



KGC-260 Series

**Industrial Managed 10/100/1000Base-T
to Dual-speed Fiber Media Converter**

Installation Guide



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TRADEMARKS

Ethernet is a registered trademark of Xerox Corp.

FCC NOTICE

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including the interference that may cause undesired operation.

CE NOTICE

Marking by the symbol indicates compliance of this equipment to the EMC directive of the European Community. Such marking is indicative that this equipment meets or exceeds the following technical standards:

EMC Class A

IEC 61000-6-4

CISPR 22

IEC 61000-3-2

IEC 61000-3-3

IEC 61000-6-2

IEC 61000-4-2

IEC 61000-4-3

IEC 61000-4-4

IEC 61000-4-5

IEC 61000-4-6

IEC 61000-4-8

IEC 61000-4-11

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1. Introduction



The KGC-260 is Gigabit Ethernet media converter series which provide the following features:

Data Conversion between different Media types and Speed

The media converter supports the following conversions:

- 1000Mbps (1000BASE-T) copper to/from 1000Mbps (1000BASE-X) fiber
- 100Mbps (1000BASE-TX) copper to/from 1000Mbps (1000BASE-X) fiber
- 10Mbps (10BASE-T) copper to/from 1000Mbps (1000BASE-X) fiber
- 1000Mbps (1000BASE-T) copper to/from 100Mbps (100BASE-FX) fiber
- 100Mbps (1000BASE-TX) copper to/from 100Mbps (100BASE-FX) fiber
- 10Mbps (10BASE-T) copper to/from 100Mbps (100BASE-FX) fiber

Dual-speed SFP Fiber Connectivity

The SFP port can be installed with different optional SFP optical fiber transceiver to support multimode or single mode fiber for short reach up to long reach distance. The SFP can support both 1000BASE-X and 100BASE-FX fiber connection. This feature extends a wider application range with this device.

Link Fault Pass-Through

This important feature of a media converter can force the link to shut down as soon as it notices that the other link has failed. It allows a link partner on one cable segment can notice a link fault occurred on the other segment and give application a chance to react.

802.1Q Control

With software configuration support, the device is enhanced with more 802.1Q control features for VLAN applications rather than just a typical media converter function. The optional features include:

- Filtering all untagged packets
- Filtering all tagged packets
- Filtering tagged packets with certain VID
- Egress un-tagging
- Egress tagging
- Double tagging
- 802.1ad Q-in-Q support

Optical Power Alarm (OPA)

OPA function allows to set lower and upper alarm thresholds for the optical power of the fiber port. The alarm is sent via relay alarm output and SNMP trap.

Auto Laser Shutdown (ALS)

ALS function is supported for the fiber port and used to automatically shut down the output power of the transmitter in case of fiber break for human safety purpose or hazardous environment.

Web Management

The device is embedded with an Http server which provides management functions for advanced network functions including Port Control and 802.1Q and 802.1ad functions. The management can be performed via Web browser based interface over TCP/IP network.

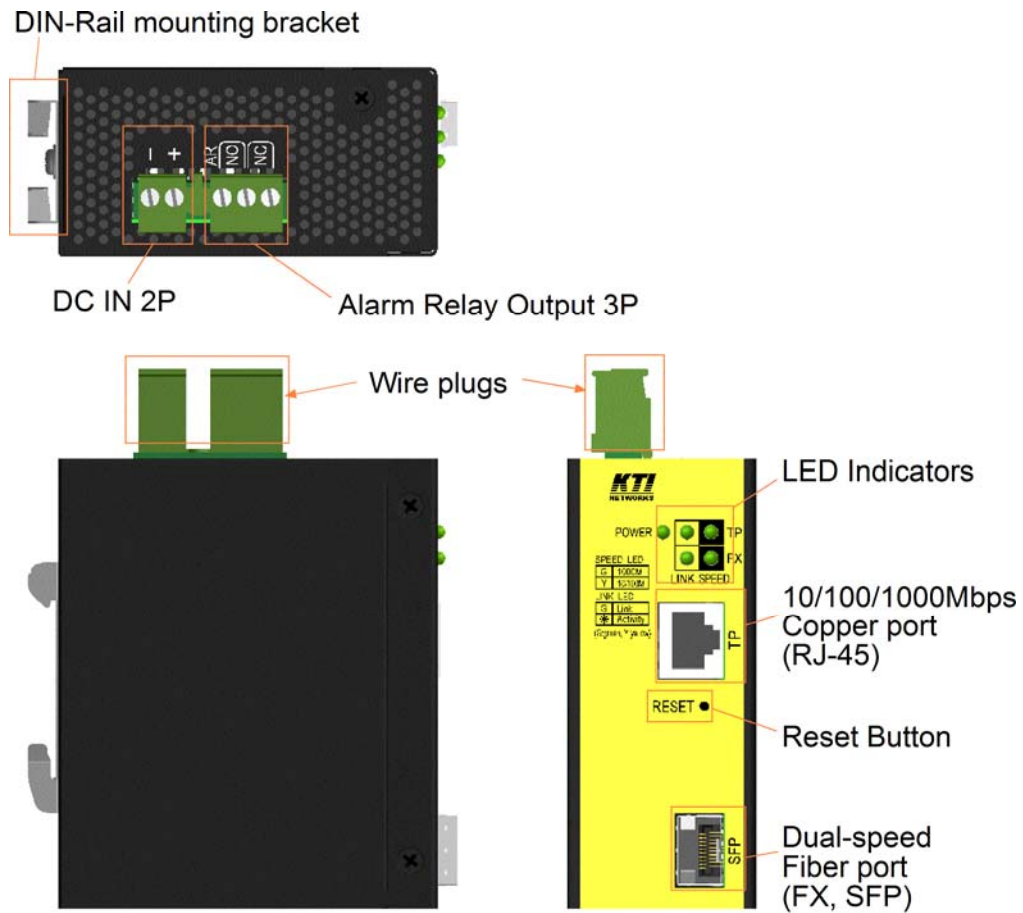
1.1 Features

- Tri-speed 10/100M/1Gbps copper to dual-speed 100M/1Gbps fiber conversion
- Comply with IEEE 802.3, 802.3u, 802.3ab, 802.3z standard
- Support full wire speed conversion for Gigabit copper to Gigabit fiber
- Support auto-negotiation with link partners
- Provide dual-speed SFP on fiber port for mounting variety of fiber options
- Provide important LFPT (Link Fault Pass Through) media converter function

- Support Jumbo frame conversion
- Energy efficient Ethernet (EEE) support
- Alarm events relay output
- Ideal solution for multimode, short reach up to long reach single mode fiber, Bi-Di applications
- Web-based configuration management support
- Support SNMP management
- OPA alarm if optical power is higher than a upper limit setting or lower than a lower limit setting
- Auto Laser Shutdown function in case of fiber cable break
- EN 50121-4 compliance for railway applications

1.2 Product Panels

The following figure illustrates the panels of the device:



1.3 LED Indicators

<u>LED</u>	<u>Function</u>
POWER	Power status
TP SPEED	UTP port speed status
TP LINK	UTP port link status
FX SPEED	FX port speed status
FX LINK	FX port link status

1.4 Specifications

10/100/1000 Twisted-pair Copper Port (UTP, RJ-45)

Compliance	IEEE 802.3 10Base-T, IEEE 802.3u 100Base-TX, IEEE 802.3u 1000Base-T
Connectors	Shielded RJ-45 jacks
Pin assignments	Auto MDI/MDI-X detection
Configuration	Auto-negotiation, manual settings or software control
Transmission rate	10Mbps, 100Mbps, 1000Mbps
Duplex support	Full/Half duplex
Network cable	Cat.5 UTP or better

Dual-speed Fiber Port (FX, SFP)

Compliance	IEEE 802.3 1000Base-X, 100BASE-FX
Connectors	SFP for optional SFP type fiber transceivers
Configuration	Auto, 1000Mbps Full duplex Auto-negotiation, 100Mbps Full
Transmission rate	1000Mbps, 100Mbps (Dual-speed support)
Network cables	MMF 50/125 60/125, SMF 9/125
Eye safety	IEC 825 compliant

Basic Functions

MAC Addresses	Support up to 8K
Forwarding technology	Store and forward
Maximum packet length	Jumbo frame support up to 9600 bytes
Flow control	IEEE 802.3x pause frame base for full duplex operation Back pressure for half duplex operation

DC Power Input

Screwed terminal block	2P (DC+, DC-)
Operating Voltages	+12 ~ +30VDC
Power Consumption	4.2W max.
Power Saving Mode	Total consumption 3.4W@12V when all ports link down
Protection	Polarity Reversal

Alarm Relay Output

Screwed terminal block	3 dry contacts for NC & NO pairs
Contact rating	30VDC/1A or 120VAC/0.5A
Alarm events	Power failure, configured port link fault, OPA alarm

Mechanical

Dimension (base)	40 x 80 x 95 mm (WxDxH)
Housing	Enclosed metal with no fan
Mounting	Din-rail mounting Panel mounting (with optional bracket)

Environmental

Operating Temperature	Typical -40°C ~ +75°C
Storage Temperature	-40°C ~ +85°C
Relative Humidity	5% ~ 95% non-condensing

Tests and Approvals

FCC Part 15 rule Class A
CE EMC Class A
VCCI Class A
IEC 61000-6-4 Emission
IEC 61000-3-2
IEC 61000-3-3
IEC 61000-6-2 Immunity for industrial environment,
IEC 61000-4-2
IEC 61000-4-3
IEC 61000-4-4
IEC 61000-4-5
IEC 61000-4-6
IEC 61000-4-8
IEC 61000-4-11
LVD, IEC60950-1 Safety
IEC 60068-2-64 Vibration
IEC 60068-2-27 Shock test
NEMA TS2 environment
EN 50121-4 Railway application

Management:

Management	Web-based browser interface, SNMP manager
Port Control	Operating mode, Flow control, LLDP
Packet Filtering	802.1Q tagged packet filtering, Untagged packet filtering

802.1Q VLAN	Ingress 802.1Q tag stripping, Egress 802.1Q tagging (tag insertion) S-tag tagging (802.1ad double tagging)
OPA Control	Configuration
ALS Control	Configuration
Maintenance	Restore factory default, reboot, firmware update, configuration file save & upload
SNMP Private MIB	DDM status, OPA control, ALS control
SNMP Trap	Trap events: Boot up, Port link change, OPA trap
Power saving	Disable, Link Up, Link Down, Full

2. Installation



2.1 Unpacking

The product package contains:

- The device unit for Din-rail mounting
- One product CD-ROM

2.2 Safety Cautions

To reduce the risk of bodily injury, electrical shock, fire and damage to the product, observe the following precautions.

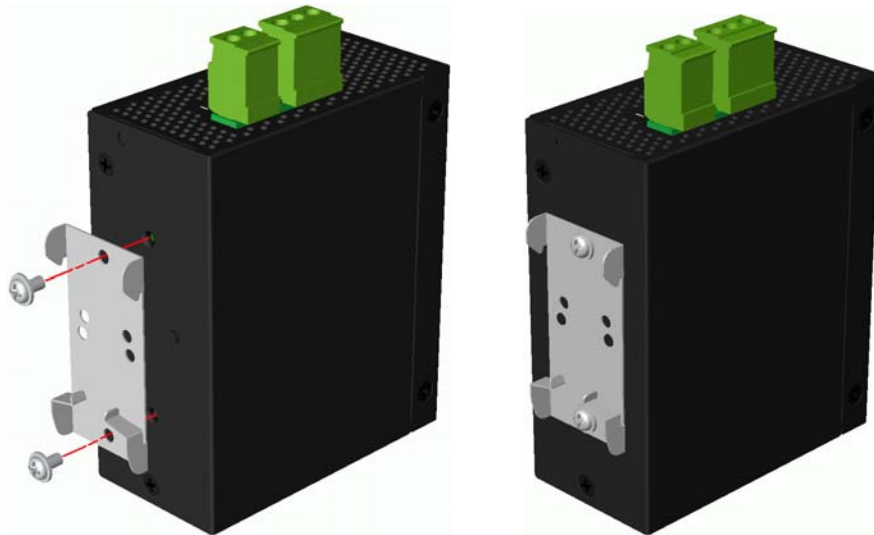
	Do not service any product except as explained in your system documentation.	
	Opening or removing covers may expose you to electrical shock.	
	Only a trained service technician should service components inside these compartments.	
	<p>If any of the following conditions occur, unplug the product from the electrical outlet and replace the part or contact your trained service provider:</p> <ul style="list-style-type: none"> - The power cable, extension cable, or plug is damaged. - An object has fallen into the product. - The product has been exposed to water. - The product has been dropped or damaged. - The product does not operate correctly when you follow the operating instructions. 	
	Do not push any objects into the openings of your system. Doing so can cause fire or electric shock by shorting out interior components.	
	Operate the product only from the type of external power source indicated on the electrical ratings label. If you are not sure of the type of power source required, consult your service provider or local power company.	
	 T_{amb}=75°C	Since the product is high temperature device, install and operate the product only by authorized personnel only. Install the product at a restricted area where un-authorized persons can not reach.

2.3 Mounting the Device to a DIN-Rail

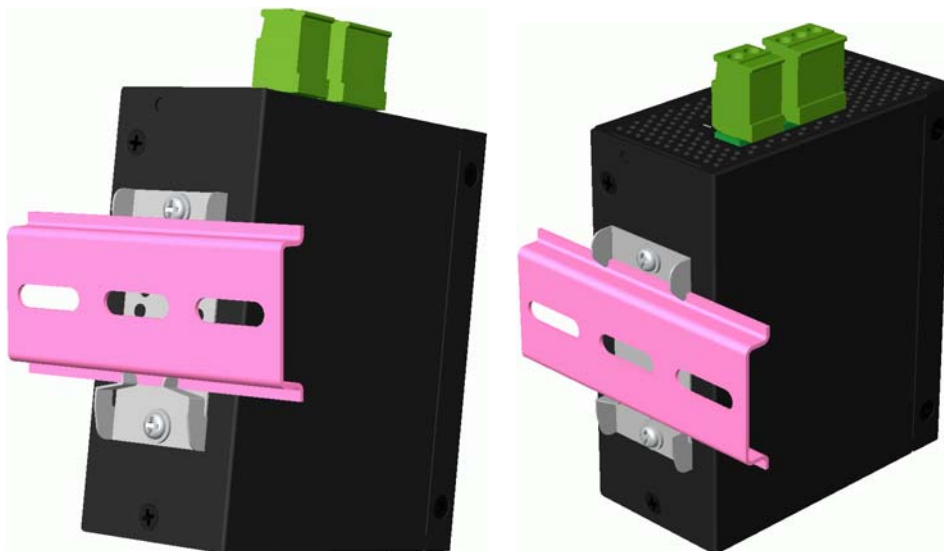
In the product package, a DIN-rail bracket is provided or has been installed for mounting the device in a industrial DIN-rail enclosure.

The steps to mount the device onto a DIN rail are:

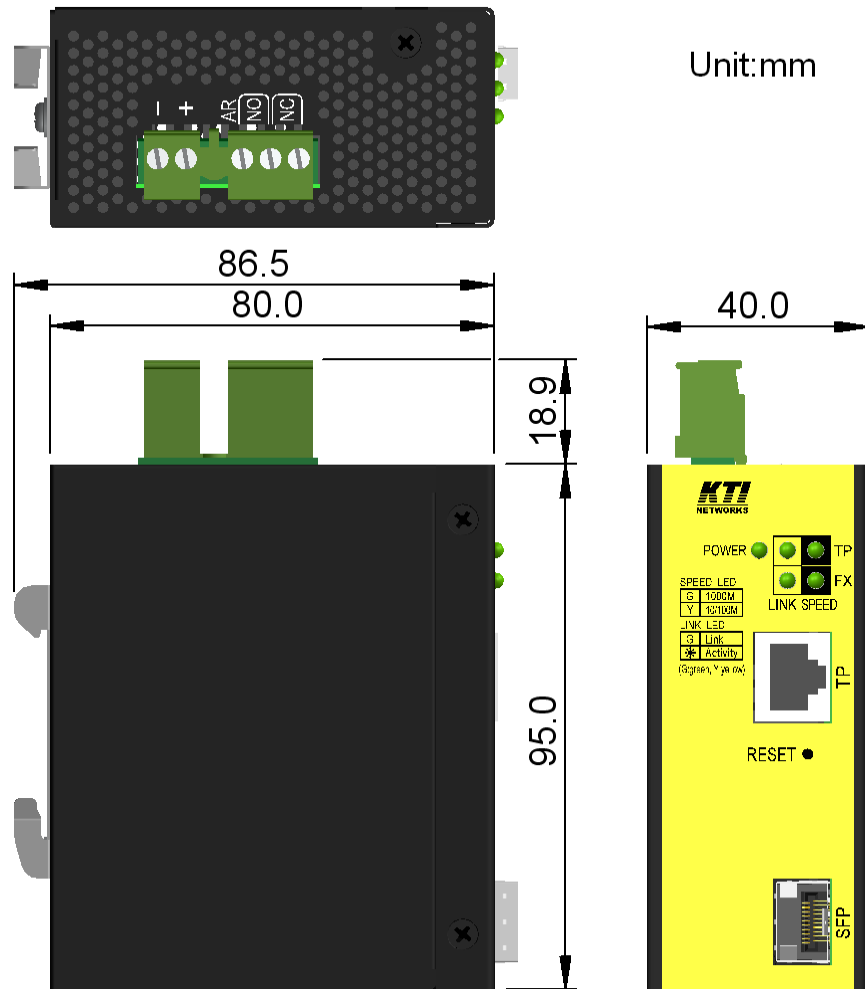
1. Install the mounting bracket onto the back of the device with screws as shown below:



2. Attach bracket to the lower edge of the DIN rail and push the unit upward a little bit until the bracket can clamp on the upper edge of the DIN rail.
3. Clamp the unit to the DIN rail and make sure it is mounted securely.



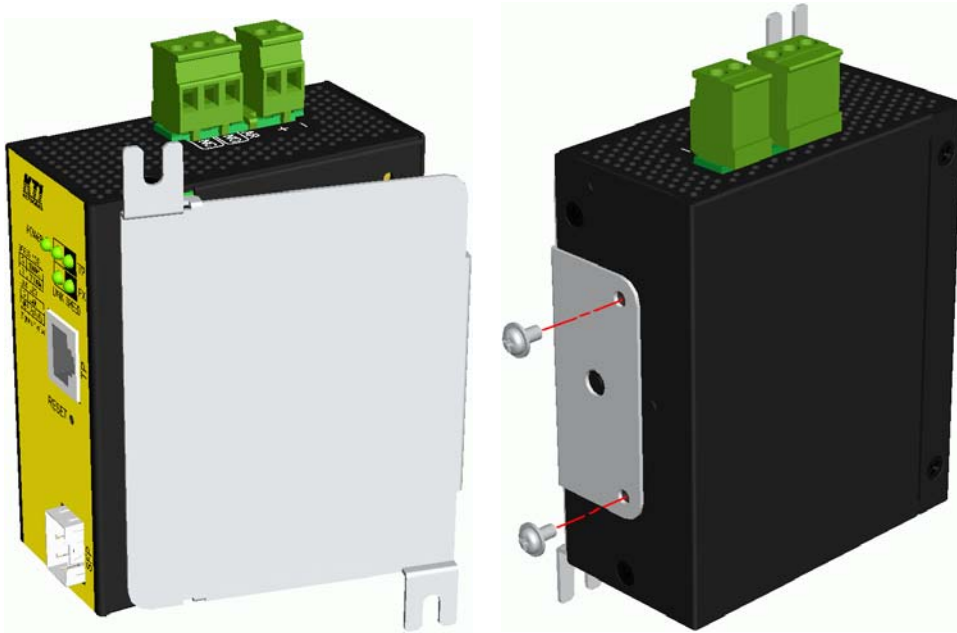
The final dimension is:



2.4 Mounting the Device on a Panel

The device may be provided optionally with a panel mounting bracket. The bracket supports mounting the device on a plane surface securely. The mounting steps are:

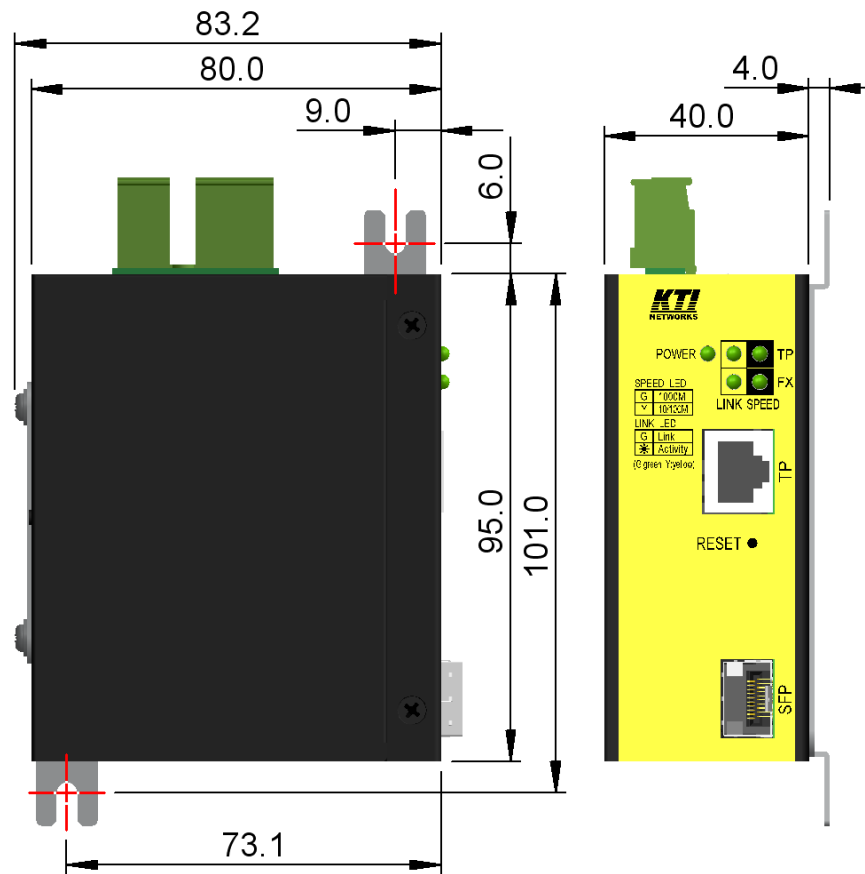
1. Install the mounting bracket on the device.
2. Screw the bracket on the device.



3. Screw the device on a panel and the locations for screws are shown below:



The final dimension is:



2.5 Applying Power



Power pins of the terminal block connector

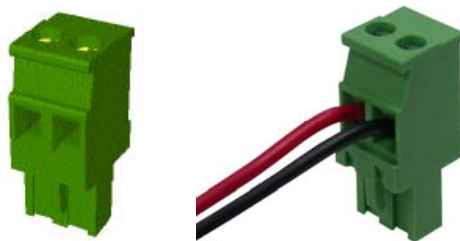
Pin	1	-	DC- Positive (-) input terminal
	2	+	DC+ Negative (+) input terminal
	3	x	Reserved

DC+/- Input specifications

Working voltage range: +12V ~ +30VDC

Terminal Plug & Power Wire

A 2P terminal plugs are provided together with the device as shown below:

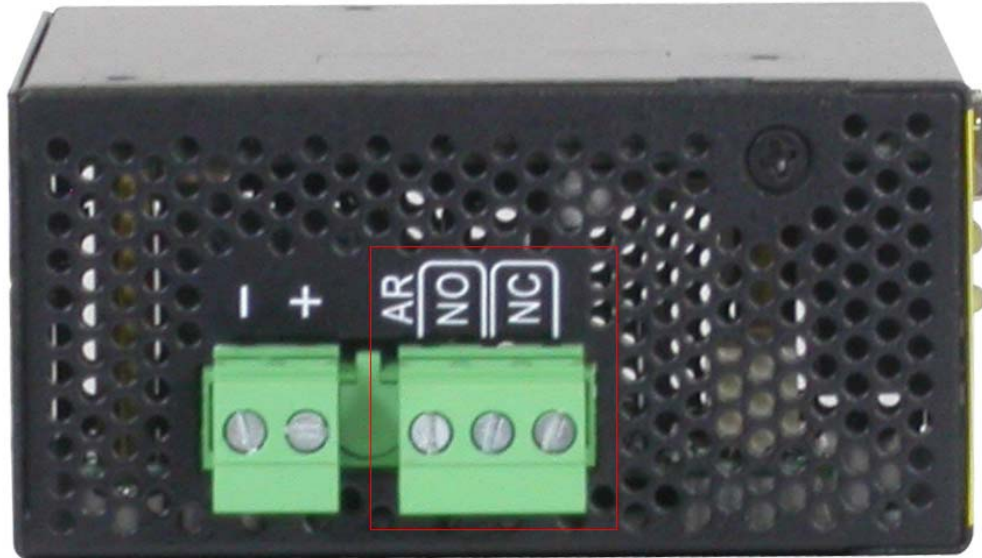


Power wires: 24 ~ 12AWG (IEC 0.5~2.5mm²)

Wire length: 1 meter max.

2.6 Alarm Relay Output

Alarm relay output is provided for reporting failure events to a remote alarm relay monitoring system. The relay output is provided with three contacts on the terminal block connector next DC power interface.



Alarm Relay output pins and logic:

Pin	4	5	Alarm relay output, NO (Normal Open) contacts
	NO		Normal: Open, Alarm: Shorted
Pin	5	6	Alarm relay output, NC (Normal Close) contacts
	NC		Normal: Shorted, Alarm: Open

The relay output can connect relay monitoring system. Both of NO and NC logic are provided individually for selection. Use the provided 3P terminal plug for signal wiring and plug into the contacts.

Alarm Events

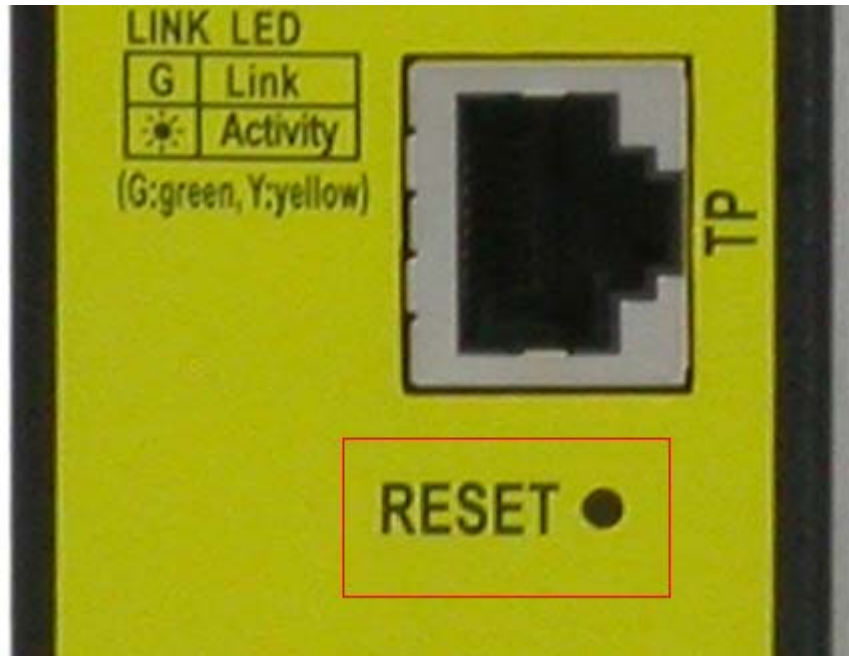
- Input power failure
- Configured port link fault
- OPA alarm

Note:

Be sure the voltage applied on the relay contacts is within the specification of 30VDC/1A max. or 120VAC/0.5A max.

2.7 Reset Button

The reset button is used to perform a reset to the device. It is not used in normal cases and can be used for diagnostic purpose. If any network hanging problem is suspected, it is useful to push the button to reset the device without turning off the power. Check whether the network is recovered.



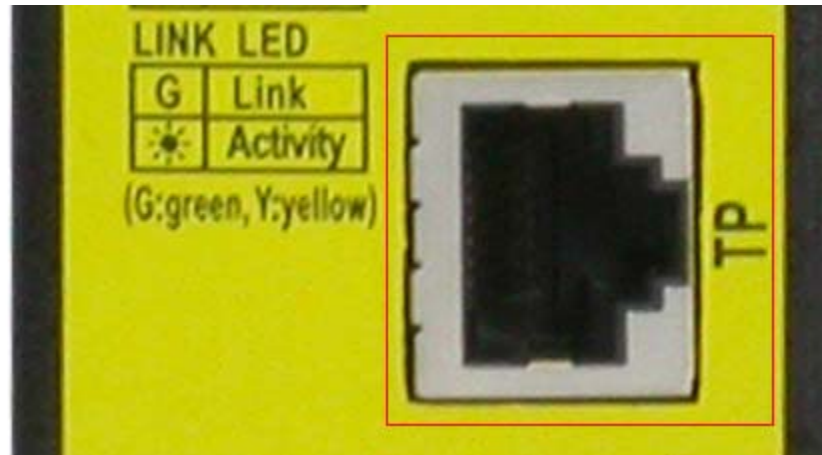
The button can also be used to restore the software configuration settings to factory default values.

The operations are:

Operation	Function
Press the button and release during operation	Reset & boot up the device. The behavior is same as power boot procedure.
Press the button when boot-up until all LEDs blink.	Boot & restore all factory default settings

3. Making LAN Connections

3.1 10/100/1000 Copper Port



The 10/100/1000 RJ-45 TP port supports the following connection types and distances:

Network Cables

10BASE-T:	2-pair UTP Cat. 3, 4, 5 , EIA/TIA-568B 100-ohm
100BASE-TX:	2-pair UTP Cat. 5, EIA/TIA-568B 100-ohm
1000BASE-T:	4-pair UTP Cat. 5 or higher (Cat.5e is recommended), EIA/TIA-568B 100-ohm
Link distance:	Up to 100 meters for all above

Auto MDI/MDI-X Function

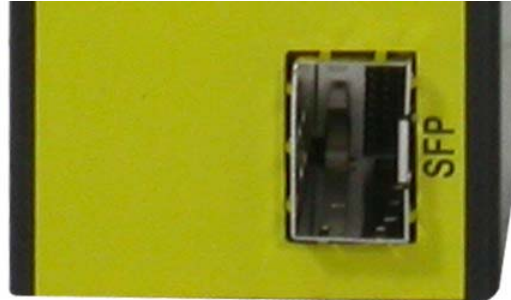
This function allows the port to auto-detect the twisted-pair signals and adapts itself to form a valid MDI to MDI-X connection with the remote connected device automatically. No matter a straight through cable or crossover cable are connected, the ports can sense the receiving pair automatically and configure themselves to match the rule for MDI to MDI-X connection. It simplifies the cable installation.

Auto-negotiation Function

The port is featured with auto-negotiation function and full capability to support connection to any Ethernet devices. The port performs a negotiation process for the speed and duplex configuration with the connected device automatically when each time a link is being established. If the connected device is also auto-negotiation capable, both link partners will come out the best configuration after negotiation process. If the connected device is incapable in auto-negotiation, the port will sense the speed and use half duplex for the connection.

3.2 Making Fiber Connection

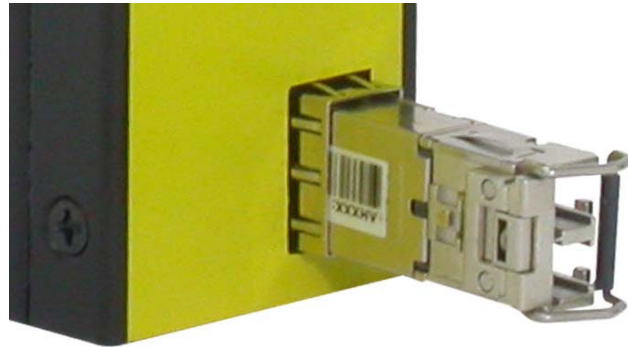
The SFP slot (FX port) must be installed with an SFP fiber transceiver for making fiber connection. Your device may come with an SFP transceiver pre-installed when it was shipped.



Installing SFP Fiber Transceiver

To install an SFP fiber transceiver into SFP slot, the steps are:

1. Turn off the power to the device unit.
2. Insert the SFP fiber transceiver into the SFP slot. Normally, a bail is provided for every SFP transceiver. Hold the bail and make insertion. Hold the bail and make insertion.



3. Until the SFP transceiver is seated securely in the slot, place the bail in lock position.

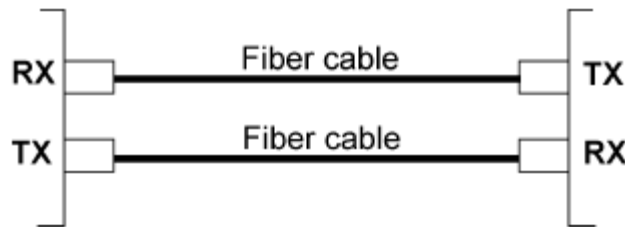


Dual Speed Support

The SFP slot supports 1000BASE-X based SFP fiber transceivers and 100BASE-FX based SFP fiber transceivers. Refer to Section 2.7 DIP SW Configuration for FX port operating mode setting.

Connecting Fiber Cables

LC connectors are commonly equipped on most SFP transceiver modules. Identify TX and RX connector before making cable connection. The following figure illustrates a connection example between two fiber ports:



Make sure the Rx-to-Tx connection rule is followed on the both ends of the fiber cable.

Network Cables

Multimode (MMF) - 50/125, 62.5/125

Single mode (SMF) - 9/125

3.3 LED Indication



OPERATION

LED	Function	Color	State	Interpretation
POWER	Power status	Green	ON	The power is supplied to the device.

			OFF	The power is not supplied to the device.
TP SPEED	Port speed status	Green	ON	TP port is running on speed 1Gbps (1000Mbps)
		Yellow	ON	TP port is running on speed 100Mbps or 10Mbps
TP LINK	Port link status	Green	ON	TP Port link is established.
		Green	BLINK	TP Port link is up and there is traffic.
			OFF	TP Port link is down.
FX SPEED	Port speed status	Green	ON	FX port is running on speed 1Gbps (1000Mbps)
		Yellow	ON	FX port is running on speed 100Mbps
FX LINK	Port link status	Green	ON	FX Port link is established.
		Green	BLINK	FX Port link is up and there is traffic.
			OFF	FX Port link is down.

BOOT-UP / RESET

LED	Color & State	Interpretation
2 SPEED LEDs	Quick blinking	Device initialization
All 4 LEDs	Green ON -> Yellow ON -> OFF	Device boot-up finished with normal result
2 SPEED LEDs	Slow blinking	Device boot-up finished with error result

4. Functions

This chapter describes some advanced functions provided by the media converter.

4.1 Converter Function

Media Conversion

The device supports the following data conversions between fiber cable and twisted-pair Cat.5 (copper) cable:

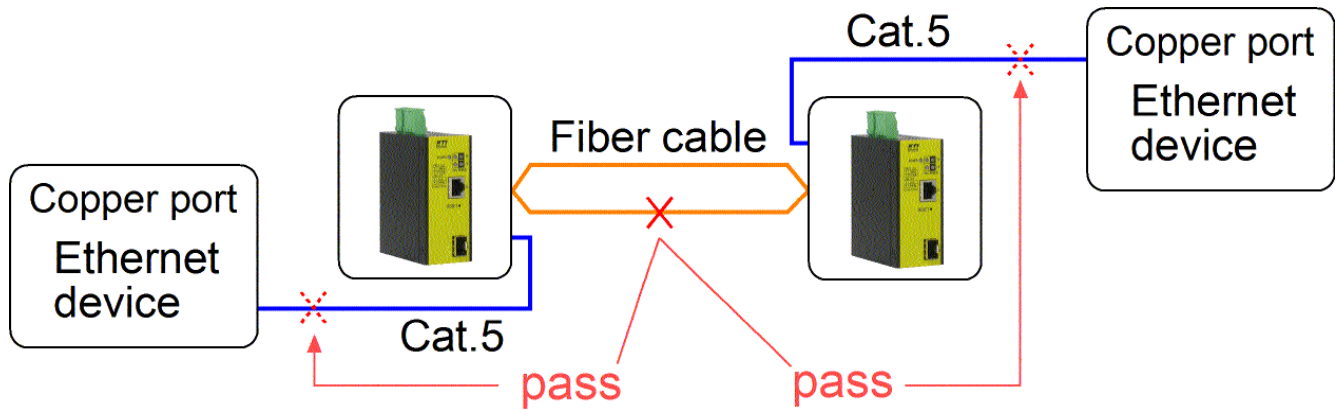


The data rate on twisted-pair segment depends on the link speed finally established with the link partner.

4.2 Link Fault Pass Through Function

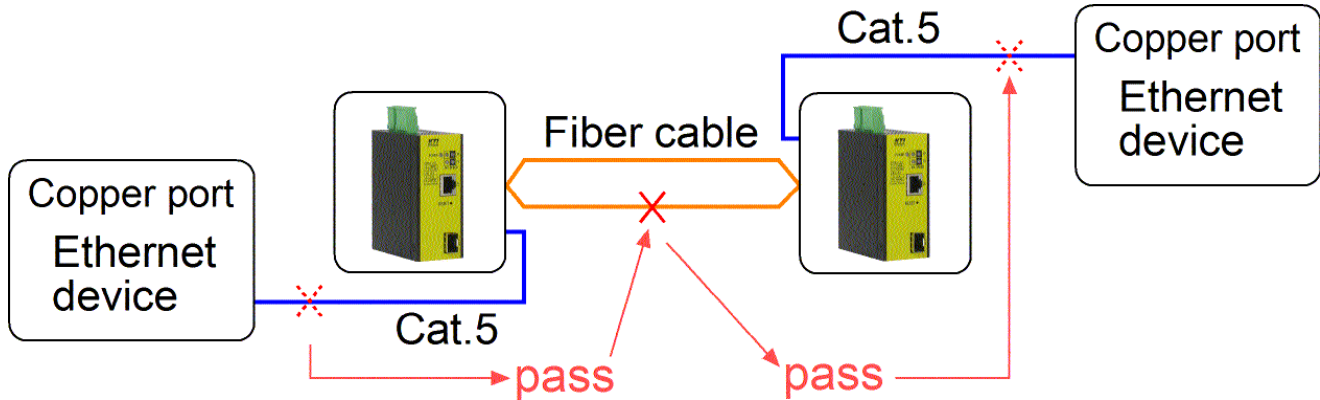
When the Link Fault Pass Through (LFPT) function is enabled and the media converter detects a link fault on one port segment, it will force the other port segment link down. It looks like that a link fault is passed from one port to the other.

The following example illustrates a link fault occurs on the fiber cable (any one cable in a duplex fiber connection). The link fault is forwarded to both copper link partners finally by LFPT operation of two media converters.



Both Ethernet devices will also detect a link fault on each Cat.5 connection, although the real fault occurs on the fiber connection exactly.

The following example illustrates a real link fault occurs on one Cat.5 and the link fault is passed to the other Cat.5 over two converters and the fiber cable by LFPT operation. Finally, the other link partner also detects a link fault.



Advantage

The function allows two remote link partners of the media converters detect the link fault finally no matter where the exact fault occurs. It allows the upper application takes necessary action in case a real link fault occurs in any cable segment.

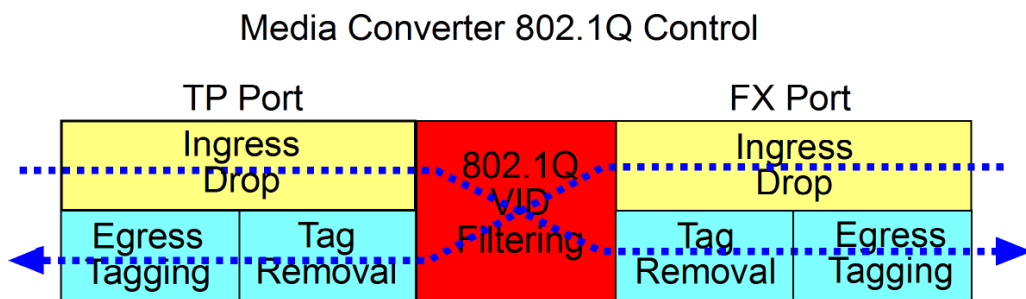
Methods to enable the function

The LFPT function can be enabled by:

- Software setting: Web management ->
- Configuration -> System -> [Link fault pass through]

4.3 802.1Q Control Function

802.1Q Control function allows perform 802.1Q VLAN related operation to the packets passing through the media converter according packet contents as follows:



[Ingress Drop] setting

The setting is the first filtering mechanism to filter incoming packets based on frame types. The options are:

- Disable* - disable port ingress drop and admit all packet types
- Drop Untag* - drop all untagged frames
- Drop C-tag* - drop frame with outer tag TPID 0x8100
- Drop S-tag* - drop frame with outer tag TPID 0x88A8
- Drop All tagged* - drop frames with outer tag TPID 0x8100 or 0x88A8

802.1Q VID Filtering

802.1Q VID Filtering function allows to admit or reject certain VID tagged packets. Up to 16 “*allowed*” (positive list) or “*rejected*” (negative list) VIDs can be configured. This function allows limit certain frames to pass from one link segment to another one. Disabling 802.1Q filtering function also sets VLAN to “Port-based” mode. Enabling the function sets VLAN to “VLAN aware” mode.

[VID Table]

- Disable* - 802.1Q VID filtering is disabled.
- Allowed VID* - Only the frames with classified VIDs in VID table are admitted.
- Rejected VID* - The frames with classified VIDs in VID table are rejected and dropped.

Each ingress frame is classified via VLAN classification and gets one Classified Tag. The Classification Tag is bundled to the frame in passing through VLAN operation until egress. Refer to next section for more information.

[Tag Removal] setting

This setting is used to remove tags of the incoming frames if available. The options are:

- Keep All tags* - disable tag removal
- Pop up 1 tag* - remove up to 1 tag (outer tag if available)
- Pop up 2 tag* - remove up to 2 tags (outer and inner tag if available)

Egress Tagging – [Egress Tagging Rule] setting

Tag is inserted into the outgoing frame in egress operation.

- Type 0* – Port Egress Tagging disabled
- Type 1* – Tag all frames
- Type 2* – Tag all frames, except priority-tagged frames (VID=0) and frame with VID= Exceptional VID
- Type 3* – Tag all frames, except priority-tagged frames (VID=0)

Egress Tagging - [Tagging Exceptional VID (Type 2)] setting

Type 2 exceptional VID in Tagging rule, 1 ~ 4095 - decimal 12-bit VID value

4.3.1 VLAN Operation

This section describes the operation relations between different configuration settings.

[802.1Q Filtering] setting options		<i>Disable</i>	<i>Allowed VIDs</i> <i>Rejected VIDs</i>
VLAN operation for TP port and FX port		<i>Port-based mode</i>	<i>VLAN aware mode</i>
Each ingress frame is classified with one Classified Tag: (outer tag is classified if double tagged)	Classified Tag – VID, PCP, DEI, TPID	<i>For all types of ingress frames</i> <i>Classified Tag =></i> <i>VID= [Default Tag – VID]</i> <i>PCP= [Default Tag – PCP]</i> <i>DEI= [Default Tag – DEI]</i> <i>TPID=0x8100</i>	<i>For untagged frames</i> <i>Classified Tag =></i> <i>VID= [Default Tag – VID]</i> <i>PCP= [Default Tag – PCP]</i> <i>DEI= [Default Tag – DEI]</i> <i>TPID=0x8100</i>
			<i>For priority tagged frame</i> <i>Classified Tag =></i> <i>VID= [Default Tag – VID]</i> <i>PCP= Frame outer tag – PCP</i> <i>DEI= Frame outer tag – DEI</i> <i>TPID= Frame outer tag – TPID</i>
			<i>For all tagged frame</i> <i>Classified Tag =></i> <i>VID= Frame outer tag – VID</i> <i>PCP= Frame outer tag – PCP</i> <i>DEI= Frame outer tag – DEI</i> <i>TPID= Frame outer tag – TPID</i>
VID Filtering		<i>No filtering</i>	<i>For untagged frames =></i> <i>No filtering</i>
			<i>For other types of frames =></i> <i>Filtering based on VID table configuration and the classified Tag – VID</i>
			<i>Note:</i> <i>[Management VLAN] – VID,</i>

			<i>TP port PVID and FX port PVID are always permitted.</i>
[Egress Tagging Rule] options		<i>Type 0, Type 1</i>	<i>Type 0, Type 1, Type 2, Type 3</i>
[Egress Tag TPID] options		<i>0x8100(C-tag) 0x88A8(S-tag) s-customer-tag 1</i>	<i>0x8100(C-tag) 0x88A8(S-tag) s-custom-tag 1 s-custom-tag 2</i>
Egress tagging operation	Inserted Tag - VID, PCP, DEI	<i>Use Classified Tag - VID, PCP, DEI</i>	<i>Use Classified Tag - VID, PCP, DEI</i>
	Inserted Tag - TPID	<i>[Egress Tag TPID] = 0x8100(C-tag) or 0x88A8(S-tag) => Use the setting value</i>	<i>[Egress Tag TPID] = 0x8100(C-tag) or 0x88A8(S-tag) => Use the setting value</i>
		<i>[Egress Tag TPID] = s-customer-tag 1 => Use [Custom TPID] setting</i>	<i>[Egress Tag TPID] = s-customer-tag 1 => Use [Custom TPID] setting</i>
			<i>[Egress Tag TPID] = s-customer-tag 2 => Use [Custom TPID] setting if Classified Tag TPID = 0x88A8 All other cases, use 0x8100(C-tag)</i>

4.4 SNMP Trap Function

SNMP trap function allows the device to send trap message to an SNMP trap host over SNMP protocol when the associated trap event occurs.

SNMP Trap settings

The settings are used to configure a trap host who can receive the SNMP trap message issued from a media converter device unit.

[SNMP Trap destination]

The IP address of the target SNMP trap host who is allowed to receive the traps.

[SNMP Trap community]

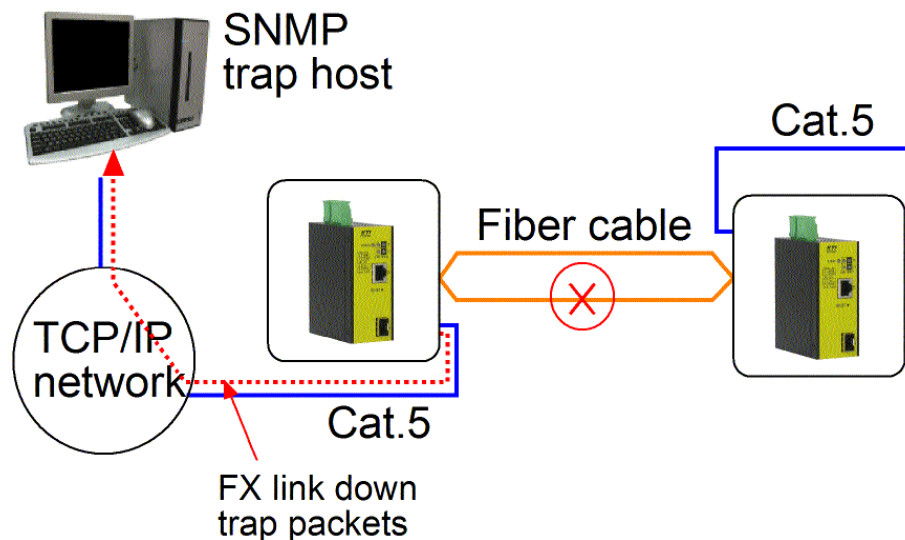
The community string bound in a trap message

SNMP Trap events

The following events are defined for generating a trap message when the event occurs on the unit.

- The device boot up.
- TP copper port link down
- TP copper port link up (link recovery)
- FX fiber port link down
- FX fiber port link up (link recovery)
- OPA alarm trap for FX fiber port

The following example illustrates an event of FX port link down occurs and is detected by the device. Then, it generates a trap message to the SNMP trap host PC.



5. Web Management

The media converter features an http server which can serve the management requests coming from any web browser software over TCP/IP network.

Set IP Address for the System Unit

Before the device unit can be managed from a web browser software, make sure a unique IP address is configured for the unit.

5.1 Start Browser Software and Making Connection

Start your browser software and enter the IP address of the unit to which you want to connect. The IP address is used as URL for the browser software to search the device.

URL: `http://xxx.xxx.xxx.xxx/`

Factory default IP address: 192.168.0.2

Factory default password: 123.␣

5.2 Login to the Device Unit

When browser software connects to the device unit successfully, a Login screen is provided for you to login to the device as follows:

Please enter password to login


Password:	<input type="text"/>
-----------	----------------------

Apply

The device will accept only one successful management connection at the same time. The other connection attempts will be prompted with a warning message.

A new connection will be accepted when the current user logout successfully or auto logout by the device due to no access for time out of 5 minutes. *System Configuration* is displayed after a successful login.

5.3 Main Management Menu



KGC-260 Gigabit Media Converter

Configuration

System
Ports
LLDP
OPA
ALS

Monitoring

Statistics Overview
LLDP Statistics
LLDP Table
SFP DDM
Ping

Maintenance

Reboot System
Restore Default
Update Firmware
Configuration File Transfer
Logout

System Configuration

MAC Address	00-40-F6-04-09-01
S/W Version	1.01 Beta 20150702PM1508
H/W Version	1.0
Active IP Address	192.168.0.213
Active Subnet Mask	255.255.255.0
Active Gateway	0.0.0.0
DHCP Server	0.0.0.0
Lease Time Left	0 secs

DHCP Enabled	<input type="checkbox"/>
Fallback IP Address	<input type="text" value="192.168.0.213"/>
Fallback Subnet Mask	<input type="text" value="255.255.255.0"/>
Fallback Gateway	<input type="text" value="0.0.0.0"/>
WDT	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
Management VLAN	<input type="text" value="0"/>
Name	<input type="text"/>
Password	<input type="password" value="●●●"/>
Inactivity Timeout (secs)	<input type="text" value="300"/> (0 or 60~10000)
SNMP enabled	<input type="checkbox"/>
SNMP Trap destination	<input type="text" value="0.0.0.0"/>
SNMP Read Community	<input type="text" value="public"/>
SNMP Write Community	<input type="text" value="private"/>
SNMP Trap Community	<input type="text" value="public"/>

The following information describes the basic functions of the main menu.

Configuration

- | | |
|--------|--|
| System | Device information, system and IP related settings |
| Ports | Port link status, operation mode configuration and other per port settings |

LLDP	Settings for LLDP support
OPA	Optical Power Alarm function
ALS	Auto Laser Shutdown function

Monitoring

Statistics Overview	List statistics for the local ports and remote TP port link status
LLDP Statistics	Statistics counters of LLDP operation
LLDP Tables	LLDP information received
SFP DDM	Fiber port DDM status
Ping	Ping utility command

Maintenance

Loopback Test	Command to perform loop-back test on fiber link
Reboot System	Command to reboot the device unit
Restore Default	Command to restore the device unit with factory default settings
Update Firmware	Command to update the device's firmware
Configuration File Transfer	Configuration file download & upload
Logout	Command to logout from current web management

5.4 Configuration

5.4.1 System

System Configuration

MAC Address	00-40-F6-04-09-01
S/W Version	1.01 Beta 20150702PM1508
H/W Version	1.0
Active IP Address	192.168.0.213
Active Subnet Mask	255.255.255.0
Active Gateway	0.0.0.0
DHCP Server	0.0.0.0
Lease Time Left	0 secs

DHCP Enabled	<input type="checkbox"/>
Fallback IP Address	<input type="text" value="192.168.0.213"/>
Fallback Subnet Mask	<input type="text" value="255.255.255.0"/>
Fallback Gateway	<input type="text" value="0.0.0.0"/>
WDT	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
Management VLAN	<input type="text" value="0"/>
Name	<input type="text"/>
Password	<input type="password" value="●●●"/>
Inactivity Timeout (secs)	<input type="text" value="300"/> (0 or 60~10000)
SNMP enabled	<input type="checkbox"/>
SNMP Trap destination	<input type="text" value="0.0.0.0"/>
SNMP Read Community	<input type="text" value="public"/>
SNMP Write Community	<input type="text" value="private"/>
SNMP Trap Community	<input type="text" value="public"/>

Operating Mode	Advanced Mode <input type="button" value="Change"/>
802.1Q Control	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
Jumbo Mode	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
Link fault pass through	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
Power Saving Mode	<input checked="" type="radio"/> Enable <input type="radio"/> Disable

Configuration	Description
MAC Address	The MAC address factory configured for the device. It can not be changed in any cases.
S/W Version	Firmware version currently running
H/W Version	Hardware version currently operating
Active IP Address	Current IP address for the device management
Active Subnet Mask	Current subnet mask for IP address for the device management
Active Gateway	Current gateway IP address for the device management
DHCP Server	Current IP address of the DHCP server
Lease Time Left	The time left for the lease IP address currently used
DHCP Enabled	Use DHCP to get dynamic IP address configuration for the device
Fallback IP Address	IP address used when DHCP mode is disabled
Fallback Subnet Mask	Subnet mask for IP address used when DHCP mode is not enabled
Fallback Gateway	Default gateway IP address used when DHCP mode is not enabled
WDT	Watch Dog Timer
Management VLAN	Set management VLAN ID
Name *1	Set the system name for this device unit
Password	Set new password
Inactivity Timeout	No user interaction timeout for web disconnection (Auto logout). Options: 0 - no timeout 60 ~ 10000 seconds
SNMP enabled	Enable SNMP agent
SNMP Trap destination	The IP address of the SNMP trap manager
SNMP Read community	SNMP community allowed for the SNMP [get] message
SNMP Write community	SNMP community allowed for the SNMP [set] message
SNMP Trap community	SNMP community used for the SNMP trap messages sent by the device
Operating Mode	Select operating mode <i>Basic</i> – Configuration for transparent conversion (no packet modification) [802.1Q Control] disabled [802.1Q Filtering] disabled [Jumbo Frame] enabled [LLDP] disabled [Management VLAN] disabled <i>Advanced</i> – user is free to configure all above function settings
802.1Q Control	802.1Q Control function main configuration <i>Disable</i> - all packets are allowed to pass with no 802.1Q control.

	<i>Enable</i> - 802.1Q control mechanism is activated for the conversion.
Jumbo Mode	Enable / disable Jumbo mode to support jumbo packets <i>Disable</i> - support maximum packet size up to 1526 bytes <i>Enable</i> - support maximum packet size up to 9600 bytes
Link fault pass through	Enable / disable link fault pass through function
Power Saving Mode	Enable / disable port link down power saving mode
[Change]	Click to change operating mode
[Apply]	Click to apply the configuration change
[Refresh]	Click to refresh current configuration

Note:

1. It is suggested to give each device unit a system name as an alternative unique identification beside IP address.
2. Setting change of DHCP mode takes effective in next boot-up.

Click :

Operating Mode Configuration

▾

Remark

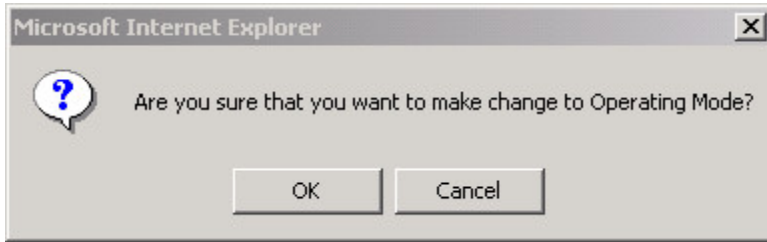
Operating Mode :

Basic Mode - Configuration for transparent conversion (no packet modification)
 [802.1Q Control] disabled
 [802.1Q Filtering] disabled
 [Jumbo Frame] enabled
 [LLDP] disabled
 [Management VLAN] disabled

Advanced Mode - All above functions are free for configuration

Note: [Apply] will get system re-configured. The re-configuration takes a while. Please be patient.

Click to make change and get system re-configured:



The re-configuration takes a while.

5.4.1.1 Management VLAN

Management VLAN settings allow administrator to access the device and perform the management over a dedicated VLAN.

The following rules are applied with the Management VLAN:

1. If [Management VLAN] setting is VID=0, no limitation is applied in accessing the web management interface, but password authentication.
2. If [Management VLAN] setting is VID>0, the web (http) server only replies to the management hosts through the tagged packets with the embedded VID same as the configured [Management VLAN] setting.
3. The web (http) server can accept untagged or tagged management accessing packets. Reply to the web access host based on the following rule:

Incoming web access packets	Reply packets (Outgoing to the management host)
Untagged packets	None
Tagged packets	Packets tagged with configured management VLAN VID

4. The SNMP trap packets sent by the system is untagged.
5. The configured VID is always included in permitted VID list under “802.1Q VID Filtering” function.

Notes:

No matter how management VLAN is configured, login password authentication is still required.

5.4.2 Ports

Port Configuration

Port	TP	FX
Link	1000FDX	Down
Mode	Auto	Auto
Flow Control	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Link Fault Relay Alarm	<input type="checkbox"/>	<input type="checkbox"/>

Apply

Refresh

Port Configuration	Function																																												
Port	TP - Twisted-Pair copper port (also specified Port #1 in other pages) FX - Fiber port (also specified Port #2 in other pages)																																												
Link	Port link status <i>Speed and duplex status with green background</i> - port is link on <i>Down with red background</i> - port is link down																																												
Mode	Select port operating mode <i>Disabled</i> - disable the port operation <table border="1"> <thead> <tr> <th><i>TP Mode</i></th> <th><i>Auto-negotiation</i></th> <th><i>Speed capability</i></th> <th><i>Duplex</i></th> </tr> </thead> <tbody> <tr> <td><i>Auto</i></td> <td><i>Enable</i></td> <td><i>10, 100, 1000M</i></td> <td><i>Full, Half</i></td> </tr> <tr> <td><i>Forced 10 Half</i></td> <td><i>Disable</i></td> <td><i>10M</i></td> <td><i>Half</i></td> </tr> <tr> <td><i>Forced 10 Full</i></td> <td><i>Disable</i></td> <td><i>10M</i></td> <td><i>Full</i></td> </tr> <tr> <td><i>Forced 100 Half</i></td> <td><i>Disable</i></td> <td><i>100M</i></td> <td><i>Half</i></td> </tr> <tr> <td><i>Forced 100 Full</i></td> <td><i>Disable</i></td> <td><i>100M</i></td> <td><i>Full</i></td> </tr> <tr> <td><i>1000 Full</i></td> <td><i>Enable</i></td> <td><i>1000M</i></td> <td><i>Full</i></td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th><i>FX Mode</i></th> <th><i>Auto-negotiation</i></th> <th><i>Speed capability</i></th> <th><i>Duplex capability</i></th> </tr> </thead> <tbody> <tr> <td colspan="4"><i>Auto: auto-detection for transceiver type and speed</i></td> </tr> <tr> <td><i>1000 Full</i></td> <td><i>Enable</i></td> <td><i>1000M</i></td> <td><i>Full</i></td> </tr> <tr> <td><i>Forced 100 Full</i></td> <td><i>Disable</i></td> <td><i>100M</i></td> <td><i>Full</i></td> </tr> </tbody> </table> <i>Disable: Disable port operation</i>	<i>TP Mode</i>	<i>Auto-negotiation</i>	<i>Speed capability</i>	<i>Duplex</i>	<i>Auto</i>	<i>Enable</i>	<i>10, 100, 1000M</i>	<i>Full, Half</i>	<i>Forced 10 Half</i>	<i>Disable</i>	<i>10M</i>	<i>Half</i>	<i>Forced 10 Full</i>	<i>Disable</i>	<i>10M</i>	<i>Full</i>	<i>Forced 100 Half</i>	<i>Disable</i>	<i>100M</i>	<i>Half</i>	<i>Forced 100 Full</i>	<i>Disable</i>	<i>100M</i>	<i>Full</i>	<i>1000 Full</i>	<i>Enable</i>	<i>1000M</i>	<i>Full</i>	<i>FX Mode</i>	<i>Auto-negotiation</i>	<i>Speed capability</i>	<i>Duplex capability</i>	<i>Auto: auto-detection for transceiver type and speed</i>				<i>1000 Full</i>	<i>Enable</i>	<i>1000M</i>	<i>Full</i>	<i>Forced 100 Full</i>	<i>Disable</i>	<i>100M</i>	<i>Full</i>
<i>TP Mode</i>	<i>Auto-negotiation</i>	<i>Speed capability</i>	<i>Duplex</i>																																										
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<i>Forced 100 Full</i>	<i>Disable</i>	<i>100M</i>	<i>Full</i>																																										
Flow Control	Set port flow control function V - set to enable 802.3x pause flow control for ingress and egress																																												
Link Fault Relay Alarm	Set relay alarm when port link fault V - set to enable relay alarm when port link fault																																												

[Apply] Click to apply the configuration change
 [Refresh] Click to refresh current configuration

802.1Q Control Page when [802.1Q Filtering] function is disabled

802.1Q Control

Port	TP	FX
Default Tag - VID(PVID)	<input type="text" value="1"/>	<input type="text" value="1"/>
Default Tag - DEI	<input type="text" value="0"/>	<input type="text" value="0"/>
Default Tag - PCP	<input type="text" value="0"/>	<input type="text" value="0"/>
Ingress Drop	<input type="text" value="Disable"/>	<input type="text" value="Disable"/>
Tag Removal	<input type="text" value="Keep All tags"/>	<input type="text" value="Keep All tags"/>

Port	TP	FX
Egress Tagging Rule	<input type="text" value="Type 0"/>	<input type="text" value="Type 0"/>
Egress Tag TPID	<input type="text" value="0x8100(c-tag)"/>	<input type="text" value="0x8100(c-tag)"/>
Custom TPID	<input type="text" value="0x8100"/>	

802.1Q Filtering	Disable (Port-base)
	<input type="text" value="Setting"/>

802.1Q Control Page when [802.1Q Filtering] function is enabled. The setting is “Allowed VID” or “Rejected VID”

802.1Q Control

Port	TP	FX
Default Tag - VID(PVID)	<input type="text" value="1"/>	<input type="text" value="1"/>
Default Tag - DEI	<input type="text" value="0"/>	<input type="text" value="0"/>
Default Tag - PCP	<input type="text" value="0"/>	<input type="text" value="0"/>
Ingress Drop	<input type="text" value="Disable"/>	<input type="text" value="Disable"/>
Tag Removal	<input type="text" value="Keep All tags"/>	<input type="text" value="Keep All tags"/>

Port	TP	FX
Egress Tagging Rule	<input type="text" value="Type 0"/>	<input type="text" value="Type 0"/>
Tagging Exceptional VID (Type 2)	<input type="text" value="1"/>	<input type="text" value="1"/>
Egress Tag TPID	<input type="text" value="0x8100(c-tag)"/>	<input type="text" value="0x8100(c-tag)"/>
Custom TPID	<input type="text" value="0x8100"/>	

802.1Q Filtering	Rejected (VLAN-aware)
	<input type="text" value="Setting"/>

802.1Q Control **Function**

Default Tag – VID (PVID) Port VID, VID for Ingress Default Tag, also called “PVID”
1 ~ 4095 - decimal 12-bit VID value

Default Tag - DEI CFI for Ingress Default Tag
0, 1 - 1-bit CFI value

Default Tag -PCP User priority for Ingress Default Tag
0 ~ 7 - decimal 3-bit value

Ingress Drop *Disable* - disable port ingress drop and admit all packet types
Drop Untag – drop all untagged frames
Drop C-tag – drop frame with outer tag TPID 0x8100

	<i>Drop S-tag</i> – drop frame with outer tag TPID 0x88A8
	<i>Drop All tagged</i> – drop frames with outer tag TPID 0x8100 or 0x88A8
Tag Removal	<i>Keep All tags</i> - disable tag removal for VLAN-tagged packets
	<i>Pop up 1 tag</i> – remove up to 1 tag (outer tag if available)
	<i>Pop up 2 tag</i> – remove up to 2 tags (outer and inner tag if available)
Egress Tagging Rule	Tag is inserted into the outgoing packet in egress operation.
	<i>Type 0</i> – Port Egress Tagging disabled
	<i>Type 1</i> – Tag all frames
	<i>Type 2</i> – Tag all frames, except priority-tagged frames (VID=0) and frame with VID= Exceptional VID
	<i>Type 3</i> – Tag all frames, except priority-tagged frames (VID=0)
	<i>* “Type 2” and “Type 3” are available only when 802.1Q Filtering is enabled.</i>
Tagging Exceptional VID (Type 2)	
	Type 1 exceptional VID in Tagging rule
	1 ~ 4095 - decimal 12-bit VID value
	<i>* This configuration is available only when 802.1Q Filtering is enabled.</i>
Egress Tag TPID	Tag TPID for Egress Tagging
	<i>0x8100(c-tag)</i>
	<i>0x88A8(s-tag)</i>
	<i>s-custom_tag 1</i> – Use value configured in [Custom TPID]
	<i>s-custom_tag 2</i> - Use value configured in [Custom TPID] if ingress tag was s-tag (TPID = 0x88A8)
	<i>* “s-custom-tag 2” is available only when 802.1Q Filtering is enabled.</i>
Custom TPID	Specify a user-defined TPID value.
<hr/>	
[802.1Q Filtering]	Click to set VID filtering table
<hr/>	

Note:

Refer to Section 4.3 and 4.3.1 for more information about:

802.1Q Control, VLAN operation, Ingress VLAN Classification, Classified Tag after VLAN classification and What tag is inserted for egress tagging. Section 3.5.1 also describes the VLAN mode under different [802.1Q Filtering] settings.

5.4.2.1 802.1Q Filtering

802.1Q Filtering

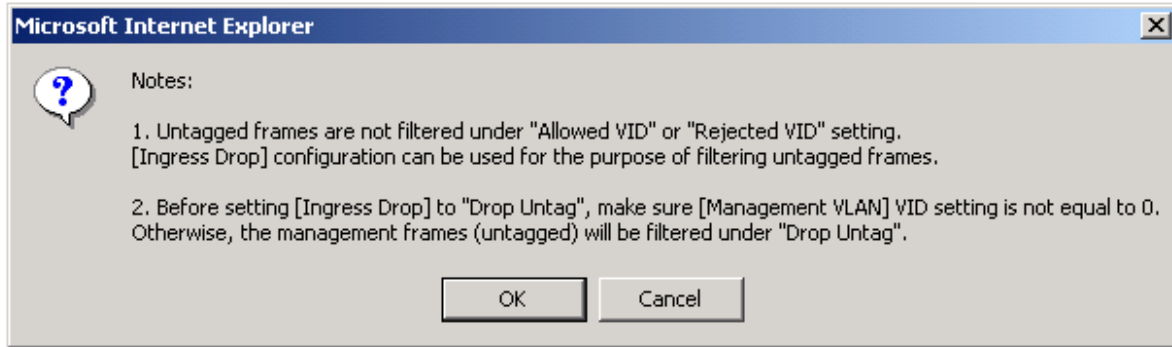
VID TABLE:

No.	VID	No.	VID
1	0	9	0
2	0	10	0
3	0	11	0
4	0	12	0
5	0	13	0
6	0	14	0
7	0	15	0
8	0	16	0

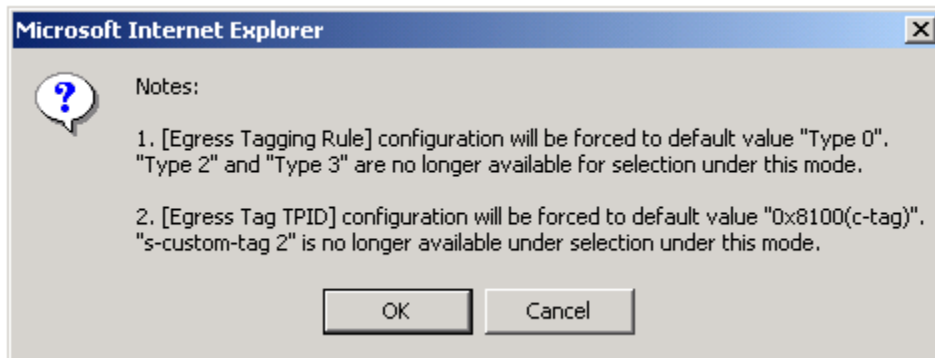
[Apply] [Refresh] [Back]

Configuration	Description
VID TABLE	Specify the characteristic of the VID table. <i>Disable</i> - set to disable 802.1Q filtering function. <i>Allowed VID</i> - the VID table specifies the allowed VIDs <i>rejected VID</i> - the VID table specifies the rejected VIDs * <i>Both Allowed VID and rejected VID are used to "Enable" 802.1Q filtering.</i>
No.	Entry of VID table - up to 16 VIDs can be configured in VID table
VID	1 ~ 4095 - decimal 12-bit VID value
[Apply]	Click to apply the configuration change.
[Refresh]	Click to refresh current configuration.
[Back]	Click to previous window.

As VID TABLE setting is changed from “*Disable*” to enabled state. That is a setting of either “*Allowed VID*” or “*Rejected VID*”. The following message is prompt for notices and confirmation.



When VID TABLE setting is changed from either “*Allowed VID*” or “*Rejected VID*” to “*Disable*”, the following message is also prompt for notices and confirmation.



Notes:

1. VID table is referred for filtering VLAN-tagged frames according to the classified VID of each ingress frame. Refer to Section 3.5.1 for more information about “classified VID” and VLAN operation.
2. [Allowed VID] setting is useful when only certain VIDs are permitted to pass the device.
3. [Rejected VID] setting is useful when only certain VIDs are not allowed to pass the device.
4. The VID value in [Management VLAN] setting and [Default Tag – VID (PVID)] for TP port and FX port are always permitted to pass and not be filtered.

5.4.3 LLDP

LLDP Configuration

Transmitted TLVs	
Port Description	<input checked="" type="checkbox"/>
System Name	<input checked="" type="checkbox"/>
System Description	<input checked="" type="checkbox"/>
System Capabilities	<input checked="" type="checkbox"/>
Management Address	<input checked="" type="checkbox"/>

Parameters	
Tx Interval	10
Tx Hold	4
Tx Delay	2
Reinit Delay	2

Port	LLDP State
1(TP)	Disabled ▾
2(FX)	Disabled ▾

Transmitted TLVs	Description
Port Description	When checked the “port description” is included in LLDP information transmitted.
System Name	When checked the “system name” is included in LLDP information transmitted.
System Description	When checked the “system description” is included in LLDP information transmitted.
System Capability	When checked the “system capability” is included in LLDP information transmitted.
Management Address	When checked the “management address” is included in LLDP information transmitted.

Parameters	Description
Tx Interval	<p>The device is periodically transmitting LLDP frames to its neighbors for having the network discovery information up-to-date. The interval between each LLDP frame is determined by the Tx Interval value.</p> <p>Valid values: 5 – 32768 seconds</p>

Tx Hold	Each LLDP frame contains information about how long the information in the LLDP frame shall be considered valid. The LLDP information valid period is set to Tx Hold multiplied by Tx Interval seconds. Valid values: 2 – 10 times
Tx Delay	If some configuration is changed (e.g. the IP address) a new LLDP frame is transmitted, but the time between the LLDP frames will always be at least the value of Tx Delay seconds. Tx Delay cannot be larger than 1/4 of the Tx Interval value. Valid values: 1 – 8192 seconds
Reinit Delay	When a port is disabled, LLDP is disabled or the device is rebooted a LLDP shutdown frame is transmitted to the neighboring units, signaling that the LLDP information isn't valid anymore. Reinit Delay controls the amount of seconds between the shutdown frame and a new LLDP initialization. Valid values: 1 – 10 seconds

Port Configuration	Description
Port	Local port number (Port #1: TP port, Port #2: FX port)
LLDP State	Set port LLDP mode: <i>Disabled</i> : The device will not send out LLDP information, and will drop LLDP information received from neighbors. <i>Tx and Rx</i> : The device will send out LLDP information, and will analyze LLDP information received from neighbors. <i>Tx only</i> : The device will drop LLDP information received from neighbors, but will send out LLDP information. <i>Rx only</i> : The device will not send out LLDP information, but LLDP information from neighbor units is analyzed.
[Apply]	Click to apply the configuration change.
[Refresh]	Click to refresh current configuration.

The **Link Layer Discovery Protocol (LLDP)** is a vendor-neutral link layer protocol in the Internet Protocol Suite used by network devices for advertising their identity, capabilities, and neighbors on an IEEE 802 local area network, principally wired Ethernet.

5.4.4 OPA

OPA function allows set lower and upper alarm thresholds for the optical power of the fiber port. The alarm is sent via relay alarm output and SNMP trap. The optical power is monitored once every second. Note that if no SFP transceiver is installed or no DDM is supported in the SFP transceiver, OPA function is disabled automatically.

Optical Power Alarm Configuration

Port	MinMode	MinLimit	MaxMode	MaxLimit
2(FX)	Disabled ▾	1 (μW)	Disabled ▾	6553 (μW)

Apply

Refresh

Configuration	Description
Port	Port 2 (FX port)
MinMode	Enable alarm if power is less than the lower threshold.
MinLimit	Set lower threshold limit, unit μW.
MaxMode	Enable alarm if power is higher than the upper threshold.
MaxLimit	Set upper threshold limit, unit μW.
[Apply]	Click to apply the configuration change.
[Refresh]	Click to refresh current configuration.

Note: $dBm(N \mu W) = -30 dBm + \log_{10}(N) \times 10$

5.4.5 ALS

ALS function is provided for the SFP transceiver and used to automatically shut down the output power of the transmitter in case of fiber break. ALS is provisioned on both ends of the fiber pair. "Auto" mode is set to turn on transmitter automatically if the broken fiber is believed to have been repaired. The method is to turn on transmitter at the near end for a pulse period every interval time. This pulse causes LOS (Lost of Optical Signal) cleared at the far end if the cable has been repaired. The transmitter is turned on at the far end. At the same time LOS cleared is also detected at the near end. Transmitters of both ends are turned on and LOS alarm is cleared.

Auto Laser Shutdown Configuration

Port	Mode	Interval	Width	Restart
2(FX)	Disabled ▾	100 (sec)	2 (sec)	<input type="checkbox"/>

Apply

Refresh

Configuration	Description
Port	Port 2 (FX port)
Mode	<i>Disable</i> - disable ALS function. <i>Manual</i> – enable ALS and force to turn on transmitter manually. <i>Auto</i> – enable ALS and turn on transmitter if the broken fiber is believed to have been repaired.
Interval	Transmitter is turned on for a short period as a test pulse every interval time (unit sec) in "Auto" mode.
Width	The width of the test pulse (unit sec), default 2 seconds.
Restart	Check to restart transmitter for one test pulse in Manual mode
[Apply]	Click to apply the configuration change.
[Refresh]	Click to refresh current configuration.

5.5 Monitoring

5.5.1 Statistics Overview

Statistics for all ports

Clear

Refresh

Port	TP	FX
Link	1000FDX	Down
Tx Bytes	817360	0
Tx Frames	923	0
Rx Bytes	223537898	0
Rx Frames	1077666	0
Tx Errors	0	0
Rx Errors	0	0

Statistics Description

Port	TP - Twisted-Pair copper port on local unit FX - Fiber port on local unit
Link	Port link status Speed and duplex status with green background - port is link on Down with red background - port is link down
Tx Bytes	Total of bytes transmitted on the port
Tx Frames	Total of packet frames transmitted on the port
Rx Bytes	Total of bytes received on the port
Rx Frames	Total of packet frames received on the port
Tx Errors	Total of error packet frames transmitted on the port
Rx Errors	Total of error packet frames received on the port

[Clear]	Click to reset all statistic counters
[Refresh]	Click to refresh all statistic counters

5.5.2 LLDP Statistics

LLDP Statistics

Port	Tx Frames	Rx Frames	Rx Error Frames	Discarde Frames	TLVs discarded	TLVs unrecognized	Org. TLVs discarded	Ageouts
1	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0

Refresh

Counters	Description
Port	The port on which LLDP frames are received or transmitted. (Port #1: TP port, Port #2: FX port)
Tx Frames	The number of LLDP frames transmitted on the port.
Rx Frames	The number of LLDP frames received on the port.
Rx Error Frames	The number of received LLDP frames containing error.
Discarde Frames	If an LLDP frame is received on a port, and the device's internal table has run full, the LLDP frame is counted and discarded. This situation is known as "Too Many Neighbours" in the LLDP standard. LLDP frames require a new entry in the table when the Chassis ID or Remote Port ID is not already contained within the table. Entries are removed from the table when a given port's link is down, an LLDP shutdown frame is received, or when the entry ages out.
TLVs discarded	Each LLDP frame can contain multiple pieces of information, known as TLVs (TLV is short for "Type Length Value"). If a TLV is malformed, it is counted and discarded.
TLVs unrecognized	The number of well-formed TLVs, but with an unknown type value.
Org. TLVs discarded	The number of organizationally received TLVs.
Ageouts	Each LLDP frame contains information about how long time the LLDP information is valid (age-out time). If no new LLDP frame is received within the age out time, the LLDP information is removed, and the Ageout counter is incremented.

[Refresh] Click to refresh all statistic counters

5.5.3 LLDP Table

LLDP Neighbour Table

Local Port	Chassis Id	Remote Port ID	System Name	Port description	System Capabilities	Management Address
No entries in table						

Refresh

Status	Description
Local Port	The port on which the LLDP frame was received. (Port #1: TP port, Port #2: FX port)
Chassis Id	The Chassis Id is the identification of the neighbor's LLDP frames.
Remote Port ID	Port ID of the neighbor port
System Name	System Name advertised by the neighbor unit
Port Description	The port description advertised by the neighbor unit
System Capabilities	System Capabilities describes the neighbor unit's capabilities. The possible capabilities are: <ol style="list-style-type: none">1. <i>Other</i>2. <i>Repeater</i>3. <i>Bridge</i>4. <i>WLAN Access Point</i>5. <i>Router</i>6. <i>Telephone</i>7. <i>DOCSIS cable device</i>8. <i>Station only</i>9. <i>Reserved</i> When a capability is enabled, the capability is followed by (+). If the capability is disabled, the capability is followed by (-).
Management Address	Management Address is the neighbor unit's address that is used for higher layer entities to assist discovery by the network management. This could for instance hold the neighbor's IP address.
[Refresh]	Click to refresh all statistic counters

5.5.4 SFP DDM

SFP DDM

Port	FX
Identifier	SFP transceiver
Connector	LC
SONET Compliance	N/A
Ethernet Compliance	1000BASE-LX
Vendor Name	APAC Opto
Vendor OUI	000F99
Temperature	50.00 (°C)
Voltage	3.30 (V)
TX Power	267.9 (µW) -5.72 (dBm)

Refresh

Remark

$\text{dBm}(N \mu\text{W}) = -30 \text{ dBm} + \log_{10}(N) \times 10$

Status	Description
SFP Ports	Port numbers which are equipped with SFP slot.
Identifier	Identification information of the transceiver
Connector	The connector type used on the transceiver
SONET Compliance	The SONET compliance information of the transceiver
GbE Compliance	Gigabit Ethernet compliance information of the transceiver
Vendor Name	The vendor name of the transceiver
Vendor OUI	The vendor OUI of the transceiver
Temperature	The current temperature sensed currently inside the transceiver
Voltage	The working voltage sensed currently inside the transceiver
TX Power	The transmission optical power sensed currently and shown in µW and dBm

5.5.5 Ping

Ping Parameters

Target IP address	<input type="text"/>
Count	1 ▼
Time Out (in secs)	1 ▼

Apply

Ping Results	
Target IP address	0.0.0.0
Status	Test complete
Received replies	0
Request timeouts	0
Average Response Time (in ms)	0

Refresh

Ping	Description
Target IP Address	The target IP address to which the ping command issues
Count	The number of ping commands generated
Time Out (in secs)	The time out for a reply (in seconds)
[Apply]	Start the ping command
Results	Description
Target IP Address	The target IP address to which the ping command issues
Status	The command status
Received replies	The number of replies received by the system
Request time-outs	The number of requests time out
Average Response Time	The average response time of a ping request (in mini-seconds)
[Refresh]	Click to refresh all statistic counters

5.6 Maintenance

5.6.1 Reboot System

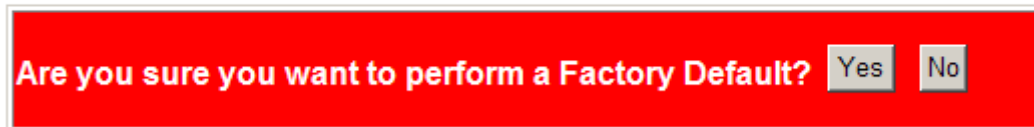
Reboot System



This menu is used to reboot the device unit remotely with current configuration. Starting this menu will make your current http connection lost. You must rebuild the connection to perform any management operation to the unit.

5.6.2 Restore Default

Factory Default



This menu is used to restore all settings of the device unit with factory default values except current IP configuration and Management VLAN configuration.

5.6.3 Update Firmware

Software Upload

A form for software upload. It consists of a text input field, a "Browse" button to its right, and an "Upload" button centered below the input field.

This menu is used to perform in-band firmware (software) upgrade. Enter the path and file name of new firmware image file for uploading.

Configuration	Description
Filename	Path and filename (warp format)
[Browse]	Click to browse your computer file system for the firmware image file
[Upload]	Click to start upload

5.6.4 Configuration File Transfer

Configuration Upload

Configuration Download

This [download] command can be used to backup current device configuration and download it to the connected management PC. The default filename is “switch.cfg”.

Configuration	Description
Filename	Path and filename of a backup configuration file to be uploaded
[Browse]	Click to browse your computer file system for the configuration file
[Upload]	Click to start upload operation from the connected PC to the device
[Download]	Click to start download operation from the device to the connected PC

5.6.5 Logout

Please enter password to login

This menu is used to perform a logout from the web management immediately and return a login prompt. If current user does not perform any management operation over 3 minutes, the device will execute an auto logout and abort the current connection.

6. SNMP Support

SNMP version support	Snmp v1, v2c management
Managed Objects	MIB-II
	system OBJECT IDENTIFIER ::= { mib-2 1 }
	interfaces OBJECT IDENTIFIER ::= { mib-2 2 }
	ip OBJECT IDENTIFIER ::= { mib-2 4 }
	snmp OBJECT IDENTIFIER ::= { mib-2 11 }
	ifMIB OBJECT IDENTIFIER ::= { mib-2 31 }
RFC	RFC 3418 - Management Information Base (MIB) for the Simple Network Management Protocol (SNMP)
	RFC 1213 - Management Information Base for Network Management of TCP/IP-based internets:MIB-II
Private MIB	DDM status entries
	OPA entries
	ALS entries
SNMP Trap Support	TRAP_COLDSTART - the device boot up trap
	TRAP_LINKUP - the port link recovery trap
	TRAP_LINKDOWN - port link down trap
	TRAP_OPA – OPA alarm trap

Appendix A. Factory Default Settings

System Configuration

DHCP Enabled	<i>Disabled</i>
Fallback IP Address	<i>192.168.0.2</i>
Fallback Subnet Mask	<i>255.255.255.0</i>
Fallback Gateway	<i>0.0.0.0</i>
Management VLAN	<i>0</i>
Name	<i>Null</i>
Password	<i>123</i>
Inactivity Timeout (secs)	<i>300</i>
SNMP enabled	<i>Disabled</i>
SNMP Trap destination	<i>0.0.0.0</i>
SNMP Read Community	<i>public</i>
SNMP Write Community	<i>private</i>
SNMP Trap Community	<i>public</i>
Operating Mode	<i>Advanced Mode</i>
802.1Q Control	<i>Disabled</i>
Jumbo Mode	<i>Disabled</i>
Link fault pass through	<i>Disabled</i>
Remote TP auto report	<i>Disabled</i>
Power Saving Mode	<i>Enabled</i>

Ports Configuration

Mode	<i>Auto for TP port, 1000 Full for FX port</i>
Flow Control	<i>v: Enabled</i>
Link Fault Relay Alarm	<i>Disabled</i>
Default Tag - VID(PVID)	<i>1</i>
Default Tag – DEI	<i>0</i>
Default Tag – PCP	<i>0</i>
Ingress Drop	<i>Disabled</i>

Tag Removal	<i>Keep All Tags</i>
Egress Tagging Rule	<i>Type 0</i>
Tagging Exceptional VID	<i>1</i>
Egress Tag TPID	<i>0x8100(c-tag)</i>
Custom TPID	<i>0x8100</i>
802.1Q Filtering	<i>Disabled</i>

802.1Q Filtering

VID TABLE	<i>Disabled</i>
VID n (n=1-16)	<i>0</i>

LLDP Configuration

Transmitted TLVs

Port Description	<i>Enabled</i>
System Name	<i>Enabled</i>
System Description	<i>Enabled</i>
System Capabilities	<i>Enabled</i>
Management Address	<i>Enabled</i>

LLDP Parameters

Tx Interval	<i>10</i>
Tx Hold	<i>4</i>
Tx Delay	<i>2</i>
Reinit Delay	<i>2</i>

LLDP Port Configuration

LLDP State	<i>Disabled</i>
------------	-----------------

OPA

MinMode	<i>Disabled</i>
MinLimit	<i>1 μW</i>
MaxMode	<i>Disabled</i>

MaxLimit *6553 μ W*

ALS

Mode *Disabled*

Interval *100 sec.*

Width *2 sec.*

Appendix B. Models & Optical Specifications

Model Definition

KGC-260	Model with no pre-installed SFP transceiver
KGC-260-xxxx	Models with pre-installed SFP transceiver

SFP with 1000BASE-X fiber transceiver

<u>Model Ext.</u>	<u>FiberCon.</u>	<u>Reference Fiber Distance (Typ.)</u>
-SX	1000M LC	Duplex MMF 500m
-LX	1000M LC	Duplex MMF 550m, SMF 10km
-LX70	1000M LC	Duplex SMF 70km

Bi-directional WDM over single SMF

-W3510	1000M LC	Simplex SMF 10km
-W5310	1000M LC	Simplex SMF 10km

Optical Specifications

<u>Model Ext.</u>	<u>Wavelength</u>	<u>Tx Power*¹</u>	<u>Rx Sen.*²</u>	<u>Max.Rx*³</u>
-SX	850nm	-9.5~ -4	-18	0
-LX	1310nm	-9.5~ -3	-20	-3
-LX70	1550nm	0~ +5	-24	-3

Bi-Direction WDM over single SMF

-W3510	T1310/R1550	-9~ -3	-21	-1
-W5310	T1550/R1310	-9~ -3	-21	-1

SFP with 100BASE-FX fiber transceiver

<u>Model Ext.</u>	<u>FiberCon.</u>	<u>Reference Fiber Distance (Typ.)</u>
-FM	100M LC	Duplex MMF 2km
-FS30	100M LC	Duplex MMF SMF 30km

Optical Specifications

<u>Model Ext.</u>	<u>Wavelength</u>	<u>Tx Power*¹</u>	<u>Rx Sen.*²</u>	<u>Max.Rx*³</u>
-FM	1310nm	-20~ -14	-31	0
-FS30	1310nm	-15~ -8	-34	0

*¹ Tx Power : Transmitter power (min. ~ max., unit: dBm)

*² Rx Sen. : Receiver sensitivity (unit :dBm)

*³ Max.Rx. : Maximal Received power (unit : dBm)