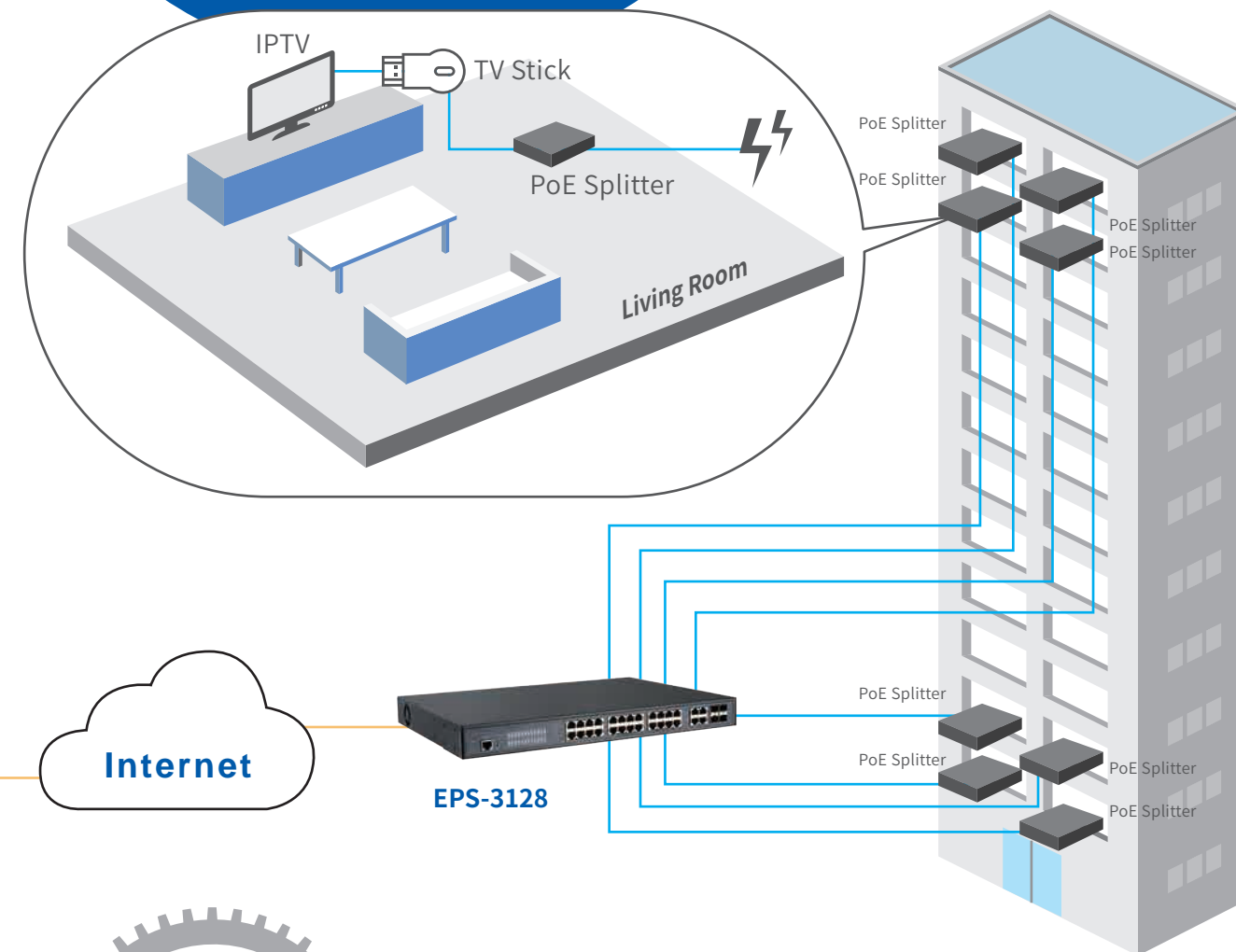
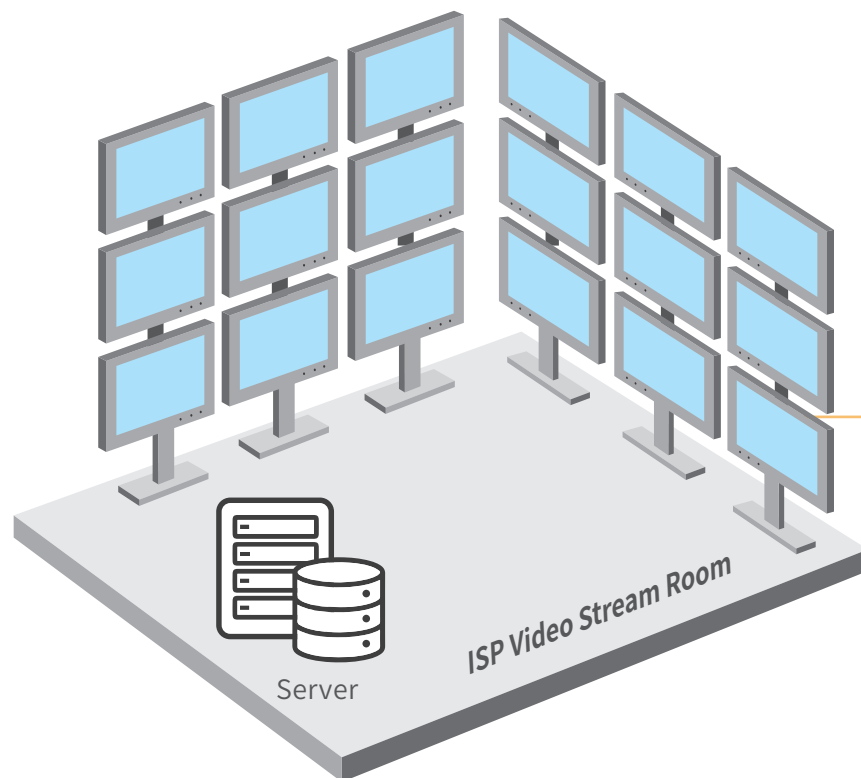
Solution 4: Security Protection



PoE Solution for IPTV Service in Japanese Apartment Complex

Background

One of the top apartment management company in Japan has been providing Satellite IPTV service in every of their apartment units since 2002. While its leasing business rapidly expand, the original solution can no longer fulfill its tenants' demand for better video streaming quality. The apartment management company was looking for a new solution with best price-performance ratio from a vendor who can promise the best quality and sales services...



Challenge

- ① Average 21~24 units in one building, each unit has a TV stick need to be connected.
- ② The client is keen to reduce wiring complexity by PoE solution.
- ③ Require features that can enable smooth IPTV streaming service.

Solution & Benefit

- ① 24 PoE ports provide up to 30W per port and maximum 100m transmission distance is perfect for powering TV sticks without extra wiring.
- ② IGMP Snooping, IGMP Fast Leave, IGMP Filtering, various QoS classifications and rate limit control to deliver smooth IPTV service.
- ③ Alarm threshold, port priority, quick control, and schedule-based provide efficient and effective management on PoE ports.

CTS Products



EPS-3128

24-Port Gigabit **802.3at PoE** + 4-Port Gigabit Combo Managed Switch



Networking Consultant

Local team provides quick and on-time support.



Trustworthy Partner

Actively response to customer's technical issue.



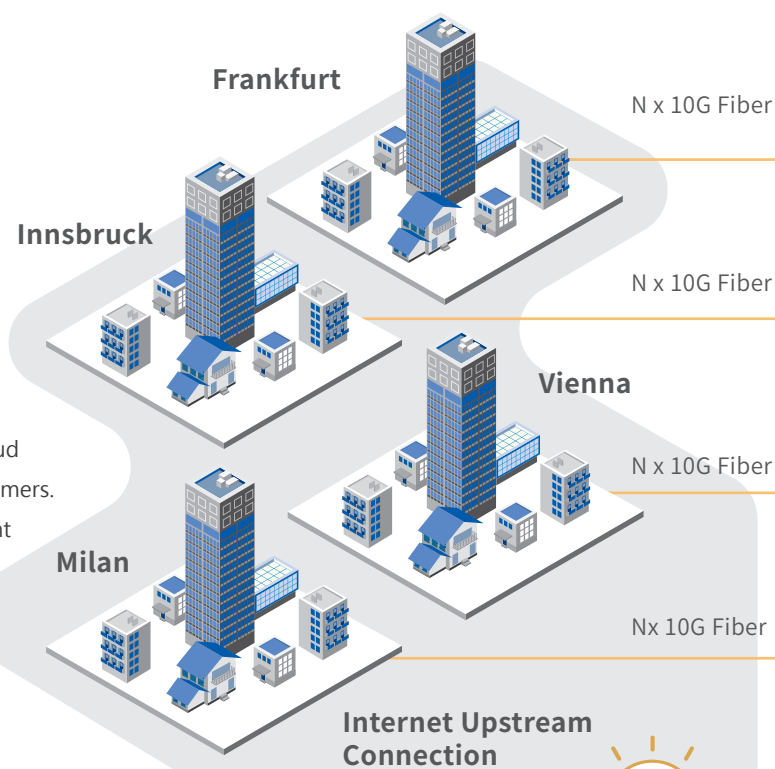
In-house Designer

Continuously improving through FW and HW update.

Austria's Regional Service Provider Chose CTS Switches for Its Network Infrastructure

Background

Established in 1999, Citynet is a progressive and modern Internet operator and service provider located in the City of Hall in Tyrol. Citynet offers Internet access, mobile Internet, VoIP and IPTV to private home users. It also offers web space, security products, cloud services and server housing for business customers. Its service structure has made itself an excellent reputation among the areas. However, the company must keep looking for the best solutions to keep up with its customers' ever-growing requests on service quality...



Challenge

- ① Being owned by the city's utility company raise the public expectation for outstanding service quality.
- ② Higher Internet speed is inevitable trend in near future.
- ③ Need a fine selection of access switch that suits the various applications.
- ④ Has to create differentiation in order to meet the competition from national or international operators.

Solution & Benefit

- ① Stable and reliable network connection with very few defects.
- ② Collaborated to create 10 Gigabit network infrastructure in keeping with the vision for a future-proof network.
- ③ Offered scalable solutions for different deployment scenario and applications including managed 10G to 1G Layer 2 Ethernet Fiber and CPE switches.
- ④ Robust centralized network management, monitoring and provisioning can fulfill the commitment of reliable service.



Manuel Kofler, Head of IT,
Stadtwerke Hall in Tirol GmbH



CTS Products



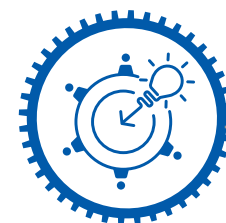
FOS-5126
24-Port 1G + 2-Port **10G** Fiber Managed Switch



FOS-3114
14-Port Gigabit Fiber Managed Switch



SWH-3112
8-Port Gigabit Copper + 4-Port Gigabit Combo Managed Switch



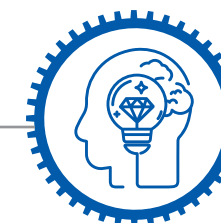
Networking Consultant

Regional technical support quickly identified and resolved the issues during the deployment stage.



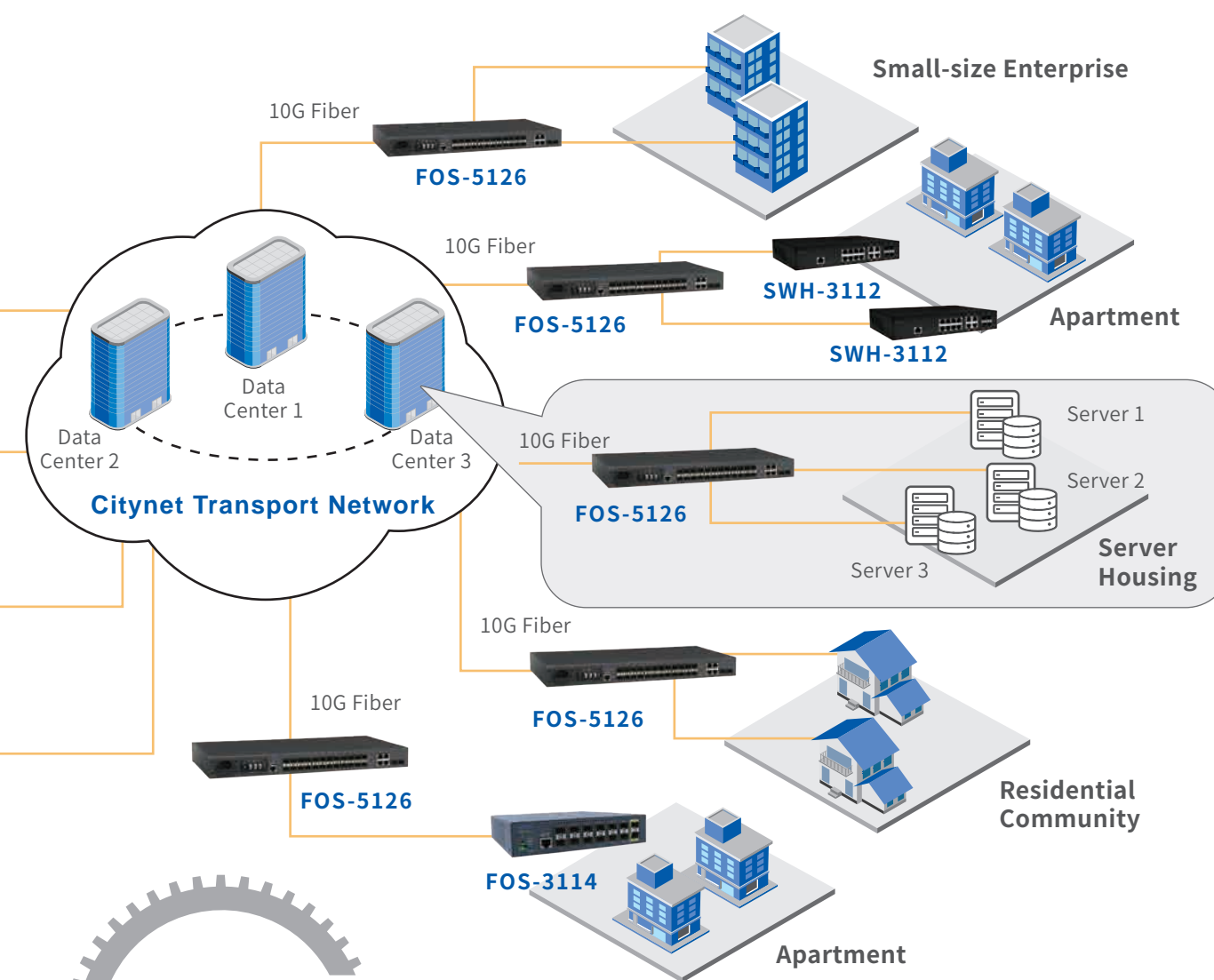
Trustworthy Partner

CTS works closely with the customer to provide the solution that help to achieve their vision.



In-house Designer

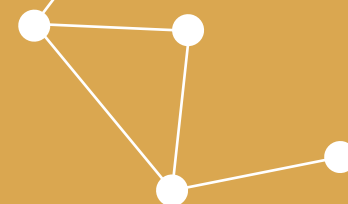
Robust management functions enable the operator to provide best service to the end customers.



“

The important thing for technician was the usability. CTS products are easy to integrate and they are reliable and very stable.

”



Small Size, Easy-deploy and Easy-expand Fiber Solutions

All-inclusive Fiber Optic Switch Solutions

CTS FOS series can work as the fiber backbone switch. With 10~48 100/1000Base-X dual-speed SFP slots, FOS offers great flexibility to work with different SFP transceivers. Through fiber optic cabling, FOS can connect to CTS CPE Fiber Switch by up to 120km. CTS Fiber Switch also supports powerful Layer 2 protocol function, robust security features and management interfaces.

- IEEE 802.1q Tagged VLAN, Q-in-Q, Port-based VLAN and VLAN Translation
- IGMP Snooping v1, v2 and v3; MLD Snooping v1 and v2
- Layer 2, 3 and 4 Access Control List
- IEEE 802.1p QoS, CoS and DSCP for 8 Priority Queues
- IEEE 802.3ad Link Aggregation and Static Trunk
- STP, RSTP and Loop Detection
- DHCP Snooping, DHCP Option 82 and DHCP Auto Provisioning
- WEB UI, CLI, Telnet, SSH and SNMP v1/v2c Management Interface



As a leading provider of network equipment for FTTH, CTS CPE switch – HES series is designed to be installed in wall enclosures or on an individual wall-mount kit at any location. The add-on cable tray can organize excessive cable and provide extra protection to the delicate fiber. HES series equip with 4/5-port 10/100/1000Base-T copper and 1 extra 100/1000Base-X SFP fiber interface that can flexibly work with suitable SFP transceivers to connect to backbone switch in up to 120km. HES series also supports powerful Layer 2 protocol functions, robust security features and management interfaces as follow.

- IEEE 802.1q Tagged VLAN, Q-in-Q and Port-based VLAN
- IGMP Snooping v1, v2 and v3
- IEEE 802.1p QoS, and ToS for 4 Priority Queues
- Loop Detection, Storm Control and Bandwidth Control
- DHCP Snooping, DHCP Client and DHCP Auto Provisioning
- WEB UI, CLI, Telnet, SSH and SNMP v1/v2c Management Interface

Application of Fiber Switch Solutions

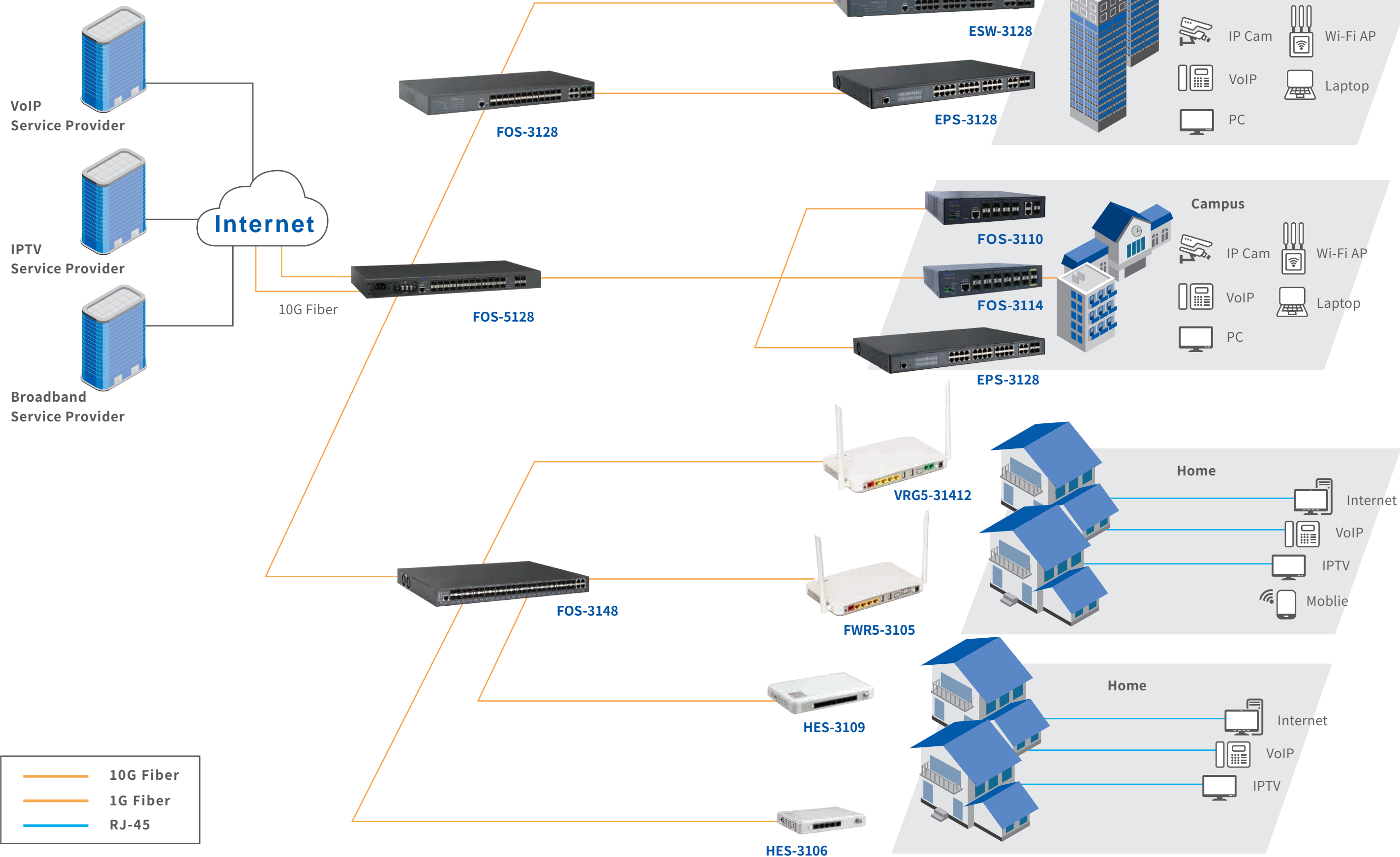
15

Successful Case

Fiber Switch Solutions

Fiber Gateway Solutions

Accessory







16

Successful Case

Fiber Switch Solutions




Fiber Gateway Solutions

Accessory

19-inch 10G Fiber Managed Access Switch			
Model Name		FOS-5128	FOS-5126
Product Image		 	 
Hardware	10G SFP+	4 (1G Compatible)	2 (1G Compatible)
	10/100/1000Base-T	-	4 (COMBO)
	10/100Base-TX	-	-
	1000Base-X	24	24
	100Base-FX	Compatible	Compatible
	RS-232 Console Port (RJ-45)	1	1
	Dimension W x D x H	440 x 205 x 44mm	
	Operating Temperature (Humidity)	0~50°C (5~90%)	
	Power Source	100~240VAC/48VDC	
	Power Redundancy	•	
	External Battery Type	-	
	IEEE 802.3af/at PoE	-	
	MAC Address Table	16K	
	Non-blocking Switching Fabric	128Gbps	88Gbps
	Memory Buffer	1536K Bytes	
	Jumbo Frame	12K Bytes	9K Bytes
Traffic Management	IPv6	IPv4/IPv6 Dual Stack	
	QoS	802.1p, ToS/DSCP	
	QoS Priority Queue	8	
	Bandwidth Control	•	
	Broadcast Storm Control	•	
	IPTV Multicast	IGMP Snooping v1/v2/v3, MLD Snooping v1/v2	
	Network Redundancy	STP/RSTP	
	LACP	•	
	VLAN	802.1q, Q-in-Q, Port Based	
	VLAN ID	4094	
	VLAN Group	2K	
Security & Authentication	SSHv2	•	
	DHCP Option 82	•	
	Authentication	RADIUS, TACACS+, 802.1x MAB*	
	ACL (Access Control List)	•	
Network Management & Maintenance	Management	Telnet, CLI, WEB, SNMP v1/v2c/v3	
	Port Mirroring	•	
	SNMP Power Down Trap	•	
	DHCP	Client, Auto Provisioning, Snooping	
	SNTP	•	
	Firmware/Configuration Upgrade	FTP/TFTP/HTTP	
Certifications	EMC/Safety	FCC Class A, CE	

* Coming soon

19-inch 1G Fiber Managed Access Switch

Model Name		FOS-3148 FOS-3148-BAT FOS-3148-BAT-P	FOS-3128
Product Image		 	
Hardware	10/100/1000Base-T	4 (COMBO)	4 (COMBO)
	10/100Base-TX	-	-
	1000Base-X	48	28
	100Base-FX	Compatible	Compatible
	RS-232 Console Port (RJ-45)	1	1
	Dimension W x D x H	440 x 290 x 44mm (FOS-3148) 440 x 350 x 44mm (FOS-3148-BAT/FOS-3148-BAT-P)	440 x 205 x 44mm
	Operating Temperature (Humidity)	0~50°C (5~90%)	
	Power Source	100~240VAC/48VDC 190~255VAC, Protected up to 400V (FOS-3148-BAT-P)	100~240VAC/48VDC
	Power Redundancy	•	
	External Battery Type	VRLA (BAT model only)	-
	IEEE 802.3af/at PoE	-	
	MAC Address Table	16K	
	Non-blocking Switching Fabric	96Gbps	56Gbps
	Memory Buffer	1536K Bytes	
	Jumbo Frame	9K Bytes	
Traffic Management	IPv6	IPv4/IPv6 Dual Stack	
	QoS	802.1p, ToS/DSCP	
	QoS Priority Queue	8	
	Bandwidth Control	•	
	Broadcast Storm Control	•	
	IPTV Multicast	IGMP Snooping v1/v2/v3, MLD Snooping v1/v2	
	Network Redundancy	STP/RSTP	
	LACP	•	
	VLAN	802.1q, Q-in-Q, Port Based	
	VLAN ID	4094	
	VLAN Group	2K	
Security & Authentication	SSHv2	•	
	DHCP Option 82	•	
	Authentication	RADIUS, TACACS+, 802.1x MAB*	
	ACL (Access Control List)	•	
Network Management & Maintenance	Management	Telnet, CLI, WEB, SNMP v1/v2c/v3	
	Port Mirroring	•	
	SNMP Power Down Trap	•	
	DHCP	Client, Auto Provisioning, Snooping	
	SNTP	•	
	Firmware/Configuration Upgrade	FTP/TFTP/HTTP	
Certifications	EMC/Safety	FCC Class A, CE	

* Coming soon

19-inch 1G Fiber Managed Access Switch		
Model Name	FOS-3124-BAT-II FOS-3124-BAT-II-P	

Product Image



Hardware	10/100/1000Base-T	4 (COMBO)
	10/100Base-TX	-
	1000Base-X	24
	100Base-FX	Compatible
	RS-232 Console Port (RJ-45)	1
	Dimension W x D x H	440 x 310 x 44mm
	Operating Temperature (Humidity)	0~50°C (5~90%)
	Power Source	100~240VAC (FOS-3124-BAT-II) 190~255VAC, Protected up to 400V (FOS-3124-BAT-II-P)
	Power Redundancy	•
	External Battery Type	VRLA
	IEEE 802.3af/at PoE	-
	MAC Address Table	16K
	Non-blocking Switching Fabric	48Gbps
	Memory Buffer	1536K Bytes
	Jumbo Frame	9K Bytes
Traffic Management	IPv6	IPv4/IPv6 Dual Stack
	QoS	802.1p, ToS/DSCP
	QoS Priority Queue	8
	Bandwidth Control	•
	Broadcast Storm Control	•
	IPTV Multicast	IGMP Snooping v1/v2/v3, MLD Snooping v1/v2
	Network Redundancy	STP/RSTP
	LACP	•
	VLAN	802.1q, Q-in-Q, Port Based
	VLAN ID	4094
Security & Authentication	VLAN Group	2K
	SSHv2	•
	DHCP Option 82	•
	Authentication	RADIUS, TACACS+, 802.1x MAB*
Network Management & Maintenance	ACL (Access Control List)	•
	Management	Telnet, CLI, WEB, SNMP v1/v2c/v3
	Port Mirroring	•
	SNMP Power Down Trap	•
	DHCP	Client, Auto Provisioning, Snooping
	SNTP	•
Certifications	Firmware/Configuration Upgrade	FTP/TFTP/HTTP
	EMC/Safety	FCC Class A, CE

* Coming soon

8.5-inch 1G Fiber Managed Access Switch		
Model Name	FOS-3114	FOS-3110

Product Image



Hardware	10/100/1000Base-T	-	2 (COMBO)
	10/100Base-TX	-	-
	1000Base-X	14	10
	100Base-FX	Compatible	Compatible
	RS-232 Console Port (RJ-45)	1	1
	Dimension W x D x H	210 x 235 x 44mm	
	Operating Temperature (Humidity)	0~50°C (5~90%)	
	Power Source	100~240VAC/48VDC	100~240VAC/48VDC
	Power Redundancy	-	
	External Battery Type	-	
	IEEE 802.3af/at PoE	-	
	MAC Address Table	8K	
	Non-blocking Switching Fabric	28Gbps	20Gbps
	Memory Buffer	524K Bytes	
	Jumbo Frame	9K Bytes	
Traffic Management	IPv6	IPv4/IPv6 Dual Stack	
	QoS	802.1p, ToS/DSCP	
	QoS Priority Queue	8	
	Bandwidth Control	•	
	Broadcast Storm Control	•	
	IPTV Multicast	IGMP Snooping v1/v2/v3, MLD Snooping v1/v2	
	Network Redundancy	STP/RSTP	
	LACP	•	
	VLAN	802.1q, Q-in-Q, Port Based	
	VLAN ID	4094	
Security & Authentication	VLAN Group	2K	
	SSHv2	•	
	DHCP Option 82	•	
	Authentication	RADIUS, TACACS+, 802.1x MAB*	
Network Management & Maintenance	ACL (Access Control List)	•	
	Management	Telnet, CLI, WEB, SNMP v1/v2c/v3	
	Port Mirroring	•	
	SNMP Power Down Trap	•	
	DHCP	Client, Auto Provisioning, Snooping	
	SNTP	•	
Certifications	Firmware/Configuration Upgrade	FTP/TFTP/HTTP	
	EMC/Safety	FCC Class A, CE	

* Coming soon

10/19-inch Ethernet Managed Access Switch

Model Name	ESW-3128	SWH-3112
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Product Image



Hardware	10/100/1000Base-T	28	12
	10/100Base-TX	-	-
	1000Base-X	4 (COMBO)	4 (COMBO)
	100Base-FX	Compatible	Compatible
	RS-232 Console Port (RJ-45)	1	1
	Dimension W x D x H	440 x 205 x 44mm	265 x 183 x 44mm
	Operating Temperature (Humidity)	0~50°C (5~90%)	
	Power Source	100~240VAC/48VDC	100~240VAC
	Power Redundancy	•	-
	External Battery Type	-	
	IEEE 802.3af/at PoE	-	
	MAC Address Table	16K	8K
	Non-blocking Switching Fabric	56Gbps	24Gbps
	Memory Buffer	1536K Bytes	512K Bytes
	Jumbo Frame	9K Bytes	
Traffic Management	IPv6	IPv4/IPv6 Dual Stack	
	QoS	802.1p, ToS/DSCP	
	QoS Priority Queue	8	
	Bandwidth Control	•	
	Broadcast Storm Control	•	
	IPTV Multicast	IGMP Snooping v1/v2/v3, MLD Snooping v1/v2	
	Network Redundancy	STP/RSTP	
	LACP	•	
	VLAN	802.1q, Q-in-Q, Port Based	
	VLAN ID	4094	
	VLAN Group	2K	
Security & Authentication	SSHv2	•	
	DHCP Option 82	•	
	Authentication	RADIUS, TACACS+, 802.1x MAB*	
	ACL (Access Control List)	•	
Network Management & Maintenance	Management	Telnet, CLI, WEB, SNMP v1/v2c/v3	
	Port Mirroring	•	
	SNMP Power Down Trap	•	
	DHCP	Client, Auto Provisioning, Snooping	
	SNTP	•	
Certifications	Firmware/Configuration Upgrade	FTP/TFTP/HTTP	
	EMC/Safety	FCC Class A, CE	

* Coming soon

13/19-inch PoE Managed Switch

Model Name	EPS-3128-240W/480W EPS-3128-240W/480W-LP EPS-3128-SE-180W	EPS-3112
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Product Image



Hardware	10/100/1000Base-T	28	12
	10/100Base-TX	-	-
	1000Base-X	4 (COMBO)	4 (COMBO)
	100Base-FX	Compatible	Compatible
	RS-232 Console Port (RJ-45)	1	1
	Dimension W x D x H	440 x 330 x 44mm (EPS-3128/EPS-3128-LP) 440 x 230 x 44mm (EPS-3128-SE-180W)	330 x 230 x 44 mm
	Operating Temperature (Humidity)	0~50°C (5~90%)	
	Power Source	100~240VAC	
	Power Redundancy	Internal Redundancy**	-
	External Battery Type, Capacity	-	
	IEEE 802.3af/at PoE	24 Port	8 Port
	PoE Budget (Max.)	180W/240W/480W	130W
	MAC Address Table	16K	8K
	Non-blocking Switching Fabric	56Gbps	24Gbps
	Memory Buffer	1536K Bytes	512K Bytes
Traffic Management	Jumbo Frame	9K Bytes	
	IPv6	IPv4/IPv6 Dual Stack	
	QoS	802.1p, ToS/DSCP	
	QoS Priority Queue	8	
	Bandwidth Control	•	
	Broadcast Storm Control	•	
	IPTV Multicast	IGMP Snooping v1/v2/v3, MLD Snooping v1/v2	
	Network Redundancy	CTS Fast Ring v2*** STP/RSTP	STP/RSTP
	LACP	•	
	VLAN	802.1q, Q-in-Q, Port Based	
	VLAN ID	4094	
	VLAN Group	2K	
Security & Authentication	SSHv2	•	
	DHCP Option 82	•	
	Authentication	RADIUS, TACACS+, 802.1x MAB*	
	ACL (Access Control List)	•	
Network Management & Maintenance	Management	Telnet, CLI, WEB, SNMP v1/v2c/v3	
	Port Mirroring	•	
	SNMP Power Down Trap	-	
	DHCP	Client, Auto Provisioning, Snooping	
	SNTP	•	
Certifications	Firmware/Configuration Upgrade	FTP/TFTP/HTTP	
	EMC/Safety	FCC Class A, CE	

* Coming soon

** Function available only when the total power consumption is under 240W for EPS-3128-480W(-LP) model

*** CTS Fast Ring v2 includes Ring and Chain Protocol

Fiber Managed CPE Switch				
Model Name	HES-3109 HES-3109-DR	HES-3109TP	HES-3109SSFP-DR	

Product Image




Hardware	10/100/1000Base-T	8	9	8
	10/100Base-TX	-	-	-
	1000Base-X	1 (FX/W2X/SFP)	-	1 (SFP)
	100Base-FX	Compatible	-	Compatible
	Dimension W x D x H	228 x 148 x 33mm		180 x 130 x 30mm
	Operating Temperature (Humidity)	0~50°C (5~90%)		
	Cable Tray	Option (HES-FCT)		Option (HES-FCT-S)
	Power Source	100~240VAC to 12VDC Power Adaptor		
	Optional CATV RF Receiver	● (RF model only)	-	
	External Battery Type, Capacity	-		
	IEEE 802.3af/at PoE	-		
	MAC Address Table	8K		
	Non-blocking Switching Fabric	18Gbps		
	Memory Buffer	128K Bytes		
	Jumbo Frame	9K Bytes		
Traffic Management	IPv6	IPv4/IPv6 Dual Stack		
	QoS	Port Based, 802.1p, ToS/DSCP, 802.1q		
	QoS Priority Queue	4		
	Bandwidth Control	●		
	Broadcast Storm Control	●		
	IPTV Multicast	IGMP Snooping v1/v2		
	Network Redundancy	-		
	LACP	-		
	VLAN	802.1q, Q-in-Q		
	VLAN ID	4094		
	VLAN Group	128		
Security & Authentication	SSHv2	●		
	Loop Detection	●		
	Authentication	RADIUS		
	ACL (Access Control List)	-		
Network Management & Maintenance	Management	Telnet, CLI, WEB, SNMP v1/v2c		
	Port Mirroring	●		
	SNMP Power Down Trap	●		
	DHCP	Client, Auto Provisioning		
	SNTP	●		
	Firmware/Configuration Upgrade	FTP/TFTP		
Certifications	EMC/Safety	FCC Class A, CE		

Fiber Managed CPE Switch				
Model Name	HES-3106(B) HES-3106-DR HES-3106-PLUS(-DR)	HES-3106TP	HES-3106SFP-F2	

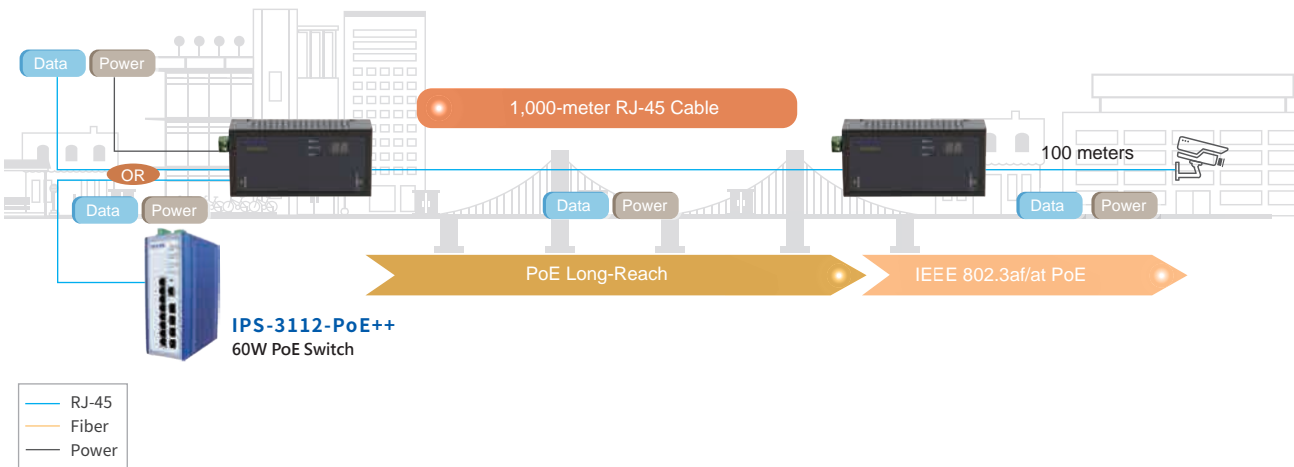
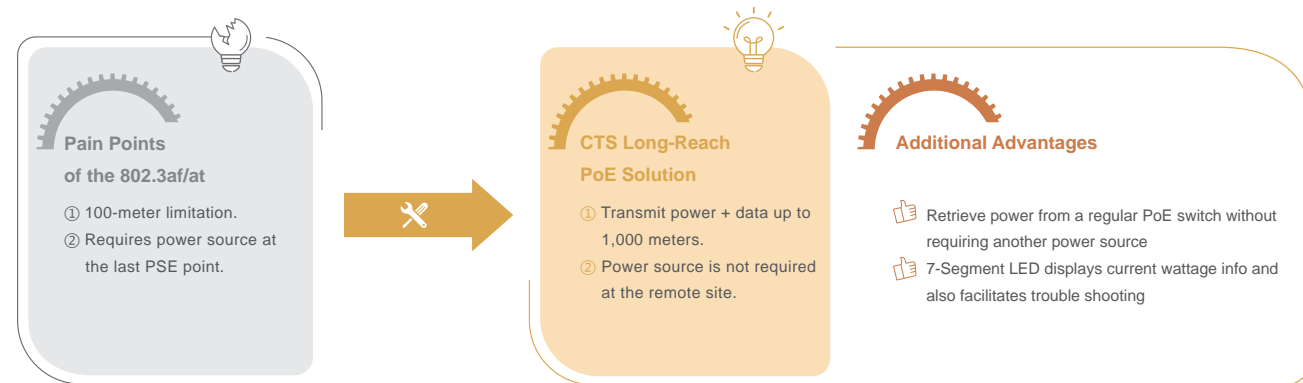
Product Image



Hardware	10/100/1000Base-T	5	6	4
	10/100Base-TX	-	-	-
	1000Base-X	1 (FX/W2X/SFP)	-	2 (SFP)
	100Base-FX	Compatible	-	-
	Dimension W x D x H	180 x 130 x 30mm		
	Operating Temperature (Humidity)	0~50°C (5~90%)		
	Cable Tray	Option (HES-FCT-S)		
	Power Source	100~240VAC to 12VDC Power Adaptor		
	Optional CATV RF Receiver	● (RF model only)	-	
	External Battery Type, Capacity	-		
	IEEE 802.3af/at PoE	-		
	MAC Address Table	2K		
	Non-blocking Switching Fabric	12Gbps		
	Memory Buffer	128K Bytes		
	Jumbo Frame	9K Bytes		
Traffic Management	IPv6	IPv4/IPv6 Dual Stack		
	QoS	802.1p, ToS/DSCP		
	QoS Priority Queue	4		
	Bandwidth Control	●		
	Broadcast Storm Control	●		
	IPTV Multicast	IGMP Snooping v1/v2		
	Network Redundancy	-		
	LACP	-		
	VLAN	802.1q, Q-in-Q, Port Based		
	VLAN ID	4094		
	VLAN Group	128		
Security & Authentication	SSHv2	●		
	Loop Detection	●		
	Authentication	-		
	ACL (Access Control List)	-		
Network Management & Maintenance	Management	Telnet, CLI, WEB, SNMP v1/v2c		
	Port Mirroring	●		
	SNMP Power Down Trap	●		
	DHCP	Client, Auto Provisioning		
	SNTP	●		
	Firmware/Configuration Upgrade	FTP/TFTP		
Certifications	EMC/Safety	FCC Class A, CE		

Long Reach PoE Extender			
Model Name	PLR-2012-TX		PLR-2012-RX
Product Image			
Hardware	10/100/1000Base-T	-	-
	10/100Base-TX	1 x R-J45 w/ PoE PD 1 x RJ-45 w/ PLR PSE	1 x RJ-45 w/ PoE PSE 1 x RJ-45 w/ PLR PD
	1000Base-X	-	-
	100Base-FX	-	-
	RS-232 Console Port (RJ-45)	-	-
	Dimension W x D x H	60 x 120 x 32mm	
	Operating Temperature (Humidity)	0~60°C (5~90%)	
	Power Source	54~57VDC PoE Input: IEEE 802.3af/at and 60W PoE++	54~57VDC PoE Input: long reach PoE
Certifications	PoE Output	Long reach PoE	IEEE 802.3af/at
	EMC/Safety	FCC Class A, CE	

Stretch Your Network to a New Length



High-performance Triple Play Fiber Gateway Solutions

CTS fiber gateway series equips with built-in 100/1000Base-X fiber interface which supports transceivers on WAN port. Through fiber connection on WAN port, CTS gateway is able to provide reliable bandwidth to multiple services such as high-performance IPTV, VoIP, Internet, Wi-Fi and on-line game service, all in one device. Built-in IEEE 802.11b/g/n/ac wireless capability allows wireless clients to connect to high performance internet without additional cabling.

- 1 x Gigabit Combo WAN Port + 4 x Gigabit LAN port
- 2 x FXS RJ-11 Port for VoIP Phone Connection
- IPv4 and IPv6 Dual Stack Management
- Supports WPA/WPA2/WPA-mixed Wireless Security Encryption
- Supports IGMP Snooping v1/v2, IGMP Proxy and Fast Leave
- Supports Dynamic IP Address, Static IP Address, PPPoE or Bridge Mode for Multiple WAN Connections
- Supports IPSec., PPTP and L2PT VPN Pass Through
- Supports Port Forwarding and DMZ Networking Applications



Application of Fiber Gateway Solutions

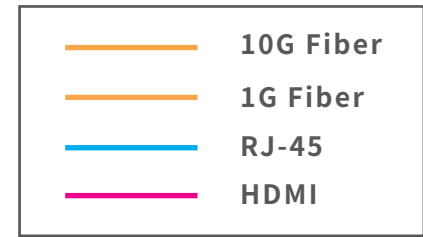
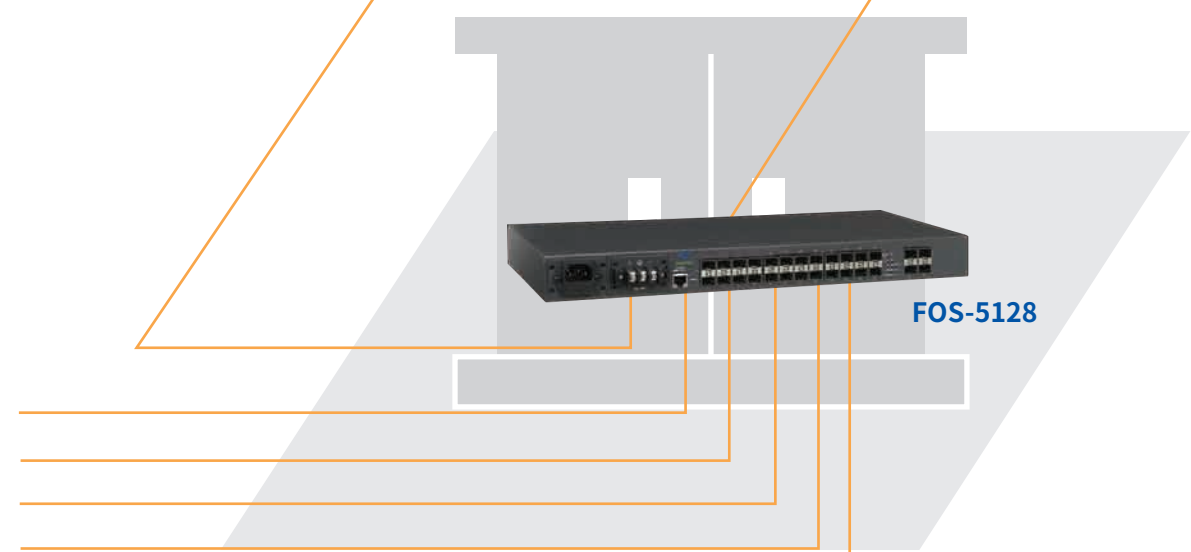
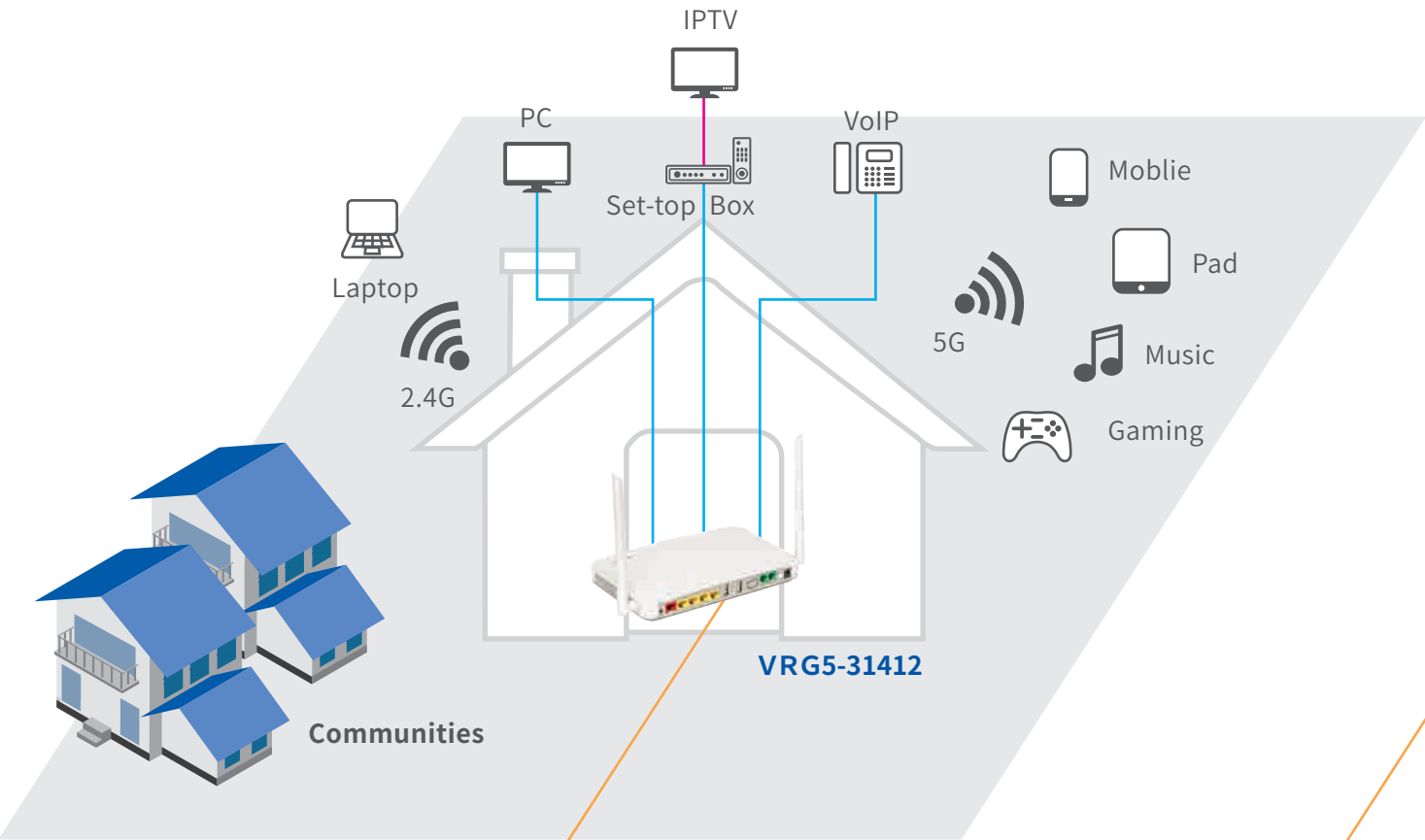
27

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Fiber Switch Solutions

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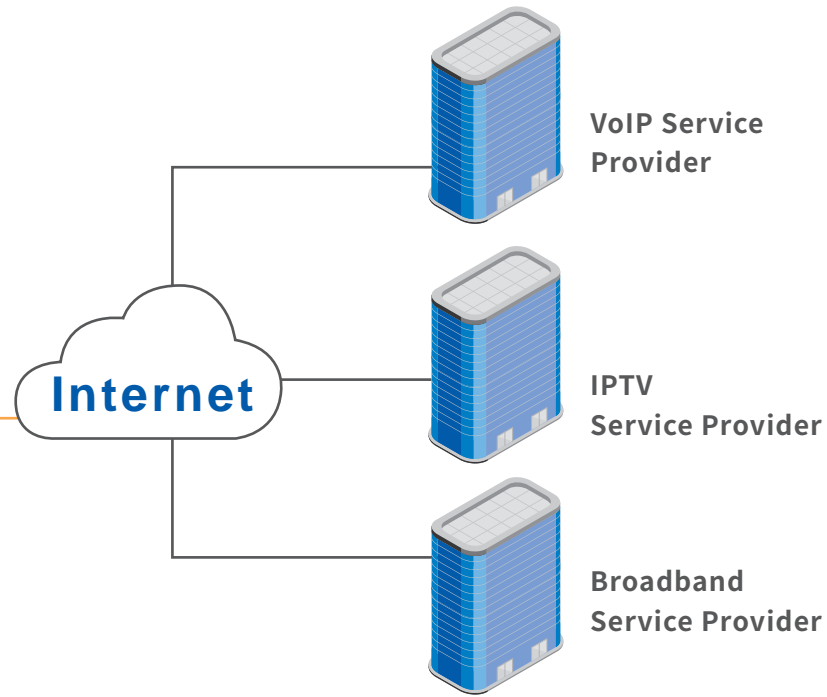
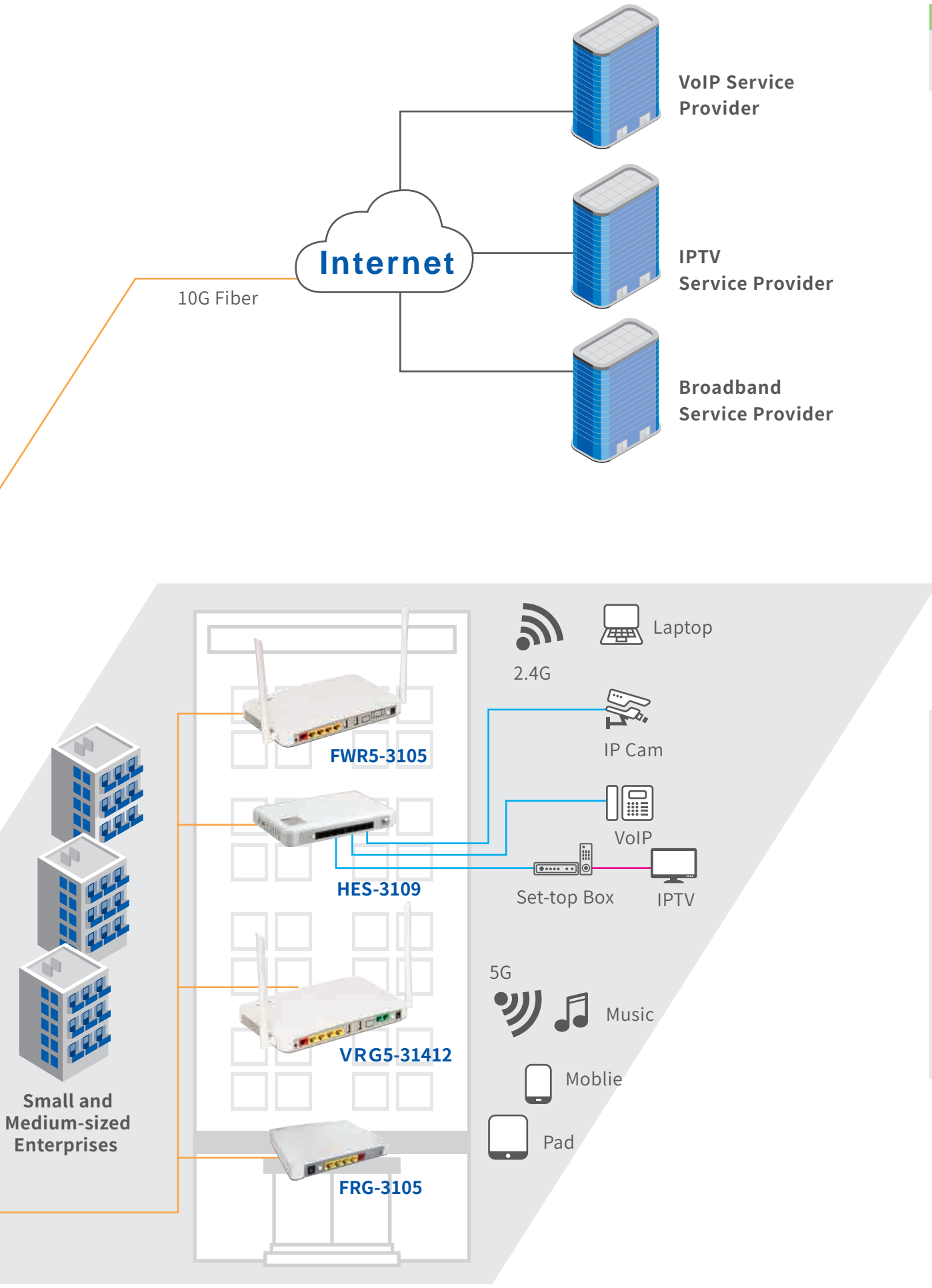
28


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Fiber Managed Gateway				
Model Name		VRG5-31412SFP-CW-AC-DR	FWR5-3105SFP-CW-AC-DR	FRG-3105SFP-CW-DR
Product Image				
Hardware	WAN Port	1x 100/1000Base-X SFP slot (1x 10/100/1000Base-T combo port)	1x 100/1000Base-X SFP slot (1x 10/100/1000Base-T combo port)	1x 100/1000Base-X SFP slot (1x 10/100/1000Base-T combo port)
	LAN Port	4 x 10/100/1000Base-T	4 x 10/100/1000Base-T	4 x 10/100/1000Base-T
	VoIP FXS Port	2	-	-
	Wi-Fi Standard	802.11 b/g/n/ac		-
	Wi-Fi Frequency	2.4GHz/5GHz		-
	Antenna	2 x Fixed External, 2T2R MIMO		-
	Dimension W x D x H	229 x 149 x 30.8mm		180 x 130 x 38.5mm
	Operating Temperature (Humidity)	0~50°C (5~90%)		
	Cable Tray	Option (HES-FCT-S)		
	MAC Address Table	1K		
	Jumbo Frame	9K Bytes		
Wi-Fi & Security	Wi-Fi WPS	•	-	
	Data Encryption	64/128bit WEP, WPA, WPA2		-
	MAC ACL	•	-	
	Firewall	•	-	
	SSID	8	-	
Traffic Management	IPv6	IPv4/IPv6 Dual Stack		
	NAT/Bridge Hybrid Mode	•		
	DMZ Host	•		
	QoS	Port Based, 802.1p, ToS/DSCP		
	QoS Priority Queue	4		
	Bandwidth Control	•		
	VoIP	SIP, Codec (G.711a/u, G.723, G.726, G.729a/b)	-	
	IPTV Multicast	IGMP Snooping v1/v2, Proxy, Fast Leave		
	VLAN	802.1q		
	VLAN Group	64		
Network Management & Maintenance	Management	WEB, SNMP, CLI, Telnet		
	RADIUS	•		
	Packet & URL Filtering	•		
	SNMP Power Down Trap	•		
	DHCP	Server, Client, Auto Provisioning		
	SNTP	•		
	UPnP & DDNS	•		
	CWMP	TR-069*		
	Firmware/Configuration Upgrade	FTP/TFTP/HTTP		
Certifications	EMC/Safety	FCC Class A, CE		

* Customizations may be required for the interoperability between the ACS server and the device

10G Ethernet SFP+ Transceiver

Product Image



Model Name	SFP-51					
	Specification					
	Speed (Gbps)	Type	Connector	Distance	Wavelength (nm)	Temperature
SFP-51FC	10	MM	LC	300M	850	0~70°C
SFP-51FC(SM-10/20/40/80)	10	SM	LC	10/20/40/80KM	1310/1310/1550/1550	0~70°C
SFP-51W2A(SM-10/20/40)	10	WDM	LC	10/20/40KM	TX:1270/1270/1270	0~70°C
					RX:1330/1330/1330	
SFP-51W2B(SM-10/20/40)	10	WDM	LC	10/20/40KM	TX:1330/1330/1330	0~70°C
					RX:1270/1270/1270	
SFP-51FC(SM-10)-C11	10	CWDM	LC	10KM	1470	0~70°C
SFP-51FC(SM-10)-C12	10	CWDM	LC	10KM	1490	0~70°C
SFP-51FC(SM-10)-C13	10	CWDM	LC	10KM	1510	0~70°C
SFP-51FC(SM-10)-C14	10	CWDM	LC	10KM	1530	0~70°C
SFP-51FC(SM-10)-C15	10	CWDM	LC	10KM	1550	0~70°C
SFP-51FC(SM-10)-C16	10	CWDM	LC	10KM	1570	0~70°C
SFP-51FC(SM-10)-C17	10	CWDM	LC	10KM	1590	0~70°C
SFP-51FC(SM-10)-C18	10	CWDM	LC	10KM	1610	0~70°C
SFP-51FC(SM-20)-C11	10	CWDM	LC	20KM	1470	0~70°C
SFP-51FC(SM-20)-C12	10	CWDM	LC	20KM	1490	0~70°C
SFP-51FC(SM-20)-C13	10	CWDM	LC	20KM	1510	0~70°C
SFP-51FC(SM-20)-C14	10	CWDM	LC	20KM	1530	0~70°C
SFP-51FC(SM-20)-C15	10	CWDM	LC	20KM	1550	0~70°C
SFP-51FC(SM-20)-C16	10	CWDM	LC	20KM	1570	0~70°C
SFP-51FC(SM-20)-C17	10	CWDM	LC	20KM	1590	0~70°C
SFP-51FC(SM-20)-C18	10	CWDM	LC	20KM	1610	0~70°C
SFP-51FC(SM-40)-C11	10	CWDM	LC	40KM	1470	0~70°C
SFP-51FC(SM-40)-C12	10	CWDM	LC	40KM	1490	0~70°C
SFP-51FC(SM-40)-C13	10	CWDM	LC	40KM	1510	0~70°C
SFP-51FC(SM-40)-C14	10	CWDM	LC	40KM	1530	0~70°C
SFP-51FC(SM-40)-C15	10	CWDM	LC	40KM	1550	0~70°C
SFP-51FC(SM-40)-C16	10	CWDM	LC	40KM	1570	0~70°C
SFP-51FC(SM-40)-C17	10	CWDM	LC	40KM	1590	0~70°C
SFP-51FC(SM-40)-C18	10	CWDM	LC	40KM	1610	0~70°C

Gigabit Ethernet SFP Transceiver

Product Image



Model Name	SFP-31-DR					
	Specification					
	Speed (Mbps)	Type	Connector	Distance	Wavelength (nm)	Temperature
SFP-31FC-DR	100/1000	MM	LC	2KM/550M	1310	0~70°C
SFP-31FC(SM-10)-DR	100/1000	SM	LC	10KM	1310	0~70°C
SFP-31W2A(SM-10/20)-DR	100/1000	WDM	LC	10/20KM	TX:1310/1310	0~70°C
					RX:1550/1550	
SFP-31W2B(SM-10/20)-DR	100/1000	WDM	LC	10/20KM	TX:1550/1550	0~70°C
					RX:1310/1310	

Model Name	SFP-31					
	Specification					
	Speed (Mbps)	Type	Connector	Distance	Wavelength (nm)	Temperature
SFP-31FC	1000	MM	LC	550M	850	0~70°C
SFP-31FC(SM-10/20/40/50/80/120)	1000	SM	LC	10/20/40/50/80/120KM	1310/1310/1310/1550/1550/1550	0~70°C
SFP-31W2A(SM-10/20/40/60/80)	1000	WDM	LC	10/20/40/60/80KM	TX:1310/1310/1310/1310/1510	0~70°C
					RX:1550/1550/1550/1550/1570	
SFP-31W2B(SM-10/20/40/60/80)	1000	WDM	LC	10/20/40/60/80KM	TX:1550/1550/1550/1550/1570	0~70°C
					RX:1310/1310/1310/1310/1510	
SFP-31FC-C11	1000	CWDM	LC	80KM	1470	0~70°C
SFP-31FC-C12	1000	CWDM	LC	80KM	1490	0~70°C
SFP-31FC-C13	1000	CWDM	LC	80KM	1510	0~70°C
SFP-31FC-C14	1000	CWDM	LC	80KM	1530	0~70°C
SFP-31FC-C15	1000	CWDM	LC	80KM	1550	0~70°C
SFP-31FC-C16	1000	CWDM	LC	80KM	1570	0~70°C
SFP-31FC-C17	1000	CWDM	LC	80KM	1590	0~70°C
SFP-31FC-C18	1000	CWDM	LC	80KM	1610	0~70°C

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Fast Ethernet SFP Transceiver

Product Image



Model Name	SFP-21					
	Specification					
	Speed (Mbps)	Type	Connector	Distance	Wavelength (nm)	Temperature
SFP-21FC	100	MM	LC	2KM	1310	0~70°C
SFP-21FC(SM-20/30/40/50/80)	100	SM	LC	20/30/40/50/80KM	1310/1310/1310/1310/1550	0~70°C
SFP-21W2A(SM-20/40/80)	100	WDM	LC	20/40/80KM	TX:1310/1310/1310	0~70°C
					RX:1550/1550/1550	
SFP-21W2B(SM-20/40/80)	100	WDM	LC	20/40/80KM	TX:1550/1550/1550	0~70°C
					RX:1310/1310/1310	
SFP-21FC-C11	100	CWDM	LC	80KM	1470	0~70°C
SFP-21FC-C12	100	CWDM	LC	80KM	1490	0~70°C
SFP-21FC-C13	100	CWDM	LC	80KM	1510	0~70°C
SFP-21FC-C14	100	CWDM	LC	80KM	1530	0~70°C
SFP-21FC-C15	100	CWDM	LC	80KM	1550	0~70°C
SFP-21FC-C16	100	CWDM	LC	80KM	1570	0~70°C
SFP-21FC-C17	100	CWDM	LC	80KM	1590	0~70°C
SFP-21FC-C18	100	CWDM	LC	80KM	1610	0~70°C

Successful Case

Fiber Switch Solutions

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Lightning Protector

Product Image



Model Name	LPB-101						
	Copper Port				Temperature	Dimension W x D x H	Note
	Speed (Mbps)	Type	Input Port	Output Port			
LPB-101G-P	10/100/1000	RJ-45 w/ PoE	1	1	0~50°C	70 x 25 x 25mm	It is necessary to be grounding properly when implementing.
LPB-101G	10/100/1000	RJ-45	1	1	0~50°C	70 x 25 x 25mm	

External Battery Unit

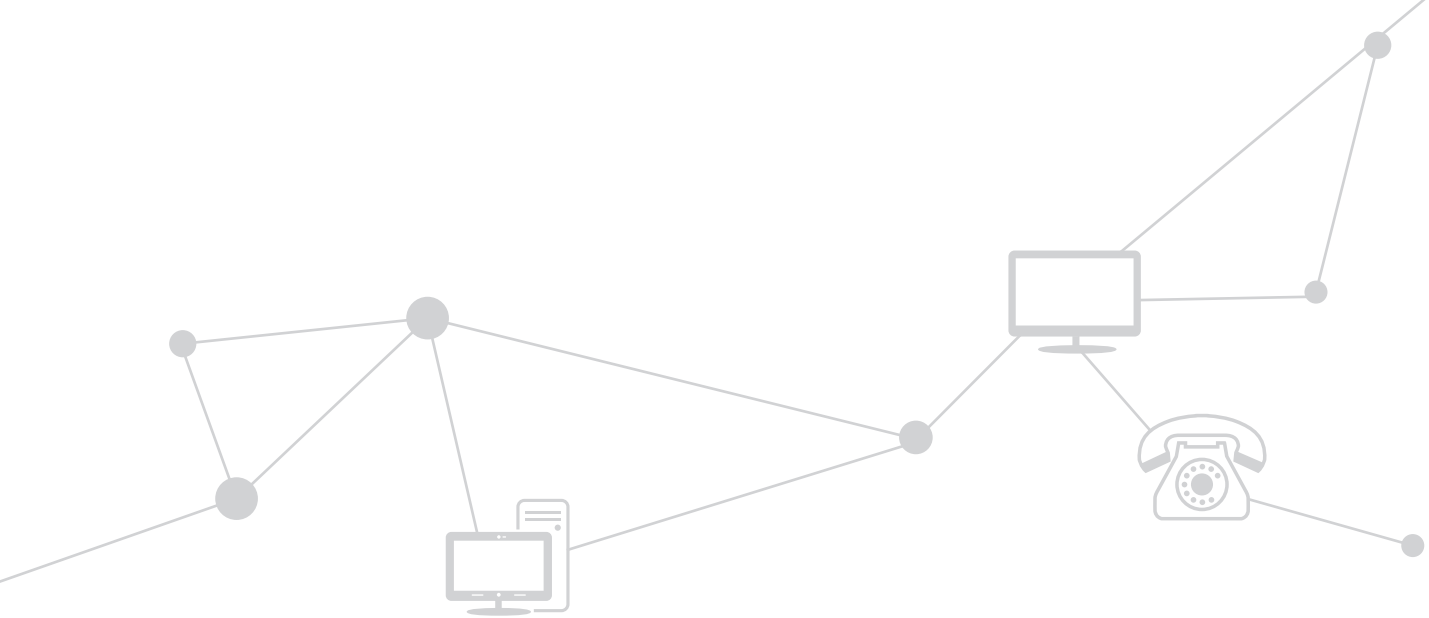
Product Image



Model Name	EBU-120						
	DC Input	External Battery (Recommended Spec.)		Charging/Backup (for reference)		Temperature	Dimension W x D x H
		Type	Capacity	Charging Time	Backup Time		
EBU-120	12V	VRLA	12V/2.3h	7hrs	2.2hrs (for HES-3109SSFP)	0~50°C	124 x 70 x 30mm

Accessory





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