



Product Catalogue

FTTX SOLUTIONS

COMPREHENSIVE SOLUTION
FOR HIGH GRADE COMMUNICATION

- Fiber Access Switch
- Fiber CPE Switch
- Fiber Gateway
- Industrial Switch

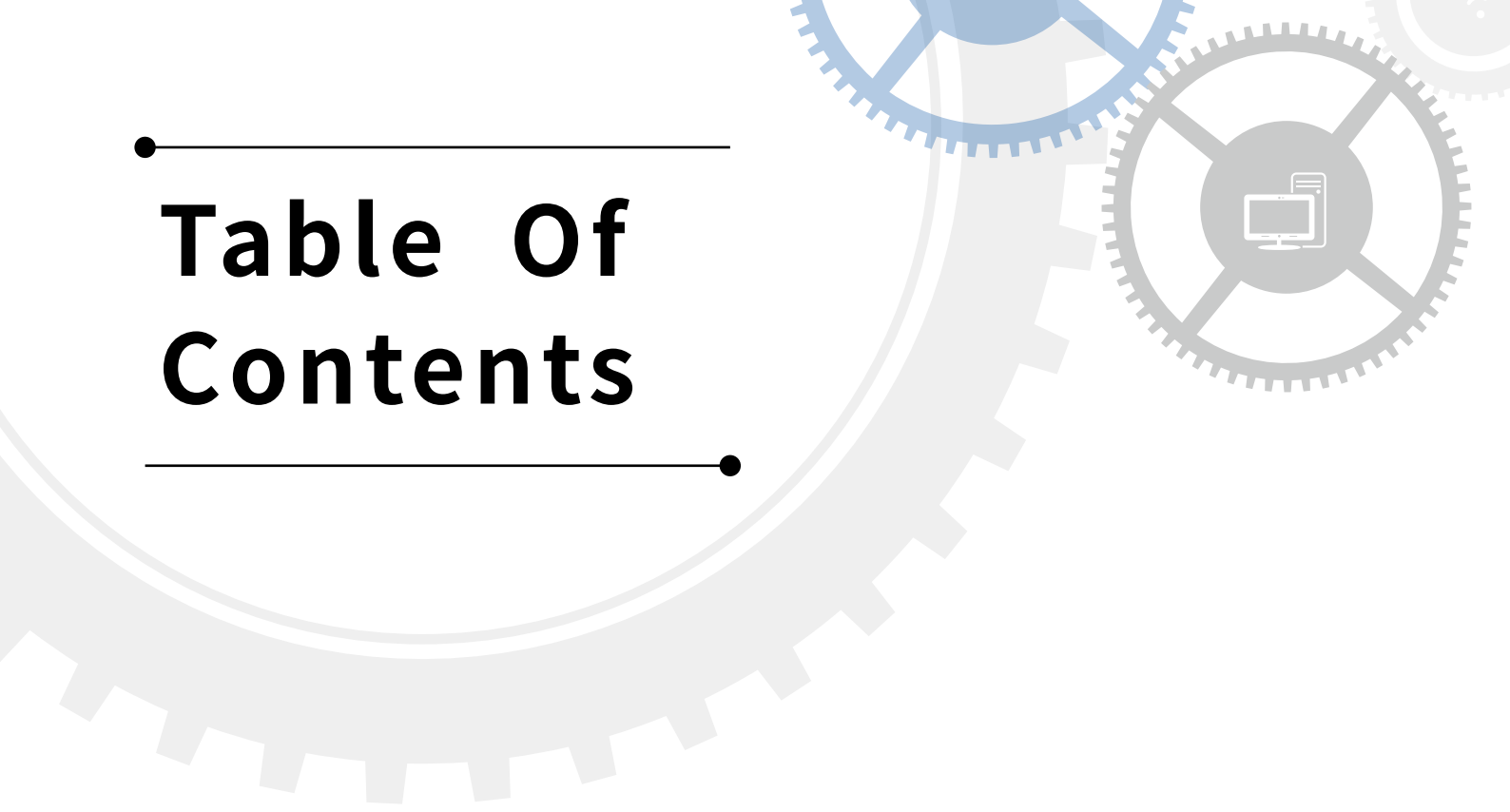


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Professional Network Solution Provider

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.



CTS
CONNECTION TECHNOLOGY SYSTEMS

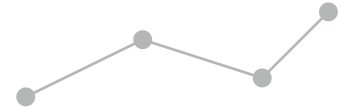
FTTX, Industrial
Network Solutions

SIMPNIC

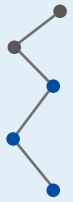
IoT Integrated Solutions

(*www.simpnic.com)

About CTS



In close cooperation with our partners, CTS has achieved:



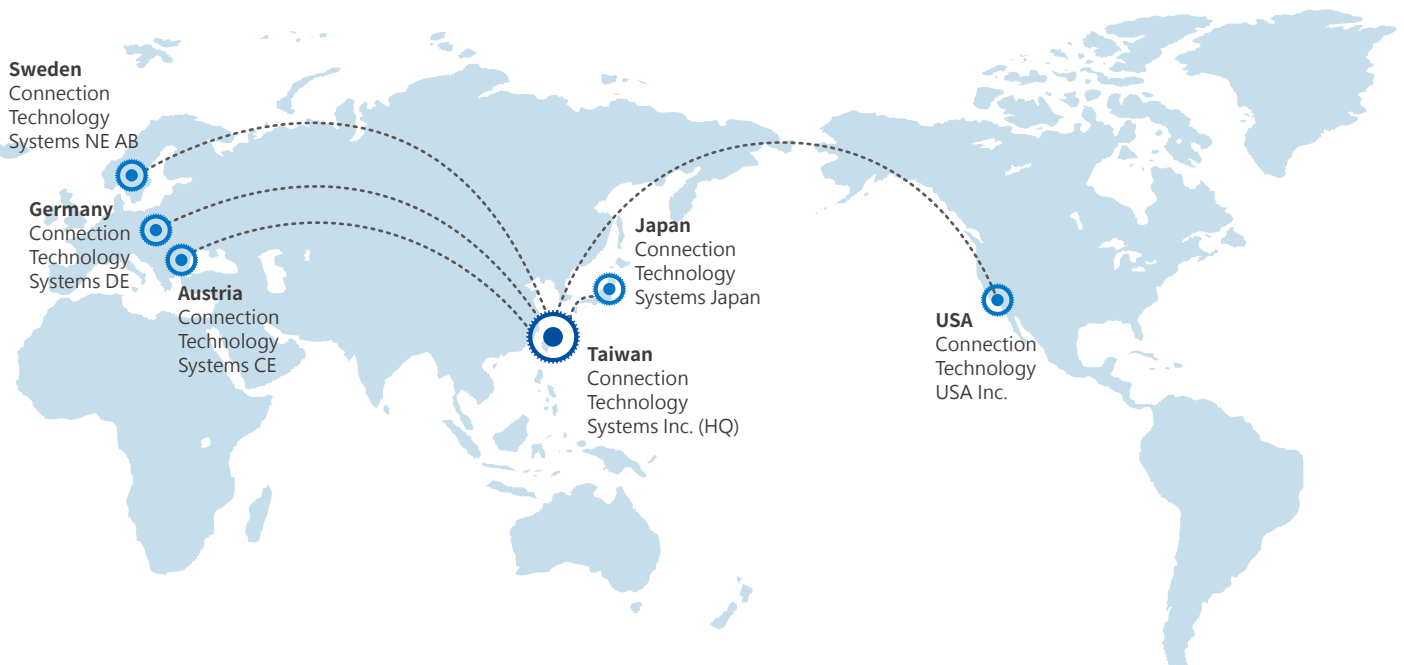
Over **1,4 Million** FTTX Last Mile Deployments

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.

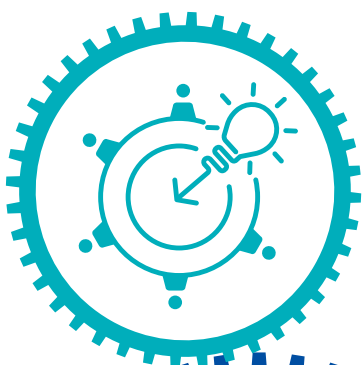


Why CTS



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



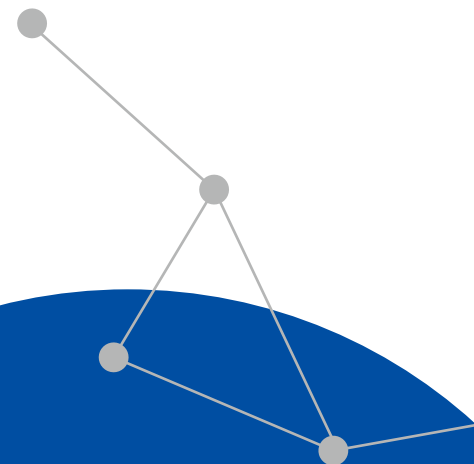
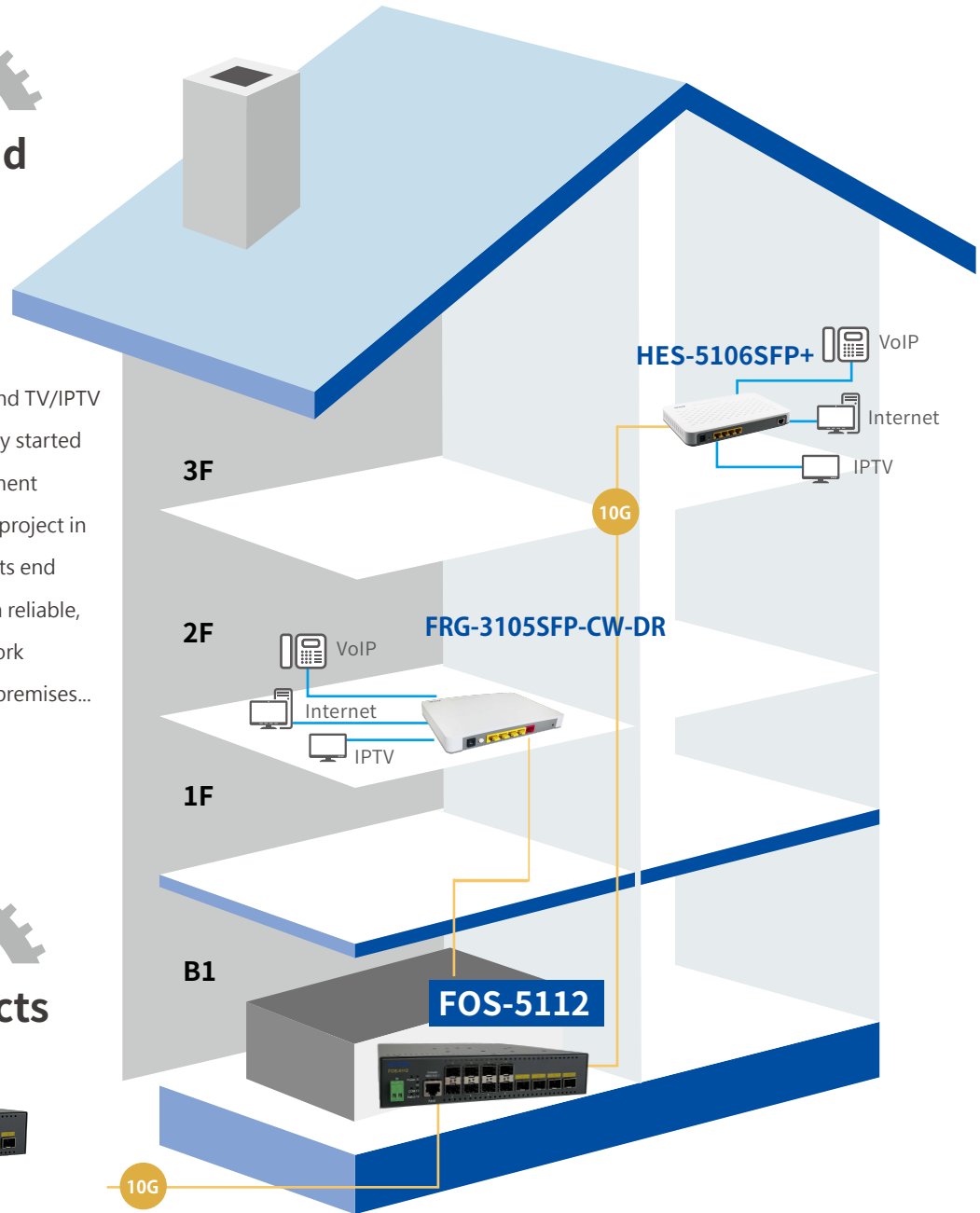
FOS-5112

8 x 100/1000Base-X SFP +
4 x 1/10GBase-R SFP+ Managed Switch



FOS-3110/FOS-3114

10/14-Port Gigabit Fiber Managed Switch





Challenge

- ① Need high uplink bandwidth to Internet service provide.
- ② Average 8~10 units in the apartment building.
- ③ Confine installation space.
- ④ Limited DC power sources.
- ⑤ Low noise tolerance.
- ⑥ Need to manage large amount of devices.
- ⑦ Collect usage data in order to improve its service.



Solution & Benefit

- ① Supports 4 1/10G fiber uplink SFP+ slots.
- ② 8 and 10 dual rate fiber LAN port support for up to 1G speed.
- ③ Supports cabinet-mount or rack-mount of 9, 12 and standard 19-inch rack.
- ④ Built-in AC PSU require less hassles to find DC power source in residential environment.
- ⑤ Fanless design eliminates residents' complaint on noise, also ensures longer life span.
- ⑥ VLAN, QoS, DHCP and IGMP Snooping for service provision.
- ⑦ 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 pinpoint customer's problem.



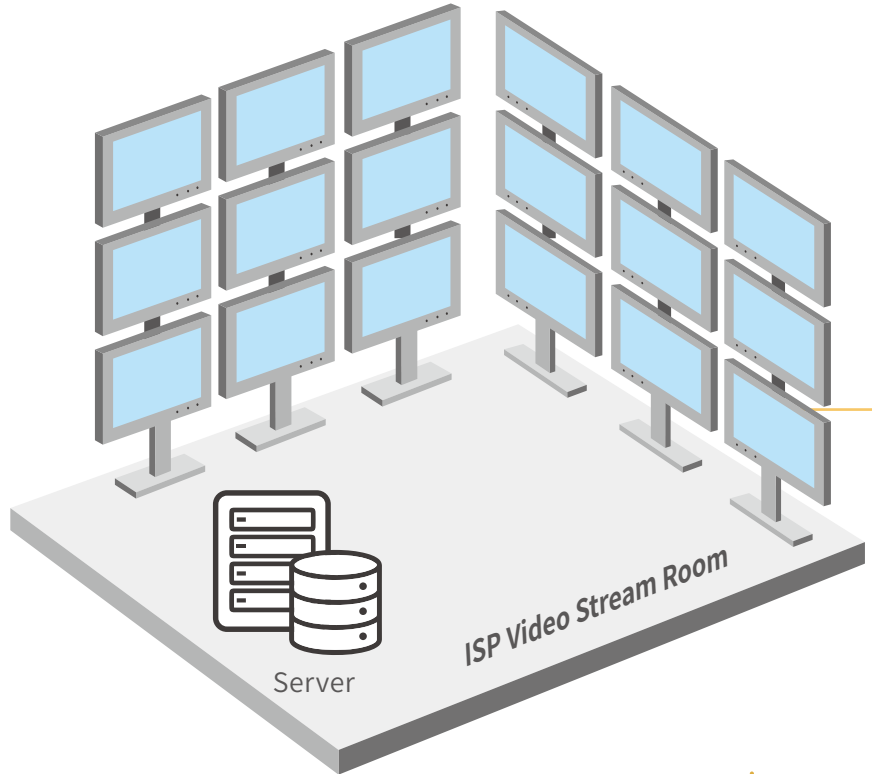
In-house Designer

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

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...

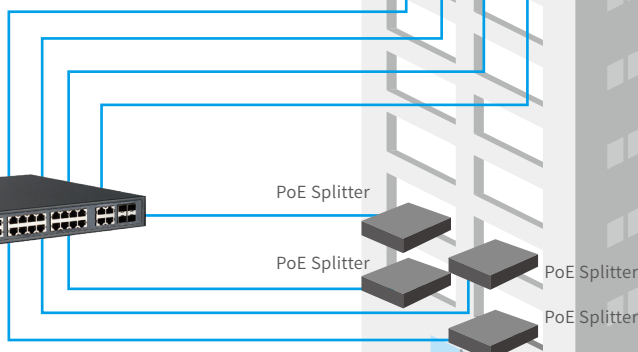
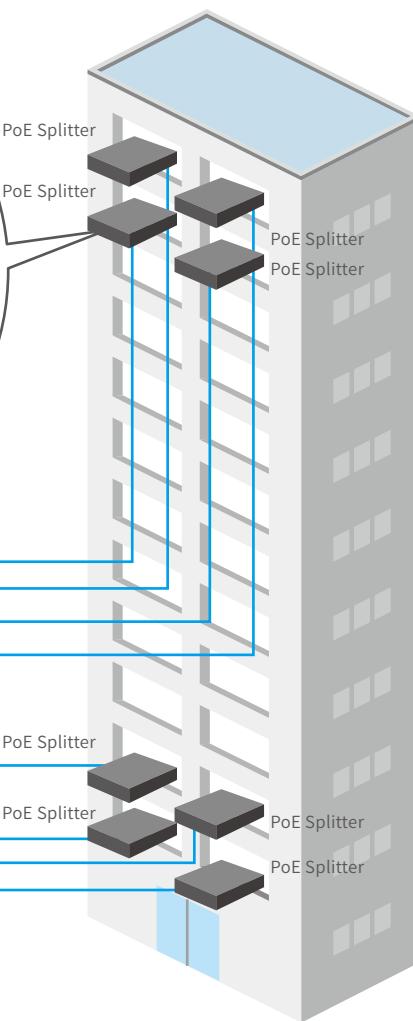
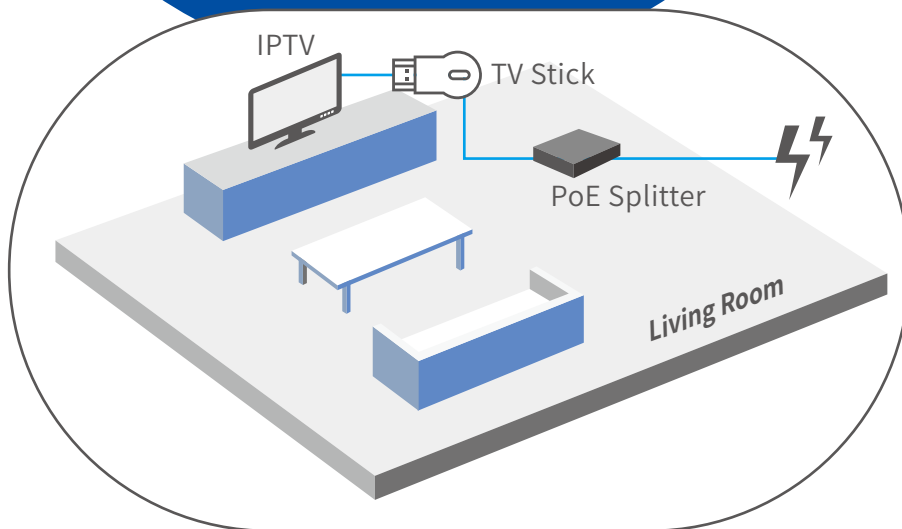


Challenge

- 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.

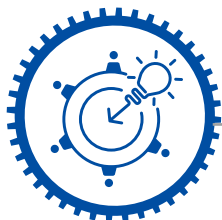
Solution & Benefit

- 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.



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

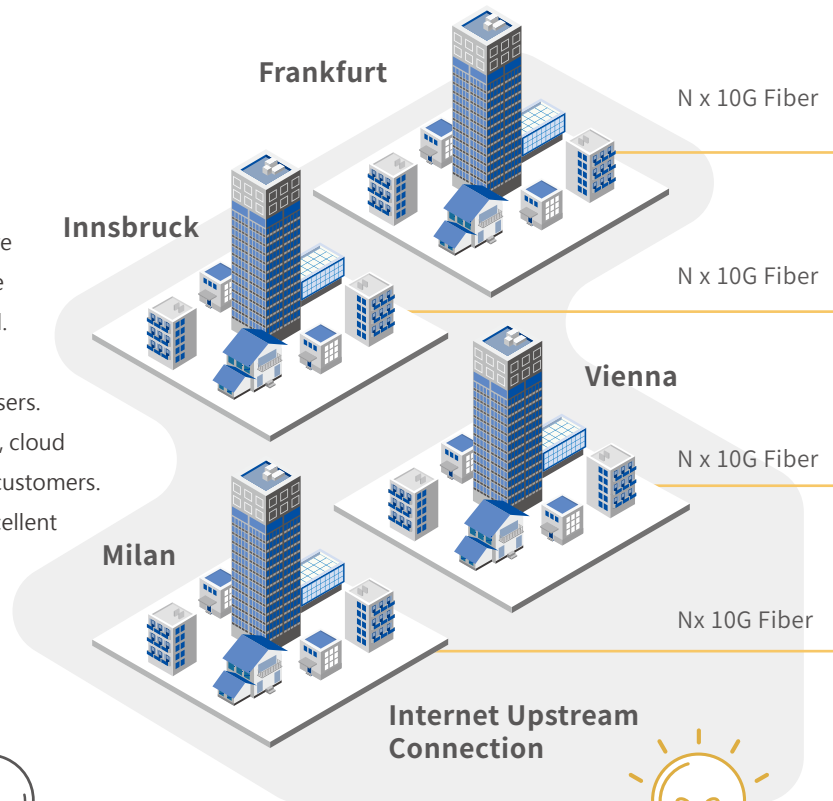
Continuously improving through FW and HW update.



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.

“

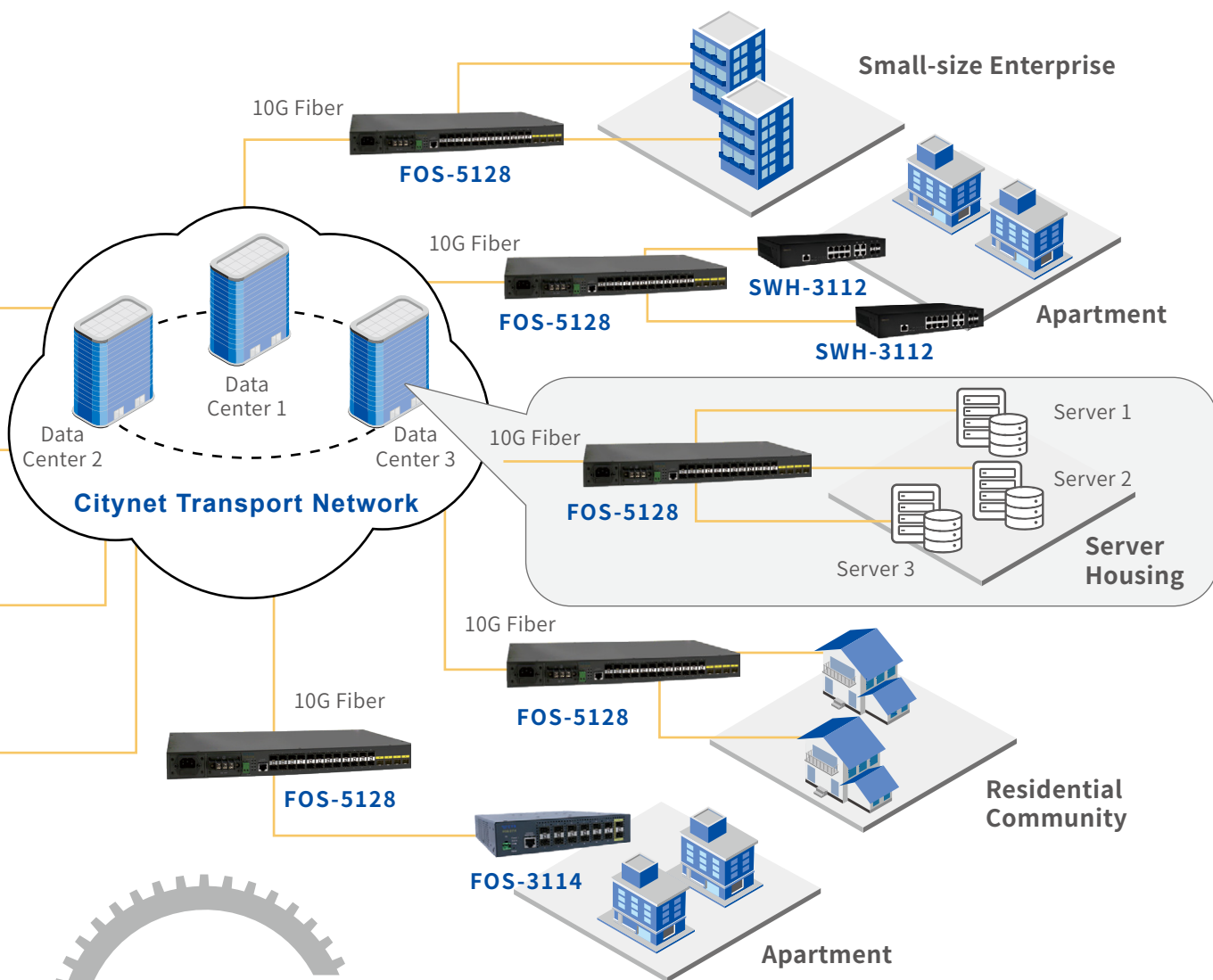
The important thing for technician was the usability. CTS products are easy to integrate and they are reliable and very stable.

”



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





CTS Products



FOS-5128

24-Port 1G + 4-Port **10G** Fiber Managed Switch



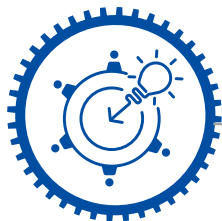
FOS-3114

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.



All-inclusive Fiber Optic Switch Solutions

CTS FOS 51 Series can work as the fiber backbone switch with 8/24/48 100/1000Base-X dual-speed SFP slots and extra 4 1/10GBase-X dual-speed SFP+ slots, it offers great flexibility to work with different SFP/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



High Density



FOS-5152



Front Access Design



FOS-5128



8.5-inch Half Size



FOS-5112

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



10G Solution



HES-5106SFP+



Fiber to the Home



HES-3109



Cable Management



HES-3106-SE

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 or 1/10GBase-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

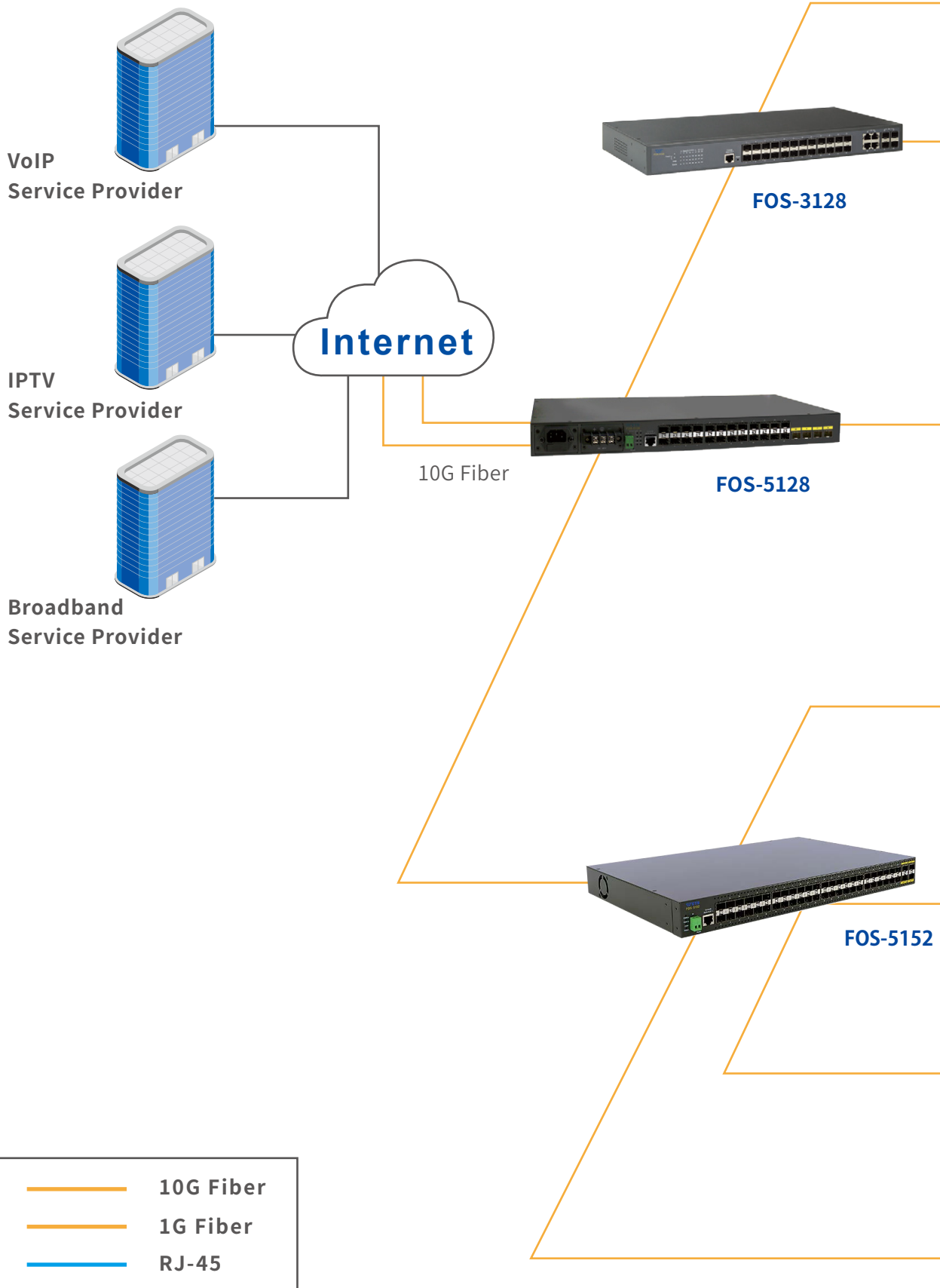
Successful Case

Fiber Switch Solutions

Fiber Gateway Solutions

Industrial Switch Solutions

Accessory

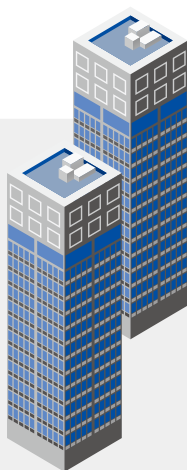




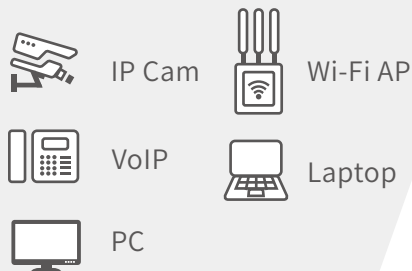
ESW-3128



EPS-3128



Enterprise



FOS-3110



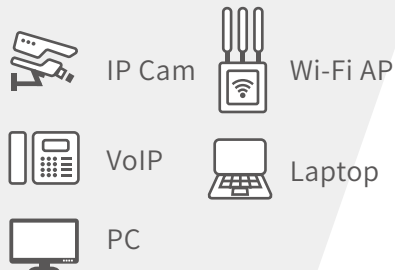
FOS-3114



EPS-3128



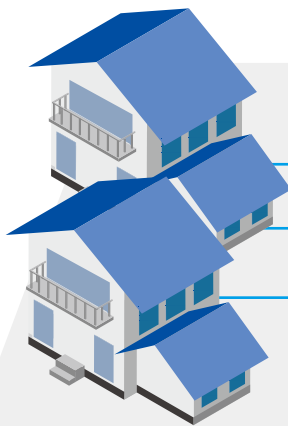
Campus



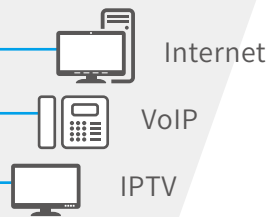
FRG-3105SFP-CW-DR



FRG-3105SFP-CW-DR



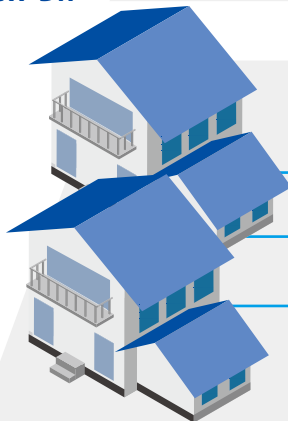
Home



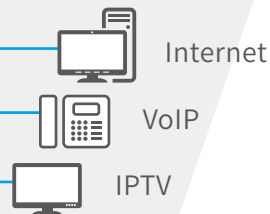
HES-3109



HES-3106-SE



Home



8.5/19-inch 10G Fiber Managed Access Switch

Model Name

FOS-5152

FOS-5128

FOS-5112

Product Image



		FOS-5152	FOS-5128	FOS-5112
Hardware	10G SFP+	4 (1G Compatible)	4 (1G Compatible)	4 (1G Compatible)
	10/100/1000Base-T	-	-	-
	10/100Base-TX	-	-	-
	1000Base-X	48	24	8
	100Base-FX	Compatible	Compatible	Compatible
	RS-232 Console Port (RJ-45)	1	1	1
	Dimension W x D x H	440 x 290 x 44mm	440 x 230 x 44mm	210 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	32K	16K	16K
	Non-blocking Switching Fabric	176Gbps	128Gbps	96Gbps
	Memory Buffer	2048K Bytes	1536K Bytes	1536K Bytes
	Jumbo Frame	12K Bytes	9K 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	CTS Fast Ring v2*/STP/RSTP		
	LACP	•		
	VLAN	802.1q, Q-in-Q, Port Based, VLAN-ID Based, Selective QinQ, VLAN Translation		
	VLAN ID	4094		
VLAN Group	4K			
Security & Authentication	SSHv2	•		
	DHCP Option 82	•		
	Authentication	RADIUS, TACACS+, 802.1x MAB		
	ACL (Access Control List)	•		
Network Management & Maintenance	Management	Telnet, SSHv2, HTTP, HTTPS, SNMP v1/v2c/v3		
	Port Mirroring	•		
	SNMP Power Down Trap	•		
	DHCP	Client, Auto Provisioning, Snooping		
	Time synchronization	NTP/SNTP		
	Firmware/Configuration Upgrade	FTP/TFTP/HTTP		
Certifications	EMC/Safety	FCC Class A, CE		

* CTS Fast Ring v2 includes Ring and Chain Protocol

8.5/19-inch 1G Fiber Managed Access Switch

Model Name	FOS-3128	FOS-3114	FOS-3110
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Product Image



Hardware	10/100/1000Base-T	4 (COMBO)	-	2 (COMBO)
	10/100Base-TX	-	-	-
	1000Base-X	28	14	10
	100Base-FX	Compatible	Compatible	Compatible
	RS-232 Console Port (RJ-45)	1	1	1
	Dimension W x D x H	440 x 205 x 44mm	210 x 205 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	28Gbps	20Gbps
	Memory Buffer	1536K Bytes	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	CTS Fast Ring v2** 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*	RADIUS, TACACS+, 802.1x MAB	
	ACL (Access Control List)	•		
Network Management & Maintenance	Management	Telnet, SSHv2, HTTP, HTTPS, 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

** CTS Fast Ring v2 includes Ring and Chain Protocol

10/19-inch Ethernet Managed Access Switch

17

Model Name

ESW-5128

ESW-3128

SWH-3112

Product Image



Hardware	10G SFP+	4 (1G Compatible)	-	-
	10/100/1000Base-T	24	28	12
	10/100Base-TX	-	-	-
	1000Base-X	-	4 (COMBO)	4 (COMBO)
	100Base-FX	-	Compatible	Compatible
	RS-232 Console Port (RJ-45)	1	1	1
	Dimension W x D x H	440 x 205 x 44mm	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/48VDC	100~240VAC
	Power Redundancy	•	•	-
	External Battery Type	-		
	IEEE 802.3af/at PoE	-		
	MAC Address Table	16K	16K	8K
	Non-blocking Switching Fabric	128Gbps	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	CTS Fast Ring v2**/STP/RSTP	STP/RSTP	
	LACP	•		
	VLAN	802.1q, Q-in-Q, Port Based, Selective QinQ, VLAN Translation	802.1q, Q-in-Q, Port Based	
	VLAN ID	4094		
VLAN Group	4K	2K		
Security & Authentication	SSHv2	•		
	DHCP Option 82	•		
	Authentication	RADIUS, TACACS+, 802.1x MAB	RADIUS, TACACS+, 802.1x MAB*	
	ACL (Access Control List)	•		
Network Management & Maintenance	Management	Telnet, SSHv2, HTTP, HTTPs, SNMP v1/v2c/v3	Telnet, SSHv2, WEB, SNMP v1/v2c/v3	
	Port Mirroring	•		
	SNMP Power Down Trap	•	•	-
	DHCP	Client, Auto Provisioning, Snooping		
	Time Synchronization	NTP/SNTP	SNTP	SNTP
	Firmware/Configuration Upgrade	FTP/TFTP/HTTP		
Certifications	EMC/Safety	FCC Class A, CE		

* Coming soon

** CTS Fast Ring v2 includes Ring and Chain Protocol

Successful Case

Fiber Switch Solutions

Fiber Gateway Solutions

Industrial Switch Solutions

Accessory

13/19-inch PoE Managed Switch

Model Name	EPS-3128-240W/480W EPS-3128-240W/480W-LP	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	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.)	240W/480W	130W
	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	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, SSHv2, HTTP, HTTPS, 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

** 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-5106SFP+

HES-3109
HES-3109-DR

HES-3109TP

Product Image



Hardware	10G SFP+	1	-	-
	10G N-Base-T*	1	-	-
	10/100/1000Base-T	4	8	9
	1000Base-X	Compatible	1 (FX/W2X/SFP)	-
	100Base-FX	-	Compatible	-
	Dimension W x D x H	230 x 149 x 31.1mm		228 x 148 x 33mm
	Operating Temperature (Humidity)	0~40°C (5~90%)		0~50°C (5~90%)
	Cable Tray	Option (HES-FCT/HES-FCT-S)		Option (HES-FCT)
	Power Source	100V~240VAC to 12VDC Power Adaptor		
	Optional CATV RF Receiver	-	• (RF model only)	-
	External Battery Type, Capacity	-		
	MAC Address Table	16K	8K	
	Non-blocking Switching Fabric	48Gbps	18Gbps	
	Memory Buffer	1536K Bytes	128K Bytes	
	Jumbo Frame	9K Bytes		
Traffic Management	IPv6	IPv4/IPv6 Dual Stack		
	QoS	802.1p, ToS/DSCP	Port Based, 802.1p, ToS/DSCP, 802.1q	
	QoS Priority Queue	8	4	
	Bandwidth Control	•		
	Broadcast Storm Control	•		
	IPTV Multicast	IGMP Snooping v1/v2/v3, MLD Snooping v1/v2	IGMP Snooping v1/v2	
	Network Redundancy	-		
	LACP	-		
	VLAN	802.1q, Q-in-Q, Port Based	802.1q, Q-in-Q	
	VLAN ID	4094		
Security & Authentication	SSHv2	•		
	Loop Detection	•		
	Authentication	RADIUS		
	ACL (Access Control List)	•	-	
Network Management & Maintenance	Management	Telnet, SSHv2, WEB, SNMP v1/v2c/v3		
	Port Mirroring	•		
	SNMP Power Down Trap	•		
	DHCP	Client, Auto Provisioning, Snooping	Client, Auto Provisioning	
	SNTP	•		
	Firmware/Configuration Upgrade	FTP/TFTP/HTTP	FTP/TFTP	
Certifications	EMC/Safety	FCC Class B, CE	FCC Class A, CE	

* 1G/2.5G/5G/10G N-Base-T RJ-45 interface

Fiber Managed CPE Switch

Model Name	HES-3106-SE	HES-3106(B) HES-3106-DR HES-3106-PLUS(-DR)
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Product Image



Hardware	10G SFP+	-	-
	10G N-Base-T*	-	-
	10/100/1000Base-T	5	5
	1000Base-X	1 (W2A/SFP)	1 (FX/W2X/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)	
	Power Source	100V~240VAC to 12VDC Power Adaptor	
	Optional CATV RF Receiver	• (RF model only)	
	External Battery Type, Capacity	-	
	MAC Address Table	4K	2K
	Non-blocking Switching Fabric	12Gbps	
	Memory Buffer	192K Bytes	128K Bytes
Jumbo Frame	9K Bytes		
Traffic Management	IPv6	IPv4/IPv6 Dual Stack	
	QoS	802.1p, ToS/DSCP	
	QoS Priority Queue	8	4
	Bandwidth Control	•	
	Broadcast Storm Control	•	
	IPTV Multicast	IGMP Snooping v1/v2/v3, MLD Snooping v1/v2	IGMP Snooping v1/v2
	Network Redundancy	-	
	LACP	-	
	VLAN	802.1q, Port Based	802.1q, Q-in-Q, Port Based
	VLAN ID	4094	
VLAN Group	128		
Security & Authentication	SSHv2	•	
	Loop Detection	•	
	Authentication	RADIUS	
	ACL (Access Control List)	-	
Network Management & Maintenance	Management	Telnet, SSHv2, WEB, SNMP v1/v2c/v3	
	Port Mirroring	•	
	SNMP Power Down Trap	•	
	DHCP	Client, Auto Provisioning	
	SNTP	•	
	Firmware/Configuration Upgrade	FTP/TFTP	
Certifications	EMC/Safety	FCC Class B, CE	

* 1G/2.5G/5G/10G N-Base-T RJ-45 interface

Fiber Managed Gateway

Model Name

FRG-3105SFP-CW-DR

Product Image



Hardware	WAN Port	1 x 100/1000Base-X SFP slot (1 x 10/100/1000Base-T combo port)
	LAN Port	4 x 10/100/1000Base-T
	Dimension W x D x H	180 x 130 x 28.5mm
	Operating Temperature (Humidity)	0~50°C (5~90%)
	Cable Tray	Option (HES-FCT-S)
	MAC Address Table	1K
	Jumbo Frame	9K Bytes
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	•
	IPTV Multicast	IGMP Snooping v1/v2, Proxy, Fast Leave
	VLAN	802.1q
Network Management & Maintenance	VLAN Group	64
	Management	CLI, SSHv2, HTTP, HTTPS, SNMPv1/v2c
	RADIUS	•
	Packet & URL Filtering	•
	SNMP Power Down Trap	•
	DHCP	Server, Client, Auto Provisioning
	SNTP	•
	UPnP & DDNS	•
CWMP	TR-069*	
Certifications	Firmware/Configuration Upgrade	FTP/TFTP/HTTP
	EMC/Safety	FCC Class B, CE

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

Industrial 60W PoE++ Managed Switch

Model Name	IPS-3120-PoE++	IPS-3112-PoE++	IPS-3108-EXP*
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Product Image



Hardware	10/100/1000Base-T	16	8	8
	10/100Base-TX	-	-	-
	1000Base-X	4	4	-
	100Base-FX	Compatible	Compatible	-
	RS-232 Console Port (RJ-45)	1	1	-
	Digital Input/Output	1 x DI + 1 x DO		-
	PoE	8 x 60W PoE++ + 8 x 802.3af/at PoE+	8 x 60W PoE++	8 x 802.3af/at PoE+
	PoE Budget (Max.)	720W	480W	-
	Power Connector	Terminal Block		-
	Power Source	48~55VDC Dual Input		-
	Power Consumption	740W	495W	-
	Dimension W x D x H	115 x 135 x 200mm	80 x 135 x 200mm	35 x 135 x 200mm
	Operating Temperature (Humidity)	-40~75°C (5~90%)		
	MAC Address Table	8K		-
	Non-blocking Switching Fabric	40Gbps	24Gbps	16Gbps
	Memory Buffer	4.1M Bytes		-
Jumbo Frame	9K Bytes		-	
Traffic Management	IPv6	-		
	QoS	802.1p, ToS/DSCP		
	QoS Priority Queue	8		
	Bandwidth Control	-		
	Broadcast Storm Control	-		
	IPTV Multicast	IGMP Snooping v1/v2/v3		
	Network Redundancy	CTS Fast Ring v2** 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		
	SNTP	•		
	Firmware/Configuration Upgrade	FTP/TFTP/HTTP		
Certifications	EMC/Safety	FCC Class A, CE		
	Stability	IEC 60068-2-27 (Shock), IEC 60068-2-32 (Freefall), IEC 60068-2-6 (Vibration)		
	Surge	ITU-T K.21 Enhanced Level 6KV		

* IPS-3108-EXP is expansion module for IPS-3112-PoE++

** CTS Fast Ring v2 includes Ring and Chain Protocol

Industrial 802.3at PoE+ Managed Switch

Model Name	IPS-3110	IPS-3110-PB	IPS-3106-SE-PB
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Product Image



Model Name	IPS-3110	IPS-3110-PB	IPS-3106-SE-PB
10/100/1000Base-T	10	10	4
10/100Base-TX	-	-	-
1000Base-X	2 (COMBO)	2 (COMBO)	2
100Base-FX	Compatible	Compatible	Compatible
RS-232 Console Port (RJ-45)	1	1	1
Digital Input/Output	1 x DO		1 x DI + 1 x DO
PoE	8 x 802.3af/at PoE+		4 x 802.3af/at PoE+
PoE Budget (Max.)	240W		120W
Power Connector	Terminal Block		
Power Source	48~54VDC Dual Input	24~54VDC Dual Input	
Power Consumption	255W		135W
Dimension W x D x H	73 x 110 x 135mm	88 x 110 x 135mm	63 x 110 x 135mm
Operating Temperature (Humidity)	-40~75°C (5~90%)		
MAC Address Table	16K		8K
Non-blocking Switching Fabric	20Gbps		12Gbps
Memory Buffer	256K Bytes		4.1M Bytes
Jumbo Frame	9K Bytes		
IPv6	-		•
QoS	802.1p, ToS/DSCP		
QoS Priority Queue	8		
Bandwidth Control	•		
Broadcast Storm Control	•		
IPTV Multicast	IGMP Snooping v1/v2		IGMP Snooping v1/v2/v3 MLD Snooping v1/v2
Network Redundancy	CTS Fast Ring v2* STP/RSTP		
LACP	•		
VLAN	802.1q, Q-in-Q, Port Based		
VLAN ID	4094		
VLAN Group	128		
SSHv2	•		
DHCP Option 82	-		•
Authentication	RADIUS, 802.1x		RADIUS, TACACS+, 802.1x MAB
ACL (Access Control List)	•		
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/USB 2.0 Type A		FTP/TFTP/HTTP
EMC/Safety	FCC Class A, CE		
Stability	IEC 60068-2-27 (Shock), IEC 60068-2-32 (Freefall), IEC 60068-2-6 (Vibration)		
Surge	ITU-T K.21 Enhanced Level 6KV		

* CTS Fast Ring v2 includes Ring and Chain Protocol

Industrial Ethernet Managed Switch

Model Name IES-3110

Product Image



Hardware	10/100/1000Base-T	10
	10/100Base-TX	-
	1000Base-X	2 (COMBO)
	100Base-FX	Compatible
	RS-232 Console Port (RJ-45)	1
	Digital Input/Output	1 x DO
	PoE	-
	PoE Budget (Max.)	-
	Power Connector	Terminal Block
	Power Source	12~54VDC Dual Input
	Power Consumption	15W
	Dimension W x D x H	73 x 110 x 135mm
	Operating Temperature (Humidity)	-40~75°C (5~90%)
	MAC Address Table	16K
	Non-blocking Switching Fabric	20Gbps
	Memory Buffer	256K Bytes
Jumbo Frame	9K Bytes	
Traffic Management	IPv6	-
	QoS	802.1p, ToS/DSCP
	QoS Priority Queue	8
	Bandwidth Control	•
	Broadcast Storm Control	•
	IPTV Multicast	IGMP Snooping v1/v2
	Network Redundancy	CTS Fast Ring v2*, STP/RSTP
	LACP	•
	VLAN	802.1q, Q-in-Q, Port Based
	VLAN ID	4094
Security & Authentication	VLAN Group	128
	SSHv2	•
	DHCP Option 82	-
	Authentication	RADIUS, 802.1x
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/USB 2.0 Type A
	EMC/Safety	FCC Class A, CE
	Stability	IEC 60068-2-27 (Shock), IEC 60068-2-32 (Freefall), IEC 60068-2-6 (Vibration)
	Surge	ITU-T K.21 Enhanced Level 6KV

*CTS Fast Ring v2 includes Ring and Chain Protocol

Industrial 802.3at PoE+ Non-managed Switch

Model Name	IPS-3005-F1	IPS-3005
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Product Image	 	 
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Hardware	10/100/1000Base-T	4	5
	10/100Base-TX	-	-
	1000Base-X	1	-
	100Base-FX	Compatible	-
	RS-232 Console Port (RJ-45)	-	-
	Digital Input/Output	-	
	PoE	4 x 802.3af/at PoE+	
	PoE Budget (Max.)	120W	
	Power Connector	Terminal Block	
	Power Source	48~58VDC Dual Input	
	Power Consumption	130W	127W
	Dimension W x D x H	29 x 107 x 139mm	
	Operating Temperature (Humidity)	-40~75°C (5~90%)	
	MAC Address Table	2K	
	Certifications	Non-blocking Switching Fabric	10Gbps
Memory Buffer		1M Bytes	
Jumbo Frame		9K Bytes	
EMC/Safety		FCC Class A, CE	
Stability		IEC 60068-2-27 (Shock), IEC 60068-2-32 (Freefall), IEC 60068-2-6 (Vibration)	

Industrial Non-managed Switch

Model Name	IES-3008-F2	IES-3005-F1	IES-3005
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Product Image			
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Hardware	10/100/1000Base-T	6	4	5
	10/100Base-TX	-	-	-
	1000Base-X	2	1	-
	100Base-FX	Compatible	Compatible	-
	RS-232 Console Port (RJ-45)	-	-	-
	Digital Input/Output	1 x DO		
	PoE	-		
	PoE Budget (Max.)	-		
	Power Connector	Terminal Block		
	Power Source	12~58VDC Dual Input		
	Power Consumption	8.16W	3.24W	2.88W
	Dimension W x D x H	39 x 96.9 x 117.8mm	29.1 x 89.4 x 109.2mm	
	Operating Temperature (Humidity)	-40~75°C (5~90%)		
	MAC Address Table	8K	2K	
	Certifications	Non-blocking Switching Fabric	16Gbps	10Gbps
Memory Buffer		64K Bytes	1M Bytes	
Jumbo Frame		9K Bytes		
EMC/Safety		FCC Class A, CE		
Stability		IEC 60068-2-27 (Shock), IEC 60068-2-32 (Freefall), IEC 60068-2-6 (Vibration)		

10G Ethernet SFP+ Transceiver

Product Image



MODEL	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)	10	SM	LC	10/20KM	1310/1310	0~70°C
SFP-51W2A(SM-10/20)	10	WDM	LC	10/20KM	TX:1270/1270 RX:1330/1330	0~70°C
SFP-51W2B(SM-10/20)	10	WDM	LC	10/20KM	TX:1330/1330 RX:1270/1270	0~70°C

Gigabit Ethernet SFP Transceiver

Product Image



MODEL	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 RX:1550/1550	0~70°C
SFP-31W2B(SM-10/20)-DR	100/1000	WDM	LC	10/20KM	TX:1550/1550 RX:1310/1310	0~70°C

MODEL	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)	1000	SM	LC	10/20KM	1310/1310	0~70°C
SFP-31W2A(SM-10/20)	1000	WDM	LC	10/20KM	TX:1310/1310 RX:1550/1550	0~70°C
SFP-31W2B(SM-10/20)	1000	WDM	LC	10/20KM	TX:1550/1550 RX:1310/1310	0~70°C

Gigabit Ethernet SFP Transceiver

MODEL	SFP-31-D					
	Specification					
	Speed (Mbps)	Type	Connector	Distance	Wavelength (nm)	Temperature
SFP-31FC-D	1000	MM	LC	550M	850	-40~85°C
SFP-31FC(MM-02)-D	1000	MM	LC	2KM	1310	-40~85°C
SFP-31FC(SM-10/20)-D	1000	SM	LC	10/20KM	1310/1310	-40~85°C
SFP-31W2A(SM-10/20)-D	1000	WDM	LC	10/20KM	TX:1310/1310 RX:1550/1550	-40~85°C
SFP-31W2B(SM-10/20)-D	1000	WDM	LC	10/20KM	TX:1550/1550 RX:1310/1310	-40~85°C

Lightning Protector

Product Image



MODEL	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	EBU-120						
	DC Input	External Battery (Recommended Spec.)		Charging/Backup (for reference)		Temperature	Dimension W x D x H
	Voltage	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

Power Supply

Product Image



MODEL	Output			Input Voltage Range	Protection	Temperature	Dimension W x D x H
	Rated Power	Voltage Adj. Range*	Current Range				
SDR-480-48	480W	48~55V	0~10A	90~264VAC 127~370VDC	Overload, Over Voltage, Over Temperature	-25~70°C	85.5 x 128.5 x 125.2mm
SDR-240-48	240W		0~5A	88~264VAC 124~370VDC			63 x 113.5 x 125.2mm
SDR-120-48	120W		0~2.5A				40 x 113.5 x 125.2mm
SDR-75-48	76.8W		0~1.6A				32 x 102 x 125.2mm
NDR-480-48	480W	48~55V	0~10A	90~264VAC 127~370VDC	Overload, Over Voltage, Over Temperature	-20~70°C	85.5 x 128.5 x 125.2mm
NDR-240-48	240W		0~5A				63 x 113.5 x 125.2mm
NDR-120-48	120W		0~2.5A				40 x 113.5 x 125.2mm
NDR-75-48	76.8W		0~1.6A				32 x 102 x 125.2mm
MDR-60-48	60W	48~56V	0~1.25A	85~264VAC 120~370VDC	Overload, Over Voltage	-20~70°C	40 x 100 x 90mm
MDR-20-12	20W	10.8~13.2V	0~1.67A			-20~70°C	22.5 x 100 x 90mm



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