Product General Catalogue

2024 - 2025 vol.1

FXC Networking Solutions

You can make the reliable network with our products

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About FXC

FXC offers a comprehensive range of network solutions that includes Layer 2 and Layer 3 Ethernet switches and fiber optic CWDM systems. Our mission is to deliver FXC brand network solutions as tools that can be used to a create effective communication and mutual understanding and respect throughout the world.

At FXC, subsidiaries across the globe, we are

constantly attentive to the quality of our operations, products and services, and we strive to win the satisfaction and approval of our customers by consistently delivering quality products and services that match their needs, wherever they are based.

And, in recognition of the fact that environmental conservation is one the most critical issues facing mankind, FXC is aggressive in the implementation of environmental measures, including the elimination of toxic substances from product manufacture and development.

1. WDM+OTN (LightEdge series)

1.1. 1.6T+OTN

1.1.1. LE410TA / LE410TB

LE410T is equipped with an EDFA amplifier and 4ch Mux/Demux inside the device.
1U size allows transmission of up to 1.6T transmission rate with 1 core.
High-capacity DCI can be realized for companies, campuses, and service providers.

■1x400G transponder / 4x100G maxponder
■Uplink：400G CFP2-DCO for Single fiber
■Client: 4×100G QSFP28、400G QSFPDD(Will be supported in the future)
■Client interfaces:100GE、OTU4、400GE
■EDFA(Booster amp, Pre amp) mounted
■No limit on the frame length that can be transmitted
■LOS Propagation function (link-loss transfer function)
■Remote management via GCC in-band channel or OSC
■FEC(Forward Error Correction) Function support
■ Power supply and FAN support hot swap. Power supply can be redundant (AC and DC can be mixed)
■ Performance features(Optical input / output monitor,Line quality monitor)
■ Eye Safety function
■ Loop-back test function, PRBS test function
■ Remote power discontinuity detection function (Dying gasp)

Models		LE410TA / LE410TB
Local interface	Number of Ports	400Gb Ethernet / 100Gb Ethernet / OTU4 4Ports
	Interface	400GBASE-LR8/FR8/SR8/DR4/FR4/LR4 （Will be supported in the future）
	Data rate	OTU4：112Gbps　100GbE：103Gbps

	Connecter	QSFP28、QSFP-DD transceiver
	frame length	No restrictions
	Service type	400GbE,100GbE,OTU4
	FEC	RS-FEC or no-FEC
Remote interface (Dark fiber connecti on port)	Number of Ports	400G 4Ports
	Wavelength	DWDM C-Band ITU-T 100GHz grid
	Applicable optical fiber	SMF, DSF
	Light power dissipation	Depend on selection CFP2 transceiver
	FEC	O-FEC, C-FEC(Will be supported in the future)
Management port	Console port	Interface: RJ-45 rate:115200bps
	Management port	100/1000Base-T / Auto-negotiation *2
	Remote management channel	OSC、GCC（General Communication Channel Will be supported in the future)
	Management IP address	Manual Configuration (Console)
Alarm display, Monitoring	Alarm	Viewable 512 events immediately (GUI), timestamp
Power	Power supply Hot Swap	AC100V～240V／AC 50/60Hz (Max.4A) DC: -48V DC(Max.8.2A)
	Power consumption	Max 300W
Physical specification	Weight (all components mounting)	Max.13kg
	Operating Temperature/Humidity	-5℃～45℃/max. 5%～85% (no condensation)
	Size	440mm(W)×400mm(D)×44mm(H) 1U Size
	Approvals	RoHS CE、FCC、NEBS ready

1.1.2. LE400T

1.6T Transponder / Max Pondar

LightEdge400T is a 1U size 4x400G (maximum 1.6T) transmission rate, EDFA amplifier, 4ch Mux / Demux.By installing it, a budget of up to 35 dB is realized.400G uplink 100GbE, OTU4,It is provided in combination with 400GbE.
LightEdge400T is a big game for corporate, campus and cloud computing networks.
It is possible to provide volume DCI and extend the existing OTN / DWDM infrastructure with 400G links.

"LightEdge 400T" will be used in the network infrastructure (optical transmission equipment category) of the "Best of Show Award" at "Interop Tokyo 2021".
Won the Grand Prix.The "Best of Show Award" is a rigorous examination of new products entered by exhibitors of "Interop Tokyo 2021" by ICT industry experts.
After that, we will commend the excellent products.

■1x400G transponder / 4x100G maxponder
■Uplink: 400G CFP2-DCO,
400G CFP2-DCO for Single fiber(Will be supported in the future)、
400G QSFPDD-DCO(Will be supported in the future)
■Client: 4×100G QSFP28、
400G QSFPDD(Will be supported in the future）
■Client interfaces:100GE、OTU4、400GE
■GCCInband channel(In-band channel)or remote management via OSC is possible.
■FEC(Forward Error Correction) Function support
■Power supply and FAN support hot swap. Power supply can be redundant (AC and DC can be mixed)
■Performance features(Optical input / output monitor,Line quality monitor)
■Eye Safety function
■OAM(Loopback test function)

Models		LE400T
Local interface	Number of Ports	400Gb Ethernet / 100Gb Ethernet / OTU4 4Ports
	Interface	400G QSFPDD FR4/FR8/LR8、 100G QSFP28 SR4/LR4/ER4
	Data rate	OTU4：112Gbps 100GbE：106Gbps
	Connecter	QSFP28, QSFP-DD
	frame length	No restrictions
	Service type	400GbE,100GbE,OTU4
	FEC	RS-FEC,no-FEC,KP4-FEC,G-FEC(G.709)
Remote interface (Dark fiber connecti on port)	Number of Ports	400G 4Ports
	Wavelength	DWDM C-Band ITU-T 100GHz grid
	Applicable optical fiber	SMF, DSF
	Light power dissipation	Depend on selection CFP2 transceiver
	FEC	O-FEC, C-FEC(Will be supported in the future)
Management port	Console port	Interface: RJ-45 rate:115200bps
	Management port	10/100/1000Base-T / Auto-negotiation*2
	Remote management channel	OSC,GCC (Will be supported in the future)
	Management IP address	Manual Configuration (Console)
Alarm display, Monitoring	Alarm	Viewable 512 events immediately (GUI), timestamp
Power	Power supply Hot Swap	AC100V～240V／AC 50/60Hz (Max.4A) DC: -48V DC(Max.8.2A)
	Power consumption	Max 300W
Physical specification	Weight (all components mounting)	Max.13kg
	Operating Temperature/Humidity	-5℃～45℃/max. 5%～85% (no condensation)
	Size	440mm(W)×400mm(D)×44mm(H) 1U Size
	Approvals	VCCI/ RoHS Compliant

1.2. 200G+OTN

1.2.1. LE200T

1U size 200G transponder.

LE200T is a transponder. Suitable for constructing a large capacity optical transmission network of 200G.Two waves of 100G client signals are aggregated into a 200G line, and the AMP installed inside the device enables long-distance transmission even in 1U size.It also has a GCC in-band channel.
Supports remote monitoring of opposite devices. Ensure high availability and reliability. Ideal for large-capacity transmission between bases such as between data centers and university campuses.

■It is equipped with four 200G uplinks.
Two 100GE or OTU4 ports can be used for each uplink port.
■Optical module for client port: 8 x 100G QSFP28 SR4 / LR4 / ER4
■Uplink compatible optical module: 200G CFP2-DCO
■Client interface: 100GE, OTU4
■The power supply unit can be loaded with AC power and DC power.
Optical module, power supply unit, fan unit can be hot swapped.
■EDFA(Preamplifier) installed.
■1U,19 inch rack size compact size.
■No limit on the frame length that can be transmitted.
■LOS Propagation function (link disconnection transfer function)
■Simple setup and management.
・Web GUI,SNMP,Syslog,RADIUS,telnet/ssh,Console
・Inband GCC or OSC remote management
・Performance features(Optical input / output monitor,Line quality monitor)
・FEC(Forward Error Correction) Function support
・Loopback test function
・Remote power failure detection function(Dying gasp)
■Equipped with FAN (automatic speed control)
*The FAN unit has an automatic speed control mechanism that provides power saving.

Models		LE200T
Local interface	Number of Ports	8
	Interface	100G QSFP28 SR4/LR4/ER4, OTU4
	Data rate	103.1Gbps~112Gbps
	Connecter	QSFP28 transceiver
	frame length	No restrictions
Remote interface (Dark fiber connecti on port)	Number of Ports	4
	Wavelength	DWDM ITU-T G.694.1, C-Band
	Applicable optical fiber	SMF,DSF
	Light power dissipation	28～32dB(When using an amplifier equipped with 200T)
Management port	Console port	Interface: RJ-45 Connector: 8pin, Type D, Transfer rate:9600bps
	Management port	10/100 BASE-T port
	Remote management channel	GCC (General Communication Channel)
	Management IP address	Manual Configuration (Console)
Alarm display, Monitoring	Alarm	Viewable 512 events immediately (GUI), timestamp,Layer1/2 PM/OTN PM/Optical PM
Power	Power supply Hot Swap	AC:100V～240V／AC 50/60Hz DC: -48V DC
	Power consumption	250W
Dimensions Physical specification	Dimensions	440mm(W)x287mm(D)x44mm(H), 1U
	Weight	6.15Kg (when only power supply x 2 and FAN x 1 are installed), Max.8.5Kg (when module is installed maximum)
	Operating Temperature/Humidity	-5℃～50℃/5%～85% (no condensation)
	Approvals	REACH, CE, FCC,RoHS Compliant

1.2.2. LE200M

FXC Ultra-small Optical Transport Device Generating 200Gbps Bandwidth at 1U Size

The device features a compact 1U size and 200G transport capacity, communicates through 1- or 2-core optical fiber, and provides the muxponder/transponder solutions responding to 10G/40G/100G multi-services.
LightEdge 200M is the muxponder/transponder compatible with 10G/40G/100G Multi-services.
LE200M is the FXC's 200G solution and the 200G unit based on the standard 1U size, and can consolidate the multi rate and multiprotocol 10G/40G/100G services into one 200G OTUC2 uplink.

The 200G solutions proposed by FXC are described below.

- Large-capacity DCI for enterprises, campuses, and cloud computing networks
- Providing 200G linkage to enhance the existing OTN/DWDM infrastructure
- Last-mile access/aggregation CPE of the 10G/40G/100G services
- Safe and encrypted communication for all protocols

■ Muxponder/transponder solutions responding to the 10G/40G/100G multi-services (Layer1 device)
■ Compact 1U and 19-inch rack size
■ Front implementation of all interfaces that provides excellent operability and easy maintenance work
■ Supported client interface: 100GBASE-SR4/LR4/ER4, 40GBASE-SR4/LR4, 10GBASE-SR/LR/ER, STM-64/OC-192, 8G/16G FC, OTU2/OTU2e/OTU4
■ Provides long-distance transport
■ No restrictions on the transportable frame length
■ AES-256 Layer-1 encryption function (option)
■ Simple configuration and management
■ Increased set of management functions

- LOS Propagation function (link-loss transfer function)
- Automatic Laser Shutdown (ALS function)• Web GUI (HTTP/HTTPS), SNMP, Syslog, RADIUS, telnet/SSH, Console
- In-band GCC or OSC remote management function
- Performance function (optical input/output monitor, line quality monitor)
- Supports the FEC (Forward Error Correction) function
- Loop-back test function, PRBS test function
- Remote power discontinuity detection function (Dying gasp)

■ Provides the power duplication (AC/DC power selectable) and FAN (speed automatically controlled) as standard

* The FAN unit has an automatic speed control mechanism that reduces power consumption

■ Equipped with the rack mount kit as standard

■ Provides expansion by connection with LightEdge 4716

* Provides installation of an amplifier and Mux/Demux as an option

*32G FC will be supported in the future.

Models		LE200M
Local interface	Number of Ports	18
	Interface	100GBASE-SR4/LR4/ER4. 40GBASE-SR4/LR4, 10GBASE-SR/LR/ER, STM-64/OC-192, 8G/16G FC, OTU2/OTU2e, OTU4
	Data rate	8Gbps～112Gbps
	Connecter	SFP+/QSFP+/QSFP28 transceiver
	frame length	No restrictions
Remote interface	Number of Ports	1
	Wavelength	DWDM C-band ITU-T 50GHz grid
	Applicable optical fiber	SMF, DSF
	Light power dissipation	Depend on selection CFP2 transceiver
Management port	Console port	Interface: RS-232, RJ-45 Connector: 8pin, Type D, Transfer rate:9600bps
	Management port	10/100 BASE-T port
	Remote management channel	GCC (General Communication Channel) , OSC
	Management IP address	Manual Configuration (Console)
Alarm display, Monitoring	Alarm	Viewable 512 events immediately (GUI), timestamp
Power	Power supply Hot Swap	AC100V～240V／AC 50/60Hz (Max.5A) DC: -48V DC(Max.12A)
	Power consumption	250W
Dimensions	Dimensions	440mm(W)x285mm(D)x44mm(H), 1U
Physical specification	Weight (all components mounting)	Max.7.0kg
	Operating Temperature/Humidity	0℃～45℃/max.90% (no condensation)
	Approvals	CE/FCC/VCCI/RoHS Compliant

2. WDM (LightEdge series)

2.1. LightEdge 4716

DWDM 16ch Mux/Demux unit (1-core/bi-directional communication)

- Up to 16-ch multiplexing is supported in conjunction with the LightEdge 800/2000/4000/4800 transponder
- Passive unit (equipped with no power source/FAN)
- Compact/Lightweight: 1U size, 1.5 kg maximum

2.2. LightEdge 4311

Pre AMP unit

- Long-distance transport is supported in combination with LightEdge 4716
- Low power consumption: 22 W or less, Compact/Lightweight: 1U size, 5.0 kg maximum

3. Micro Media Converter

3.1. LightEdge Xchange 3000 series

3.1.1. LEX3020, LEX3004

Set-type chassis for LEX3000 series media converters

The LEX3020 is a 19-inch rack-mount chassis with a height of 2U. It is a set-type chassis that can accommodate up to 20 LEX3000 series media converters.
The LEX3004 is a 4-slot collective chassis with a height of 1U and a width of half in a 19-inch rack.
A special insertion mechanism is adopted for the chassis slots. When a line card is inserted or removed, loosening the screw tilts it to the right, pushing the card forward. It allows you to insert and remove a card smoothly without losing the screw.
In addition, a tray for extra fiber cable management is installed under the slot.

<LEX3020>
- Accommodates up to 20line cards in a 2U rack mount
- Accommodates up to 20 LEX38xx line cards (slots 1 to 20)
- Supports installation of SNMP management cards (LEX3930-00) (slots 1 and 2)
- Supports redundancy of SNMP management cards (LEX3930-00)
- User-defined LED alarm output (LEX3930-00)
- All modules support hot swapping
- LED module status display
- Drawer-type extra cable management tray
- Structure that allows smooth card insertion and extraction

<LEX3004>
- 1U rack mount half size with up to 4 LEX 38xx line cards
- SNMP management card (LEX3930-00) can be mounted in slot 1
- Redundant configuration is possible for both AC power supply (LEX3911-15) and DC power supply (LEX3911-45)
- All modules support hot swapping
- LED module status display
- FAN (installed in the power supply module) Automatic speed adjustment function
- Card insertion / removal lock mechanism
- Cascade connection is possible by connecting to the front connector of two LEX3004 with the attached cascade cable.

Models		LEX3020	LEX3004
Maximum number of installable cards		Front slot: 20(without LEX38**, LEX3930-00x2) Rear slot: Power module (LEX3910-15 or LEX3910-45)	Front slot: 4(LEX38xx, LEX3930-00) Rear slot: Power module2 (LEX3911-15 or LEX3911-45)
Power supply specifications		LEX3910-15 Cooling fan unit x2	LEX3911-15 Cooling fan unit x2
		LEX3910-45 Cooling fan unit x2	LEX3911-45 Cooling fan unit x2
Alarm LED		PWR1/PER2/FAN1/FAN2 (Off: Not implemented or OFF) (Green: Normal/Red: Abnormal)	PWR1/PER2/FAN1/FAN2 (Off: Not implemented or OFF) (Green: Normal/Red: Abnormal)
User Environmental	Operating Temperature/H	-20℃～65℃/0～95% (no condensation)	-20℃～65℃/0～95% (no condensation)
	Recommended operating Temperature/	-10℃～50℃/0～95% (no condensation)	-10℃～50℃/0～95% (no condensation)
	Storage Temperature/	-25℃～70℃/0～95% (no condensation)	-25℃～70℃/0～95% (no condensation)
Dimensions		2U size 438mm(W)x280mm(D)x88.4mm(H)	1U size 210mm(W)x250mm(D)x44mm(H)
Physical specification		5.9kg (involve Blank panel)	1.74kg (involve Blank panel)
Electrical Approvals	Electromagnetic	VCCI class A	VCCI class A
ISO	Environmental Compliance	RoHS	RoHS
Reliability	MTBF	MTBF：390,000h (25℃, without SFP)	TBD
Accessories		rack mounting kits (rack mounting screws, Rack mount bracket, installation guide, product warranty, rubber foot covers x4	Main body (line card blank x4, power supply blank x2 mounted) Rack mount kit (can be used in common with LEX1705) Installation guide, warranty card Cascade cable

3.1.2. LEX3910-15, LEX3910-45 Media Converter for Ethernet OAM

LEX3910-15 AC power supply module/LEX3910-45 DC power supply module

The LEX3910-15 and LEX3910-45 are power supply modules for the LEX3020. Two types are available for AC power supply and DC power supply. Up to 2 units can be installed on the back of the chassis to create a redundant configuration. The power supply modules have two built-in cooling fans with automatic speed control function. The LED on the front of the LEX3020 indicates the operating states of the power supply and fans.

- Power supply module for LEX3020
- Supports redundant configuration with 2 units installed on the back of housing
- Automatic speed adjustment function for fans (installed in the power supply module)
- LEX3910-15 includes an AC power supply cable with locking mechanism

Models		LEX3910-15	LEX3910-45
Rated input voltage/frequency	Rated input power Input range Maximum input power Maximum Output power DC output voltage	AC100-240V 90-264V 50/60Hz(47～63Hz) ～3.5A 300W 12V	DC-48～-60V -38～-70V — ～6A 240W 12V
Cooling system	Rotational speed/FAN Maximum Air volume/FAN Sound pressure level/FAN Cooling fan Function	4600rpm (Automatic speed control function) 0.65 m^3/min 33dB(A)*Maximum air volume 2 Automatic adjustment function	
Environmental condition	Operating temperature and humidity Recommended operating temperature and humidity Storage temperature and humidity	-20～65℃/0～95%(no condensation) -10～50℃/0～95%(no condensation) -25～70℃/0～95%(no condensation)	
Dimensions		216.5mm (W)X160mm(D)X85.9mm(H) *without detachable parts	
Physical		1.3kg	
ISO	Environmental Compliance	RoHS, PSE	
Reliability	MTBF	151,400h (25℃)	150,000h (25℃)
Accessories		AC Power cable (OPT-AC100V-LK01)	—
		installation guide, product warranty	

3.1.3. **LEX3911-15, LEX3911-45** **Media Converter for Ethernet OAM**

LEX3911-15 AC power supply module/LEX3911-45 DC power supply module

Models		LEX3911-15	LEX3911-45
Rated input voltage/frequency	Rated input power Input range Maximum input power Maximum Output power DC output voltage	AC100-240V 90-264V 50/60Hz(47～63Hz) - 50W 12V	DC-48～-60V -38～-70V — ～1.1A 50W 12V
Cooling system	Rotational speed/FAN Maximum Air volume/FAN Sound pressure level/FAN Cooling fan	Typ.8900min-1 (Automatic speed control function) 0.65 m^3/min 33dB(A)*Maximum air volume	
Environmental condition	Operating temperature and humidity Recommended operating temperature and humidity	-20～65℃/0～95%(no condensation) -10～50℃/0～95%(no condensation)	
Dimensions		102mm (W)X1mm(D)X41.5mm(H) *without detachable parts	
Physical		0.52kg(-15) 0.47kg(-45)	
ISO	Environmental Compliance	RoHS, PSE	
Reliability	MTBF	160,300h	155,000h
Accessories		AC Power cable (OPT-AC100V-LK01)	—
		installation guide, product warranty	

3.1.4. **LEX3930-00** **Media Converter for Ethernet OAM**

SNMP Management Card

The LEX3930-00 is an SNMP management card for the LEX3020. It allows you to monitor the states of power supply units and fan units installed in the chassis, monitor the link states of LEX3000 series media converters, and configure various settings via a network. In addition, it allows for status monitoring of neighboring line cards via Link OAM (IEEE802.3ah) and wide-area Ethernet status monitoring via Ethernet OAM (IEEE802.1ag / ITU-T Y.1731).

- Inbound monitoring: Monitoring of status of neighboring line cards and various communication settings via Link OAM (IEEE802.3ah)
- Wide-area Ethernet monitoring: Monitoring of wide-area Ethernet status via Ethernet OAM (IEEE802.1ag / ITU-T Y.1731)
- Media converter function settings
- Management of port communication parameter settings
- SNMP manager authentication settings
- Trap transmission settings for monitoring items
- Download and upload of configuration files
- Supports SNTP (Simple Network Time Protocol) Client
- Supports Syslog Client

Models	LEX3930-00	
Ethernet port	Standards	IEEE802.3 (10BASE-T) IEEE802.3u (100BASE-TX) IEEE802.3ab (1000BASE-T)
	Transmission speed	10/100/1000Mbps
	Function	Full / Half Duplex Auto negotiation Auto MDI / MDI-X
Console port	Connector type Transfer speed/method	RS232C 115.2kbps、8bit、no parity

Environmental condition	Operating temperature and humidity Recommended operating temperature and humidity Storage temperature and humidity	-20～65℃/0～95%(no condensation) -10～55℃/0～95%(no condensation) -25～70℃/0～95%(no condensation)
Dimensions		55mm (W)×110mm(D) ×20mm(H) *without detachable parts
Physical specification		170g
Electrical Approvals	Electromagnetic Interference	VCCI class A
ISO	Environmental Compliance	RoHS
Reliability	MTBF	390,000h (25℃)
Accessories		RS232C cable (male-female connector)
		installation guide, product warranty

3.1.5. **LEX3881-2F** Media Converter for Ethernet OAM

10GBASE-R to 10GBASE-R media converter

The LEX3881-2F is the world's smallest*1 Ethernet OAM-compatible media converter.

The LEX3881-2F is an Ethernet OAM-compatible media converter equipped with Link OAM/CFM OAM functions. It is the world's smallest*1 Ethernet OAM-compatible media converter.

The LEX3881-2F has operation, management, and maintenance functions for Ethernet networks, such as status monitoring of lines connecting neighboring devices, monitoring of connection failures between multiple devices, throughput measurement, frame loss measurement, and frame delay measurement. It is highly cost effective and provides stable transmission quality via quick and easy identification and isolation of failure factors.
In addition, it is equipped with a Dying Gasp function that remotely indicates an instantaneous power-off such as a power outage, enabling a prompt response to the power failure.

*1 Among Ethernet OAM-compatible stand-alone giga media converters (according to FXC's findings as of April 18, 2018).

Models		LEX3881-2F
Standards		IEEE802.3z,IEEE802.3ah,IEEE802.3ae
Transmission speed		1000Mbps/10Gbps
Fiber ports	Number of SFP ports	SFP/SFP+×2ports
Cable	MMF	62.5/125μm or 50/125μm
	SMF	9/125μm or 10/125μm
Transmission mode		Switching mode
Maximum frame size		10,240byte
MAC address		16,384
Communication function		link fault pass through (Default: OFF) EAP/BPDU/LACP transparent.
Management function		Ethernet OAM Function ・IEEE802.3ah (Link OAM); Discovery, Link Monitor, RFI, Dying Gasp ・IEEE802.1ag (CFM OAM); CC, LB, LT, RDI ・ITU-T Y.1731 (CFM OAM Extension); TST, DM, LM
		Management Card LEX3900-00 Get Condition of own machine and opposing device、 Operation setting, Firmware update
Latency		2.6μs
Rated input voltage/frequency AC power		AC90~240V 50/60Hz
Rated input voltage/frequency DC power		DC5V±5%
Maximum input current		2A
Maximum power consumption		7.5W
Maximum calorific value		6.45kcal/h (include SFP+×2)
Cooling system		natural cooling (fan-less) natural cooling (fan-less)
User Environmental	Operating Temperature/Humidity	-10℃～55℃/0～95% (no condensation)
	Storage Temperature/Humidity	-25℃～70℃/0～95% (no condensation)
Dimensions		55mm(W)x110mm(D)x20mm(H) without detachable parts
Physical specification		160g (without AC adapter and Optional Accessories)

Electrical Approvals	Electromagnetic Interference	VCCI class A
ISO	Environmental Compliance	RoHS
Reliability		MTBF:305,304h (25℃, without SFP, SFP+, AC adapter)
Accessories		AC adapter　supports PSE, magnet, rubber foot covers, installation guide, product warranty, Adapter cable falling prevention banding band

3.1.6. LEX3821-2F　Media Converter for Ethernet OAM

100BASE-FX/1000BASE-X to 100BASE-FX/1000BASE-X media converter

The LEX3821-2F is the world's smallest*1 Ethernet OAM compatible media converter.

- The world's smallest *1 Ethernet OAM compatible Gb media converter
- Employs an SFP optical module. Supports 100BASE-FX and 1000BASE-SX/SX2/LX/ZX. Single fiber type (BiDi/BX) or CWDM SFP can also be used.
- Switch operated. Supports jumbo frames.
- Supports instant power-off notification function (Dying Gasp)
- LED signal detection indicator
- Fan-less design. Made in Japan - Japanese quality.

*1 Among Ethernet OAM compatible stand-alone Gb media converters (according to FXC's findings).

Models		LEX3821-2F
Standards		IEEE802.3u, IEEE802.3z, IEEE802.3ah
Transmission speed		100/1000Mbps
Fiber ports	Number of SFP ports	2ports
	Optical input / output Specification	SFP specification、100BASE-FX/1000BASE-X Automatic switching

	Auto Negotiation		Enable / disable setting, FEF
Fiber cable	1000BASE-	MMF	62.5/125µm or 50/125µm
	1000BASE-	SMF	9/125µm or 10/125µm
Transmission mode			Switching mode
Maximum frame size			10,000byte
MAC address			8,192
Communication function			link fault pass through (Default: OFF) EAP/BPDU transparent. Ethernet OAM(IEEE802.3ah) (Default: ON)
Flow Control			Half-duplex: Back Pressure, Full duplex: IEEE 802.3x
Latency			1.8µs
Rated input voltage/frequency AC power			AC90~240V 50/60Hz
Rated input voltage/frequency DC power			DC5V±5%
Maximum input current			2A
Maximum power consumption			4.0W
Maximum calorific value			3.44kcal/h
Cooling system			natural cooling (fan-less) natural cooling (fan-less)
User Environmental	Operating Temperature/Humidity		-10℃～65℃/0～95％ (no condensation)
	Storage Temperature/Humidity		-25℃～70℃/0～95％ (no condensation)
Dimensions			55mm(W)x110mm(D)x20mm(H) without detachable parts
Physical specification			160g (without AC adapter and Optional Accessories)
Electrical Approvals	Electromagnetic Interference		VCCI class A
ISO	Environmental Compliance		RoHS
Reliability			MTBF：306,500ｈ (25℃, without SFP)

Accessories	AC adapter　supports PSE、 magnet, rubber foot covers、 installation guide, product warranty、 Adapter cable falling prevention banding band

3.1.7. **LEX3851-1F** **Media Converter for Ethernet OAM**

LEX3851-1F is the world's smallest*1 Ethernet OAM compatible 10/100/1000BASE-T to 100BASE-FX/1000BASE-X (SFP) media converter.

■ the world's smallest Ethernet OAM compatible Giga media converter.
■ The optical module utilizes SFP and supports 100BASE-FX, 1000BASE-SX, SX2, LX and ZX.
It can also be used with single fiber type (BiDi/BX) or CWDM SFP.
■ Switch operated and jumbo frame compatible.
■ LED-verifiable signal detection function.
■ Instant power-off notification function (Dying Gasp).
■ Fan-less design. Made in Japan – Japanese quality.
*1: Among stand-alone Ethernet OAM compatible Giga media converters, according to FXC's findings as of April 18, 2018.

● A media converter capable of converting 10BASE-T, 100BASE-T and 1000BASE-T ports into 100BASE-FX and 1000 BASE-SX/SX2/LX/ZX ports.
● Can be built into a chassis or used as a stand-alone device.
*Chassis will be released at the beginning of July 2018.
● Includes Ethernet OAM function (continuity check by Ethernet frame transmission and reception).
- IEEE 802.3ah (adjacent node: Link DAM): Discovery, Link Monitor, RFI, Dying Gasp
- IEEE 802.1ag (non-adjacent node: CFM OAM): Continuity Check, Loop Back and Link Trace compliance scheduled for July 2018
- ITU-T Y.1731 (non-adjacent node expansion: CFM OAM): AIS, RDI, DM, LM and TST compliance scheduled for July 2018
● Various settings are available in stand-alone format (Link OAM, LFP (link fault pass through), flooding mode, Optical Automatic Negotiation on/off)
● Link state, setting source and F/W update indicated by LEDs.

● Supports jumbo frames (10000 Bytes).
● Supports BPDU and EAPOL transmission.
● Hot swap compatible when built into a chassis.
*Chassis will be released in July 2018.
● Supplied with various attachment accessories (magnets, rubber lugs, retaining bands)

Models			LEX3851-1F
Standards			IEEE802.3, IEEE802.3u, IEEE802.3ab, IEEE802.3z, IEEE802.3h
Transmission speed			10/100/1000Mbps (CSMA/CD)
UTP ports	10BASE-T/100BASE-TX/1000BASE-T		1port (MDI/MDI-X auto switch)
	Auto Negotiation		Supported
Fiber ports	Number of SFP ports		1port
	Optical input / output Specification		SFP specification、100BASE-FX/1000BASE-X Automatic switching
	Auto Negotiation		Enable / disable setting, FEF
Copper cable	10BASE-T	UTP	Cat.3
	100BASE-TX	UTP	Cat.5
	1000BASE-T	UTP	Cat.5e
	1000BASE-SX/SX2	MMF	62.5/125μm or 50/125μm
	1000BASE-LX/ZX	SMF	9/125μm or 10/125μm
Transmission mode			Switching mode
Maximum frame size			10,000byte
MAC address			8,192
Communication function			link fault pass through (Default: OFF) EAP/BPDU transparent. Ethernet OAM(IEEE802.3ah) (Default: OFF)
Flow Control			Half-duplex: Back Pressure Full-duplex: IEEE 802.3x
Latency			1.9μs
Rated input voltage/frequency AC power			AC90~240V 50/60Hz
Maximum input current			2A
Maximum power consumption			4.0W
Maximum calorific value			3.44kcal/h

Cooling system		natural cooling (fan-less) natural cooling (fan-less)
User Environmental	Operating Temperature/Humidity	-10℃～65℃/0～95％ (no condensation)
	Storage Temperature/Humidity	-25℃～70℃/0～95％ (no condensation)
Dimensions		55mm(W)x110mm(D)x20mm(H) without detachable parts
Physical specification		160g (without AC adapter and Optional Accessories)
Electrical Approvals	Electromagnetic Interference	VCCI class A
ISO	Environmental Compliance	RoHS
Reliability		MTBF：306,000 h (25℃, without SFP)
Accessories		AC adapter supports PSE、magnet, rubber foot covers、installation guide product warranty、Adapter cable falling prevention banding band

3.1.8. **LEX3321** booster amplifier module NEW

Secure up to 30dB loss budget in combination with DWDM SFP+ module and DWDM filter
It is possible to build a DWDM system that can

■ Ultra-compact booster amplifier module
■ Standalone operation possible （AC adapter included）
■ Secure up to 30dB loss budget in combination with DWDM SFP+ module and DWDM filter
■ Status monitoring by LED （INPUT,OUTPUT, alarm, power）
■ Operating temperature range: 0 ~55℃ (standalone)
■ Eye safety function by shutter

■ LightEdge® Xchange3000 series, same size as line card

■ LightEdge®Xchange3000 series chassis (LEX3020, LEX3004) can be mounted

(Can be managed and monitored with the LEX3930-00 management card)

Models		LEX3321
Optical specifications	connector type	2pcs (2ch x2) LC/SPC duplex
	wavelength	1550 ~ 1560 nm
	input strength	-5.0 ~ 11.0 dBm
	output strength	-5.0 ~ 21.0 dBm
	degree of amplification	10.0 ~ 15.0 dB (Default=10.0)
Power	Rated input voltage/frequency	AC 100～240V, 50/60Hz (90～264V, 47～63Hz) DC 5V±5%
	Maximum input current	2.0A
	Maximum power consumption	2W
Environmental condition	Operating temperature/humidity	0~55° C /0~95% No condensation)
	Storage temperature/humidity	-40~85° C /0~95% No condensation)
Management function		Management by LEX3930 Status display: Optical input/output intensity, voltage, temperature, S/N, model number, version Settings: Amp gain, Amp mode (AGC/APC)
Size		55(W)×20(H)×110(D)
weight		225 g
compatibility		EMI standards: EMI VCCI class A Environmental standards:RoHS Directive compliant Safety standard:PSE
Accessories		power adapter (5V2A), installation guide product warranty

3.1.9. **LEX3704A-1C/LEX3704B-1C/LEX3704A-1D/LEX3704B-1D** NEW

CWDM/DWDM that can be mounted on LightEdge® Xchange3000 series chassis (LEX3020, LEX3004) It's a module. This product can be stored in two slots in the chassis, saving space and allowing WDM You can build your solution.

■ WDM module that MUXes and DEMUXes 4 channels, 8 wavelengths, and 1 core optical signals.

■ Two types: TYPE-A and TYPE-B (each with interchanged Tx and Rx wavelength specifications)

■Installed 4pcs LC connector and 1pcs SC connector (SPC polishing)

■The SC connector has eye safety (*) specifications with a shutter.

(*) When the optical fiber cable is removed, the shutter closes to prevent the light source from entering your eyes directly.

■Operating temperature range is -5 to 75 °C (depending on Mux/Demux specifications)

■Can be mounted on LightEdge®Xchange3000 series chassis (LEX3020, LEX3004) (POWER LED lights up)

The model number and S/N can be managed from the management card (LEX3930-00)

■Can also be used standalone (POWER LED off)

standards

Models		LEX3704A-1C LEX3704B-1C	LEX3704A-1D LEX3704B-1D
Common port	connector type	SC1 core	
	Wavelength used	1470 ～ 1610nm (Wavelength-multiplexed optical signal)	ITU wavelength grid C21-C28 (Wavelength-multiplexed optical signal)
	Compliant standards	ITU-T G.694.2	ITU-T 100GHz Grid
client port	connector type	LC4 core x2	
	Wavelength used	TYPE-A Tx: 1550nm, 1570nm, 1590nm, 1610nm Rx: 1470nm, 1490nm, 1510nm, 1530nm TYPE-B Tx: 1470nm, 1490nm, 1510nm, 1530nm Rx: 1550nm, 1570nm, 1590nm, 1610nm	C21: 1560.61nm, C22: 1559.79nm, C23: 1558.98nm, C24: 1558.17nm, C25: 1557.36nm, C26: 1556.55nm, C27: 1555.75nm, C28: 1554.94nm
Cable used		SMF 6/125um or 10/125um	
Power		Standalone: No power required Chassis mounted: power supply from chassis	
Environmental condition	Operating temperature/ humidity Storage temperature/ humidity	-5~75℃/0~95% *No condensation -40~85℃/0~95% *No condensation	
dimensions		55(W) x 20(H) x 110(D) *Does not include protrusions	
weight		275g	
Compliant standard		EMI Standard: EMI VCCI Class A Environmental standards: RoHS compliant	
reliability		MTBF：1,659,558h (25℃)	
Accessories		installation guide product warranty	

channel spacing		20 nm	100GHz
Channel passband		ITU+/-6.5 nm	ITU+/-0.125 nm
insertion loss		≤ 2.8 dB	
Isolation	adjacent	≥ 30 dB	
	non-adjacent	≥ 45 dB	
In-band ripple		≤ 0.5 dB	
polarization loss		≤ 0.1dB	≤ 0.25dB
polarization mode dispersion		≤ 0.2 ps	≤ 0.15 ps
Return loss		≥ 45 dB	

3.2. LightEdge Xchange 1000 series

3.2.1. **LEX1012 series**

A maximum of 20 media converters housed in a 19-inch rack
LEX1012-15<chassis for 12 slots (with built-in AC power source)>
LEX1012-45<chassis for 12 slots (with built-in DC power source)>

LEX1012 is a set-type chassis mountable on a 19-inch rack compliant with on a 19-inch rack compliant with ANSI/EIA RS-310-D and JIS C6010-2.

- Up to 12 1U size LEX1000 Series media converters are installable. Different types of modules can be installed.
- By installing the LEX1930-00 SNMP card (option), monitoring by SNMP and checking/monitoring of the status of each card by Web GUI, console, 10/100BASE-TX becomes possible.
- By installing an additional LEX1910-15/45, redundant and non-momentary interruption of the power supply can be realized. The module, power supply, and SNMP card are hot-swappable.
- The mount-bracket is compliant with EIA/TIA and JIS standards.
- Both AC and DC power sources can be used.

Options

Models	Specifications
LEX1910-15	Redundant AC power unit for 19-inch rack-mount chassis
LEX1910-45	Redundant DC power unit for 19-inch rack-mount chassis
LEX1930-00	SNMP control card
LEX1910-50	FAN unit for forced air cooling

Models	LEX1000Series
Maximum number of installable cards	12(without LEX1930 SNMP card)
Cooling system	LE1012-15 Cooling fan unit x1 / AC power unit x1
	LE1012-45 Cooling fan unit x1 / DC power unit x1

Power switch ON/OFF		Seesaw switch to a power source body
Power characteristics	Rated input voltage/frequency AC power	LE1012-15 AC100-240V(90-264V)/50/60Hz(47-63Hz)
	Rated input voltage/frequency DC power	LE1012-45 DC18-72V(16.5-75V)
	Maximum input current	below 3A
	Maximum power consumption	180W
	Maximum effective consumption	45W (maximum number of installable cards)
	Maximum heat value	155kcal/h
	Maximum effective heat value	39kcal/h
	Storage Temperature/Humidity	0℃～70℃/0～95％ (no condensation)
Dimensions		1U size 440mm(W)x255mm(D)x44mm(H) without detachable parts
Physical specification	LEX1012 single body (without Power and Fan)	3.54kg
	LEX1910-15 (AC power)	1.01kg
	LEX1910-45 (DC power)	0.84kg
	LEX1930-00(SNMP)	0.13kg
	LEX1910-50(FAN)	0.19kg
Electrical Approvals	Electromagnetic Interference	VCCI class A
ISO	Environmental Compliance	RoHS

3.2.2. **LEX1020**

A maximum of 20 media converters housed in a 19-inch rack

The LEX1020 is an EIA standard 1.5U 19-inch media converter rack that can house a maximum of 20 LEX1000 series media converters installed vertically.
Power can be supplied to the LEX1020 through a LEX1000 series AC adapter.

- A maximum of 20 LEX1000 series media converters can be installed.
  (*The types of media converters may limit how many can be installed.)
- Natural air cooling (fan-less design). made in Japan, Japanese quality.
- A 35-mm step is provided at the front of the rack for surplus length processing and attaching labels.
- Each converter can be fixed with attachment screws.
- Sufficient space is ensured at the back of the rack to install power strips etc.
- Retaining bands for the adapter cables supplied with the media converter can be attached at the back of the rack.
- Three-stage rack mount fittings are also supplied

  * Photo: 20 media converters installed vertically

  * This product does not include LEX1000 series media converters.

Models		LEX1020
Dimensions		482mm(W)x330mm(D)x66mm(H) includes rack mounting screws
Cooling system		natural cooling (fan-less)
Physical specification		3.5kg
User Environmental	Operating Temperature/ Humidity	0℃～40℃/0～95％ (no condensation)
	Storage Temperature/Humidity	-40℃～85℃/0～95％ (no condensation)
ISO	Environmental Compliance	RoHS
Accessories		rack mounting kits, rack mounting screws, installation guide, product warranty, screws for line card

3.2.3. **LEX1001PEH** <Media converter box with PoE function>

This box can house one LEX1000 Series media converter and supply power to the PoE-receiving device (compatible with IEEE802.3af/at) via UTP.

By adding a PoE-receiving device in a desired location, a network can easily be made POE-compliant.

- Wide range of operating temperatures: -10°C to 60°C.
- Compatible with IEEE802.3af/at.
- Compatible with 10BASE-T/100BASE-TX/1000BASE-T.
- Automatic detection and power supply for the power-receiving device (PD).
- Power ON and PoE output can be checked with the LEDs on the front of the body.
- Installable on a wall using screws (supplied).
- Silent operation due to elimination of the fan.
- Operations can be set by an external DIP switch.

Models		LEX1001PEH
PoE port	Transmission speed	10Mbps/100Mbps/1000Mbps
	1000BASE-T	IEEE802.3ab
	100BASE-T	IEEE802.3u
	10BASE-T	IEEE802.3
	PoE function	IEEE802.3at
	Matching connector	RJ-45
	Maximum supply power	38.7W
	Maximum transmission distance	100m
Ethernet port	Transmission speed	10Mbps/100Mbps/1000Mbps
	Compliance	IEEE802.3, IEEE802.3u, IEEE802.3ab
	Matching connector	RJ-45
Power characteristics	Rated input voltage/frequency	AC100-240V／50/60Hz
	Rated voltage range	AC90-264V
	Matching connector	single-phase・3 poles
	Power cable	single-phase・3 poles　AC cable about 1.8m(Bundled items)
Dimensions		135mm(W)x140mm(D)x35mm(H) without detachable parts
Physical specification		Maximum 750g　without line card

User Environmental	Performance assurance Temperature/Humidity	-10℃～60℃/below 95％RH (no condensation)
	Operating Temperature/Humidity	-20℃～70℃/below 95％RH (no condensation)
	Storage Temperature/Humidity	-40℃～85℃/below 95％RH (no condensation)
Electrical Approvals	Electromagnetic Interference	VCCI class A
Accessories		power cable, cable falling prevention metal part (OPT- CRK01), LAN cable(15cm), installation guide, product warranty, mounting brackets x2, mounting brackets screws x4, rubber foot covers x4

3.2.4. **LEX1881-1F** <MC for 10G BASE-T to 10G BASE-R (SFP+)

World's smallest media converter (*1) for ultra-small 10GBASE-T/R (SFP+)

■Class 1 laser product; complies with IEC 60825-1: 2014

■ Realization of world's smallest 10G electric/optical media converter (*1).

■ Installable in set-type chassis (LEX1012-15/45).

■ SFP+ is adopted for the 10G optical module.
Compatible with 10GBASE-SR/LR/ER/ZR.
Single-core type (20 km/40 km/60 km) and SFP+ for CWDM also available (*2).

■ Repeater operation. Also transmits jumbo frames and VLAN-tagged frames.

■ Fan-less design, made in Japan, Japanese quality.

(*1) Based on an investigation by our company for the stand-alone (unit) 10GBASE-T/R media converter models as of April 20, 2016.

(*2) Supported only when 10GBASE-ER/ZR or SFP+ for CWDM is installed to the set-type chassis LEX1012-15/45.

● Supports auto-negotiation, and auto MDI/MDI-X.

● No transfer frame control and frame size restriction (because of repeater operation).

● Conforms to 10GBASE-T and 10GBASE-R standards.

● Equipped with LFP (Link Fault Path-through) function. DIP switch settable.

● Equipped with LLR (Link Loss Return) function.
Even when SFP+, which does not support the LFS function, is installed, transmission and reception interlocking are possible even if one core of a dual-core fiber line is broken.

● Status monitoring mechanism with various LEDs on the front panel.

● Equipped with advanced ECO mode.
LED is illuminated every three minutes to reduce power consumption by about 5%.DIP switch settable.

● Equipped with a loopback function.
The Rx-reception signal of the fiber port is returned as a Tx-transmission signal of the same port for defect checking.

● Includes various types of attachable options:
AC adapter, magnet, rubber foot, binding band for preventing disconnection of the adapter cord, PD cabinet fittings, protective pad.

Models			LEX1881-1F
Standards			IEEE802.3ae(10GBASE-R), IEEE802.3an(10GBASE-T)
Transmission speed			10Gbps
Copper ports	Ports type		RJ-45
	Link performing		Auto Negotiation, Auto MDI/MDI-X
Fiber ports	Ports type		SFP+ port
	Mountable module		SFP+ Power Level2 (Maximum power consumption:1.5W)
	Connector Models		SFF-8431 conformity
Copper cable	10GBASE-T	UTP	Cat.6, Cat.6A
		STP	Cat.6, Cat.6A, Cat.7
Fiber cable			MMF:62.5/125μm(OM1) or 50/125μm (OM2, OM3) SMF:9/125μm (OM1, OS2) or 10/125μm
Transmission mode			repeater mode
Communication function			link fault pass through (LFP) loop back Advanced Eco mode
Rated input voltage/frequency **AC power**			AC90-240V／50/60Hz
Rated input voltage **DC power**			DC5V ±5%
Maximum input current			2A
Maximum power consumption			6.5W(without AC adapter, include SFP+)
Maximum calorific value			5.59kcal/h
Cooling system			natural cooling (fan-less)
User Environmental	Operating Temperature/Humidity		0℃～40℃/0～95% (no condensation)
	Storage Temperature/Humidity		-25℃～70℃/0～95% (no condensation)
Dimensions			50mm(W)x74mm(D)x20mm(H) without detachable parts
Physical specification			130g (without AC adapter and Optional Accessories)
Electrical Approvals	Electromagnetic Interference		VCCI class A FCC class B
ISO	Environmental Compliance		RoHS
Reliability			MTBF：357,263 h (25℃, without SFP+ and AC adapter)

Accessories	AC adapter supports PSE, magnet, rubber foot covers, installation guide, product warranty, Adapter cable falling prevention banding band, PD Panel mounting bracket、 rack mounting screws, Protective Pad

3.2.5. **LEX1881-2F** <MC for 10G SFP+ to 10G SFP+>

LEX1881-2F is ultra-small, the world's smallest class.
Media Converter for 10-Gigabit Ethernet

■Class 1 laser product; complies with IEC 60825-1: 2014
■ Installable to a LEX1012 12-slot chassis
■ SFP+ is adopted for 10G optical module. Also, combination of 10GBASE-SR/LR/ER/ZR and single-core type (20 km/40 km/60 km) is possible.
■ SFP+ for CWDM enables transmission of four lines of 10G with one fiber.
■ Used for 10GBASE-SR and 10GBASE-LR conversion.
■ For cases where change from dual-core to single-core is desired etc.
■ Fan-less design, made in Japan, Japanese quality.

● Supports 3R interconnecting 10G SFP+ with two ports (reamplifying, reshaping, retiming).
● No transfer frame control and frame size restriction (because of repeater operation).
● Conforms to 1000BASE-X and 10GBASE-R standards.
● Equipped with LFP (Link Fault Pass-through) (setting for each port with a DIP switch).
● LED display on front panel.
● Equipped with advanced ECO mode (LED is illuminated every three minutes to reduce the power consumption by about 5%.
DIP switch settable
● Includes various types of attachable options:
Magnet, rubber foot, PD cabinet fitting, and binding band for preventing disconnection of the adapter cord.

Models		LEX1881-2F
Standards		IEEE802.3ae(10GBASE-R), IEEE802.3z(1000GBASE-X)
Transmission speed		10Gbps,1Gbps
Fiber ports	Ports type	SFP+ port x2
	Mountable module	SFP+ or SFP Power Level2 (Maximum power consumption:1.5W)
	Connector Models	SFF-8431 conformity
Fiber cable		MMF:62.5/125µm or 50/125µm

		SMF:9/125μm or 10/125μm
Transmission mode		3R (Re-amplification, re-shaping, re-timing)
Communication function		link fault pass through (LFP) loop back Advanced Eco mode
Maximum frame size		Unlimited
Rated input voltage/frequency **AC power**		AC90-240V／50/60Hz
Rated input voltage **DC power**		DC5V ±5%
Maximum input current		2A
Maximum power consumption		5.0W(with AC adapter) 6.0W(without AC adapter)
Maximum calorific value		4.30kcal/h
Cooling system		natural cooling (fan-less)
User Environmental	Operating Temperature/Humidity	-10℃～50℃/0～95% (no condensation)
	Storage Temperature/Humidity	-25℃～70℃/0～95% (no condensation)
Dimensions		50mm(W)x74mm(D)x20mm(H) without detachable parts
Physical specification		120g (without AC adapter)
Electrical Approvals	Electromagnetic Interference	VCCI class A
ISO	Environmental Compliance	RoHS
Reliability		MTBF：441,154h (25℃, without AC adapter)
Accessories		AC adapter supports PSE, magnet, rubber foot covers, installation guide, product warranty, Adapter cable falling prevention banding band, PD Panel mounting bracket, rack mounting screws

3.2.6. **LEX1821-2F**

LEX1821-2F is a media converter for connecting the SFPs of two ports to each other.

It is a media converter for 3R supporting 125 M to 1.25 Gbps (Gigabit Ethernet).

The LEX1000 Series is equipped with a LEX1012 chassis and LEX1930-00 for conversion of 1000BASE-SX and 1000BASE-LX, dual-core to single-core, and so forth.

It can be inserted into the chassis to check the status, type, version, fiber link status, and alarm of the media converter.

■ Class 1 laser product; complies with IEC 60825-1: 2014.
■ Media converter supporting 3R (reamplifying, reshaping, retiming) connecting the SFPs of two ports.
■ No transfer frame control and frame size control (because of the repeater operation).
■ Conforms to 100BASE-FX and 1000BASE-X standards.
■ Equipped with LFP (Link Fault Pass-through) function (settings for each port with DIP switches).
■ LED display on the front panel.
■ Equipped with advanced ECO mode (LED is illuminated every three minutes to reduce power consumption by 10%. DIP switch settable).
■ Includes various types of attachable options:
Magnet, rubber foot, PD cabinet fitting, and binding band for preventing disconnection of the adapter cord.

Models		LEX1821-2F
Standards		IEEE802.3z (1000BASE- X), IEEE802.3u (100BASE-FX)
Transmission speed		100Mbps,1Gbps (Multi-Rate)
Fiber ports	Port type	SFP x2
	Wavelength	depend on SFP
	Output	depend on SFP
	Receiving sensitivity	depend on SFP
Transmission speed		100Mbps,1Gbps (Multi-Rate)
Transmission mode		repeater mode
Communication function		link fault pass through (LFP) loop back Advanced Eco mode
Maximum frame size		Unlimited
Rated input voltage/frequency		AC90-240V／50/60Hz

DC power		DC5V±5%
Maximum power consumption		6.0W
calorific value		4.82kcal/h
Cooling system		natural cooling (fan-less)
User Environmental	Operating Temperature /Humidity	-10℃～60℃/0～95% (no condensation)
User Environmental	Storage Temperature /Humidity	-20℃～70℃/0～95% (no condensation)
Dimensions		50mm(W)x74mm(D)x20mm(H) without detachable parts
Physical specification		Maximum 110g (without AC adapter)
Electrical Approvals		VCCI class A
Reliability		MTBF：601,641h (25℃)
Accessories		AC adapter supports PSE, magnet, rubber foot covers, installation guide, product warranty, Adapter cable falling prevention banding band, PD Panel mounting bracket, rack mounting screws

3.2.7. **LEX1851 series/LEX1852 series**

MC for LEX1851-1F RJ45 to SFP Giga
LEX1852-005 RJ45 to 550m MMF（SC） MC
LEX1852-02 RJ45 to 2km MMF（SC） MC
LEX1852-10 RJ45 to 15km SMF（SC） MC
LEX1852-20 RJ45 to 20km SMF（SC） MC
LEX1852-70 RJ45 to 70km SMF（SC） MC

Realizes an abundance of functions with DIP switches, supports construction of a wide variety of optical networks.

Ultra-small LightEdge Xchange1000 Series is a business card size media converter that can be installed anywhere.

Has high resistance to noise and supports long-distance communication. Optimum solutions are provided for construction of a wide variety of optical networks not only for companies but also for buildings, factories, dams, expressways, and railroads.

Functions can be selected with the DIP switches so that it can be used in the construction of a wide variety of networks.

With improved product lifetime and high reliability, it can be designed for safe use.

Equipped with various functions.

■ Media converter for converting 10BASE-T/100BASE-TX/1000BASE-T port to 1000BASE-SX/LX/ZX/SFP (MMF/SMF/single-core/dual-core) (LEX185X Series).
■ The RJ port is an auto-negotiation port. Equipped with the MDI/MDI-X auto-setting function.
■ The DIP switches enable manual speed/half duplex/full duplex/auto-negotiation setting.
■ The DIP switches enable selection of auto MDI/MDI-X or manual Force MDI/MDI- X setting.
■ The DIP switches enable manual setting for OFF/ON of LFP (Link Fault Pass-through).
■ LED display on the front panel.
■ Equipped with advanced ECO mode (the DIP switches enable OFF/ON setting).
■ Equipped with flooding mode (the DIP switches enable MAC learning OFF/ON setting).
■ Supports jumbo frames (maximum 10240 bytes).
■ Tag frame/QinQ double-tagged frame/EAP/BPDU transparent.

■ Includes various types of attachable options:
Compact AC adapter, magnet, rubber foot, cabinet fitting, binding band for preventing disconnection, and various screws.

Features

■ Class 1 laser product; complies with IEC 60825-1: 2014.
■ Ultra-compact size: 50 mm (W) x 74 mm (D) x 20 mm (H) excluding projections.
■ Operating temperature: 0 to 55°C.
■ Uses ceramic capacitor.

Models		LEX1851-1F	LEX1852-005	LEX1852-02
Standards		IEEE802.3, IEEE802.3u, IEEE802.3ab, IEEE802.3z		
Transmission speed		10/100/1000Mbps (CSMA/CD)		
Ethernet Ports		10BASE-T/100BASE-TX/1000BASE-T ×1ports (MDI/MDI-X auto switch)		
		Duplex: Full/Half		
		Auto Negotiation: Supported		
Fiber ports	Transceiver	1000BASE-SX/LX/ZX x1port	1000BASE-SX x1port	1000BASE-SX2 x1port
		SFP	MMF 550m SC connector 2-core	MMF 2km SC connector 2-core
	Wavelength	depend on SFP	850nm	1310nm
	Output	depend on SFP	-9.5～-4dBm	-6～±0dBm
	Receiving	depend on SFP	-17～-3dBm	-18～±0dBm
Communication function		link fault pass through (LFP) (Default: OFF)		
Transmission mode		Switching mode		
Maximum frame size		10,240byte		
Rated input voltage/frequency AC power		AC90-240V／50/60Hz		
Rated input voltage DC power		DC5V ±5%		
Maximum input current		2.0A		
Maximum power consumption		4.0W		
Maximum calorific value		3.44kcal/h		
User Environmental	Operating Temperature /Humidity	0℃～55℃/0～95% (no condensation)		

	Storage Temperature /Humidity	-25℃～70℃/0～95％ (no condensation)

Dimensions		50mm(W)x74mm(D)x20mm(H) without detachable parts		
Physical specification		Maximum 120g (without AC adapter)		
Electrical Approvals	Electromagnetic Interference	VCCI class A FCC class B		
Reliability		MTBF：605,722h (25℃,	MTBF：435,792h (25℃)	
Models		LEX1852-10	LEX1852-20	LEX1852-70
Standards		IEEE802.3, IEEE802.3u, IEEE802.3ab, IEEE802.3z		
Transmission speed		10/100/1000Mbps (CSMA/CD)		
Ethernet Ports		10BASE-T/100BASE-TX/1000BASE-T × 1ports (MDI/MDI-X auto switch)		
		Duplex: Full/Half		
		Auto Negotiation: Supported		
Fiber ports	Transceiver	1000BASE-LX x1port	1000BASE-LX x1port	1000BASE-ZX x1port
		SMF 15km SC connector 2-core	SMF 20km SC connector 2-core	SMF 70km SC connector 2-core
	Wavelength	1310nm	1310nm	1550nm
	Output	-9.5～-3dBm	-8～-2dBm	±0～5dBm
	Receiving sensitivity	-20～-3dBm	-23～-1dBm	-24～-3dBm
Communication function		link fault pass through (LFP) (Default: OFF)		
Transmission mode		Switching mode		
Maximum frame size		10,240byte		
Rated input voltage/frequency AC power		AC90-240V／50/60Hz		
Rated input voltage DC power		DC5V ±5％		
Maximum input current		2.0A		
Maximum power consumption		4.0W		
Maximum calorific value		3.44kcal/h		

User Environmental	Operating Temperature /Humidity	0℃～55℃/0～95％ (no condensation)
	Storage Temperature /Humidity	-25℃～70℃/0～95％ (no condensation)
Dimensions		50mm(W)x74mm(D)x20mm(H) without detachable parts
Physical specification		Maximum 120g (without AC adapter)
Electrical Approvals	Electromagnetic Interference	VCCI class A FCC class B
Reliability		MTBF：435,792h (25℃)
Accessories		AC adapter supports PSE, magnet, rubber foot covers, product warranty, Adapter cable falling prevention banding band, PD Panel mounting bracket, rack mounting screws

3.2.8. **LEX1841 series/LEX1842 series**

LEX1841-1F RJ45 to SFP MC
LEX1841-20A RJ45 to 30km SMF （SC） @1310nm MC
LEX1841-20B RJ45 to 30km SMF （SC） @1550nm MC
LEX1841-40A RJ45 to 40km SMF （SC） @1310nm MC
LEX1841-40B RJ45 to 40KkmSMF （SC） @1550nm MC
LEX1841-60A RJ45 to 60km SMF （SC） @1310nm MC
LEX1841-60B RJ45 to 60km SMF （SC） @1550nm MC
LEX1842-02 RJ45 to 2kmMMF （SC） MC
LEX1842-15 RJ45 to 30kmSMF （SC） MC

DIP switch realizing various functions.
Supports construction of various optical networks.

Ultra-small LightEdge Xchange1000 Series is a business card size media converter that can be installed anywhere.
Has high resistance to noise and supports long-distance communication. Optimum solutions are provided for construction of a wide variety of optical networks not only for companies but also for buildings, factories, dams, expressways, and railroads.
Functions can be selected with the DIP switches so that it can be used in the construction of a wide variety of networks.
With improved product lifetime and high reliability, it can be designed for safe use.
Equipped with various functions.

■ Media converter (LEX184X Series) for converting 10BASE-T/100BASE-TX to 100BASE-FX/SFP (MMF/SMF/single-core/dual-core).
■ The RJ port is an auto-negotiation port. Equipped with the MDI/MDI-X auto- setting function.
■ The DIP switches enable manual speed/half duplex/full duplex/auto-negotiation setting.
■ The DIP switches enable selection for auto MDI/MDI-X or manual Force MDI/MDI-X setting.
■ The DIP switches enable manual setting for OFF/ON of LFP (Link Fault Pass-through).
■ LED display on the front panel.
■ Equipped with advanced ECO mode (the DIP switches enable OFF/ON setting).
■ Equipped with flooding mode (the DIP switches enable MAC learning OFF/ON setting).
■ Supports jumbo frames (maximum 10240 bytes).
■ Tag frame/QinQ double-tagged frame/EAP/BPDU transparent.
■ Includes various types of attachable options:
Compact AC adapter, magnet, rubber foot, cabinet fitting, binding band for preventing disconnection, and various screws.

Features

- Class 1 laser product; complies with IEC 60825-1: 2014.
- Ultra-compact size
  50 mm (W) x 74 mm (D) x 20 mm (H) excluding projections.
- Operating temperature: 0 to 55°C.
- Uses ceramic capacitor.

Models		LEX1841-1F	LEX1841-20A /20B	LEX1841-40A /40B	LEX1841-60A /60B
Standards		IEEE802.3, IEEE802.3u			
Transmission speed		10/100Mbps (CSMA/CD)			
Ethernet Ports		10BASE-T/100BASE-TX × 1port (MDI/MDI-X auto switch)			
		Duplex: Full/Half			
		Auto Negotiation: Supported			
Fiber ports	Transceiver	100BASE-FX x1port		100BASE-FX x1port	
		SFP	SMF 30km SC connector 1-core	SMF 40km SC connector 1-core	SMF 60km SC connector 1-core
	Wavelength	depend on SFP	1310nm(20A) 1550nm(20B)	1310nm(40A) 1550nm(40B)	1310nm(60A) 1550nm(60B)
	Output	depend on SFP	-9～-3dBm	-8～±0dBm	-5～±0dBm
	Receiving	depend on SFP	-31～±0dBm	-34～±0dBm	-34～±0dBm
Communication function		link fault pass through (LFP) (Default: OFF)			
Transmission mode		Switching mode			
Maximum frame size		10,240byte			
Rated input voltage/frequency AC power		AC90-240V 50/60Hz			
Rated input voltage DC power		DC5V±5%			
Maximum input current		2.0A			
Maximum power		3.0W			
Maximum calorific value		2.58kcal/h			
User Environmental		Operating Temperature			
Maximum frame size		Storage			

User Environmental	Operating Temperature /Humidity	0℃～55℃/0～95％ (no condensation)
	Storage Temperature /Humidity	-25℃～70℃/0～95％ (no condensation)
Dimensions		50mm(W)x74mm(D)x20mm(H) without detachable parts
Physical specification		Maximum 120g (without AC adapter)
Electrical Approvals	Electromagnetic Interference	VCCI class A
Reliability		MTBF：435,792h (25℃)
Accessories		AC adapter supports PSE, magnet, rubber foot covers, product warranty, Adapter cable falling prevention banding band, PD Panel mounting bracket, rack mounting screws

Models		LEX1842-02(2-core)	LEX1842-15(2-core)
Standards		IEEE802.3, IEEE802.3u	
Transmission speed		10/100Mbps (CSMA/CD)	
Ethernet Ports		10BASE-T/100BASE-TX × 1ports (MDI/MDI-X auto switch)	
		Duplex: Full/Half	
		Auto Negotiation: Supported	
Fiber ports	Transceiver	100BASE-FX x1port	100BASE-FX x1port
		MMF 2km SC connector 2-core	SMF 30km SC connector 2-core
	Wavelength	1310nm	1310nm
	Output	-20～-14dBm (MMF62.5/125μm) -23.5～-14dBm (MMF50/125μm)	-15～-8dBm
	Receiving sensitivity	-31～±0dBm	-34～±0dBm
Communication function		link fault pass through (LFP) (Default: OFF)	
Transmission mode		Switching mode	
Maximum frame size		10,240byte	

Rated input voltage/frequency AC power		AC90-240V 50/60Hz
Rated input voltage DC power		DC5V±5%
Maximum input current		2.0A
Maximum power		3.0W
Maximum calorific value		2.58kcal/h
User Environmental		Operating Temperature
Maximum frame size		Storage
User Environmental	Operating Temperature /Humidity	0℃～55℃/0～95％ (no condensation)
	Storage Temperature /Humidity	-25℃～70℃/0～95％ (no condensation)
Dimensions		50mm(W)x74mm(D)x20mm(H) without detachable parts
Physical specification		Maximum 120g (without AC adapter)
Electrical Approvals	Electromagnetic Interference	VCCI class A
Reliability		MTBF：435,792h (25℃)
Accessories		AC adapter supports PSE, magnet, rubber foot covers, product warranty, Adapter cable falling prevention banding band, PD Panel mounting bracket, rack mounting screws

3.2.9. **LEX1542 series**

LEX1542-02 RJ45 to 2km MMF （SC） MC
LEX1542-15 RJ45 to 15km SMF （SC） MC

Guaranteed operation in a wide range of temperatures from -10°C to 60°C! This product can operate stably in the severest environments.

This is a media converter exclusively for 100M, which interconverts 100BASE-FX signals by optical fiber and UTP 100BASE-TX signals.

It can be used in a wide range of temperatures from -10°C to 60°C. The product realizes miniaturization to the smallest domestic class and exhibits high resistance to noise and reliability.

The various functions can be changed by the DIP switches, flexibly supporting construction for a wide range of carrier and stand-alone networks.

■ Class 1 laser product; complies with IEC 60825-1: 2014.
■ Repeater type media converter (exclusively for 100M), which interconverts 100BASE-TX and 100BASE- FX.
■ Usable in a wide range of temperatures from -10°C to 60°C.
■ No transfer frame control or frame size restriction.
■ With the unit alone, the DIP switches are used to change the settings (eight contacts).
■ Two kinds of installation available: single unit or housed in a rack.
■ For a single unit, power is supplied by the AC adapter.
■ Options such as a magnet, rubber foot, binding band for preventing disconnection of the adapter cord, and PD cabinet fitting included.
■ Equipped with the LFP function (Link Fault Pass-through function).
■ Advanced ECO mode function (restriction of LED light-on time).

Models		LEX1542-02	LEX1542-15
Standards		IEEE802.3, IEEE802.3u	
Transmission speed		100Mbps (CSMA/CD)	
Fiber ports	Transceiver	100BASE-FX x1port	100BASE-FX x1port
		MMF 2km SC connector 2poles	SMF 15km SC connector 2poles
	Wavelength	1310nm MMF	1310nm SMF

	Output	-20～-14dBm MMF62.5/125μm -23.5～-14dBm MMF50/125μm	-20～±0dBm
	Receiving sensitivity	-31～±0dBm	-32～±0dBm
Compatible cable	100BASE-TX	UTP cable Cat5 or over	
	100BASE-FX	MMF :62.5/125μm／50/125μm SMF: 9/125μm／10/125μm	
Communication function		link fault pass through (LFP) Advanced Eco mode	
Transmission mode		repeater mode	
Rated input voltage/frequency AC power		AC90-240V／50/60Hz	
Rated input voltage DC power		DC5V ±5%	
Maximum input current		2A	
Maximum power consumption		3.0W	
User Environmental	Operating Temperature/Humidity	-10℃～60℃/0～95% (no condensation)	
	Storage Temperature/Humidity	-20℃～70℃/0～95% (no condensation)	
Dimensions		50mm(W)x74mm(D)x20mm(H) without detachable parts	
Physical specification		Maximum 110g (without AC adapter)	
Electrical Approvals	Electromagnetic Interference	VCCI class A	
ISO	Environmental Compliance	RoHS	
Reliability		MTBF：453,332h (25℃)	
Accessories		AC adapter supports PSE, magnet, rubber foot covers, installation guide, product warranty, Adapter cable falling prevention banding band, PD Panel mounting bracket, rack mounting screws	

3.3. NC 1G series

3.3.1.**NC1G-PE series**

10/100/1000BASE-T to 1000BASE-X Media Converter (PoE Type)

NC1-PE Series Media Converter is media converter converting 10/100/1000BASE-T and 1000BASE-X mutually.
This product is equipped with 10/100/1000Mbps RJ45 port and 1000BASE-X SFP port.
This product operates by PoE power supply.
In addition, this product is equipped with the LFP (Link Fault Pass-through) function, and it helps to investigate the cause when a failure occurs.
Our lineup is of the following three types: 1000BASE-SX SFP mounted model, 1000BASE-LX SFP mounted model, Bi-directional 1G SFP (LC or SC) mounted model. And Bidi models are must use A type and B type in 1 pair.

■10/100/1000Mbps RJ45 port and 1000Mbps SFP port by one each.
■RJ45 port is support Auto-negotiation and Auto MDI/MDI-X
■Flow control for Full Duplex operation and back pressure for Half Duplex operation (IEEE 802.3x)
■Compliant with SFP MSA Specification SFF-8472
■1000BASE-SX type is up to 550m with 50/125µm MMF
■1000BASE-LX type and Bidi type are up to 15km with 9/125µm SMF
■Bidi type supports wavelength 1310nm (A type) and 1550nm (B type)
■Support for 1.25Gbps Bit Rate
■Simplex SC/LC Connector Interface
■Supports 9,216 bytes Jumbo Frames
■Supports 2,112 MAC address entries in entire system
■Supports LFP (Link Fault Pass-through) function
■Wire-speed packet filtering and forwarding rate
■Store-and-forward architecture filters fragment & CRC error packets
■EAP/ BPDU/ LACP/ LLDP/ IGMP and Tag Frame Pass through
■FAN less
■Class 1 laser product complies with EN 60825-1
■Temperature Range: 0~ 50 °C
■RoHS compliant
■Reliability compliant with Telcordia (Bellcore)
■GR-468-CORE
■Power supply via PoE(802.3af)

Models		NC1GS-PE	NC1GL-PE	NC1GL15A-PE NC1GL15B-PE	NC1GL15A-SC-PE NC1GL15B-SC-PE
Standards		IEEE802.3z, IEEE802.3ab, IEEE802.3u, IEEE802.3, IEEE802.3x, IEEE802.3af			
Transmission speed		10/100/1000Mbps (CSMA/CD)			
Ethernet Ports		10BASE-T/100BASE-TX/1000BASE-T (MDI/MDI-X Auto)			
	Duplex Auto Negotiation	Full/Half 1000M/Full			
Fiber Ports	Transceiver	1000BSE-SX (550m)	1000BASE-LX (15km)		
	Connector	LC Connector			SC Connector
	Duplex Auto Negotiation	Full 1000M/Full			
TX Wavelength		850nm MMF	1310nm SMF	A: 1310nm SMF B: 1550nm SMF	A: 1310nm SMF B: 1550nm SMF
Output		-9.5～-3dBm			
Receiving sensitivity		-17～-0dBm	-20～-3dBm	-21～-3dBm	
Cable	standards	10/100/1000 BASE-T	10/100/1000BASE-T 1000BASE-LX		
	Cable used and Maximum distance	UTP Cat.5e and over 100m 50/125μm MMF 550m 62.5/125μm MMF 275m	UTP Cat.5e 100m 9/125μm SMF 15km 10/125μm SMF		
Function	Frame Transparent	link fault pass through (LFP) EAP/BPDU/LACP/LLDP/IGMP, Tag Frame Pass through			
Transfer speed	Port Assignment	Store & Forward Method			
Maximum Frame Size	Jumbo Frame Size	9,216bytes			
Through Put		2.97Mpps(64byte)			
Latency		2.5μs (64byte)			

Wire Speed		support
Buffer Architecture	Port Allocation	Dynamically allocated to each port
Flash Memory	Capacity	128K
MAC Address Table	Method	Self-learning
	Aging Time	300sec
	Maximum MAC Address	2,112
LED Display	Power	Power On (Steady Green), Power Off (Off)
	LAN Link/Act	Valid port connection (Lighting) Data Transmitting / Receiving (Blinking) 1000Mbps: (Green), 10/100Mbps: (Orange)
	Fiber Link/Act	Valid port connection (Lighting) Data Transmitting / Receiving (Blinking) 1000Mbps: (Green), 10/100Mbps: (Orange)
Power Supply / Energy Conservation	Power Supply, Rated Input	57VDC (IEEE802.3af, class0)
	Rated Maximum Input Current	300mA or less
	Maximum Power Consumption	3W(Typ.2W) or less
	Maximum Heat Generation	2.236Kcal/h
General specification	Dimensions (W*D*H)	75(W) × 101.2(D) ×22.6(H)mm (SFP not included)
	Weight	200g (SFP not included)
	Operation Temperature / Humidity	0℃～+50℃ / 0%～90% *Non-condensing
	Storage Temperature / Humidity	-20℃～+70℃ / 5%～90% *Non-condensing
	Cooling systems	Fan-less
	Adaptation of EMI	VCCI class A
	Adaptation of RoHS	RoHS Directive Compliance
	MTBF	5,107,077h(25℃)
Accessories		Installation Guide & Warranty card x 1

3.3.2.**NC1G series (AC type)**

10/100/1000BASE-T to 1000BASE-X Media Converter (AC Type)

NC1G Series Media Converter is media converter converting 10/100/1000BASE-T and 1000BASE-X mutually.
This product is equipped with 10/100/1000Mbps RJ45 port and 1000BASE-X SFP port.
This product works with the AC adapter.
In addition, this product is equipped with the LFP (Link Fault Pass-through) function, and it helps to investigate the cause when a failure occurs.
Our lineup is of the following three types: 1000BASE-SX SFP mounted model, 1000BASE-LX SFP mounted model, Bi-directional 1G SFP (LC or SC) mounted model. And Bidi models are must use A type and B type in 1 pair.

- 10/100/1000Mbps RJ45 port and 1000Mbps SFP port by one each.
- RJ45 port is support Auto-negotiation and Auto MDI/MDI-X
- Flow control for Full Duplex operation and back pressure for Half Duplex operation (IEEE 802.3x)
- Compliant with SFP MSA Specification SFF-8472
- 1000BASE-SX type is up to 550m with 50/125μm MMF
- 1000BASE-LX type and Bidi type are up to 15km with 9/125μm SMF
- Bidi type supports wavelength 1310nm (A type) and 1550nm (B type)
- Support for 1.25Gbps Bit Rate
- Simplex SC/LC Connector Interface
- Supports 9,216 bytes Jumbo Frames
- Supports 2,112 MAC address entries in entire system
- Supports LFP (Link Fault Pass-through) function
- Wire-speed packet filtering and forwarding rate
- Store-and-forward architecture filters fragment & CRC error packets
- EAP/ BPDU/ LACP/ LLDP/ IGMP and Tag Frame Pass through
- FAN less
- Class 1 laser product complies with EN 60825-1
- Temperature Range: 0~ 50 °C
- RoHS compliant
- Reliability compliant with Telcordia (Bellcore)
- GR-468-CORE
- Operate by AC adapter

Models		NC1GS	NC1GL	NC1GL15A NC1GL15B	NC1GL15A-SC NC1GL15B-SC
Standards		IEEE802.3z, IEEE802.3ab, IEEE802.3u, IEEE802.3, IEEE802.3x			
Transmission speed		10/100/1000Mbps (CSMA/CD)			
Ethernet Ports		10BASE-T/100BASE-TX/1000BASE-T (MDI /MDI-X Auto)			
	Duplex Auto Negotiation	Full 1000M/Full			
Fiber Ports	Transceiver	1000BASE-SX (550m)	10000BASE-LX (15km)		
	Connector	LC Connector			SC Connector
	Duplex Auto Negotiation	Full(1000M/Full)			
TX Wavelength		850nm MMF	1310nm SMF	A: 1310nm SMF	A: 1310nm SMF B: 1550nm SMF
Output		-9.5～-3dBm			
Receiving sensitivity		-17～-0dBm	-20～-3dBm	-21～-3dBm	
Cable	standards	10/100/1000BASE-T 1000BASE-SX	10/100/1000BASE-T 1000BASE-LX		
	Cable used and Maximum distance	UTP Cat.5e and up 100m 50/125µm MMF 550m 62.5/125µm MMF 275m	UTP Cat.5e 100m 9/125µm SMF 15km 10/125µm SMF		
Function	Frame Transparent	link fault pass through (LFP) EAP/BPDU/LACP/LLDP/IGMP, Tag Frame Pass through			
Transfer speed	Port Assignment	Store & Forward Method			
Maximum Frame Size	Jumbo Frame Size	9,216bytes			
Through Put		2.97Mpps(64byte)			
Latency		2.5µs (64byte)			
Frame Buffer		12Kbytes			
Buffer Architecture	Port Allocation	Dynamically allocated to each port			

Flash Memory	Capacity	128K
MAC Address Table	Method	Self-learning
	Aging Time	300sec
	Maximum MAC Address	2,112
LED Display	Power	Power On (Steady Green), Power Off (Off)
	LAN Link/Act	Valid port connection (Lighting) Data Transmitting / Receiving (Blinking) 1000Mbps: (Green), 10/100Mbps: (Orange)
	Fiber Link/Act	Valid port connection (Lighting) Data Transmitting / Receiving (Blinking) 1000Mbps: (Green), 10/100Mbps: (Orange)
Power Supply / Energy Conservation	Power Supply, Rated Input	AC100-240V, 50/60Hz 0.257A
	Rated Maximum	0.257A
	Maximum Power	2.61W
	Maximum Heat	2.24Kcal/h
General specification	Dimensions (W*D*H)	60(W) × 75(D) ×23(H)mm (SFP not included)
	Weight	156g (SFP not included)
	Operation Temperature / Humidity	0℃～+50℃ / 0%～90% *Non-condensing
	Storage Temperature / Humidity	-20℃～+70℃ / 5%～90% *Non-condensing
	Cooling systems	Fan-less
	Adaptation of EMI	VCCI class A
	Adaptation of RoHS	RoHS Directive Compliance
	MTBF	1,176,474h(25℃)
Accessories		Installation Guide & Warranty card x 1

3.4. LightEdge 2000 series

3.4.1. **LE2000 Chassis Series**

Chassis for LE2002-15 2 slot (with built-in AC power source)
Chassis for LE2002-45 2 slot (with built-in DC power source)
Chassis for LE2020-15 20 slot (with built-in AC power source)

Major functions of the LE2002-15/45

■ 2-slot chassis for the LE2000 Series line card.
■ The optionally available management card enables the management of Telnet, Web, console, and SNMP.
■ Supports one double-wide blade or two single-wide blades.
■ Supports rear connection between two slots.
■ AC or DC power can be selected.
■ A cooling fan is included.

Major functions of the LE2020-15

■ Up to 20 media converter cards can be contained in the 2U-high case.
■ Up to 10 chassis can be cascaded.
■ Ground contact allows alarm output.
■ Supports the media converter card and transponder card. The Power/FAN units are hot-swappable.
■ The optionally available, redundant power unit can be installed.
■ By installing the optionally available SNMP management card, Web and SNMP can be managed.
■ Equipped with a rack-mount kit as standard.

Models		LE2002-15	LE2002-45	LE2020-15
Maximum number of installable cards		2		20
Cooling system		Cooling fan unit x2		Cooling fan unit x2
Power switch ON/OFF		nothing		Seesaw switch to a power source body
Rated input voltage /frequency AC power Rated input voltage /frequency DC power		AC100-240V(90-264V)/50/60Hz(43-63Hz)	DC48V (-18～-75V) 50/60Hz (43～63Hz)	AC100-240V(90-264V)/50/60Hz(43-63Hz)
Maximum input current		2.5A		4.0A
Maximum power consumption		30W		200W
Number of cascades		-		10
Earth interface Grounding output		-		2 contacts
Operating Temperature/ Humidity		0℃～50℃ /20～80% (no condensation)		0℃～50℃ /10～90% (no condensation)
Dimensions l	180(W)x135(D)x 30(H)mm	168(W)x220(D)x 45(H)mm		438(W)x302(D)x 88(H)mm
Physical specification		1.3kg		5.9kg
Adaptation of EMI		VCCI class A		
Accessories		power cable (2001-15, 2002-15, 2020-15), rack mount kit, product warranty		

3.4.2. **LE2881-2F** (Line card for 10G Multi Rate 3R)

■Supports interfaces: SFP+ to SFP+.
■Supports various client interfaces:
10GBASE-SR/LR/ER/ZR (supports SFP+ for 10G), 1-core type SFP+ (20 km, 40 km, 60 km), and SFP+ for CWDM.
■By installing it to LE2002, it can be used as a stand-alone device and as a card-type, chassis LE2020-containing device.
■Operating temperature of 0 to 50°C.
■ Relay connection: Supports 3R, has no restriction on packet length.
■All frames, such as Tag, BPDU, and long frame, are transparent.
■Various functions: ALS function, loss propagation function, and loop-back function.
■SNMP management, Web GUI, and Telnet monitoring are possible. *

* LE2020 or LE2002 and LE2930 required. It cannot be used with LE2001.

Models		LE2881-2F
Transmission speed		10G Multi-rate
Fiber ports	Ports type	SFP+ x2port
	Wavelength	depend on SFP+
	Output	depend on SFP+
	Receiving sensitivity	depend on SFP+
Communication function		Los Propagation, ALS, Auto Laser Shut-down, Loop Back
Transmission mode		3R、Re-Generation、Re-Shaping, Re-Timing
Rated input voltage/frequency AC power		AC100V／50/60Hz
Maximum power consumption		12W
User Environmental	Operating Temperature/Humidity	0℃～55℃/10～90％ (no condensation)
Dimensions		88mm(W)x139mm(D)x21mm(H)
Physical specification		118g (only card)
Accessories		product warranty

3.4.3.**LE2842-15**

■ Media converter for conversion of IEEE802.3/IEEE802.3u-compliant 10BASE-T/100BASE-TX and 100BASE-FX.
■ DIP switches enable manual setting for 100BASE-TX (full/fixed)/auto-negotiation.
■ DIP switches enable the 10/100BASE-TX port to be fixed to MDI or MDI-X.
■ LEDs are displayed on the front panel, enabling easy segmentation.
■ Supports in-band management (TTC-TS1000-compliant). *
■ When used in a rack, hot-swap function is available
■ Supports ALS (Auto Laser Shutdown).
■ Remote power outage notification. *
■ Tag frame/QinQ double-tagged frame/EAP/BPDU transparent.
*LE2020 or LE2002 and LE2930 required.

Models		LE2842-15
Standards		IEEE802.3、IEEE802.3u
Transmission speed		10/100Mbps (CSMA/CD)
Ethernet Ports	10BASE-T/100BASE-TX	1port (MDI/MDI-X auto switch)
	Duplex	Full/Half
	Auto Negotiation	Supported
	Transceiver	100BASE-FX x1port
		SMF 15km/SC connector
	Wavelength	1310nm
	Output	-15dBm～-5dBm
	Receiving sensitivity	-35dBm～-3dBm
Communication function		Link Fault Pass through (LFP) (Default: OFF)
Transmission mode		Converter mode/Switching mode
Maximum frame size		Converter mode:9Kbyte Switching mode：2046byte
Rated input voltage/frequency AC power		AC100V／50/60Hz
Maximum power consumption		5.0W
User Environmental	Operating Temperature/Humidity	0℃～50℃/10～90％ (no condensation)
Dimensions		88mm(W)x139mm(D)x23.5mm(H) without detachable parts
Physical specification		400g (without AC adapter)
Accessories		AC adapter, product warranty

3.4.4.**LE2841-20A/ LE2841-20B**

- Media converter for conversion of IEEE802.3/IEEE802.3u-compliant 10BASE- T/100BASE-TX and 100BASE-FX.
- DIP switches enable manual setting for 100BASE-TX (full/fixed)/auto-negotiation.
- DIP switches enable manual setting for LFP (Link Fault Pass-through) OFF/ON.
- DIP switches enable 10/100BASE-TX port to be fixed to MDI or MDI-X.
- LEDs are displayed on the front panel, enabling easy segmentation.
- Supports in-band management (TTC-TS1000-compliant). *
- When used in a rack, hot-swap function is available
- Supports ALS (Auto Laser Shutdown).
- Remote power outage notification. *
- Tag frame/QinQ double-tagged frame/EAP/BPDU transparent.

*LE2020 or LE2002 and LE2930 required.

Models		LE2841-20A/20B
Standards		IEEE802.3、IEEE802.3u
Transmission speed		10/100Mbps (CSMA/CD)
Ethernet Ports	10BASE-T/100BASE-TX	1port (MDI/MDI-X auto switch)
	Duplex	Full/Half
	Auto Negotiation	Supported
	Transceiver	100BASE-FX x1port
		SMF 20km/SC connector
	Wavelength	LE2841-20A:1310nm LE2841-20B:1550nm
	Output	-14～-8dBm
	Receiving sensitivity	-31～±0dBm
Transmission mode		Converter mode/Switching mode
Maximum frame size		Converter mode:9Kbyte Switching mode：2046byte
Rated input voltage/frequency AC power		AC100V／50/60Hz
Maximum power consumption		5.0W
User Environmental	Operating Temperature /Humidity	0℃～50℃/10～90% (no condensation)
Dimensions		88mm(W)x139mm(D)x23.5mm(H) without detachable parts
Physical specification		400g (without AC adapter)
Accessories		AC adapter, product warranty

3.5 MCI2000 series

3.5.1. **MCI2852-005/ MCI2852-10** NEW

Industrial Media Converter "MCI2000 Series" 1000BASE-SX and 1000BASE-LX the lineup

The MCI2000 series is an industrial media converter that converts 10/100/1000BASE-T to 1000BASE-SX/LX and can operate over a wide temperature range of -40°C to +75°C.
In addition to the standard functions, the products in this series support LFP (link fault pass-through) function and can be operated in the voltage range of DC12V to 48V.
In addition, it is equipped with the warning relay terminal which outputs a warning signal at the time of supporting the operating temperature of the wide range and port block and power supply obstacle occurrence, and can prevent a trouble beforehand and is the reliable media converter designed for industry environment.

- Mutual conversion between 10/100/1000BASE-T and 1000BASE-SX (MCI2852-005) / 1000BASE-LX (MCI2852-10)
- RJ45 port supports auto-negotiation, MDI/MDI-X auto-switching
- Supports flow control for full-duplex operation and backpressure for half-duplex operation (IEEE 802.3x)
- MCI2852-005 supports transmission distance up to 550m, MCI2852-10 supports transmission distance up to 10km
- Supports 1.25Gbps bitrate
- Fiber port is a 2-core SC connector
- Supports jumbo frames (up to 10,240 bytes)
- Supports LFP (Link Fault Pass Through) function
- Equipped with alarm relay terminal
- Fan-less design
- Class 1 laser product according to EN 60825-1
- Can operate over a wide temperature range of -40°C to +75°C
- RoHS compliant
- Operates from a DC power supply (not compatible with an AC adapter)

Models		MCI2852-005	MCI2852-10
Standards		IEE802.3, IEEE802.3j, IEEE802.3z, IEEE802.3u, IEEE802.3ab, IEEE802.3x	
Transmission speed		10/100/1000Mbps (CSMA/CD)	
Ethernet Ports	port type	RJ45 port	
	Auto Negotiation	Supported	
fiber port	port type	1x9 Optical port	
	Auto Negotiation	-	

Copper cable used	1000BASE-T	Category 5e or higher or (UTP or STP)
	100BASE-TX	Category 5 or higher or (UTP or STP)
	10BASE-T	Category 3 or higher or (UTP or STP)
Fiber cable used	SMF	- 9/125µm 10/125µm
	MMF	50/125 μ m 、 62.5/125µm -
Data transfer method		Store & forward method
jumbo frame size		10240 bytes
MAC addresses		8,192
Communication function		EAP/ BPDU/ LACP/ LLDP/ IGMP and Tag frame transparent
flow control		IEEE802.3x
latency		3.625us
power	Rated input/frequency	12 – 48VDC
	Maximum input current	76mA (at 12VDC), 38mA (at 24VDC) 19mA (at 48VDC)
	Maximum power consumption	0.912W
	Maximum calorific value	0.784kcal/h
Dimensions		35.8(W) x 90(D) x 100(H)mm
Physical specification		230g
Operating temperature/humidity		-40°C to +75°C / 5% to 95% *No condensation
Storage temperature/humidity		－40°C to +85°C / 5% to 95% *No condensation
Cooling systems		Fan-less
Adaptation of EMI		VCCI class A
reliability		MTBF 177,829h (75℃)
environment		RoHS
Accessories		installation guide product warranty

4. Switch products

4.1. L3 Routing Switches

4.1.1. **FXC9452F**

FXC9452F is a next-gen multiservice switch, offering remarkable performance and enhanced security. Implementing an industry-leading hardware design and FXC's latest operating system, the switch offer better table capacity, improved hardware processing performance, and easier user operation.

FXC9452F supports flexible Gigabit access and high-density 10G port scalability. FXC9452F offer fixed 4 10G fiber ports, 4 models offer dual expansion slots, supporting high-density, high-performance port uplink performance. These leading features fully meet requirements of high-density access and demanding aggregation.

FXC9452F, with the outstanding performance-to-price ratio, is ideal acting as aggregation of large-scaled networks, core of small to medium-sized networks, and data center server access. With the end-to-end service performance, and a wide range of security settings available, FXC9452F fully satisfies high-speed, secure and intelligent demands of enterprise networks.

Features

- Customized for large campus network: up to 64K MAC address
- Exceptional performance & scalability: up to 176Gbps switching capacity
- Network virtualization (Stacking) supported: up to 4 stack members
- Out-of-box with advanced Layer 3 routing, MPLS and SDN features
- High reliability: Hot patches, 1+1 Power module redundancy, Hot swappable components

Product Model		FXC9452F
Fixed port	GE SFP port	48
	10GE SFP+ port	4
Management port	ETH management port	1
	Console port (RJ45)	1

	Console port (Mini USB)	1
	USB 2.0 port	1
Performance	Switching capacity	176Gbps
	Forwarding rate	131Mpps
	MAC table size	64,000
	ARP table size	20,000
	Jumbo frame	9216 Bytes
	Packet buffer	32Mbit
Physical	Dimensions (WxDxH)	440 X 340 X 44mm
	Unit weight	4.7kg
Power supply	Type	Hot swappable
	Redundancy	1+1
	AC frequency	50/60Hz
	Rated AC voltage	100~240V
	Maximum AC voltage	90~264V
	Rated DC voltage	-36V ~ -72V DC
	Maximum power rating	100W
Heat dissipation on system	Dissipation mode	Air-cooled heat dissipation. Intelligent speed adjustment
	Number of fan	3
	Airflow	Air flows in from the left and exhausts from the right
Operating temperature		0 ℃ ~ 50 ℃
Storage temperature		-40 ℃ ~ 70 ℃
Operating humidity		10%~90% RH
Storage humidity		5%~95% RH
Operating altitude		-500 ~ 5000m
MTBF (hours)		200,000
Ethernet features	Ethernet	Full-duplex, Half-duplex, Auto negotiation, Flow control on interface, Jumbo frames, Link aggregation (IEEE802.3ad, LACP, maximum 8 member ports per AP), 2048 maximum aggregation ports, Load balancing, Broadcast storm control
	VLAN	IEEE802.1Q, 4094 VLAN ID, 4094 VLANIF interface, Access mode, Trunk mode, Default VLAN, Port-based VLAN, MAC-based VLAN, Protocol based VLAN, IP subnet-based VLAN, Voice VLAN, GVRP, Super VLAN, Private VLAN, Guest VLAN
	MAC	Automatic learning and aging of MAC addresses, Static and dynamic MAC address entries, Interface-based and VLAN-based MAC address learning limiting, Sticky MAC, MAC address spoofing guard
	ARP	Static ARP, Trusted ARP, Gratuitous ARP, Proxy ARP, Local proxy ARP, ARP trustworthiness detection, ARP-based IP guard

	STP	STP(IEEE802.1D), RSTP(IEEE802.1w), MSTP(IEEE802.1s), 64 MST instances, Port Fast, BPDU guard, BPDU filter, TC guard, TC filter, Root guard, Auto edge, BPDU transparent transmission, BPDU tunnel, VLAN-Specific Spanning Tree(VSST, working with PVST, PVST+ and RPVST)
	ERPS	G.8032 v1/v2, Single-ring, Tangent-ring, Intersecting-ring, Load balancing
	L2 multicast	IGMP v1/v2/v3 snooping, IGMP filter, IGMP fast leave, IGMP querier, IGMP security control, IGMP profile, MLD v1/v2 snooping, MLD filter, MLD fast leave, MLD source check
	QinQ	Basic QinQ, Selective QinQ(Flexible QinQ), 1:1 VLAN switching, N:1 VLAN switching VLAN mapping, TPID configuration, MAC address replication, L2 transparent transmission, Priority replication, Priority mapping
IPv4/IPv6	IPv4 unicast routing	IPv4 static routing, RIPv1/v2, OSPFv2, BGP4, MBGP, IS-IS, PBR, VRF, ECMP, WCMP, Routing policies, 12000 IPv4 routing table
	IPv6 unicast routing	IPv6 static routing, RIPng, OSPFv3, BGP4+, IS-ISv6, PBRv6, VRFv6, Packet–based load balancing and flow-based load balancing, 6000 IPv6 routing table
	IPv6 feature	ND(Neighbor Discovery), 10000 ND entries, ND snooping, 6 over 4 manual tunnel, 6 to 4 auto tunnel, ISATAP, IPv4 over IPv6 tunnel, IPv6 over IPv6 tunnel, GRE tunnel (4 over 6), GRE tunnel (6 over 6), IPv6 extender option head, Manually configure local address, Automatically create local address, 0-64 bit mask, 65-128 bit mask
	Multicast routing	IGMPv1/v2/v3, MLDv1/v2, PIM-DM, PIM-SM, PIM-SSM, PIM-DMv6, PIM-SMv6, MSDP, MCE, IGMP proxy, MLD proxy, Multicast static routing, 8000 IPv4 multicast routing table, 4000 IPv6 multicast routing table
	DHCP	DHCP server/relay/client, DHCPv6 server/relay/client, DHCP option 43/82/138
MPLS	MPLS	MPLS labels and forwarding, LSP, LDP, Inter-domain LDP LSP
	MPLS L3 VPN	BGP VPN, IS-IS VPN, OSPF VPN
Reliability	BFD	Single-hop BFD, BFD for IPv4 static routes/OSPF/IS-IS/BGP4/VRRP/MPLS/PBR, BFD for IPv6 static routes/OSPFv3/IS-ISv6/BGP4+/VRRPv6/PBRv6
	FLDP	FLDP for IPv4 static routes/OSPF/BGP4/VRRP/PBR
	LLDP	IEEE802.1AB 2005, ANSI/TIA-1057, LLDP, LLDP-MED
	LDP	Uni-directional link detection, Bi-directional forwarding detection, Downlink loop detection
	Stacking	Up to 4 stack members
	VRRP	VRRPv3, MGRP
	REUP	REUP (Rapid Ethernet Uplink Protection Protocol) for dual uplink backup, VLAN load balancing
	GR	GR for RIP/OSPF/IS-IS/BGP/MPLS L3 VPN/LDP
	NCT	NCT test for ICMP/DNS/TCP, Track support for NCT
QoS	Stream classification	Classification based on IEEE802.1p/DSCP/TOS
	Shaping	Rate-limit on ingress/egress traffic on interface
	Congestion avoidance	RED, WRED, Tail drop
	Congestion management	SP, WRR, DRR, WFQ, SP+WFQ, SP+WRR, SP+DRR, 8 queue priorities per port
ACL	ACL entries	3500 IPv4/v6 rules
	ACL type	Standard IP ACL, Extended IP ACL, MAC-extended ACL, Time-based ACL, Expert ACL, ACL80, IPv6 ACL, SVI router ACL, ACL logging, ACL counter, ACL remark, ACL redirection, Security channel, Protected port, Port security
Security	ARP security	ARP check, DAI, Trusted ARP, ARP trustworthiness detection, Gateway-targeted ARP spoofing prevention, ARP rate-limit,

	Attack defense	CPP (CPU Protection Policy), NFPP (Network Foundation Protection Policy) guard for ARP/IP/ICMP/DHCP/DHCPv6/ND/Self-defined attack, URPF
	IP	IP source guard v4/v6, 3500 IPv4 source guard user capacity, 1500 IPv6 source guard user capacity
	DHCP	DHCP snooping, DHCPv6 snooping, DHCP snooping on option 82
	AAA	Local, RADIUS, RADIUS v6, TACACS+
	IEEE802.1X	IEEE802.1X port/MAC based authentication, Dynamic VLAN and ACL assignment, MAC authentication bypass
Configuration	Login	CLI, Console, Telnet, Telnet for IPv6, SSH v1.5/v2.0, SSH for IPv6, SCP, SNMP-based NMS, Web-based UI
	File	Multiple boot configuration, Multiple firmware, ZTP (Zero Touch Provisioning)
Management	Network	Ping(v4/v6), Traceroute(v4/v6), sFlow, SNMPv1/v2c/v3, HTTP, HTTPS, RMON (1,2,3,9), CWMP(TR069), Syslog, MIB,
	Application	DNS client v4/v6, TFTP Server/Client, TFTP Client v6, FTP Server/Client, FTP Server/Client v6, NTP Server/Client, NTP Server/Client v6, SNTP, EEE(IEEE802.3az), OpenFlow v1.0, OpenFlow v1.3, Hot patch
	Mirroring	Many-to-one mirroring, One-to-many mirroring, Flow-based mirroring, Over devices mirroring, VLAN-based mirroring, VLAN-filtering mirroring, AP-port mirroring, SPAN, RSPAN, ERSPAN
	Hardware monitoring	Power supply monitoring, Fan status and alarm monitoring

4.1.2. **FXC9800 Series switches**

Features

FXC9800 Series switches Supply powerful high-density-port switching ability（384-port 1000-M and 32-port 10000-M）

High switching fabric and Wire-speed Processing

MAC address filtering、ACL、802.1x（port base）、DAP (DOS defense) and such safety function.

Powerful QoS Support

FXC9800Series support redundant backup and STP/RSTP/VRRP

FXC9800 Series support IPv6 and has advantage for upgrading the network smoothly.

Support RoHS compliant

System Management

Support WEB Graphical interface

Bandwidth Monitoring & Traffic Analysis

	FXC9803	FXC9806	FXC9810
Slot	1*MSU + 2*Access Modules	2*MSU + 4* Access Modules	2*MSU + 8* Access Modules
Backplane Capacity	1.2T	2.4T	4.8T
Switch Fabric	Super Engige I 96Gbps	Super Engige I 192Gbps	Super Engige I 192Gbps
	Super Engige II 192Gbps	Super Engige II 384Gbps	Super Engige II 384Gbps
	Super Engige III 384Gbps	Super Engige III 768Gbps	Super Engige III 768Gbps
Forwarding Rate	512Mpps	571Mpps	1195Mpps
Max No. of 10000M ports	16	36	64
Max No. of 1000M ports	96	192	384
Max No. of 100M ports	96	192	384
DRAM	512MB		
MAC Address Table Size	512K		
VLAN table Size	4K		
Spanning Tree	802.1D(STP), 802.1w(RSTP), 802.1s(MSTP)		
Routing Protocol	RIPv1/2、OSPF、BGP、Static、IS-IS		
MPLS	Support		
IPv6	Support		
Multicast Protocol	IGMP, IGMP Proxy, IGMP Snooping, PIM-DM、PIM-SM, DVMRP, MOSPF, MBGP, MSDP		
QoS	8 dispatching queues per port, support 802.1p, TOS, application port control, Differ Serve, WRR, SP, SWRR, etc.		
ACL	Standard and Extended ACL, support based IP, source/destination IP, L3 IP protocol no., TCP/UDP port, IP priority, ToS, time ranger ACL		
MAC Control	Support port/MAC binding, MAC ACL		
VLAN	Port-based VLAN, 802.1Q, support GVRP, PVLAN, Super VLAN Stacking (QinQ)		
Flow Control	HOL blocking prevention, Half-duplex: Back Pressure, Full-duplex: IEEE 802.3x		
ARP	Support		
DHCP	Support Client, Relay, Server		

Port Aggregation	Support 802.3ad，loading balance, 8 port per group		
Customer Access	Support 802.1x		
AAA	Support RADIUS, TACACS+		
Port Mirroring	Support		
Broadcast Control	Support		
Security	Support MSU redundancy, hot swapped, VRRP		
IEEE Standard	IEEE 802.1D IEEE 802.3 IEEE 802.3u IEEE802.3ad IEEE 802.3x IEEE 802.3z IEEE802.1Q IEEE 802.1P IEEE 802.1w IEEE 802.1x IEEE 802.3ab		
Console Interface	CLI, WEB		
Console Port	RS-232		
Telnet	Support		
SSH	V1/V2		
SNMP	v1/v2/v3		
Syslog	Support		
RMON	1, 2, 3, 9		
MIB	Support		
Humidity	10%～90% (no condensing)		
Temperature	0°C～40°C		
Power Supply	AC：200-240VAC，50/60 Hz DC：-48V		
Power Redundancy	1+1 redundancy, support hot swapped		
Dimensions (L×W×H)	482×548×266mm	482×548×399mm	482×548×533mm
Power Consumption	600W	600W	1000W

4.1.3 **FXCX9526F**

20 slots of 1G/10G SFP+ and 4 slots of 10G/25G SFP28.
L3 switch with management function that can install 2 slots of 40G QSFP+

"FXCX9526F" is equipped with 20-port 1G / 10G SFP +, 4-port 10G / 25G SFP28, and 2-port 40G QSFP +.It is an L2 + switch with a management function.
Each high-performance function supports layer 2 functions as well as dynamic routing (RIP,).
It also supports layer 3 functions such as RIPng, OSPFv2, OSPFv3) and VRRP.
Also,, the stacking function makes it possible to build equipment redundancy in a space-saving manner of 1U size, which makes it fault tolerant.
You can build a high network. In addition, since the supported speed is 1G / 10G / 25G / 40Gbps and multi-rate, from large-scale network consolidation to medium
It supports various needs such as small network cores.

- Equipped with 1G / 10G SFP + x20 ports, 10G / 25G SFP28x4 ports, and 40G QSFP + x2 ports.
- Supports 32000 MAC address entries
- Maximum 4000 dynamic routes can be learned
- Supports management console port and in-band management (SNMP / HTTP / HTTPS / Telent / SSH)
- Supports USB backup
- RIP and OSPF are standard equipment for dynamic routing.
- Supports IPv6 management and IPv6 routing
- Supports redundant system by VRRP
- Equipped with ITU-T compliant ring protocol for smart redundant configuration
- Loop detection by link detection function, fiber transmission / reception down detection
- Equipped with IPv4 / IPv6 ACL and MAC ACL, L2 to L4 level packet control is possible in the in / out direction
- Supports CoS / DSCP, QoS scheduling, Policy-map (CBWFQ), and flexible traffic policy by QoS, Can be set
- Supports ARP inspection and IP source guard functions, access control of unauthorized users and ARP spoofing Countermeasures against attacks are possible
- Energy saving IEEE802.3az compliant EEE power management compatible

Optional Units (not included in FXCX9526F)

FXCX9526F-PWU15	Power unit for FXCX9526F
OPT-STCB02	40GBASE-SR4 QSFP+ Active Optical Cable (1m)
FXC9432-10G-CU1M	SFP+ Direct Attach Cable (1m)
SFP+10G-C3M	Direct-attach cable for SFP+ (3m)
SFP+10G-C1M	Direct-attach cable for SFP+ (1m)

Models	FXCX9526F	
Standards	IEEE802.3ba 、 IEEE802.3by 、 IEEE802.3cc 、 IEEE802.3ae 、 IEEE802.3z、IEEE802.3x、IEEE802.1D、IEEE802.1w、IEEE802.1s、IEEE802.1p、IEEE802.1Q、IEEE802.3ad、IEEE802.1X	
Ethernet Ports	1G/10G SFP+×20 10G/25G SFP28×4 40G QSFP+ ×2	
	Duplex	Full/Half
	Auto Negotiation	Supported
		Correspondence (Communication speed and Full / Half can be fixed for each port)
Features	Switching Method	Store & Forward Method
	Throughput	565Mpps（64byte）
	Switching Capacity	760Gbps
	Buffer Size	4.0Mbyte
	Flash Memory	Flash: SPI 1MB / RAM: DDR Ⅱ 1MB
	MAC Address Table	32,000
	VLAN	VLAN(ID1-4094), 802.1Q VLAN Tagging, 802.1QVLAN Tag Q-in-Q,GVRP, Port-based VLAN,Private VLAN, Multiple Uplink Port(Isolated, Community,Multi Grouping),Voice VLAN
	Port Trunk	Static 8 ports (Max)LACP 128 Group (Max)
	IP Multicast	IGMP v1/v2/v3、IGMP Snooping v1/v2/v3、MLD、 MLD Snooping v1/v2、Multicast routing
	Spanning Tree	IEEE802.1D STP, IEEE802.1w RSTP, IEEE802.1s MSTP
	QoS	CoS/802.1p、DSCP、Police-map(CBWFQ)、Priority Queuing、Congestion Avoidance

	Port configuration	Speed/Duplex, HOL, configuration, Flow Controller, Port Status
	Jumbo Flame	9,216bytes (Max)
	L3	RIP/RIPng、OSPFv2/OSPFv3、ECMP、IS-IS/IS-ISv6、BGP/BGP+4、BFD、Static Routing、VRRP、PBR、DHCP Relay、IPv6 DHCP Relay、Ping IPv4/v6、Traceroute IPv4/v6、ICMPv6、VRF、MPLS
	Management	Web management, Web management authentication, Console management, management port, Baud Rate, Telnet,Telnet v6
	Security	IEEE802.1X, Dynamic/Guest VLAN, MAC-based authentication, MAC address filtering, port security, ACL, IPv6 ACL, web redirect authentication, DHCP snooping, IPv6 DHCP snooping, IP source guard, IPv6 source guard, ARP inspection SSH v1/v2, SSHv6, HTTPS, DoS protection, CPU protection
	Others	DHCP server (IPv4), DHCP client, port mirroring
Power	Rateinput voltage/frequency	AC100-240V, 50/60Hz
	Maximum input current	0.83 A (AC100V)
	Maximum power consumption	81.2W
	Maximum calorific value	69.8 kcal/h
Required Humidity & Temp.	During Operation	0℃～50℃/10%～90% Non-Condensing
	During Non- Operation	-40℃～+70℃ / 5%～95% Non-Condensing
Size	440(W)x330(D)x43.6 (H) mm	
Weight	5.17kg	
Standards	VCCI Class A,	

4.1.4. **FXC9432**

Layer-3 Switch with Management Function

You can also build a network with IPv6 alone. The FXC9432 contains two power slots in a single cabinet and supports IGP/EGP routing. This L3 core switch is perfect for almost any type of network environment!

The FXC9432 is a routing stackable switch with management function, incorporating 24 10/100/1000BASE-T RJ45 ports, four RJ45/1G SFP combo ports, and four 1/10GBASE-R SFP ports.
The FXC9432 supports a large variety of routing protocols as well as IPv6 routing, and functions as the core switch for small-scale, complex networks used in multi-cast routing etc.
The FXC9432 supports IEEE 802.1Q tag VLAN, protocol-based VLAN and Voice VLAN as well as port-based VLAN and includes such security functions as 802.1x authentication and Web redirect authentication, enabling it to manage a large variety of network environments such as hotels, offices, apartments, condominiums and schools.
The 10G ports on the front of the cabinet enable stacking of up to nine units to create a network configuration that allows future port expansions and exhibits high fault tolerance.

■ Includes 24 RJ45 ports, 4 RJ145 or SFP ports, and 4 ports each for SFP/SFP+ (1G/10G).
■ Supports jumbo frames (maximum 9,216 bytes).
■ Supports 64,000 MAC address entries.
■ Supports outbound management interfaces (SNMP, Http, Https, Telnet, SSH) through management console ports, inbound management and MGMT ports.
■ Includes automatic fan control function for higher reliability and noise suppression.
■ Supports redundant power supply.
■ Enables IPv6 management and IPv6 routing.
■ CISCO-like command line interface.
■ Supports port-based VLAN, IEEE 802.1Q VLAN, Voice VLAN and Q-in-Q (double tagging) functions.
■ Includes IEEE 802.3x (in full duplex mode) and flow control functions.
■ Each port supports 802.1p, DSCP and TOS QoS.
■ Features a loop detection function.

■ VLAN registration and Guest VLAN suitable for IEEE 802.1x security function included.
■ Support of STP (IEEE 802.1d compliant), RSTP (802.1w compliant) and MSTP (802.1s compliant).
■ Ring protocol compliant to with ITU-T provided for a smart redundancy configuration.
■ As IP multicast, FXC9432 supports multicast VLAN transmission, query, fast leave, filtering, group restriction and PIM in IGMP snooping and IGMP expansion functions.
■ Supports packet control in L2 to L4, ACL800 and IPv6 ACL with the ACL functions.
■ Enables input and output rate control for each port.
■ Supports broadcast, multicast and unicast storm control.
■ Supports ARP inspection and IP source guard.
■ FXC9432 enables management via network through compliance with SNMP. Equipped with RMON 1, 2, 3 and 9.
■ Supports DDMI of an SFP transceiver.
■ Supports upload and download of text-based configuration.
■ Enhanced security against fraudulent access through the DHCP Client, DHCP Option 82 Relay and DHCP snooping functions.
■ RIP, OSPF, ECMP, IS-IS, BGP and Static routing supported as an L3 routing protocol
■ Enables EEE power management compliant with energy-saving IEEE 802.3az
■ Compliant with the RoHS Directive

Optional Units (not included in FXC9432)

FXC9432-RPU15	AC redundant power unit for FXC9432
FXC9432-RPU45	DC redundant power unit for FXC9432
FXC9432-10G-CU1M	SFP+ Direct Attach Cable (1m)

Models	FXC9432	
Standards	IEEE802.3z, IEEE802.3i, IEEE802.3u, IEEE802.3ab, IEEE802.3ae, IEEE802.3x, IEEE802.1D, IEEE802.1w, IEEE802.1s, IEEE802.1p, IEEE802.1Q, IEEE802.3ad, IEEE802.1X, IEEE802.3az	
Ethernet Ports	10/100/1000M RJ45×28、10/100/1000M RJ45 or 1G SFP Combo Port×4, 1G/10G SFP+×4	
	Duplex	Full
	Auto Negotiation	Supported
Cable Used	10BASE-T	UTP Category 3 and Up
	100BSE-TX	UTP Category 5 and Up
	1000BASE-T	UTP Category 5e and Up
Features	Switching Method	Store & Forward Method

	Throughput	102Mpps（64byte）
	Switching Capacity	136Gbps
	Buffer Size	4.0Mbyte
	Flash Memory	Flash: SPI 512MB / RAM: DDR Ⅱ 1024MB
	MAC Address Table	64,000(Max)
	VLAN	IEEE802.1Q Tagging, IEEE802.1Q VLAN Tag QinQ, GVRP, Port-based VLAN, VLAN(ID4095), Private VLAN (Up-link Port (isolated, Community, Multi Grouping), Protocol-based VLAN, MAC- based VLAN, Subnet-based VLAN, Voice VLAN
	Port Trunk	Static 8-64 ports (Max), 32-256Group (Max)
	IP Multicast	IGMP v1/v2/v3, IGMP Snooping v1/2/3, MLD Snooping v1/v2, Multicast routing, MVR
	Spanning Tree	IEEE802.1D STP, IEEE802.1w RSTP, IEEE802.1s MSTP
	QoS	CoS/802.1p, DSCP, Traffic Classes (8 active priorities), Policy-map (CBWFQ), scheduling, Convergence migration
	Port configuration	Speed/Duplex configuration, HOL, Flow Controller, Port Status, Auto-MDI/MDIX, Auto-Negotiation
	Jumbo Flame	9,216bytes (Max)
	Bandwidth Control	64kbps～10,000,000kbps
	Management	Web management, CLI (RJ45, Mini USB), Telnet、SNMP(v1/v2/v3),SNMP over IPv6, LLDP、RMON、sFlow, Syslog (IPv4/v6), SMTP
	Security	IEEE802.1x, Port Security, authentication, DHCP Snooping, IPv6 DHCP snooping, IP Authentication, IP Source Guard, IPv6 Source Guard, IP DHCP Snooping, ARP inspection, ARP spoofing, SSH v1/v2, SSHV6, HTTPS, Dos protection, CPU Protection, Dynamic/Guest VLAN, ACL, IPv6 ACL, Web Redirect Authentication,

	Others	DHCP server (IPv4/v6), DHCP Client, Loop Protection, Storm control (Broadcast/Multicast/Unicast), Port Mirroring (1:N), Hardware Stacking Function (9MAX*SFP/SFP+ Direct Attach Cable

		available), NTP/SNTP, RIP/RIPng, OSPF/OSPFv3, ECMP, IS-IS/IS-ISv6, BGP/BGP+4, IPv6 DHCP relay, Ping IPv4/v6, Traceroute IPv4/v6, ICMPv6
Power	Rated input voltage/ frequency	AC100-240V, 50/60Hz
	Maximum input current	2A
	Maximum power consumption	40W
	Maximum calorific value	34.4Kcal/h
Required Humidity & Temp.	During Operation	0℃～50℃/10%～90% Non-Condensing
	During Non-Operation	-40℃～70℃/5%～90% Non-Condensing
Size	440(W)x280.5(D)x44 (H) mm	
Weight	4.31kg (include PSU×1)	
Standards	VCCI Class A,	

4.2. **L2+ Switches**

4.2.1. **FXC6528/ FXC6552**

L2+ stackable switch with 10G uplink and management function
High cost performance. Stackable switch with L2+ management function

■ The FXC6528 is equipped with 24 RJ45 ports and 4 SFP+ ports, while the FXC6552 is equipped with 48 RJ45 ports and 4 SFP+ ports
■ Supports jumbo frames (up to 9,216 bytes)
■ Supports 16,000 MAC address entries and 1000 ARP entries
■ Can learn up to 500 dynamic routes
■ Supports management console ports and inbound management (SNMP, HTTP, HTTPS, Telnet, SSH)
■ Equipped with RIP and OSPF as standard for dynamic routing
■ Supports IPv6 management and IPv6 routing
■ Supports a redundancy system with VRRP
■ Supports redundancy and port expansion through stacking of FXC65xx series units
■ Routing function ON/OFF via CLI
■ Equipped with ITU-T-compliant ring protocol for smart redundant configuration
■ Loop detection and fiber transmission failure detection via link detection function
■ Equipped with IPv4/IPv6 ACL and MAC ACL for L2 to L4 packet control in both IN and OUT directions
■ Supports CoS/DSCP, QoS scheduling, and policy-map (CBWFQ) for flexible setting of traffic policies with QoS
■ Supports ARP inspection and IP source guard function to provide countermeasures against access by unauthorized users and ARP spoofing attacks
■ Supports IEEE802.3az-compliant EEE power management
■ Compliant with RoHS directive

Optional Units (not included in FXC6528 / FXC6552)

FXC9432-10G-CU1M SFP+ Direct Attach Cable (1m)

Models		FXC6528	FXC 6552
Standards		IEEE802.3、IEEE802.3u、IEEE802.3z、IEEE802.3s、IEEE802.3x、IEEE802.1p、IEEE802.1Q、IEEE802.1D、IEEE802.3w	
Ethernet Ports		10BASE-T/100BASE-TX/1000BASE-T（Auto MDI/MDI-X function settings）	
		24	48
	Duplex	Full/Half	
	Auto Negotiation	Supported（Transfer speed, Full/Half can be set for each ports）	
Expansion Slots		1G/10G SFP/SFP+×4	1G/10G SFP/SFP+×4
Features	Switching Mode	Store & Forward Method	
	Throughput	95.2Mpps	131Mpps
	Switching capacity	128Gbps	176Gbps
	Buffer Size	1.5Mbytes	
	Flash Memory	Flash: SPI 256MB / RAM: DDR Ⅱ 512MB	
	MAC Address	16,000	
	VLAN	VLAN (ID: 1～4094), 802.1q VLAN, Port-based VLAN, MAC-based VLAN, Protocol-based VLAN, Subnet-based VLAN, Private VLAN, Voice VLAN, GVRP, Guest VLAN, QinQ,	
	Port Trunk (Static/trunk)	Static trunk, LACP Static 8 ports (Max), LACP 256 Group (Max)	
	Multicast	IGMP v1/v2, IGMP Snooping v1/2, querier, multicast filter, fast leave	
	Spanning Tree	IEEE802.1d STP, IEEE802.1w RSTP, IEEE802.1s MSTP, BPDU guard, BPDU filter, root guard, TC guard, TC protection, edge-port, port fast	
	Ring protocol	G.8032 ERPS	
	QoS	CoS/802.1p/DSCP, TOS, Priority Queuing, policy-map (CBWFQ), QoS shaping, QoS scheduling (SP, WRR, DRR, SP+WFQ, SP+WRR, SP+DRR)	
	Port configuration	Port enabled and disabled, Auto-MDI/MDIX, Auto-Negotiation, Speed/Duplex/MDI, HOL blocking prevention, HOL, Flow Controller, Port Status,	

	Jumbo flame	9,216bytes (MAX)	
	Bandwidth Control	64kbps～10,000,000kbps	
	Management	Web Management, CLI(RJ45), Telnet/SSH, SNMP(v1/v2c/v3), RMON, sFlow, LLDP, Syslog (IPv4/v6), SNMP over IPv6, IPv6 Telnet/SSH	
	Security	IEEE802.1x, tacacs+, Dynamic/Guest VLAN, MAC based authentication, MAC address filtering, Port security, IPv4/v6 ACL, MAC ACL, DHCP Snooping, IP Source Guard, ARP Inspection, HTTPS, Dos Protection, CPU Protection	
	Stack	10G stacking (Up to 4 stack members), DAD detection, stack load-balancing, * dedicated SFP+ direct-attach cable available.	
	L2+feature Others	IPv4/v6 static routing, OSPFv2/v3, RIP/RIPng, IPv4/v6 VRRP, DHCP server, DHCP option82, DHCP relay agent, NTP server, FTP server, SNTP, DHCP client, loop-detection/blocking function, port mirroring, storm control, NTP client, ICMP v4/v6, Traceroute IPv4/v6, IPv6 ND/NA, ZTP	
Power supply	Rated input	AC100-240V, 50/60Hz	
	Maximum input current	0.4A	0.76A
	Maximum power consumption	23.0W	42.3W
	Maximum calorific value	19.8Kcal/h	36.4Kcal/h
Required Humidity & Temp.	During Operation	0℃～50℃/10%～90% Non-Condensing	
	During Non-Operation	-40℃～70℃/5%～95% Non-Condensing	
Size		443(W)x268(D)x44.5 (H) mm	
Weight		3.23kg	3.85kg
Standards		VCCI class A 1.0kg 3.85kg	

4.2.2. **FXCX5512PE** **NEW**

Layer 2+ multi-gigabit switch with PoE management function

FXCX5512PE is a multi-gigabit compatible L2+PoE switch with 8 ports of 100M/1G/2.5G/5G/10G and 4 slots of 1G/10G SFP+.
Equipped with a static routing function, security is ensured through stable network management.In addition, since it supports multi-giga and allows the use of existing cables, schools, offices, factories, and various other facilities can achieve faster LAN speeds without the cost and effort of changing cables.
It supports PoE++ (up to 60W per port) and is ideal for connecting to products with high-speed networks and high power consumption, such as high-resolution IP cameras and WiFi 6.

■ Equipped with 100M / 1G / 2.5G / 5G / 10G x 8 ports, SFP / SFP + (1G / 10G) slot x 4 ports
■ Compliant with IEEE802.3af / at / bt Supports 60W per port and can supply up to 420W for the entire device
■ Supports jumbo frames (10,240bytes)
■ Supports 240 Gbps switching capacity
■ 32,768 MAC address entries, Supports 192 ARP entries
■Provides security functionality with IEEE 802.1x port authentication
■IGMP and MLD snooping provide advanced multicast filtering and networking
■Supports static routing function
■Supports each management function such as SNMP
■802.3ad Link Aggregation (LACP) supports load balancing of traffic
■Supports STP (IEEE802.1d compliant), RSTP (802.1w compliant), MSTP (802.1s compliant)
■CoS/DSCP setting is possible, QoS scheduling, and policy-map (CBWFQ) are supported, allowing flexible traffic policy settings using QoS.
■Support ARP inspection, IP source guard, control unauthorized access
■Energy saving IEEE802.3az compliant EEE power management compatible
■RoHS compliant

Models		FXCX5512PE	
Standards		IEEE802.3an、IEEE802.3bz、IEEE802.3ab、IEEE802.3u、IEEE802.3x、IEEE802.1d、IEEE802.1w、IEEE802.1s、IEEE802.1p / IEEE802.1p-DSCP、IEEE802.1Q、IEEE802.3ad、IEEE802.1X、IEEE802.3af/at/bt、IEEE802.3az(EEE)	
Ethernet Ports	100M/1G/2.5G/5G/10G RJ45	8	
	1G/10G SFP+	4	
	Auto MDI/MDIX	Supported	
	Auto Negotiation	Supported	
	flow control	Supported	
Switching Mode		Store & Forward Method	
Applicable cable		10GBASE-T	Category 6A and Up (UTP/STP)
		2.5G/5GBASE-T/ 1000BASE-T	Category 5e and Up (UTP/STP)
		100BASE-TX	Category 5 and Up (UTP/STP)
Transmission distance		Up to 100m (UTP)	
Transmission speed		100M/1G/2.5G/5G/10G	
Jumbo frame size		10,240Byte	
Total throughput		178.57Mpps	
Switch fabric		240Gbps	
Frame buffer		2MB	
Flash memory		128MB	
MAC Address Table		32,768	
PoE function	Power supply port	8	
	Maximum power supply capacity	420W	
	Power supply PIN assignment	Alt- A:1&2(-)/3&6(+) AltB:4&5(+)/7&8(-)	

L3 function		Static Routing
Loop detection	detection	Supported
	guard	Due to spanning tree functionality
	cut off	Supported
	automatic recovery	Supported
storm control	broadcast	Supported
	multicast	Supported
	Unicast compatible	Supported
Spanning tree		IEEE802.1D STP、IEEE802.1w RSTP, IEEE802.1s MSTP
Traffic priority		CoS/802.1p, DSCP, policy map (CBWFQ) 8 levels of priority queuing, congestion avoidance
Multicast		IGMP v1/v2/v3、IGMP Snooping、MLD、 MLD Snooping v1、Multicast routing、MVR (GVRP)
Time synchronization		SNTP
Security		802.1X authentication, Dynamic/Guest VLAN, MAC base authentication, MAC address filtering, Port security, ACL, IPv4 ACL, IPv6 ACL, web redirect authentication, DHCP Snoopy IPv6 DHCP Snooping, IP Source Guard, IPv6 source guard, DoS protection
Management		Web management, CLI, Telnet/ssh, SNMP (v1/v2c/v3), RMON, Syslog
LED display	PWR	Power normal: Green on/ Rebooting: Green flashing/ Power OFF: Off
	Fault	Error occurring: Orange light on/ Normal operation: Light off
	PWR MAX	PoE power supply MAX: Lit orange PoE power supply available: Off
	LAN mode	Operating in LAN mode: Solid green Operating in PoE mode: Off

	PoE mode	Operating in PoE mode:: Solid green Operating in LAN mode: Off
	Mode (RJ45 port LED)	Link established at 10Gbps: Lit green (in LAN mode) PoE power supply in progress: Lights green (in PoE mode) Link established at 100M/1Gbps: Lights orange (in LAN mode)
	Link/Act (RJ45 port LED)	Link established: Green on Sending/ receiving data: Flashing green or orange Link not established: Off
	Speed (SFP+ port LED)	Link established at 10Gbps: Lights green Link established at 1Gbps: Lights orange Link not established: Off
	Link/Act (SFP+ port LED)	Link established: Green on Sending/ receiving data: Flashing green Link not established: Off
Power supply	Rated input	AC100-240V, 50/60Hz
	Maximum input current	Maximum load and with PoE: 5.5A Maximum load and no PoE: 0.4 A
	Maximum power consumption	550w
	Maximum calorific value	With PoE: 112 kcal/h Without PoE: 30.1 kcal/h
energy saving law	Energy consumption efficiency	0.291 W/Gbit/s
	classification	A
	Maximum effective transmission speed (Gbit/s)	120 Gbit/s
	Energy saving law standards compliance	PASS
	Energy saving achievement rate	599%

Size		230(W)x330(D)x44(H)mm
Weight		2.60 kg
Required Humidity & Temp.	During Operation	0℃～+50℃/5%～90% Non-Condensing
	During Non-Operation	-40℃～+70℃/5%～95% Non-Condensing
cooling function		Cooling by fan
Adaptation of EMI		VCCI Class A
Reliability		MTBF 105,665 h
Supplies		Installation Guide＆Warranty*1 Power cable for AC100V*1, Rack-mount kits*1, console cable*1, Rubber Feet 4 pcs

4.3.L2 Switches

4.3.1. **FXC5210/FXC5218/FXC5224**

High-performance and fan-less gigabit switch

FXC5200 series provides you with max. 24 (24/16/8) 10/100/1000 Mbps ports and is usable as a core switch of a gigabit switch.

It realizes fan-less design and low power consumption.

FXC5224 is equipped with four SFP slots (combo port), and they can be optionally replaced with 1000BASE-X fiber gigabit ports. FXC5218/5210 provides two ports for SFP slots and can be simultaneously used with 10/100/1000 Mbps ports.

■ Full gigabit composition equipped with 8/16/24 of 10/100/1000BASE-T ports.
■ Equipped with SFP slots.
FXC5218/5210 can be simultaneously used with a 10BASE-T/100BASE-TX/1000BASE-T port (FXC5224 provides combo ports).
■ Fan-less silent design for a comfortable environment.
■ Energy-saving design with IEEE802.3az (EEE) and power management.
■ Supports IEEE802.1d (STP) and IEEE802.1w (RSTP).
■ Equipped with DHCP/MLD Snooping.
■ Supports link aggregation (compatible with IEEE802.3ad/static).
■ QoS identifies important data to ensure smooth data communication.
■ Supports port-based VLAN, private VLAN, and IEEE802.1Q VLAN.
■ Supports jumbo frames (maximum 9 KB).
■ Supports IEEE802.1x port authentication for security.
■ Equipped with loop detection function.
■ IPv6 Ready Logo Phase-2 ensures compatibility with products of other manufacturers in an IPv6 network.
■ Supports SNMP for easy management via a network.
■ Switch management and setting are possible via IPv6 address, as well as with IPv4.
■ Port-mirroring function enables traffic monitoring of arbitrary ports and easy fault handling.
■ Management and setting are possible through a website browser.

Models		FXC5210	FXC5218	FXC5224
Standards		IEEE802.3、IEEE802.3u、IEEE802.3z、IEEE802.3ab、IEEE802.3x、IEEE802.1p、IEEE802.1Q、IEEE802.1D、IEEE802.1ac、IEEE802.1w、IEEE802.1x、IEEE802.3ad、IEEE802.3az		
Ethernet Ports		10BASE-T/100BASE-TX/1000BASE-T （Auto MDI/MDI-X function settings）		
		8	16	24
	Duplex	Duplex Full/Half		
	Auto Negotiation	Supported （Transfer speed, Full/Half can be set for each ports）		
Expansion Slots		2(SFP)		4(SFP) combo
		FXC5224 10BASE-T/100BASE-TX/1000BASE-T 21-24 port cannot be used together		
Features	Switching Mode	Store & Forward Method		
	Throughput	14.8Mpps (64byte)	26.7Mpps (64byte)	35.7Mpps (64byte)
	Switching capacity	20Gbps	36Gbps	48Gbps
	Buffer Size	512Kbytes		
	MAC Address	8K(Max)		
	VLAN	IEEE802.1Q tagging VLAN/Port Based VLAN/Private VLAN/Tunneling Protocol/Guest VLAN/Dynamic VLAN/Protocol VLAN/GVRP/Voice-VLAN		
	Spanning Tree	IEEE802.1d, IEEE802.1w, IEEE802.1s		
	Others	QoS, Policy-map, Flow Controller, Storm Controller (Broadcast/Multicast/Flooded unicast Rate), Port Mirroring, Trunk, LACP(IEEE802.3ad), Jumbo frame, DHCP Snooping, DHCP Client, Power Saving, Loop Detection, DHCP option82 relay		
Power supply	Rated input	AC90-264V, 50/60Hz		
	Maximum input current	0.17A	0.25A	0.32A
	Maximum power consumption	8.5W	14W	18W
	Maximum calorific value	7.31Kcal/h	12.04Kcal/h	15.48Kcal/h
Required Humidity	During Operation	0℃～50℃/10%～90% Non-Condensing		

& Temp.	During Non-Operation	0℃～70℃/10%～90% Non-Condensing		
Size		250(W)x117(D)x37 (H) mm		330(W)x204(D)x43 (H) mm
Weight		890g	1.0kg	2.1kg

4.3.2. **FXC5210PE**(FANLESS)**/FXC5218PE/FXC5224PE**

PoE Giga Ethernet layer 2 switch with 8 or 16 or 24 10/100/1000 Mbps ports and 2 100/1000 Mbps (SFP) ports

UTP ports 1 to 8 or 1 to 16 or 1 to 24 are equipped with a PoE power-feeding function compatible with IEEE802.3af/at standards, a maximum power of 30 W being supplied to each port (150 W/220W/370W in total).

■ Equipped with 8 or 16 or 24 10/100/1000 Mbps Giga Ethernet ports (with the PoE power-feeding function).
■ Equipped with a PoE power-feeding function compatible with IEEE802.3at (30 W per port maximum).
■ PoE power supply scheduling function and power-receiving terminal status confirmation available.
■ Two SFP slots enable optical module (option).
■ Supports Port Trunk and LACP (compatible with IEEE802.3ad).
■ Supports STP (compatible with IEEE802.1d), RSTP (compatible with IEEE802.1w), and MSTP (compatible with IEEE802.1s).
■ Supports port-based and IEEE802.1Q VLAN.
■ Supports various management functions such as SNMP.
■ Supports loop detection/blocking function.
■ Supports IEEE802.1x and equipped with web authentication function to ensure more secure environment.
■ Supports broadcast/multicast/unicast storm control
■ Supports jumbo frames (up to 9,600 bytes).
■ Restricts multicast data with IGMP snooping function to secure optimal performance.
■ Enhanced security against unauthorized access with DHCP snooping and IP Source Guard.
■ Comfortable voice network while fulfilling QoS.
■ Port-mirroring function enables traffic monitoring of arbitrary ports and easy fault handling.
■ Supports energy-saving EEE power management compatible with IEEE802.3az.
■ Fan-less design (FXC5210PE).

PoE functions and features

* PoE auto checking: Regularly monitors the condition of power-receiving terminals and automatically restarts them if there is no response.
* PoE configuration: Enables not only power feeding depending on the 802.1at (af) classes, but also manual setting of feeding values and setting of priorities.
* PoE forward delay: Enables settings such as sequential activation of multiple terminals by delaying their power supply times.
* PoE scheduling: Enables settings of power supply dates and times for each port according to the environment in which they are used. Power consumption can be reduced by setting power supply for a necessary time zone (for example, 9:00 a.m. to
6:00 p.m. on weekdays).

Models		FXC5210PE	FXC 5218PE	FXC 5224PE
Standards		IEEE802.3、IEEE802.3u、IEEE802.3ab、IEEE802.3x、IEEE802.1s、IEEE802.1Q、IEEE802.1D、IEEE802.1af/at、IEEE802.1w、IEEE802.1x、IEEE802.3ad、IEEE802.3az		
Ethernet Ports		10BASE-T/100BASE-TX/1000BASE-T（Auto MDI/MDI-X function settings）		
		8	16	24
	Duplex	Duplex Full/Half		
	Auto Negotiation	Supported（Transfer speed, Full/Half can be set for each ports）		
Expansion Slots		2(SFP)		4(SFP)
		FXC5224PE 10BASE-T/100BASE-TX/1000BASE-T 21-24 port cannot be used together		
Features	Switching Mode	Store & Forward Method		
	Throughput	14.8Mpps	26.7Mpps	35.7Mpps
		(64byte)	(64byte)	(64byte)
	Switching capacity	20Gbps	36Gbps	48Gbps
	Buffer Size	512Kbytes		
	MAC Address	8,192(Max)		
	VLAN	IEEE802.1Q tagging, IEEE802.1Q VLAN Tag Q-in-Q, Port Based VLAN, VLAN(ID4095), Private VLAN, Voice- VLAN		
	Spanning Tree	IEEE802.1D, IEEE802.1w, IEEE802.1s		

	Others	QoS, Flow Controller, Storm Controller (Broadcast/Multicast/Flooded unicast Rate), Port Mirroring (1: N), LACP(IEEE802.3ad), Jumbo frame (9,600bytes), DHCP Snooping, DHCP Client, Loop Detection, DHCP option82 relay		
PoE Function	PoE Supply Port	1～8	1～16	1～24
	Maximum Supply Capacity	150W	220W	370W
	IEEE802.3af standard	15.4W/port (Max)		
	IEEE802.3at standard	30W/port (Max)		
Power	Rated input voltage/frequency	AC100-240V, 50/60Hz		
	Maximum power consumption	187W (PoE150 W)	265W (PoE 220W)	443W (PoE370 W)
	Max. Calorific Value	161Kcal/h	228Kcal/h	381Kcal/h
Size		330(W)x204(D)x44 (H) mm		440(W)x191(D) x44.5(H) mm
Weight		2.38g	2.55kg	3.13kg
Operation Temperature / Humidity		0℃～+50℃/10%～90% *Non-condensing		
Storage Temperature / Humidity		-40℃～+70℃/10%～90% *Non-condensing		-20℃～+70℃ /10%～90% *Non-condensing
Supplies		AC100V power cable, 19inch rack mount kit, RS232C Cable, 4 Rubber Buttons, Manual, Guarantee		

4.4. Smart Switches

4.4.1.**ES1024V3**

ES1024V3 is equipped with various network functions and setting is available from a web interface.

■Web-based management function.
■Supports port-based VLAN, and IEEE802.1Q VLAN.
■Equipped with loop detection function.
■Fan-less design.
■Supports jumbo frames (up to 9,600 bytes).
■Port-mirroring function enables traffic monitoring of arbitrary ports and easy fault handling.
■Supports QoS by port-based 802.1q.
■Supports broadcast/multicast/unicast storm control.
■Supports manual aggregation.
■Supports rate limit to input/output traffic.
■Supports STP (compatible with IEEE802.1d) and RSTP (compatible with 802.1w).
■Conforms to Energy Saving Act. Compliant with latest ECO “EEE (Energy-Efficient Ethernet)” technology.
■Supports energy-saving EEE power management compatible with IEEE802.3az.
■Restricts multicast data with IGMP snooping function to secure optimal performance.

Models		ES1024V3
Standards		IEEE802.3, IEEE802.3u, IEEE802.3ab, IE EE802.3x, EEE802.1D, IEEE802.1w, IEEE802.1s, IEEE802.1p, IEEE802.1Q,
		IEEE802.3az
Data Transfer Speed		10/100/1000Mbps (CSMA/CD)
Ethernet Ports		10BASE-T/100BASE-TX/1000BASE- (Auto MDI/MDI-X function settings)
		24
	Duplex	Full/Half
	Auto Negotiation	Supported

Features	Switching Mode	Store & Forward Method
	Throughput	35.7Mpps(64byte)
	Switching capacity	48Gbps
	Flash Memory	Flash: SPI 16MB/RAM: DDR Ⅱ 128MB
	Buffer Size	512Kbyte
	MAC Address	8,192
	VLAN	IEEE802.1Q tagging, Port Base VLAN
	Port Trunk	Static 16 ports (Max)、LACP 12 Group (Max)
	IP Multicast	IGMP Snooping v1/2
	Spanning Tree	IEEE802.1D STP, IEEE802.1w RSTP
	QoS	DSCP, Traffic Classes (8 active priorities)
	Port configuration	Speed/Duplex configuration, HOL, Flow Controller, Port Status
	Jumbo Flame	9,600bytes
	Bandwidth Control	100kbps～1000kbps
	Management	Web management, CLI(D-Sub9)
	Others	DHCP, Loop Protection, Port Mirroring (1:N), Storm control (Broadcast/Multicast/Unicast)
Power supply	Rated input	AC100-240V, 50/60Hz
	Maximum input current	0.29A
	Maximum power consumption	16.2W
	Maximum calorific value	13.9Kcal/h
Cooling System		Fan-less
Required	During	0℃～50℃/10%～90% Non-
Temp.	Operation	Condensing
	During Non- Operation	-20℃～70℃/10%～90% Non-Condensing
Size		330(W)x204(D)x44 (H) mm
Weight		2.05kg

4.4.2.**ES1016VL3/ES1008VL3**

Various web-based network functions can be set.

Compact-size gigabit smart switch with fan-less silent design.

- 16-/8-port 10/100/1000 Mbps Giga Ethernet ports.
- Auto-negotiation function.
- Port-mirroring function.
- 802.1Q VLAN.
- QoS (ports, 802.1p, DSCP).
- Storm control functions for each type.
- Flow control function that achieves high communication efficiency.
- Web-based setting of various networks are available.
- Conforms to the Energy Saving Act.
- Loop detection and blocking function.

Models		ES1008VL3	ES1016VL3
Standards		IEEE802.3, IEEE802.3u, IEEE802.3ab, IEEE802.3x, EEE802.1D, IEEE802.1w, IEEE802.1p, IEEE802.1Q	
Data Transfer Speed		10/100/1000Mbps (CSMA/CD)	
Ethernet Ports		10BASE-T/100BASE- TX/1000BASE-T （Auto MDI/MDI-X function settings）	
		8	16
	Duplex	Full/Half	
	Auto Negotiation	Supported	
Features	Switching Mode	Store & Forward Method	
	Transmission speed	100m(Max)	
	connector type	RJ45 connector	
	Console port	D-sub 9, baud rate:115,200bps, 8, 1, N	

	data transmission rate	10/100/1000Mbps	
	Switching capacity (1000BASE- T/100BASE-	1,488,100/148,810/14,881pps	
	Jumbo Flame	9,600bytes	
	Throughput	11.9Mpps (64byte)	23.8Mpps(64byte)
	Switching Fabric	16Gbps	32Gbps
	Buffer Size	512Kbyte	
	MAC Address	8K	
	VLAN	IEEE802.1Q, Port Metro VLAN, Port Isolation (Private VLAN)	
	Port Trunk	Static 8 ports (Max)、LACP 8 Group (Max)	
	IP Multicast	IGMP Snooping v1/2	
	Spanning Tree	IEEE802.1D STP, IEEE802.1w RSTP	
	QoS	DSCP, port, 802.1p	
	Port configuration	Speed/Duplex configuration, Flow Controller, Port Status	
	Jumbo Flame	9,600bytes	
	Rate Limit	1～10000× 100kbps(10/100/1000Mport)	
	Management	Web management, CLI(D-Sub9)	
	Others	DHCP, Loop Protection, Port Mirroring, Storm control (Broadcast/Multicast/Uni cast), Power saving	
Power	Rated input	AC100-240V, 50/60Hz	
supply	Maximum power consumption	6.3W	10.8W
	Maximum calorific value	5.4Kcal/h	9.3Kcal/h
Cooling System		Fan-less	
Required Humidity & Temp.	During Operation	0℃～50℃/10%～90% Non-Condensing	
	During Non-Operation	–40℃～70℃/10%～90% Non-Condensing	
Size		250(W)x117(D)x37 (H) mm	
Weight		0.91kg	1.0kg

4.5. Desktop Switches

4.5.1.**ES1008MTP3**

ES1008MTP3 is an Ethernet switch equipped with 8 10 / 100 / 1000Mbps ports.
Equipped with a loop detection function
The loop detection function can be selected for each port with the button on the side of the main unit. In addition, MDI / MDI-X and communication speed for each port are also bogged down.
It can be set easily. It also supports auto-negotiation, depending on the port you connect to.
Communication speed and communication method can be set automatically.

■ 8-port switch compatible with 10BASE-T (IEEE802.3)/100BASE-TX (IEEE802.3u)/1000BASE-T (IEEE802.3ab).
■ Supports jumbo frames (Maximum 9,216 bytes)
■ Supports entries for 4096 MAC addresses
■ Flow control: Supports IEEE802.3x (at full duplex) and back pressure (at half duplex)
■ EAP / BPDU / dot1q VLAN / QinQ / LACP transparent
■ Supports buzzer sound and port shutdown when loop is detected
■ Equipped with private function by DIP switching
■ Equipped with packet flatting mode by DIP switching
■ Quiet design with fanless
■ VCCI class B compliant
■ RoHS compliant

Models		ES1008MTP3
Standards		IEEE802.3, IEEE802.3u, IEEE802.3x, IEEE802.3ab
Data Transfer Speed		10/100/1000Mbps
Ethernet Ports		10BASE-T/100BASE-TX/1000BASE-T（Auto MDI/MDI-X function settings）
		8
	Duplex	Full/Half
	Auto Negotiation	Supported
Features	Switching Mode	Store & Forward Method
	Throughput	11.9Mpps(64byte)
	Switching capacity	16Gbps
	Buffer architecture	Dynamically allocated to each port
	Buffer Size	512Kbyte/unit
	MAC Address	4K(self-learning)
	Aging time	300sec
	Flow control	full-duplex IEEE802.3x half-duplex Back pressure
	Others	Jumbo Frame(9,216bytes), EAP/BPDU transparent, dot1q VLAN, QinQ, LACP transparent, HOL blocking prevention, Loop detection (Notify by LED / buzzer sound, Automatic recovery 180 sec, frame interval 1 sec), Packet flatting mode function Private function, reset function) mode
Power supply	Rated input	AC100-240V, 50/60Hz
	Maximum input current	0.08 A
	Maximum power consumption	3.9W
	Maximum calorific value	3.36 Kcal/h

Required Humidity & Temp.	During Operation	0℃～50℃/15%～90% Non-Condensing
	During Non-Operation	–40℃～70℃/90% or less Non-Condensing
	Cooling method	Fan-less
Size		225(W)x70(D)x30(H) mm
Weight		550g
Compatibility		VCCI Class B / RoHS Directive compliance / MTBF 90,250 h
Included items		Main unit, power cable for AC100V, installation guide, Warranty

4.5.2.**ES1008TP**

8-port 10/100/1000 Mbps tap-type Ethernet switch.

Each port supports auto-negotiation, enabling automatic setting of the transfer speed, transfer method, and polarity of each port.

A loop detection/blocking function that can prevent loops is also supported.

Models		ES1008TP
Ethernet Ports		10BASE-T/100BASE-TX/1000BASE-T （Auto MDI/MDI-X function settings）
		8
	Duplex	Full/Half (100BASE-T: Full Only)
	Auto Negotiation	Supported
Function	Flow control	full-duplex IEEE802.3x half-duplex Back pressure
	Buffer Size	128Kbyte/unit
	MAC Address	8K(self-learning)
	Aging time	300sec
	Others	Jumbo Frame (9,216byte), EAP/BPDU transparent, HOL blocking prevention, Loop detection
Power supply	Rated input	AC100-240V, 50/60Hz
	Maximum power consumption	3.5W
Required Humidity & Temp.	During Operation	0℃～50℃/15%～90% Non-Condensing
Size		225(W)x70(D)x30(H) mm
Weight		550g

4.6 Simple Series

4.6.1. NS2020VPEL/NS2028VPEL NEW

10/100/1000BASE-T RJ45 x 20/28 ports SFP combo port x 4 ports Smart switch with PoE function

"NS2020VPEL/NS2028VPEL" has 16/24 PoE ports for 10/100/1000BASE-T,
Smart switch with PoE function with 4 SFP slots.
As an L2 function, it is equipped with a private VLAN function that blocks communication between each port, and as a video data control function, it is equipped with a multicast stream function using IGMP snooping and multicast filtering.
It supports storm control and QoS flow control, and has sufficient functionality as a PoE switch with management functions.
In addition, since it is equipped with a static route function, it is possible to create a configuration in which networks are virtually separated by VLAN.

Features

■ NS2020VPEL is equipped with RJ45 x 20 ports and SFP combo port x 4 ports.
■ NS2028VPEL is equipped with RJ45 x 28 ports and SFP combo port x 4 ports.
■ Supports static routing function
■ Supports jumbo frames (up to 10,000 bytes)
■Supports 8,192 MAC address entries
■Supports WEBGUI management screen operation
■Compatible with IPv6 addresses
■Supports IEEE802.3af/at
■Maximum PoE budget: NS2020VPEL (185W), NS2028VPEL (370W)
■Supports PoE scheduling function
■Supports IEEE802.1q VLAN, port-based VLAN, private VLAN, and dynamic VLAN
■Supports STP (IEEE802.1d standard), RSTP (IEEE802.1w standard), MSTP (IEEE802.1s standard)
■Supports storm control function (Broadcast/Multicast/Unicast)
■MAC-based ACL, supports IPv4/IPv6 ACL
■Equipped with QoS function
■Energy saving IEEE802.3az compliant EEE power management compatible
■RoHS compatible
■Equipped with auto fan function

Models			NS2020VPEL	NS2028VPEL
Port	10/100/1000M RJ45		20port	28port
	10/100/1000M RJ45 or 1G SFP combo port		4 combo ports	4 combo ports
Port settings	Port enable/disable		Supported	
	Auto-MDI/MDIX function		Supported	
	Auto negotiation function		Supported	
	HoL blocking prevention		Supported	
	flow control		Supported	
Standards			IEEE802.3z,IEEE802.3ab,IEEE802.3u, IEEE802.3,IEEE802.3x,IEEE802.1D, IEEE802.1w,IEEE802.1s,IEEE802.1p, IEEE802.1QIEEE802.3ad,IEEE802.1X, IEEE802.1af/at,IEEE802.3az	
Data transfer method			Store & forward method	
Applicable cable		1000BASE-X	MMF / SMF fiber	
		1000BASE-T	Category5e or higher (UTP or STP)	
		100BASE-TX	Category5 or higher (UTP or STP)	
		10BASE-T	Category3 or higher (UTP or STP)	
Transmission distance			up to 100m	
Transmission speed			10/100/1000Mbps	
jumbo frame size			10,000bytes	
total throughput			29.8Mpps(64byte)	41.7Mpps(64byte)
switch fabric			40Gbps	56Gbps
frame buffer			512KB	
MAC addresses			8,192	

PoE function	power supply port	1-16 port	1-24 port
	Maximum power supply capacity	185W	370W
	IEEE802.3af compliant	Support (supplies up to 15.4W per port)	
	IEEE802.3at compliant	Support (supplies up to 30W per port)	
	Power supply PIN assignment	1,2 and 3.6	
L3 function		static route	
loop detection		Shutdown, automatic recovery	
storm control		Support	
rate limit		64*(1-15625) kbps (ingress, egress)	
port trunk (Static/LACP)	Static	8 ports/20 groups	
	LACP	8 ports/28 groups	
VLAN		802.1Q VLAN Tagging,GVRP, Port-based VLAN,Private VLAN, Create multiple uplink ports Isolated,Community.Multi Grouping Protocol-based VLAN,MAC-based VLAN, Voice VLAN	
Traffic priority QoS		CoS/802.1p, DSCP, QoS function, Scheduling sp, wrr, congestion avoidance tail-drop	
Time synchronization		SNTP	
multicast		IGMPv1/v2/v3 (only v3 supported) IGMP Snooping v1/v2/v3 (only v3 supported)	
Security		ACL, IPv6 ACL, DHCP snooping, IPv6 DHCP snooping	
management		Web management	
LED display	PWR	Power ON, normal (green light), power OFF (light off) Reload (blinking green)	

	PoE-MAX (PoE Power MAX)	PoE power consumption is PoE budget Less than 90%: (off) PoE power consumption is PoE budget 90% or more: (lit orange)	
	FAN Error	Normal: (off), Abnormal: (red lit)	
	LOOP	Normal time: (off) LOOP detected on any port: (lit red)	
	LINK/ACK	LED PoE mode: (off) Port-LED indicates port status: (solid green)	
	PoE	LED LINK/ACK Mode: (Off) Port-LED indicates PoE status: (solid green)	
	Port LED (in LINK/ACT mode)	Link not established: (off) 1000Mbps link up: (green light) 10/100Mbps link up: (lit orange)	
	Port LED (in PoE mode)	No power supply, PD not detected: (off) When powered by PoE: (Lights green) PoE error: (lit orange)	
power	Rated input/frequency	AC100-240V, 50/60Hz	
	Maximum input current (at maximum PoE power consumption)	0.29A PoE: 2.31A	0.38A PoE: 4.43A
	Maximum power consumption PoE power supply	229W	442W
	Maximum power consumption when PoE is not used	22.4W	27.3W
	Maximum calorific value	19.26 kcal/h	23.47 kcal/h
energy saving	Energy consumption efficiency (W/Gbit/s)	1.12 W/Gbit/s	0.975 W/Gbit/s
	Division	A	
	Maximum effective transmission speed (Gbit/s)	20 Gbit/s	28 Gbit/s

dimensions	440(W)×250(D)×44(H)mm	
weight	3.7kg	3.96kg
Operating temperature/humidity	0℃～ +50℃ / 10% ～ 90% *No condensation	
Storage temperature/humidity	40℃～ +70℃ / 5% ～ 95% *No condensation	
cooling method	fan cooling	
Compliance EMI	VCCI class A	
reliability	726,937 h	393,369 h
environment	RoHS compliant	
Supplies	Installation Guide & Warranty card *1 PSE Power Cable *1 Rack-mount kits Rubber Feet 4pcs	

4.6.2. NS2010VPEL

Web-based Smart PoE Switch

NS2010VPEL is the web-based Smart PoE Switch which has PoE 8 ports of 10/100/1000BASE-T and 2 slots of 100/1000BASE-X. This PoE switch supports IEEE802.3af/at and can supply 30w per port and is provided with the max 75w budget in entire PoE system.
As it is management L2 switch, NS2010VPEL supports Private-VLAN function to prevent client's communication between each of ports, IGMP Snooping and Multicast-filtering for the control of
streaming data, and then flow-control function of storm-control and QoS function. That proves this PoE switch is the good performance switch as edge-switch.
In addition, NS2010VPEL is designed with fan-less and small-size, that's why this design is in consideration of client's environment and NS2010VPEL is possible to be located on a limiting space of equipment area in office and hotel as so on.

Features

- Implement 10/100/1000BASE-T*8 ports and 100/1000BASE-X*2 slots
- Jumbo frame 10,000bytes
- 8,192 tables of mac-address
- Support WEB/GUI management and in-band management (telnet/SSH/SNMP)
- Support multi management VLAN
- Support dual area of startup-config
- Support dual area of Firmware
- Support IPv6 addressing
- Fan-less design
- Support IEEE802.3af/at
- Max PoE budget 75w
- Support PD scheduling function
- Support IEEE802.1q VLAN, port-based VLAN, private- VLAN, voice- VLAN
- Support STP (IEEE802.1d standard), RSTP (802.1w standard), MSTP (802.1s standard)
- Support storm control (unknown-unicast/broadcast/multicast)
- Support loop-detection function
- Support MAC-based, IPv4/v6-based ACL
- Support CoS/DSCP, 8 que priority and QoS scheduling (SP and WRR)
- Support L2 security function (Mac-address filtering, multicast filtering)
- Support IGMP snooping/MLD snooping for the control of multicast data.

■ Support EEE power-saving management standardized by IEEE802.3az
■ Support RoHS

Models		NS2010VPEL
Standards		IEEE802.3, IEEE802.3u, IEEE802.3ab, IEEE802.3x, IEEE802.1D, IEEE802.1w, IEEE802.1s, IEEE802.1p, IEEE802.1Q, IEEE802.3ad, IEEE802.1X, IEEE802.1af/at, IEEE802.3az, IEEE802.3z
Ethernet Ports		10BASE-T/100BASE-TX/1000BASE-T RJ45×8,
	Speed/Duplex/MDI /MDIX	Supported
	Auto Negotiation	Supported (Transfer speed, Full/Half can be set for each ports)
Applicable Cable		1000BASE-X: MMF / SMF fiber
		1000BASE-T: Category 5e or More (UTP or STP)
		100BASE-TX: Category 5 or More (UTP or STP)
		10BASE-T: Category 3 or More (UTP or STP)
Features	Switching Mode	Store & Forward Method
	Through put	14.9Mpps(64byte)
	Switching capacity	20Gbps
	Buffer Size	512Kbytes
	Flash Memory	Flash: SPI 32MB/RAM:DDR Ⅱ 256MB
	Maximum MAC Address	8,192
	ARP Table	128
	IP Address Table	Up to 500 （IPv6-shared）
	ACL Entries	Up to 150
	Port Function	Port Admin Status Change, Auto-MDI/MDIX, Auto-Negotiation, Speed / Duplex / MDI Fixed, HoL Blocking Prevention, Flow Control(half duplex support, Full duplex IEEE802.3x standard)
	Loop Protection	Shutdown (only port), Auto Recover
	Rate Limit	64*(1-15625) kbps (ingress, egress)
	Spanning Tree	IEEE802.1D STP, IEEE802.1w RSTP, IEEE802.1s MSTP
	Port Trunk (Link Aggregation)	Static: Maximum 8 ports / 4 groups LACP: Maximum 10 ports /4 groups

	VLAN	IEEE802.1Q VLAN Tagging, Port-based VLAN, VLAN(ID1-4094), Private VLAN, Multiple Uplink Port, Isolated, Community, Voice VLAN
	Traffic Priority QoS	CoS/802.1p, DSCP, Priority Queuing 8steps, QoS Scheduling (sp, wrr), Congestion Avoidance (Tall-drop)
	Multicast	IGMP v3, IGMP Snooping v3
	Jumbo Frame Size	10000bytes
Function	Management	Web Management, SNMP(v1/v2c/v3), SNMP over IPv6, Syslog (IPv4/v6), LLDP, Firmware (Update, Multiple Save Area of FW)
	Security	MAC Address Filtering, ACL, IPv6 ACL, DHCP Snooping, IPv6 DHCP Snooping, HTTPS
	Others	DHCP Client, Port Mirroring (1:1, 1: N), Storm Control (Broadcast / Multicast / Unknown Unicast)
PoE Function	PoE Supply Port	PoE+ (30 w)
	Maximum Supply Capacity	75W
	IEEE802.3af standard	15.4W/port (Max)
	IEEE802.3at standard	30W/port (Max)
	Power Supply PIN Assign	1,2 and 3.6
LED	PWR	Power-on (Green Lightning), Reloading (Green Blinking), Power-off (Light off)
	PoE-MAX	PoE power budget achieves the max budget (Amber Lightning) Switch has still spare PoE budget (Light off)

	Port LED (Link/ACT)	1000BASE-T link-up (Green Lighting), 1000BASE-T data transmitting (Green Blinking), 10/100BASE-TX link-up (Amber Lighting) 10/100BASE-T data transmitting (Amber Blinking) No link (Light off)
	SFP Port LED (LINK/ACT)	1000BASE-X link-up (Green Lighting), 1000BASE-X data transmitting (Green Blinking), 100BASE-FX link-up (Amber Lighting) 100BASE-FX data transmitting (Amber Blinking) No link (Light off)
	L/A and PoE mode display	L/A: Green Lighting, PoE: Off This mode shows port status mode *this mode can be shifted to PoE mode L/A: Off, PoE: Green Lighting This mode shows PoE status mode *this mode can be shifted to Port mode
Power	Rated input	AC100-240V, 50/60Hz
	Maximum Input Current (with PoE Function)	0.28A(1.16A)
	Max. Power Consumption (with PoE Function)	114.2W
	Maximum Power Consumption	13.7W
	Maximum Heat Generation	98.2 kcal/h
Energy Conservation Act	Energy Consumption Efficiency（W/Gbit/s）	1.37W/Gbit/s
	Class	A
	Maximum Effective	10Gbit/s

	Energy Conservation Act (Law) Criterial Fail or pass	pass
	Energy Conservation Achievement Rate	234%
Operation Temperature / Humidity		-5℃～+50℃/0%～95%　*Non-condensing
Storage Temperature / Humidity		-20℃～+70℃/0%～95%　*Non-condensing
Cooling System		Fan-less
Dimension (W*D*H)		Device: 280(W) *126(D) *44 (H) mm
		AC adapter :139(W)*58(D)*31(H)
Weight		0.95kg (not include adapter)
Adaptation of EMI		VCCI class A
Adaptation of RoHS		RoHS
Reliability (25℃)		MTBF 835,328 h
Supplies		Installation Guide & Warranty card *1 PSE Power Cable *1 PSU *1 Rack-mount kits Plate*2, Screw*8 Rubber Feet 4pcs

4.6.3. NS1224

NS1224 is an Ethernet switch with 24 ports of 10/100/1000BASE-T.

Can enable / disable the loop detection function / EEE function from the DIP switch.
Furthermore, it is equipped with a notification function that notifies the occurrence of a loop with a beep sound.
A small Ethernet switch that can be installed in a small space Although the NS1224 has a fanless design.

- 24-port 10/100/1000 Mbps Giga Ethernet ports.
- Supports IEEE802.3az compliant EEE power-saving function
- Supports MDI/MDI-X.
- Supports loop detection function and EEE function on / off switching with DIP switch.
- Supports auto-negotiation.
- Beep sound is possible when a loop occurs (Switching by DIP switch).
- Supports with Jumbo frame (Maximum9216 bytes).
- RoHS Compliant.
- Supports entries for 8192 MAC addresses.
- Quiet design with fanless.
- Network loop can be detected By periodic loop detection frame ejection.

Models		NS1224
Standards		IEEE802.3z, IEEE802.3, IEEE802.3u, IEEE802.3ab, IEEE802.3x,IEEE802.3az
Data Transfer Speed		10/100/1000Mbps (CSMA/CD)
Ethernet Ports		10BASE-T/100BASE-TX/1000BASE-T （Auto MDI/MDI-X function settings）
		24
	Duplex	Full/Half
	Auto Negotiation	Supported

Features	Switching Mode	Store & Forward Method
	Throughput	35.7Mpps (64byte)
	Switching capacity	48Gbps
	Flow control	full-duplex IEEE802.3x half-duplex Back pressure
	User configuration	EEE, Loop detection
	Buffer Size	512Kbyte
	MAC Address	8K(Self-learning method)
	Jumbo frame	9,126byte
	Aging time	300sec
	Loop frame	Transmission interval 2sec
	Others	802.1q vlan tag,BPDU,802.1x EAP,LLDP,IPv6 ND/NA
Power supply	Rated input	AC100-240V, 50/60Hz
	Maximum input current	0.28A
	Max. Consumption	16.2W
	Maximum calorific value	13.9Kcal/h
Required Humidity & Temp.	During Operation	0℃～50℃/10%～90% Non-Condensing
	During Non-Operation	-40℃～70℃/5%～ 90% Non- Condensing
Size		280(W)x180(D)x 44 (H) mm
Weight		1.78kg
Compatibility	EMI standard	VCCI class A
Reliability	MTBF	300,000h (25℃ At room temperature)
Power saving		IEEE802.3az, Supports power saving function by EEE
Energy saving	Class	D

Small effective transmission	24Gbit/s
Energy consumption efficiency	0.68W/Gbit/s
achievement rate	155%

4.6.4. NS1216

NS1216 is an Ethernet switch with 16 ports of 10/100/1000BASE-T.

NS1216 is a Gigabit Ethernet switch.
NS1216 has two dip switches for enabling EEE function and loop detection function.
In addition, NS1216 is designed with fan-less and small-size, that's why this design is in consideration of client's environment and NS1216 is possible to be located on a limiting space of equipment area in office and hotel as so on.
It also supports IEEE802.3az compliant EEE power management, and when data is not being sent or received,
Because it is in a power-saving state, the cost can be reduced.

- 10/100/1000BASE-T 16-ports GigabitEthernet ports
- Supports Auto Negotiation(10/100/1000BASE-T, Full/Half Duplex automatic recognition)
- Supports MDI/MDI-X.
- 19-inch Rack-mount Size
- Supports with Jumbo frame (Maximum9216 bytes).
- Supports entries for 8192 MAC addresses.
- Quiet design with fanless.
- Supports loop detection function and EEE function on / off switching with DIP switch.
- Notifies with LED display and beep sound when Loop is detected
- Beep sound can be set ON/OFF by DIP switch.
- RoHS Compliant.

Models		NS1216
Port	10/100/1000M RJ45	16port
Port settings	Port enable/disable	Supported
	Auto-MDI/MDIX	Supported
	Auto negotiation function	Supported
	HoL blocking prevention	Supported
	flow control	Supported

loop detection	beep notification	Supported
standards		IEEE802.3,IEEE802.3u,IEEE802.3ab IEEE802.3x,IEEE802.3az
Access Control Method		CSMA/CD
Transmission Mode		Full/Half
Applicable Cable	1000BASE-T	Category 5e or More (UTP or STP)
	100BASE-TX	Category 5 or More (UTP or STP)
	10BASE-T	Category 3 or More (UTP or STP)
Transmission Distance		Max 100m (UTP)
Transmission Rate		10/100/1000Mbps
Jumbo Frame Size		9126bytes
Through Put		23.8Mpps(64byte)
Switching Fabric		32Gbps
Frame Buffer		512 KB
MAC Address Table		8,192
LED display	PWR	Power-on(Green Lighting) Power-off(Light off)
	Loop (Loop-Detection)	Detect a loop (slow red Blinking) Not detect a loop(Light off)
	Port LED (SPEED)	1000BASE-T link-up(Green Lighting) 100BASE-TX link-up(Orange Blinking) 100/10BASE-T link-up or No link(Light off
	Port LED (LINK/ACT)	1000BASE-T data transmitting(Green Lighting) 10/100BASE-T data transmitting(Orange Blinking) No link(Light off) Blinking at the same time as LOOP LED Green Slow Blinking
Loop Detection mode *1	On (Up) Off (Down)	Enable loop detection *2 Disable loop detection

power	Rated input/frequency	AC100-240V, 50/60Hz
	Maximum input current	0.19 A
	Maximum Power Consumption	10.1 W
	Maximum Heat Generation	8.68 kcal/h
dimensions	215mm(W)×130mm(D)×44mm(H)	
weight		0.95kg
Operating temperature/humidity		5℃～ +50℃ / 10% ～ 95% *No condensation
Storage temperature/humidity		-40℃～ +70℃ / 5% ～ 90% *No condensation
cooling method		fan cooling
Compliance EMI		VCCI class A
reliability		315,290 h
environment		RoHS compliant
Supplies		Installation Guide＆Warranty*1 Power cable for AC100V*1, Rack-mount kits*1, Rubber Feet 4 pcs

*1 : It can switch On/Off at power-off.

*2 : It can disable Beep Notification by shifting the DIP switch of Loop Detection to the Left after power-on.

- Enable Beep : Upper DIP
- Disabling beep sound : DIP lower side

4.6.5. CS1024

CS1024 is an unmanaged Gigabit Ethernet switch with 24 10/100 / 1000BASE-T ports.

Due to its fanless and compact design, it can be installed in limited spaces such as offices and hotels.

- 24-port 10/100/1000 Mbps Giga Ethernet ports.
- Supports MDI/MDI-X.
- Supports auto-negotiation.
- Non-blocking & non-head of line blocking full wire speed forwarding
- Supports with Jumbo frame (Maximum9216 bytes).
- RoHS Compliant.
- Supports entries for 8192 MAC addresses.
- Smart plug and play.

Models		CS1024
Standards		IEEE802.3, IEEE802.3u, IEEE802.3ab, IEEE802.3x,IEEE802.3az
Data Transfer Speed		10/100/1000Mbps (CSMA/CD)
Ethernet Ports		10BASE-T/100BASE-TX/1000BASE-T （Auto MDI/MDI-X function settings）
		24
	Duplex	Full/Half
	Auto Negotiation	Supported

Features	Switching Mode	Store & Forward Method
	Throughput	35.7Mpps (64byte)
	Switching capacity	48Gbps
	Flow control	full-duplex IEEE802.3x half-duplex Back pressure
	Wire Spped	Support
	Buffer Size	4.1Mbyte
	MAC Address	8K(Self-learning method)
	Flash memory	4MB
	Jumbo frame	9,126byte
	Aging time	300sec
	Loop frame	Transmission interval 2sec
	Others	802.1q vlan tag,BPDU,802.1x EAP,LLDP,IPv6 ND/NA
Power supply	Rated input	AC100-240V, 50/60Hz
	Maximum input current	0.7A
	Max. Consumption	15W
	Maximum calorific value	8,169kcal/h
Required Humidity & Temp.	During Operation	0℃～40℃/10%～90% Non-Condensing
	During Non-Operation	-20℃～90℃/5%～90% Non- Condensing
	Cooling method	Fan-less
Size		330 (W)x210(D)x44 (H) mm
Weight		2.1kg
Compatibility	EMI standard	VCCI class A
Reliability	MTBF	335,988h (25℃ At room temperature)
Power saving		IEEE802.3az, Supports power saving function by EEE
Energy saving	Class	D
	Small effective transmission	24Gbit/s
	Energy consumption efficiency	0.63W/Gbit/s

	achievement rate	165%
Dimension		329mm(W) x210mm(D) x 43mm(H)
Weight		2.1kg
Operation Temperature / Humidity		0- + 40 ℃ / 10-90% * No condensation
Storage Temperature / Humidity		-20 ℃ ～ + 90 ℃ / 10% ～ 90% * No condensation
Cooling System		Fan-less
Adaptation of EMI		VCCI class A
Reliability		MTBF 335,988 h (25 ° C normal temperature)
Environment		RoHS
Accessories		Rack-mount kits(Plate*2, Screw*8) Rubber Feet 4 pcs Power Cable Installation Guide＆Warranty card *1

4.6.6. NS105RS

NS105RS is light weight and compact size, making it ideal for installing small spaces such as offices.
These have a loop detection function, even in environments where loops are likely to occur, You can use it with confidence.

- NS105RS comes with 5 RJ45 port 10/100Mbps fast Ethernet ports
- Supports auto-negotiation, and auto MDI/MDI-X.
- FAN-less design.
- LED or Loop detection function of LED and beep sound installed.
- Supports jumbo frames (maximum 9,216 bytes).
- Supports 64,000 MAC address entries.
- Each flow control function provided for IEEE 802.3x (in full duplex) and back pressure (in half duplex).
- Employs lightweight, compact plastic housing. You can set it steadily anywhere with strong magnets
- Transmission of EAP, BPDU, LACP, LLDP, IGMP and tag frames.
- Supports EEE power management compliant with energy-saving IEEE 802.3az.
- compliant with energy-saving IEEE 802.3az.
- VCCI Class B

Models		NS105RS
Standards		IEEE802.3,IEEE802.3u,IEEE802.3x、IEEE802.3azIEEE802.3x,IEEE802.3az
Data Transfer Speed		10/100/1000Mbps (CSMA/CD)
Ethernet Ports		10/100M RJ45×5 MDI/MDI-X auto switch
	Duplex	Full/Half
	Auto Negotiation	Supported

Features	Switching Mode	Store & Forward Method
	Throughput	0.74Mpps(64byte)
	Switching capacity	1.0Gbps
	Flow control	full-duplex IEEE802.3x half-duplex Back pressure
	Buffer Size	128Kbyte
	MAC Address	2,112(Max)
	Flash memory	2MBytes
	Jumbo frame	9,216byte
	Loop Detection	LED and Beep
LED	PWR	Power On (Steady Green), Power Off or Abnormal (Off) Loop detect (Blinking Red slowly)
	Link/Act	Valid connection (Steady Green), Traffic is transmitting and receiving (Blink Green fast) Loop detect (Blink Green slowly and sync power red LED),
Slide Switch	Loop Detection ON/OFF	LED and Beep
	Switch	Loop Detection by LED/OFF
Power supply	Rated input	AC100-240V, 50/60Hz
	Max. Input	0.5A
	Max. Consumption	1.7W
Cooling system		natural cooling (fanless)
Required Humidity & Temp.	During Operation	0℃～50℃/10%～90% *Non-Condensing
	During Non-Operation	-20℃～70℃/5%～90% *Non- Condensing
Size		192(W)x83(D)x35(H) mm
Weight		227g
Accessories		AC100V power cable, Wall mounting kit (screws x 2) Installation Guide&Warranty card *1 Power cable disconnection prevention holder

5. wireless

5.1. AccessEdge series

5.1.1. AE5411PA NEW

The AE5411PA is a wireless LAN router for offices that supports IEEE802.11b/g/n in the 2.4GHz band and IEEE802.11a/n/ac in the 5GHz band, and supports PoE power reception/AC adapter as a power supply method.

■ Wireless access point compliant with wireless LAN standard 802.11a/b/g/n/ac
■ Switchable between access point mode and router mode (Factory setting is access point mode)
■ Establish a wireless access point that bridges wireless LAN and wired LAN to each other

■ 2.4GHz and 5GHz can be used simultaneously

■ The wireless band is 2T2R connected to the ISM band 2.4GHz band and 5GHz band respectively, supporting a maximum of 300Mbps in the 2.4GHz band and a maximum of 867Mbps in the 5GHz band.

■ Supports beamforming function to improve signal strength

■ Band steering feature automatically switches to available 5GHz and 2.4GHz bands for better performance

■ Up to 8 SSIDs (4 for 2.4GHz band, 4 for 5GHz band) can be registered

■ Unique SSID name, key defaults

■ Both wired LAN/WAN ports support 10/100/1000BASE-T

■ Wired LAN/WAN port supports auto-negotiation and auto-MDI/MDI-X functions

■ Power supply method is IEEE802.3af power reception or optional AC adapter compatible

■ Supports High Speed NAT/DFS/TPC

■ 8 SSIDs and front LAN ports support tagged VLAN of IEEE802.1Q

■ Enable/disable power button operation can be changed flexibly

■ Equipped with WPS function, wireless LAN connection is also simplified

■ Equipped with a function to separate communication between wired LAN and SSID, between each SSID, and between terminals with the same SSID.

■System log, client connection information, signal strength, and amount of packets sent and received can be viewed from the management screen.

■Access control to the management screen from each of the front LAN port and wireless terminals is possible.

■WMM function supports video and video information

■Management via network is possible by SNMP (v1) correspondence

■Supports IEEE802.1X authentication by RADIUS server

■Wireless bridge function, emergency mode support (v1.21 or later)

Models	AE5411PA
Standards	IEEE802.11a/b/g/n/ac
radio band	2.4GHz、 5 GHz
Transmission speed	2.4GHz/5GHz 300Mbps (11n) 5GHz 867Mbps (11ac)
data transfer rate	IEEE802.11n: Max 300Mbps IEEE802.11g: Max 54Mbps IEEE802.11b: Max 11Mbps IEEE802.11a: Max 54Mbps IEEE802.11ac: Max 867Mbps
frequency band	2.412 ~ 2.472GHz (11b,11g,11n) 5.15 ～ 5.25GHz ／ 5.47 ～ 5.725GHz(11a, 11ac, 11n)
Modulation method	OFDM ： BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM
	DSSS ： DBPSK, DQPSK, CCK HT mixed / HT greenfield
channel	1 ~ 13ch, 36 ~ 48ch, 100ch ~ 140ch
channel bandwidth **Channel setting**	20MHz or 40MHz or 80MHz Automatic setting possible (channel change during interference)
Transmission output (at 100% output)	802.11n ： MCS 0-1 14dBm MCS 2-3 13dBm MCS 4-5 12dBm MCS 6-7 11dBm
	802.11g ： 6Mbps - 9Mbps 14dBm 12Mbps -18Mbps 13dBm 24Mbps - 36Mbps 12dBm 48Mbps - 54Mbps 11dBm
	802.11b ： 1Mbps - 11Mbps 15dBm

		802.11a：6Mbps - 9Mbps 13dBm 12Mbps -18Mbps 12dBm 24Mbps - 36Mbps 11dBm 48Mbps - 54Mbps 11dBm
		802.11n：MCS 0-1 13dBm MCS 2-3 12dBm MCS 4-5 11dBm MCS 6-7 11dBm
		802.11ac VHT80：MCS 0-2 12dBm MCS 3-7 11dBm MCS 8-9 10dBm
Receiver sensitivity		802.11n：HT40_MSC0@-83 dBm 802.11g：-69dBm@54Mbps 802.11b：-78dBm@11Mbps
action mode		Access point / router
SSID		SSIDs x 8 (2.4GHz x 4 + 5GHz x 4
Function/ Management	Encryption mode	WEP 64/128bit、WPA / WPA2:TKIP / AES 802.1X(Authentication RADIUS serve)
	WPS	Push button only, power button combined 2.4GHz (default) 5GHz (switch via web interface)
	Maximum number of	60 units (2.4G+5G)
LAN port	standard	IEEE802.3, IEEE802.3u, IEEE802.3ab
	connector shape	RJ-45 x2 - WAN (IEEE802.3af PD support) - LAN
	faction	Auto MDI/MDI-X
	Ethernet	10/100/1000Mbps
	cable	10BASE-T UTP category 3 or higher 100BASE-TX UTP category 5 or higher 1000BASE-T UTP category 5e or higher
button	Power/WPS button	Power off/on • WPS

	Reset button	Initialize settings
LED	Status LED	Startup (green light), power off (light off), booting (green flashing), WPS in operation (blinking orange), factory reset (blinking red → off) Updating F/W (red-green-orange rotation)
	2.4G	2.4GHz enabled (orange lit), client connection communicating (orange flashing) 2.4GHz disabled (off)
	5G	5GHz enabled (lights blue), communicating with client (blinks blue) 5GHz disabled (off)
Environmental condition	operating temperature	With PoE: -10 °C to 55 °C When using AC adapter: -10°C to 50°C
	storage temperature	-25°C ～ 60°C
	operating temperature	10%~90% *No condensation
	storage temperature	5%~95% *No condensation
power	Rated input	57 VDC Isolation DC 12V
Maximum power consumption		5.1 W
size		168mm (H) x 117mm (W) x33(D) mm
weight		250g
compatibility	**EMI standards**	VCCI Class B、TELEC
	environment	RoHS compliant
	reliability	844,703h (25°C room temperature)
Items		Installation Guide & Warranty card *1 wall hanging screws *2 anchor pin *2

This product has been developed with the assumption that it will be used in Japan.
The shape complies with Japanese JIS standards, the power supply supports AC100V,
and it does not comply with international certifications and standards (FCC, etc.) except for the wireless LAN part such as IEEE802.3ac.

5.2. 2.AE1021

Embedded in standard information outlets in homes, offices, conference rooms, hospital rooms, public facilities, etc. Creates a clean, space-saving and comfortable wireless LAN environment in terms of interior design.
This is an information outlet type wireless LAN router. There is a wired LAN RJ-45 on the front of the main unit.It is also equipped with an RJ-11 interface for connecting to a telephone line.Two types of power reception methods are available: AC power type using VVF cable and PoE power reception type.You can choose one according to your installation environment.

- Wireless access point compliant with wireless LAN standards 802.11a/b/g/n/ac
- Supports multiple SSIDs (up to 4 can be configured)
- SSID broadcast control possible
- Auto rate (fallback) and auto channel support
- Supports WEP 64/128bit/WPA/WPA2:TKIP/AES
- Supports MAC address filtering function
- Supports AC power reception via VVF cable
- Supports QoS
- VLAN support
- Equipped with power ON/OFF switch
- Schedule function allows you to reset and schedule wireless services
- It is possible to limit the number of connected devices by SSID.

Models	AE1021
Standards	IEEE802.11b/g/n
data transfer rate	IEEE802.11n: Max 150Mbps IEEE802.11g: Max 54Mbps IEEE802.11b: Max 11Mbps
frequency band	2.412～2.472GHz(11g、11b、11n)
Modulation method	OFDM：BPSK, QPSK, 16-QAM, 64-QAM
	DSSS：DBPSK, DQPSK, CCK
channel	1 ~ 13ch

channel bandwidth **Channel setting**		Automatic (20MHz or 40MHz) (channel bonding support) Automatic (channel interference check once a day) Channel change when interference occurs
Transmission output (at 100% output)		13dBm 10mW/MHz or less
Receiver sensitivity		802.11n : -79 dBm 802.11g : -68 dBm 802.11b : -76 dBm
sending rate		11b/g/n mixed
Specifications/antenna		Built-in PCB antenna * 1
action mode		Access point / router
SSID		4 pieces SSID1 (WPA/WPA2) mixed (AES/TKIP) Key length 12 digits *Key should be MAC address SSID2(WEP)Key length 10 digits *Key should be the last 10 digits of the MAC address. SSID3 Not registered SSID4 Not registered
LAN port	standard	IEEE802.3, IEEE802.3u, IEEE802.3ab
	LAN interface	RJ-45*1 top surface RJ-45*1 Front (with dust cap)
	Auto MDI/ MDI-X	RJ-45*2
	Support band	LAN supports 10/100/1000Mbps
TEL port	interface	RJ-11×1 top surface RJ-11×1 Front (with dust cap)
cable		10BASE-T UTP category 3 100BASE-TX UTP category 5 1000BASE-T UTP category 5e
Function/ Management	Security	WEP 64/128bit, WPA/WPA2:TKIP/AES, access control, MAC address filtering, IP address filtering, URL blocking, DoS protection, firewall
	Management	Web GUI, local system/security/wireless access log display, remote management, LED management, schedule function, backup/restore settings, FW upgrade, Factory Default, setup tool, NTP

	others	Client connection list reference, PPPoE, IPv6Bridge, packet statistics display, device status display, DMZ, ALG, DDNS, QoS(WMM), NAT, UPnP, reboot function, DHCP server
button	power switch	Power ON/OFF with front button
	Factory state/ default switch	Return to factory default by holding down the default switch for 10 seconds (Factory default)
LED		Main unit: PWR (green), Wireless: Flashing green (during transmission/reception), off (when stopped or disabled) RJ45 port: (green/1000M), (orange 10/100M), blinking (transmitting/receiving)
Cooling system		natural air cooling
Environmental condition	Operating Temperature /Humidity	0°C~40°C / 0%~90% *No condensation
	Storage Temperature /Humidity	-10°C~60°C / 0%~90% *No condensation
Maximum power consumption		4.2W
size		Panel frame 28(W)×48(D)×68.7(H)mm
weight		90g
Material		PC945 (Flame retardant UL94V-0 compliant)
compatibility	**EMI standards**	VCCI Class B、TELEC
	environment	RoHS compliant
	reliability	133,276h (25°C room temperature)

Items		Installation Guide & Warranty card *1 Dust cap RJ45 *1 (installed on the main unit at the time of shipment), Dust cap RJ11 * 1 (installed on the main unit at the time of shipment), Insulation tube for VVF cable

This product has been developed with the assumption that it will be used in Japan.
The shape complies with Japanese JIS standards, the power supply supports AC100V,
and it does not comply with international certifications and standards (FCC, etc.) except for the wireless LAN part such as IEEE802.3ac.

6. Accessory

6.1. PEX3001bt NEW

PEX3001bt is a 10G compatible PoE injector that can supply up to 90W of power in compliance with the IEEE802.3af / at / bt standard. By using this product, it is possible to install PoE compatible devices in places where it is difficult to secure a power source while minimizing the impact of existing network configurations and costs. In addition, it supports a wide range of operating temperatures from -20 ° C to 50 ° C, making it suitable for use in harsh environments such as factories and warehouses where the temperature is high.
High power consumption PoE ++ IP cameras, wireless access points, etc. can be easily added at low cost.

- ■Supports IEEE802.3af / at / bt devices.
- ■Supports 10/100/1000Mbps , 2.5/5/10Gbps Ethernet.
- ■Supports power supply up to 90W
- ■Wall installation possible
- ■Overvoltage protection function (OVP) / overcurrent protection function (OCP) / short circuit protection function (SCP) compatible
- ■MTBF over 200,000 hours in a 45 ℃ environment
- ■Surge protection device

Models		PEX3001bt
Port		LAN port*1 PoE port*1
Ethernet specifications	10GBASE-T	IEEE802.3an
	2.5G /5GBASE-T	IEEE 802.3bz
	1000BASE-T	IEEE802.3ab

	100BASE-TX	IEEE802.3u
	10BASE-T	IEEE802.3
	PoE function	EEE802.3af/at/bt Compliant
PoE port power supply specifications (Type4 / Class8 PSE)		Power supply voltage: DC53~57V Maximum power supply current: DC1.7A Maximum power supply: 90W Power supply method: Alternative A (MDI-X) [1-2 minus, 3-6 plus] Alternative A (MDI-X) & Alternative B(S) [4-5 plus,7-8 minus]
Applicable cable	10GBASE-T	Category 6A or More
	5GBASE-T	Category 6 or More
	2.5GBASE-T	Category 5e or More
	1000BASE-T	Category 5e or More
	100BASE-TX	Category 5 or More
	10BASE-T	Category 3 or More
	PoE/PoE+/PoE++	Category 5e or More
Connecter		RJ-45 type 8-pole connector
Maximum transmission distance		100m (LAN port transmission distance + PoE port transmission distance)

*Please be sure to use an 8-pin LAN cable.

*When introducing this device between the switch product and the power receiving device, be sure to connect the switch product and the power receiving device.Please keep the total distance between them within 100m.

Power related

AC input	AC inlet standard	IEC320-C6
	Input voltage range	AC90~264V
	Rated input voltage	AC100~240V
	frequency	50/60Hz
	Maximum input current	AC1.2A
	Maximum input	105W
Maximum power consumption		15W
Maximum calorific value		13kcal/h

General specifications	Size	150mm（W）× 65mm（D）×33.4mm（H）
	Weight	355g
	Operating temperature / humidity	-20℃ ~50℃ /5%~90% *No condensation
	Storage temperature / humidity	30℃ ~80℃ /5%~95% *No condensation
	reliability	MTBF 440,322h (45℃)
	EMI	VCCI class A
	Cooling system	Fan-less
	Items	Installation Guide & Warranty card *1 Power cable (1m) x 1

6.2. PE1001at

PE1001at supports 10BASE-T (IEEE802.3), 100BASE-TX (IEEE802.3u), 1000BASE-T(IEEE802.3ab) and has a maximum power supply of 30W that complies with the IEEE802.3at standard PoE injector. This product supplies power to PoE-enabled devices via an Ethernet cable and connects them to nearby devices. You can easily install PoE-compatible powered devices even in places where there is no electricity. Wherever you want to supply power with a small port instead of a PoE switch with multiple ports I want to connect a wireless LAN access point or IP camera to the network as is. Ideal for.

- Compliant with IEEE802.3at/af and can supply up to 30W.
- 10/100/1000BASE-T support.
- Compact size for existing networks Easy to install
- Power supply uses B method (pins 4, 5, 7, 8)
- Can be installed on the wall using the included screws
- VCCI class B compatible
- Compatible with environmental temperature of 50 degrees

Models		PE1001at
Port		data input port*1 PoE port*1
	1000BASE-T 100BASE-TX 10BASE-T	IEEE802.3ab IEEE802.3u IEEE802.3
	PoE function	IEEE802.3at compliant IEEE802.3af compliant
PoE power supply method		TypeB (power is supplied along with data from pins 4, 5, 7, and 8)
Applicable cable	1000BASE-T	Category5e or higher (UTP or STP)
	100BASE-TX	Category5 or higher (UTP or STP)
	10BASE-T	Category3 or higher (UTP or STP)

Connecter	RJ-45 type 8-pole connector

*Please be sure to use an 8-pin LAN cable.
*When introducing this device between the switch product and the power receiving device, be sure to connect the switch product and the power receiving device.Please keep the total distance between them within 100m.

Power related

AC input	AC inlet standard	IEC320-C14
	Input voltage range	AC100-240V
	Rated input voltage	AC90-264V
	frequency	50/60Hz
PoE supply capacity	output voltage	44~56V
	Maximum input	0.625A
	load current	35W
Maximum power consumption		36.9W
Maximum calorific value		31.7kcal/h

Environment, compatibility, included items

General specifications	Size	125mm（W）× 72mm（D）×38mm（H）
	Weight	240g
	Operating temperature / humidity	-25℃～50℃/ 5%～90% *No condensation
	Storage temperature / humidity	-40℃～85℃/ 5%～90% *No condensation
	reliability	MTBF 66,091 h (40℃)
	EMI	VCCI class A
	Cooling system	Fan-less
	environment	RoHS compliant
	Items	Installation Guide & Warranty card *1 Power cable (1m) x 1 Wall mounting screws (3 x 20mm) * 4

7. Options

7.1 SFP+ Direct Attach Cable

10G SFP＋ Direct Attach Cable

Models	product description	Notes
SFP+10G-CU1M	SFP+ Direct Attach Cable 1m	
SFP+10G-CU3M	SFP+ Direct Attach Cable 3m	

Please contact sales regarding FXC9432/FXC6552 compatibility.

10G SFP＋ Direct Attach Cable (DAC)

Models	product description	Notes
FXC9432-10G-CU1M	SFP+ Direct Attach Cable 1m	

Please contact sales regarding FXC9432/FXC6552 compatibility.

40G stack Cable

Models	product description	Notes
OPT-STCB02	40GBASE-SR4 QSFP+ Active Optical Cable 1m	

8. SFP+/SFP Module (MSA compliant)

8.1. 40G QSFP+ Module MPO connector

Models	product description	Notes
QSFP-40G-SR4	40GBASE-SR4 Compatible optical fiber: MMF Transmission distance (standard): OM3:100m OM4:150m Acceptable loss: 1.9 dB Operating temperature: 0℃～70℃ QSFP+ Module	

8.2. 25G SFP28 Module Two-core LC connector

Models	product description	Notes
SFP28-25G-SR	25GBASE-SR Compatible optical fiber: MMF LC Transmission distance (standard): OM3: 70m OM4: 100m Acceptable loss: 0.6 dB Operating temperature: 0℃～70℃ SFP28 Module	

8.3. 10G SFP+ Module Two-core LC connector

Models	product description	Notes
iSFP+10G-SR	10GBASE-SR, Compatible optical fiber: MMF LC Transmission distance (standard): 33m-400m Operating temperature:- -40℃～85℃,SFP+ Module	
iSFP+10G-LR	10GBASE-LR, Compatible optical fiber: SMF LC Transmission distance (standard): 10km Operating temperature:- -40℃～85℃,SFP+ Module	

8.4. 10G SFP+ Module RJ45 Connector

Models	product description	Notes
SFP+10G-T	10GBASE-T (RJ45 connector) Copper, Operating temperature:-10℃～70℃,SFP+ Module, Category 6A/7 max.30m	Only for Switch

Please contact our sales department regarding installation on FXC9432/FXC6552.

8.5.10G SFP+ Module Two- core LC connector

Models	product description	Notes
SFP+10G-SR	10GBASE-SR 850nm Compatible optical fiber: MMF LC Transmission distance (standard):2m～300m Acceptable loss: 2.6dB Operating temperature: 0℃～70℃ SFP+ Module	

SFP+10G-LRM	10GBASE-LRM 1310nm Compatible optical fiber: MMF LC Transmission distance (standard):2m～220m Acceptable loss: 3.5dB Operating temperature: 0℃～70℃ SFP+ Module	
SFP+10G-LR	10GBASE-LR 1310nm Compatible optical fiber: SMF LC Transmission distance (standard):2m～10km Acceptable loss: 6.2dB Operating temperature: 0℃～70℃ SFP+ Module	
SFP+10G-ER	10GBASE-ER 1550nm Compatible optical fiber: SMF LC Transmission distance (standard):Up to 40km Acceptable loss: 11.1dB Operating temperature: 0℃～70℃ SFP+ Module	
SFP+10G-ZR	10GBASE-ZR 1550nm Compatible optical fiber: SMF LC Transmission distance (standard):Up to 80km Acceptable loss: 23dB Operating temperature: 0℃～70℃ SFP+ Module	
SFP+10G-ZR-E	10GBASE-ZR 1550nm Compatible optical fiber: SMF LC Transmission distance (standard):Up to 80km Acceptable loss: 26dB Operating temperature: 0℃～70℃ SFP+ Module	

8.6. 10G SFP+ Module Single core LC connector

Models	product description	Notes
SFP+SLX20A	10G 1270nmTx/1330nmRx Optical fiber: SMF LC Transmission distance (standard): Up to 20Km Acceptable loss: 12dB Operating temperature: 0℃～70℃ Bidi SFP+ Module	A/B
SFP+SLX20B	10G 1330nmTx/1270nmRx Optical fiber: SMF LC Transmission distance (standard): Up to 20Km Acceptable loss: 12dB, Operating temperature: 0℃～70℃ Bidi SFP+ Module	A/B
SFP+SLX40A	10G 1270nmTx/1330nmRx Optical fiber: SMF LC Transmission distance (standard): Up to 40Km Acceptable loss: 16dB Operating temperature: 0℃～70℃ Bidi SFP+ Module	A/B
SFP+SLX40B	10G 1330nmTx/1270nmRx Optical fiber: SMF LC Transmission distance (standard): Up to 40Km Acceptable loss: 16dB Operating temperature: 0℃～70℃ Bidi SFP+ Module	A/B

SFP+SLX60A	1270nmTx/1330nmRx Optical fiber: SMF LC Transmission distance (standard): Up to 60Km Acceptable loss: 21dB, Operating temperature: 0℃～70℃ Bidi SFP+ Module	A/B
SFP+SLX60B	10G 1330nmTx/1270nmRx Optical fiber: SMF LC Transmission distance (standard): Up to 60Km Acceptable loss: 21dB Operating temperature: 0℃～70℃ Bidi SFP+ Module	A/B
SFP+SLX80A	10G 1490nmTx/1550nmRx Optical fiber: SMF LC Transmission distance (standard): Up to 80Km Acceptable loss: 19dB Operating temperature: 0℃～70℃ Bidi SFP+ Module	A/B
SFP+SLX80B	10G 1550nmTx/1490nmRx Optical fiber: SMF LC Transmission distance (standard): Up to 80Km Acceptable loss: 19dB Operating temperature: 0℃～70℃ Bidi SFP+ Module	A/B

8.7. Giga SFP Module Copper Transceiver

Models	product description	Notes
MGB-T	1000BASE-T RJ45 Operating temperature: 0℃～70℃ SFP Module	Only for Switch

8.8. Giga SFP Module Two-core

Models	product description	Notes
MGB-SX	1000BASE-SX 850nm Optical fiber: MMF LC Transmission distance (standard): 2m~550m Acceptable loss: 7.5dB Operating temperature: -40℃～85℃ SFP Module	
MGB-SX02	1000BASE-SX2 1310nm Optical fiber: MMF LC Transmission distance (standard): 2m~2km Acceptable loss:12dB Operating temperature: 0℃～70℃ SFP	
MGB-LX	1000BASE-LX Optical fiber: SMF/MMF LC Transmission distance (standard): 2m~15km (SMF) 2m~550m(MMF) Acceptable loss: 10.5dB Operating temperature: -40℃～85℃ SFP Module	
MGB-ZX	1000BASE-ZX Optical fiber: SMF LC Transmission distance (standard): Up to 70km Acceptable loss: 24dB Operating temperature: 0℃～70℃ SFP Module	

8.9. Giga SFP Module Single core LC connector

Models	product description	Notes
MGB-SSXA	1000BASE-SX 1310nmTx/1550nmRx Optical fiber: MMF LC Transmission distance (standard): 2m～550m Acceptable loss: 11.5dB Operating temperature: 0℃～70℃ Bidi SFP Module	A/B
MGB-SSXB	1000BASE-SX 1550nm/1310nmRx Optical fiber: MMF LC Transmission distance (standard): 2m～550m Acceptable loss: 11.5dB Operating temperature: 0℃～70℃ Bidi SFP Module	A/B
MGB-SLX10A	1000BASE-LX 1310nmTx/1550nmRx Optical fiber: SMF LC Transmission distance (standard): 2m～10km Acceptable loss: 11.5dB Operating temperature: 0℃～70℃ Bidi SFP Module	A/B
MGB-SLX10B	1000BASE-LX 1550nmTx/1310nmRx Optical fiber: SMF LC Transmission distance (standard): 2m～10km Acceptable loss: 11.5dB Operating temperature: 0℃～70℃ Bidi SFP Module	A/B
MGB-SLX20A	1000BASE-LX 1310nmTx/1550nmRx Optical fiber: SMF LC Transmission distance (standard): 2m～20km Acceptable loss: 14dB Operating temperature: 0℃～70℃ Bidi SFP Module	A/B
MGB-SLX20B	1000BASE-LX 1550nmTx/1310nmRx Optical fiber: SMF LC Transmission distance (standard): 2m～20km Acceptable loss: 14dB Operating temperature: 0℃～70℃ Bidi SFP Module	A/B
MGB-SLX40A	1000BASE-LX 1310nmTx/1550nmRx Optical fiber: SMF LC Transmission distance (standard): Up to 40km Acceptable loss: 20dB Operating temperature: 0℃～70℃ Bidi SFP Module	A/B
MGB-SLX40B	1000BASE-LX 1550nmTx/1310nmRx Optical fiber: SMF LC Transmission distance (standard): Up to 40km Acceptable loss: 18dB Operating temperature: 0℃～70℃ Bidi SFP Module	A/B
MGB-SLX60A	1000BASE-LX 1310nmTx/1550nmRx Optical fiber: SMF LC Transmission distance (standard): Up to 60km Acceptable loss: 24dB Operating temperature: 0℃～70℃ Bidi SFP Module	A/B

MGB-SLX60B	1000BASE-LX 1550nmTx/1310nmRx Optical fiber: SMF LC Transmission distance (standard): Up to 60km Acceptable loss: 22dB Operating temperature: 0℃～70℃ Bidi SFP Module	A/B
MGB-SLX80A	1000BASE-LX 1510nmTx/1570nmRx Optical fiber: SMF LC Transmission distance (standard): Up to 80km Acceptable loss: 26dB Operating temperature: 0℃～70℃ Bidi SFP Module	A/B
MGB-SLX80B	1000BASE-LX 1570nmTx/1510nmRx Optical fiber: SMF LC Transmission distance (standard): Up to 80km Acceptable loss: 26dB Operating temperature: 0℃～70℃ Bidi SFP Module	A/B
MGB-SLX120A	1000BASE-LX 1510nmTx/1570nmRx Optical fiber: SMF LC Transmission distance (standard): Up to 120km Acceptable loss: 34dB Operating temperature: 0℃～70℃ Bidi SFP Module	A/B
MGB-SLX120B	1000BASE-LX 1570nmTx/1510nmRx Optical fiber: SMF LC Transmission distance (standard): Up to 120km Acceptable loss: 34dB Operating temperature: 0℃～70℃ Bidi SFP Module	A/B

8.10. Giga SFP Module Single core SC connector

Models	product description	Notes
MGB-SSXA-SC	1000BASE-SX 1310nmTx/1550nmRx Optical fiber: MMF SC Transmission distance (standard): 2m ～ 550m Acceptable loss: 11.5dB Operating temperature: 0℃～70℃ Bidi SFP Module	A/B
MGB-SSXB-SC	1000BASE-SX 1550nmTx/1310nmRx Optical fiber: MMF SC Transmission distance (standard): 2m ～ 550m Acceptable loss: 11.5dB Operating temperature: 0℃～70℃ Bidi SFP Module	A/B
MGB-SLX10A-SC	1000BASE-LX 1310nmTx/1550nmRx Optical fiber: SMF SC Transmission distance (standard): 2m ～10km Acceptable loss: 11.5dB Operating temperature: 0℃～70℃ Bidi SFP Module	A/B
MGB-SLX10B-SC	1000BASE-LX 1550nmTx/1310nmRx Optical fiber: SMF SC Transmission distance (standard): 2m ～10km Acceptable loss: 11.5dB Operating temperature: 0℃～70℃ Bidi SFP Module	A/B
MGB-SLX20A-SC	1000BASE-LX 1310nmTx/1550nmRx Optical fiber: SMF SC Transmission distance (standard): 2m ～ 20km Acceptable loss: 14dB Operating temperature: 0℃～70℃ Bidi SFP Module	A/B
MGB-SLX20B-SC	1000BASE-LX 1550nmTx/1310nmRx Optical fiber: SMF SC Transmission distance (standard): 2m ～20km Acceptable loss: 14dB Operating temperature: 0℃～70℃ Bidi SFP Module	A/B
MGB-SLX40A-SC	1000BASE-LX 1310nmTx/1550nmRx Optical fiber: SMF SC Transmission distance (standard): Up to 40km Acceptable loss: 20dB Operating temperature: 0℃～70℃ Bidi SFP Module	A/B
MGB-SLX40B-SC	1000BASE-LX 1550nmTx/1310nmRx Optical fiber: SMF SC Transmission distance (standard): Up to 40km Acceptable loss: 18dB Operating temperature: 0℃～70℃ Bidi SFP Module	A/B
MGB-SLX60A-SC	1000BASE-LX 1310nmTx/1550nmRx Optical fiber: SMF SC Transmission distance (standard): Up to 60km Acceptable loss: 24dB Operating temperature: 0℃～70℃ Bidi SFP Module	A/B
MGB-SLX60B-SC	1000BASE-LX 1550nmTx/1310nmRx Optical fiber: SMF SC Transmission distance (standard): Up to 60km Acceptable loss: 22dB Operating temperature: 0℃～70℃ Bidi SFP Module	A/B

MGB-SLX80A-SC	1000BASE-LX 1510nmTx/1570nmRx Optical fiber: SMF SC Transmission distance (standard): Up to 80km Acceptable loss: 26dB Operating temperature: 0℃～70℃ Bidi SFP Module	A/B
MGB-SLX80B-SC	1000BASE-LX 1570nmTx/1510nmRx Optical fiber: SMF SC Transmission distance (standard): Up to 80km Acceptable loss: 26dB Operating temperature: 0℃～70℃ Bidi SFP Module	A/B
MGB-SLX120A-SC	1000BASE-LX 1510nmTx/1570nmRx Optical fiber: SMF SC Transmission distance (standard): Up to 120km Acceptable loss: 34dB Operating temperature: 0℃～70℃ Bidi SFP Module	A/B
MGB-SLX120B-SC	100/1000BASE-LX 1570nmTx/1510nmRx Optical fiber: SMF SC Transmission distance (standard): Up to 120km Acceptable loss: 34dB Operating temperature: 0℃～70℃ Bidi SFP Module	A/B

8.11. 1000BASE-BX SFP Module Single core LC connector

Models	product description	Notes
MGB-BX10A	1000BASE-BX-U 1310nmTx/1490nmRx Optical fiber：SMF LC Transmission distance （standard）：2m～10km acceptable loss：13dB operating temperature: -40～+85℃ Bidi SFP Module	A/B
MGB-BX10B	1000BASE-BX-D 1490nmTx/1310nmRx Optical fiber：SMF LC Transmission distance （standard）：2m～10km acceptable loss：13dB operating temperature: -40～+85℃ Bidi SFP Module	A/B
MGB-BX20A	1000BASE-BX-U 1310nmTx/1490nmRx Optical fiber：SMF LC Transmission distance （standard）：2m～20km acceptable loss：14dB operating temperature: -40～+85℃ Bidi SFP Module	A/B
MGB-BX20B	1000BASE-BX-D 1490nmTx/1310nmRx Optical fiber：SMF LC Transmission distance （standard）：2m～20km acceptable loss：14dB operating temperature: -40～+85℃ Bidi SFP Module	A/B
MGB-BX40A	1000BASE-BX-U 1310nmTx/1490nmRx Optical fiber：SMF LC Transmission distance （standard）：Up to 40km acceptable loss：19dB operating temperature: -40～+85℃ Bidi SFP Module	A/B
MGB-BX40B	1000BASE-BX-D 1490nmTx/1310nmRx Optical fiber：SMF LC Transmission distance （standard）：Up to 40km acceptable loss：19dB operating temperature: -40～+85℃ Bidi SFP Module	A/B
MGB-BX60A	1000BASE-BX-U 1310nmTx/1490nmRx Optical fiber：SMF LC Transmission distance （standard）：Up to 60km acceptable loss：27dB operating temperature: -40～+85℃ Bidi SFP Module	A/B
MGB-BX60B	1000BASE-BX-D 1490nmTx/1310nmRx Optical fiber：SMF LC Transmission distance （standard）：Up to 60km acceptable loss：27dB operating temperature: -40～+85℃ Bidi SFP Module	A/B

8.12. 1000BASE-BX SFP Module Single core SC connector (BTO)

Models	product description	Notes
MGB-BX10A-SC	1000BASE-BX-U 1310nmTx/1490nmRx Optical fiber：SMF SC Transmission distance（standard）：2m～10km acceptable loss：13dB operating temperature: -40～+85℃ Bidi SFP Module	A/B
MGB-BX10B-SC	1000BASE-BX-D 1490nmTx/1310nmRx Optical fiber：SMF SC Transmission distance（standard）：2m～10km acceptable loss：13dB operating temperature: -40～+85℃ Bidi SFP Module	A/B
MGB-BX20A-SC	1000BASE-BX-U 1310nmTx/1490nmRx Optical fiber：SMF SC Transmission distance（standard）：2m～20km acceptable loss：14dB operating temperature: -40～+85℃ Bidi SFP Module	A/B
MGB-BX20B-SC	1000BASE-BX-D 1490nmTx/1310nmRx Optical fiber：SMF SC Transmission distance（standard）：2m～20km acceptable loss：14dB operating temperature: -40～+85℃ Bidi SFP Module	A/B
MGB-BX40A-SC	1000BASE-BX-U 1310nmTx/1490nmRx Optical fiber：SMF SC Transmission distance（standard）：Up to 40km acceptable loss：19dB operating temperature: -40～+85℃ Bidi SFP Module	A/B
MGB-BX40B-SC	1000BASE-BX-D 1490nmTx/1310nmRx Optical fiber：SMF SC Transmission distance（standard）：Up to 40km acceptable loss：19dB operating temperature: -40～+85℃ Bidi SFP Module	A/B
MGB-BX60A-SC	1000BASE-BX-U 1310nmTx/1490nmRx Optical fiber：SMF SC Transmission distance（standard）：Up to 60km acceptable loss：27dB operating temperature: -40～+85℃ Bidi SFP Module	A/B
MGB-BX60B-SC	1000BASE-BX-D 1490nmTx/1310nmRx Optical fiber：SMF SC Transmission distance（standard）：Up to 60km acceptable loss：27dB operating temperature: -40～+85℃ Bidi SFP Module	

8.13. FE SFP Module Two-core

Models	product description	Notes
MFB-FX	100BASE-FX 1310nm Optical fiber: MMF LC Transmission distance (standard): 2m～2km Acceptable loss: 11dB Operating temperature: 0℃～70℃ Bidi SFP Module	

8.14. FE SFP Module Single core LC connector

Models	product description	Notes
MFB-SSXA	1000BASE-FX 1310nmTx/1550nmRx Optical fiber：MMF LC Transmission distance（standard）：2m～2km acceptable loss：10dB Operating temperature: 0℃～70℃ Bidi SFP Module	A/B
MFB-SSXB	100BASE-FX 1550nmTx/1310nmRx Optical fiber：MMF LC Transmission distance（standard）：2m～2km acceptable loss：10dB Operating temperature: 0℃～70℃ Bidi SFP Module	A/B
MFB-SLX20A	100BASE-FX 1310nmTx/1550nmRx Optical fiber：SMF LC Transmission distance（standard）：2m～20km acceptable loss：13dB Operating temperature: 0℃～70℃ Bidi SFP Module	A/B
MFB-SLX20B	100BASE-FX 1550nmTx/1310nmRx Optical fiber：SMF LC Transmission distance（standard）：2m～20km acceptable loss：13dB Operating temperature: 0℃～70℃ Bidi SFP Module	A/B
MFB-SLX120A	100BASE-FX 1510nmTx/1570nmRx Optical fiber：SMF LC Transmission distance（standard）：Up to 120km acceptable loss：36dB Operating temperature: 0℃～70℃ Bidi SFP Module	A/B
MFB-SLX120B	100BASE-FX 1570nmTx/1510nmRx Optical fiber：SMF LC Transmission distance（standard）：Up to 120km acceptable loss：36dB Operating temperature: 0℃～70℃Bidi SFP Module	A/B

8.15. FE SFP Module Single core SC connector

Models	product description	Notes
MFB-SLX20A-SC	100BASE-FX 1310nmTx/1550nmRx Optical fiber：SMF SC Transmission distance（standard）：2m～20km acceptable loss：13dB Operating temperature: 0℃～70℃Bidi SFP Module	A/B
MFB-SLX20B-SC	100BASE-FX 1550nmTx/1310nmRx Optical fiber：SMF SC Transmission distance（standard）：2m～20km acceptable loss：13dB Operating temperature: 0℃～70℃ Bidi SFP Module	A/B
MFB-SLX120A-SC	100BASE-FX 1510nmTx/1570nmRx Optical fiber：SMF SC Transmission distance（standard）：Up to 120km acceptable loss：36dB Operating temperature: 0℃～70℃ Bidi SFP Module	A/B
MFB-SLX120B-SC	100BASE-FX 1570nmTx/1510nmRx Optical fiber：SMF SC Transmission distance（standard）：Up to 120km acceptable loss：36dB Operating temperature: 0℃～70℃ Bidi SFP Module	A/B

8.16. Mult-irate SFP Module Two-core LC connector

Models	product description	Notes
MSTM-multi16	～2.67G λ=1310nm SMF LC(2Km) Operating temperature: 0℃～70℃ SFP module	

8.17. CWDM SFP Module Two- core LC connector

Models	product description	Notes
SFP-CWDM-01	1470nm Optical fiber：SMF LC Transmission distance（standard）：Up to 120km acceptable loss：34dB Operating temperature: 0℃～70℃ 2.5G CWDM SFP Module	
SFP-CWDM-02	1490nm Optical fiber：SMF LC Transmission distance（standard）：Up to 120km acceptable loss：34dB Operating temperature: 0℃～70℃ 2.5G CWDM SFP Module	
SFP-CWDM-03	1510nm Optical fiber：SMF LC Transmission distance（standard）：Up to 120km acceptable loss：34dB Operating temperature: 0℃～70℃ 2.5G CWDM SFP Module	
SFP-CWDM-04	1530nm Optical fiber：SMF LC Transmission distance（standard）：Up to 120km acceptable loss：34dB Operating temperature: 0℃～70℃ 2.5G CWDM SFP Module	
SFP-CWDM-05	1550nm Optical fiber：SMF LC Transmission distance（standard）：Up to 120km acceptable loss：34dB Operating temperature: 0℃～70℃ 2.5G CWDM SFP Module	
SFP-CWDM-06	1570nm Optical fiber：SMF LC Transmission distance（standard）：Up to 120km acceptable loss：34dB Operating temperature: 0℃～70℃ 2.5G CWDM SFP Module	
SFP-CWDM-07	1590nm Optical fiber：SMF LC Transmission distance（standard）：Up to 120km acceptable loss：34dB Operating temperature: 0℃～70℃ 2.5G CWDM SFP Module	
SFP-CWDM-08	1610nm Optical fiber：SMF LC Transmission distance（standard）：Up to 120km acceptable loss：34dB Operating temperature: 0℃～70℃ 2.5G CWDM SFP Module	
SFP-CWDM-09	1430nm Optical fiber：SMF LC Transmission distance（standard）：Up to 120km acceptable loss：34dB Operating temperature: 0℃～70℃ 2.5G CWDM SFP Module	
SFP-CWDM-10	1450nm Optical fiber：SMF LC Transmission distance（standard）：Up to 120km acceptable loss：34dB Operating temperature: 0℃～70℃ 2.5G CWDM SFP Module	

8.18 CWDM SFP+ Module Two- core LC connector

Models	product description	Notes
SFP+CWDM-01	1470nm Optical fiber：SMF LC Transmission distance（standard）：Up to 80km acceptable loss：23dB Operating temperature: 0℃～70℃ 10G CWDM SFP+ Module	
SFP+CWDM-02	1490nm Optical fiber：SMF LC Transmission distance（standard）：Up to 80km acceptable loss：23dB Operating temperature: 0℃～70℃ 10G CWDM SFP+ Module	
SFP+CWDM-03	1510nm Optical fiber：SMF LC Transmission distance（standard）：Up to 80km acceptable loss：23dB Operating temperature: 0℃～70℃ 10G CWDM SFP+ Module	
SFP+CWDM-04	1530nm Optical fiber：SMF LC Transmission distance（standard）：Up to 80km acceptable loss：23dB Operating temperature: 0℃～70℃ 10G CWDM SFP+ Module	
SFP+CWDM-05	1550nm Optical fiber：SMF LC Transmission distance（standard）：Up to 80km acceptable loss：23dB Operating temperature: 0℃～70℃ 10G CWDM SFP+ Module	
SFP+CWDM-06	1570nm Optical fiber：SMF LC Transmission distance（standard）：Up to 80km acceptable loss：23dB Operating temperature: 0℃～70℃ 10G CWDM SFP+ Module	
SFP+CWDM-07	1590nm Optical fiber：SMF LC Transmission distance（standard）：Up to 80km acceptable loss：23dB Operating temperature: 0℃～70℃ 10G CWDM SFP+ Module	
SFP+CWDM-08	1610nm Optical fiber：SMF LC Transmission distance（standard）：Up to 80km acceptable loss：23dB Operating temperature: 0℃～70℃ 10G CWDM SFP+ Module	

8.19. 10Gbps DWDM SFP 23dB ITU.T Channel NO.21～28

Models	product description	Notes
SFP+DWDM23-21	C-Band ITU-T Grid Ch.21 Optical fiber： SMF LC Transmission distance （standard）: Up to 80km acceptable loss：23dB Operating temperature: 0℃～70℃ 10G DWDM SFP+ Module	
SFP+DWDM23-22	C-Band ITU-T Grid Ch.22 Optical fiber： SMF LC Transmission distance （standard）: Up to 80km acceptable loss：23dB Operating temperature: 0℃～70℃ 10G DWDM SFP+ Module	
SFP+DWDM23-23	C-Band ITU-T Grid Ch.23 Optical fiber： SMF LC Transmission distance （standard）: Up to 80km acceptable loss：23dB Operating temperature: 0℃～70℃ 10G DWDM SFP+ Module	
SFP+DWDM23-24	C-Band ITU-T Grid Ch.24 Optical fiber： SMF LC Transmission distance （standard）: Up to 80km acceptable loss：23dB Operating temperature: 0℃～70℃ 10G DWDM SFP+ Module	
SFP+DWDM23-25	C-Band ITU-T Grid Ch.25 Optical fiber： SMF LC Transmission distance （standard）: Up to 80km acceptable loss：23dB Operating temperature: 0℃～70℃ 10G DWDM SFP+ Module	
SFP+DWDM23-26	C-Band ITU-T Grid Ch.26 Optical fiber： SMF LC Transmission distance （standard）: Up to 80km acceptable loss：23dB Operating temperature: 0℃～70℃ 10G DWDM SFP+ Module	
SFP+DWDM23-27	C-Band ITU-T Grid Ch.27 Optical fiber： SMF LC Transmission distance （standard）: Up to 80km acceptable loss：23dB Operating temperature: 0℃～70℃ 10G DWDM SFP+ Module	
SFP+DWDM23-28	C-Band ITU-T Grid Ch.28 Optical fiber： SMF LC Transmission distance （standard）: Up to 80km acceptable loss：23dB Operating temperature: 0℃～70℃ 10G DWDM SFP+ Module	

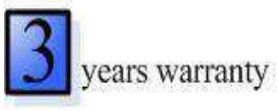
9. After-sales service

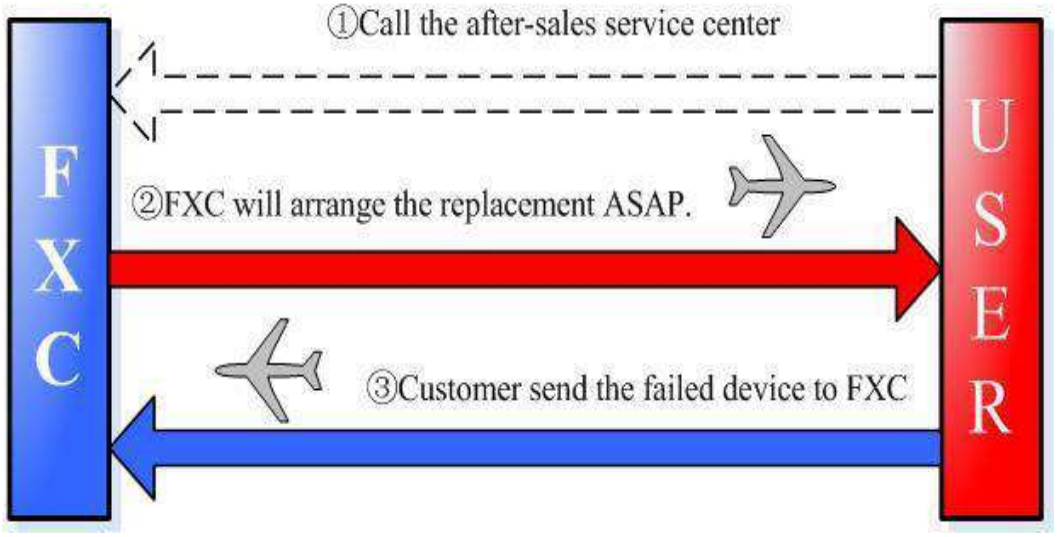
In order to make the user feel better to use our products, we provide the spares preferentially service for 3 years warranty.

Within 30 days from the date of purchase, register in the customer-list, in the next three years, if the productions have any non-artificial damage, we will arrange the replacement as soon as possible to send to customer.

When any failure occurs within period of the products, please call our after-sales service center, our engineer should confirm the failure as a non-artificial damage, the we will send the replacement to the customer as soon as possible.

You can use FXC brand of network equipment for years without prepare any spares.





Notice: 3years warranty service, only suitable for those who have registered in our customer-list within 30 days after the date of purchase.

If not, we can only provide 1year maintenance services.

Some products do not provide the spares preferentially service for 3 years warranty.

10. Contact Information

Please contact our sales division for product details or transactions.

https://www.fxc.jp/en/cgi-bin/inquiry/