NEW

IPS-G803SM

IEC 61850-3 8x10/100/1000Base-T+ 3x100/1000Base-X SFP

The series of managed Gigabit Ethernet switch are designed to meet the demands of power substation systems and is fully compliant with the requirement of IEC 61850-3 and IEEE 1613. The switch provide a variety of redundant functions to increase the reliability of your communications system, including redundant and isolated power supplies (24/48 VDC) and 110/220 VDC/VAC), STP/RSTP/MSTP/ITU-T G.8032 Ring and multiple u-Ring for redundant cabling, layer 2 Ethernet IGMP, VLAN, QoS , Security, IPv6, bandwidth control, port mirroring, cable diagnostic and Green Ethernet. Housed in rugged DIN rail or wall mountable enclosures, these switches are designed for harsh environments, such as power substation networking. The series product can be managed centrally and conveniently by CTC Union's SmartView Element Management System.

Features

- 8x 10/100/1000Base-T RJ-45 and 3x 100/1000Base-X SFP Fiber
- UL60950-1, CE, FCC, and EN50121-4, certification
- IEC 61850-3, IEEE1613 certified for power substation
- Redundancy isolated low voltage 24/48VDC, or/and isolated High voltage AC/DC (110/220 VAC/VDC) power inputs
- Wide Operating Temperature -40~85°C
- DIN Rail mounting or wall mounting
- IP30 rugged metal housing, Fanless
- Cable diagnostic, Measuring cable normal or broken point distance
- Support IEEE1588 PTP V2 for precise time synchronization to operate in Master, Boundary, Slave mode by each port
- Supports Green Ethernet IEEE802.3az EEE (Energy Efficient Ethernet) Management to optimize the power consumption
- STP, RSTP, MSTP, ITU-T G.8032 Ethernet Ring Protection Switching (ERPS), and u-Ring for cabling redundant
- Provides 5 instances that each can support u-Ring, u-Chain or Sub-Ring type for flexible uses (see Figure 3). Supports up to 5 rings in one device (see Figure 2).
- u-Ring for Redundant Ethernet Ring, recovery time<10ms in 250 units
- QoS, Traffic classification QoS, CoS, bandwidth control for Ingress and Egress, Storm Control, DiffServ
- IEEE802.1Q VLAN, MAC based VLAN, IP subnet based VLAN, Protocol based VLAN, VLAN translation, GVRP, MVR
- Dynamic IEEE 802.3ad LACP Link Aggregation, Static Link Aggregation
- IGMP snooping V1/V2/V3, IGMP Filtering/ Throttling, IGMP query, IGMP proxy reporting, MLD snooping V1/V2
- Security : Port based and Mac based IEEE802.1X, RADIUS, ACL, TACACS+, HTTP/HTTPS, SSL/SSH v2
- Software upgrade via TFTP and HTTP, redundant firmware to avoid in case of upgrade failure
- Supports DHCP client/Relay/Snooping/Snooping option 82/Relay option 82
- Supports RMON, MIB II, Private MIB, Port mirroring, Event syslog, DNS, NTP/SNTP, IEEE802.1ab LLDP
- Supports IPv6 Telnet server /ICMP v6
- CLI, Web based management, SNMP v1/v2c/v3, Telnet server for management
- Provides SmartConfig for quick and easy mass configuration
- Supports SmartView for Centralized Management

Specifications

IEEE Standard	IEEE 802.3 10Base-T 10Mbit/s Ethernet
	IEEE 802.3u 100Base-TX, 100Base-FX, Fast Ethernet
	IEEE 802.3ab 1000Base-T Gbit/s Ethernet over twisted pair
	IEEE 802.3z 1000Base-X Gbit/s Ethernet over Fiber-Optic
	IEEE 802.1d STP (Spanning Tree Protocol)
	IEEE 802.1w RSTP (Rapid Spanning Tree Protocol)
	IEEE 802.1s MSTP (Multiple Spanning Tree Protocol)
	IEEE 802.1Q for VLAN Tagging
	IEEE 802.1X Port based and MAC based Network Access Control, Authentication
	IEEE 802.3ad Link aggregation for parallel links with LACP(Link Aggregation Control Protocol)
	IEEE802.3x Flow Control and Back Pressure
	ITU-T G.8032/ Y.1344 ERPS (Ethernet Ring Protection Switching)
	IEEE 802.1ad Stacked VLANs, Q-in-Q
	IEEE 802.1p LAN Layer 2 QoS/CoS Protocol for Traffic Prioritization
	IEEE 802.1ab Link Layer Discovery Protocol (LLDP)
	IEEE 802.3az EEE (Energy Efficient Ethernet)
Switch Architecture	Back-plane (Switching Fabric): 22 Gbps
Data Processing	Store and Forward
Flow Control:	IEEE 802.3x flow control, back pressure flow control
Jumbo Frame	9.6KB
MAC Address Table	8K
Memory Buffer	256K Bytes for packet buffer
Network Connector	8x 10/100/1000Base-T RJ-45 auto negotiation speed
	Auto MDI/MDI-X function, Full/Half duplex
	3x 100/1000Base-X dual speed mode SFP slot, with DDMI

Console	RS-232 (RJ-45)
Network Cable	UTP/STP above Cat. 5e cable
	EIA/TIA-568 100-ohm (100m)
Protocols	CSMA/CD
LED	Per unit : Power 1 (Green), Power 2 (Green), Fault (Amber) (-LL model) Per unit : Power 1 (Green), Power 2 (Green), Power 3(Green), Fault (Amber) (-HL model)
	Per RJ-45 port :10/100Link/Act: Green, 1000Link/Act: Amber
	SFP Fiber Per port : Link/Active (Green)
Reverse Polarity Protection	Present for Power Input
Overload Current Protection	Present
CPU Watch Dog	Present
Power Input	Redundant 2x Isolated Low Voltage DC Input power (-LL model) Redundant 2x isolated Low Voltage DC and 1 High Voltage AC/DC input power (-HL model)
	Isolated Low Voltage DC : Isolated 24/48V (18~72VDC) ,Removable Terminal Block High voltage AC/DC : isolated 110/220VAC (88VAC~264VAC) or 110/220VDC (85~300VDC), Removable Terminal Block
Power consumption	
Alarm Relay Contact	Relay outputs with current carrying capacity of 1 A @24VDC

Input Voltage	IPS-G803SM
110VAC	9.3 W
220VAC	9.2 W
24VDC	9.6 W
48VDC	11.1 W

Specifications & design are subject to change without prior notice. Please visit CTC Union website for more details.

Removable Terminal Block	Provide 2 redundant low volt power, alarm relay contact (6 Pin) (-LL model) Provide 2 redundant low volt power, alarm relay contact (6 Pin) , and High volt Power (2 Pin) (-HL model)
Operating Temperature	-40°C~85°C
Operating Humidity	5% to 95% (Non-condensing)
Storage Temperature	-40°C~85°C
Housing	Rugged Metal, IP30 Protection, Fanless
Dimension	106x82x152mm (D x W x H)
Weight	0.885kg (IPS-G803SM-LL) 1.085kg (IPS-G803SM-HL)
Installation mounting	DIN Rail mounting or wall mounting
Warranty	5 years

Certification	
EMC/EMS	CE, FCC
EMI	FCC Part 15 Subpart B Class A
	EN 55022 Class A
EMS	EN61000-4-2 (ESD) Level 4, Criteria B
	EN61000-4-3 (RS) Level 4, Criteria A
	EN61000-4-4 (EFT) Level 4, Criteria A
	EN61000-4-5 (Surge) Level 4, Criteria B
	EN61000-4-6 (CS) Level 4, Criteria A
	EN61000-4-8 (Magnetic Field) Level 5, Criteria A
Safety	UL60950-1
Power Substation	IEC 61850-3, IEEE 1613
Railway Traffic	EN50121-4
Shock	IEC 60068-2-27
Freefall	IEC 60068-2-32
Vibration	IEC 60068-2-6

Software Specifications

Topology	
VLAN	IEEE 802.1q VLAN,up to 4094 ID
	IEEE 802.1q VLAN,up to 4094 Groups
	IEEE 802.1ad Q-in-Q
	MAC-based VLAN,up to 256 entries
	IP Subnet-based VLAN, up to 128 entries
	Protocol-based VLAN (Ethernt, SNAP, LLC), up to 128 entries
	VLAN Translation, up to 256 entries
	MVR (Multiple VLAN Registration)
	GVRP (GARP VLAN Registration Protocol)
Link Aggregation (Port Trunk)	Static (Hash with SA, DA, IP, TCP/UDP port), up to 5 trunk group
	Dynamic (IEEE 802.3ad LACP), up to 5 trunk group
Spanning Tree	IEEE802.1d STP
	IEEE802.1w RSTP
	IEEE802.1s MSTP
Multiple u-Ring	up to 5 instances that each supports u-Ring, u-Chain or Sub-Ring type for flexible uses, and maximum up to 5 Rings (see Figure 2, Figure 3) Recovery time <10ms Maximum 250 devices in a Ring
Loop Protection	Present
ITU-T G.8032 / Y.1344 ERPS (Ethernet Ring Protection)	Convergence time <50ms
	Single Ring, Sub-Ring, Multiple ring topology network
QoS Feature	
Class of Service	IEEE802.1p 8 active priorities queues for per port
Traffic Classification QoS	IEEE802.1p based CoS
	IP Precedence based CoS
	IP DSCP based CoS
	QCL(QoS Control List): Frame Type, Source/ Destination MAC, VLAN ID, PCP, DEI
	QCE(QoS Control Entry): Protocol, Source IP, IP Fragment, DSCP, TCP/UDP port number
Bandwidth Control for Ingress	Rate in steps : 1 kbps / Mbps / fps / kfps
	Range : 100 kbps to 1Gbps / 1fps to 3300kfps
	Rate Unit : bit or frame
Bandwidth Control for Egress	Rate in steps : 1 kbps / Mbps
	Range : 100 kbps to 1Gbps
	Rate Unit : bit
	Per queue / Per port shaper
DiffServ (RF 2474) Remarking	
Storm Control	for Unicast, Broadcast, Multicast
IP Multicasting Feature	
IGMP / MLD Snooping	IGMP Snooping v1, v2, v3 / MLD Snooping v1, v2
	support 1022 IGMP groups
	Port Filtering Profile
	Throttling
	Fast Leave
	Maximum Multicast Group : up to 1022 entries Query / Static Router Port
Security Features	
IEEE 802.1X	Port-Based
	MAC-Based
ACL	Number of rules : up to 256 entries for L2 / L3 / L4
RADIUS authentication & accounting	
TACACS+ authentication & accounting, TACACS+ 3.0	
HTTPS, HTTP	
SSL / SSH v2	
User Name Password Authentication	Local Authentication
	Remote Authentication (via RADIUS/ TACACS+)
Management Interface Access Filtering	Web, Telnet / SSH , CLI RS-232 console
Management Features	
CLI	Cisco® like CLI
Web Based Management	
Telnet	Server
SNMP	V1, V2c, V3
SW & Configuration Upgrade	TFTP, HTTP
	Redundant firmware in case of upgrade failure
RMON	RMON I (1, 2, 3, 9 group), RMON II
MIB	MIB II RFC1213, Private MIB
DHCP	Client
	Relay
	Snooping
	Snooping option 82
	Relay option 82
IP Source Guard	
Port Mirroring	
Event Syslog	Syslog server (RFC3164) (Support 1 server)
Warning Message	System Syslog, SMTP/ e-mail event message, alarm relay
DNS	Client, Proxy
IEEE1588 PTP V2	Master ,Boundary, Slave Operating mode Operating in each port of these switch
NTP /SNTP	
LLDP (IEEE 802.1ab)	Link Layer Discovery Protocol
	LLDP-MED
IPv6 Features	
IPv6 Management	Telnet Server/ICMP v6
SNMP over IPv6	
HTTP over IPv6	
SSH over IPv6	
IPv6 Telnet Support	
IPv6 NTP / SNTP Support	
IPv6 TFTP Support	
IPv6 QoS	
IPv6 ACL	Number of rules: up to 256 entries
	L2 / L3 / L4
Others Features	
Green Ethernet	Supports IEEE802.3az EEE (Energy Efficient Ethernet) Management to optimize the power consumption
	Determine the cable length and lowering the power for ports with short cables
	Lower the power for a port when there is no link
	LED Power Management: Adjustment LEDs intensity
Cable Diagnostic	Measuring cable is normal or broken point distance

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Application for Power Substation

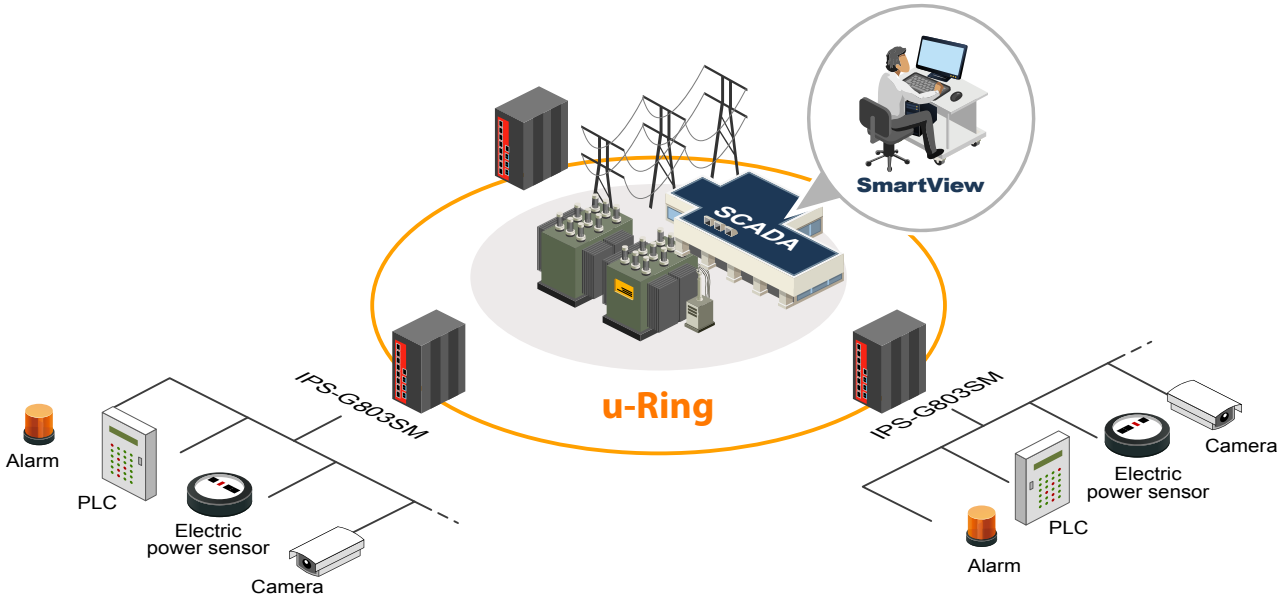

Figure 1 : IPS Series in Power Substation Application

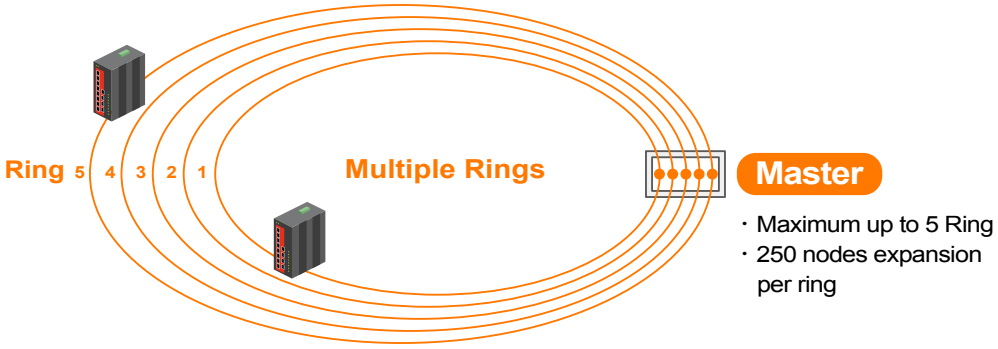

Figure 2 : Multiple Rings

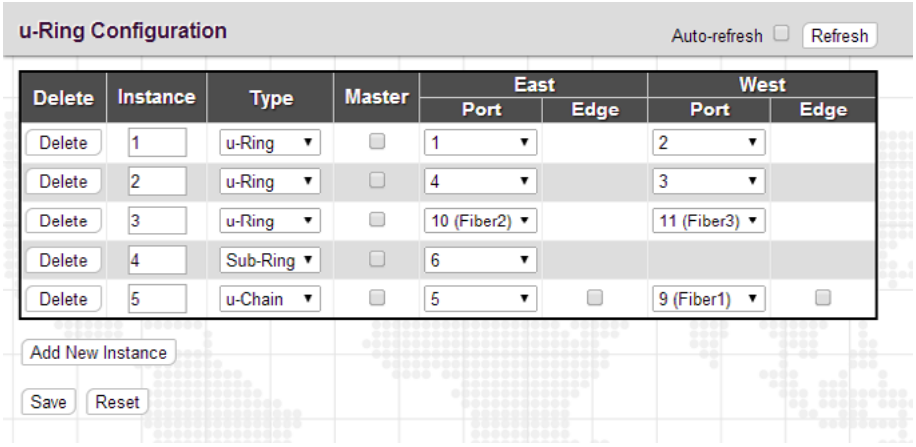

Figure 3 : User-Friendly Configuration In Web Interface

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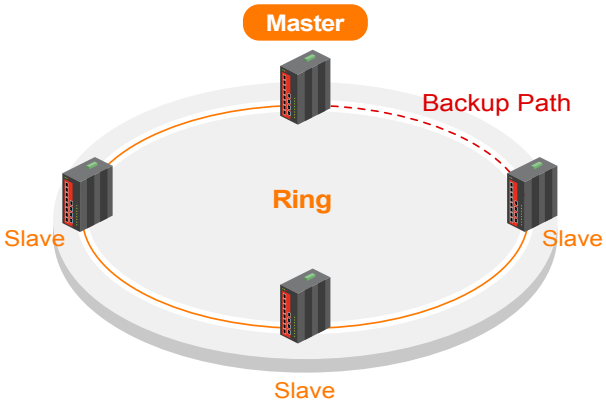
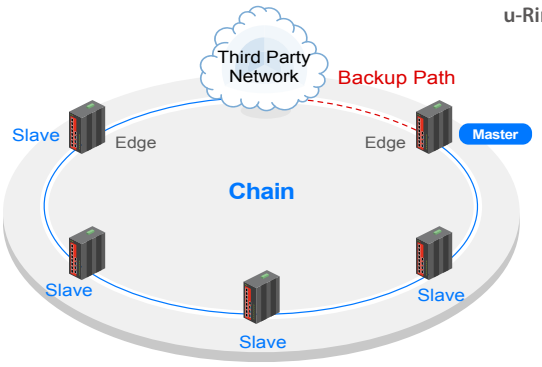
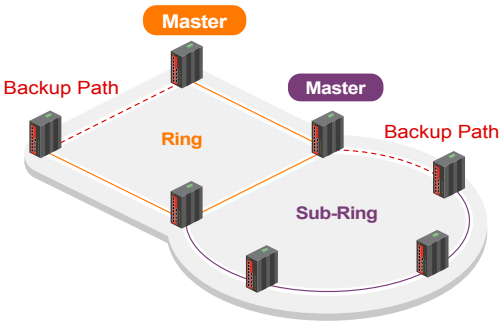
Figure 4 : u-Ring Type



u-Ring Type

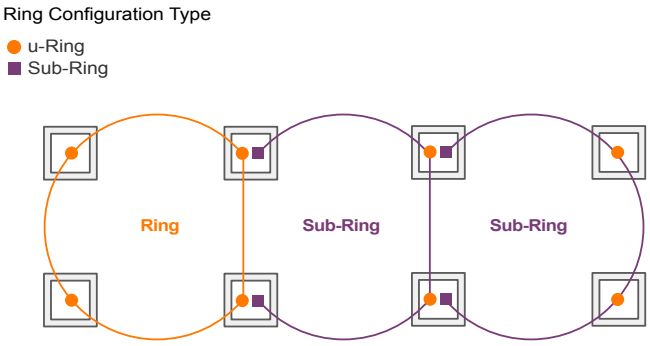


Determining the backup path (u-Chain type)

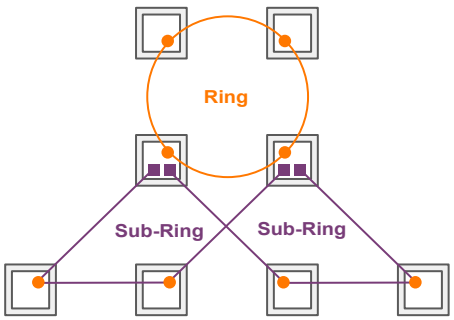


A major ring and a Sub-Ring topology

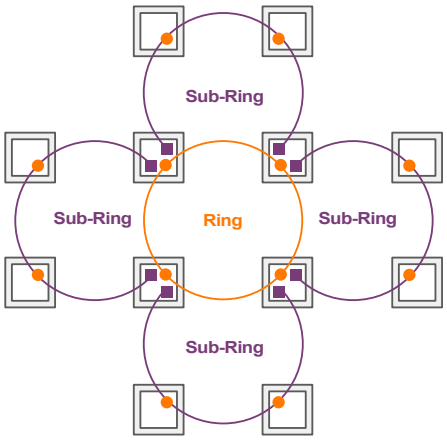
Figure 5 : Ring Configuration Example



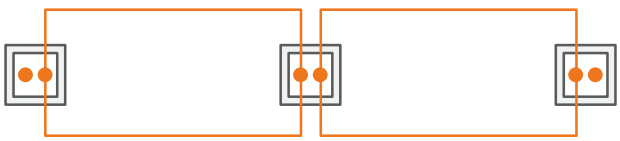
Ring Configuration Type



Combination of a ring and two Sub-Ring



Combination of a ring and four Sub-Ring



Cable Redundancy

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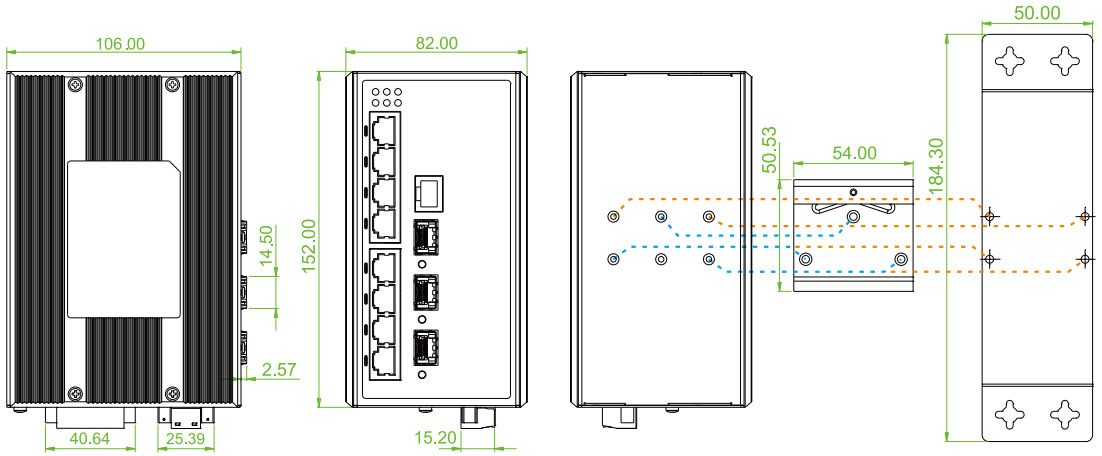
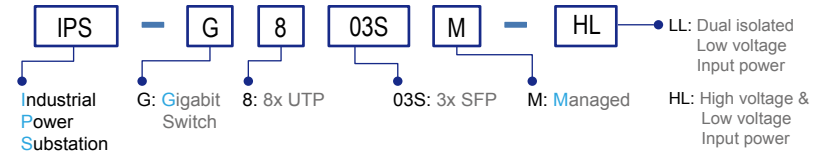
Dimensions



Ordering Information

Model Name	Managed	Total Port	UTP Port	Fiber	Input Power		Certification			
			10/100/1000 Base-T	100/1000 Base-X	Low Voltage isolated 24/48 VDC	High Voltage 110/220V DC/AC	IEC61850-3	EN50121-4	Safety UL60950-1	CE, FCC
IPS-G803SM-LL	V	11	8	3 SFP	2	—	V	V	V	V
IPS-G803SM-HL	V	11	8	3 SFP	2	1	V	V	V	V

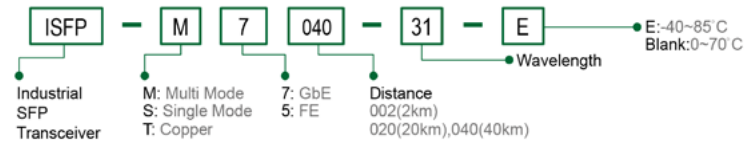
Model Naming Rule



Accessories

DR-4524	Industrial Power, Input 85 ~ 264VAC, Output 24VDC, 48W, -10 ~ +50℃
MDR-40-24	Industrial Power, Input 85 ~ 264VAC, Output 24VDC, 40W, -20 ~ +70℃
MDR-60-24	Industrial Power, Input 85 ~ 264VAC, Output 24VDC, 60W, -20 ~ +70℃
SFP Transceiver	Compatible, Reliable, 5-year Warranty

SFP Naming Rule



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