



**PoE Powered
Gigabit Ethernet Media Converters
1000BASE-T TO 1000BASE-SX/LX**

KGC-352 Series

Installation Guide



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TRADEMARKS

Ethernet is a registered trademark of Xerox Corp.

FCC NOTICE

This device complies with Class B Part 15 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.

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 B

EN 50081-1/1992 : EN55022, EN61000-3-2, EN61000-3-3

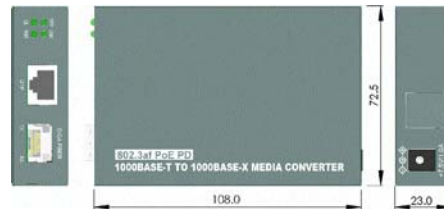
EN 50082-1/1998 : EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5,
EN61000-4-6, EN61000-4-8, EN61000-4-11

Table of Contents

1. Introduction	5
1.1 Key Features	6
1.2 Specifications	7
1.3 Model Definition	9
1.4 Optical Specifications	10
2. Installation	11
2.1 Unpacking	11
2.2 Safety Cautions	11
2.3 Mounting the Device	12
2.4 Powered by PoE over Cat.5	13
2.5 Notice When Installing SFP transceiver	14
2.6 Powered by External Power Adapter	15
3. Applications	16
3.1 Extending Connection Distance	16
3.2 Connecting to a Fiber Gigabit Ethernet Port	16

1. Introduction

The 1000BASE-T to 1000BASE-SX/LX media converter series provides 1000Mbps Gigabit Ethernet copper-to-fiber media conversion, allowing for 1000Base-T-1000Base-X over multimode or optional single-mode fiber optical media.

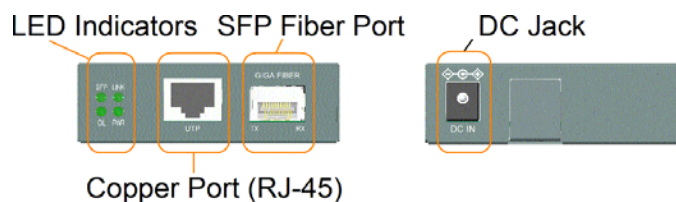


Because of 802.3af compliance, the converters can draw the power via Cat.5 cable connected to a PoE PSE switch or mis-span injector in addition to being powered by typical external power adapter,. This feature makes the converter ideal for remote areas of a network without AC power outlets.

1.1 Key Features

- Gigabit copper to fiber conversion: 1000Base-T-to-1000Base-SX/LX over multimode or single-mode fiber
- SFP design : For flexibility, an SFP (Mini-GBIC) connector is provided for the fiber port to accommodate any type of SFP fiber transceiver when needed.
- Support full wire speed copper to fiber conversion
- Auto MDI/MDI-X detection function on the copper port
- Auto-negotiation support
- Plug and play : no configuration settings is required
- Link Fault Pass Through : this function allows link fault status passes through between copper link and fiber link transparently.
- Far End Fault function on fiber port
- Transparent conversion to any type of packet frame
- No packet length limitation
- Diversified mounting support : desktop mounting, wall mounting, optional Din-Rail support
- Support wide range of fiber options : multimode fiber, single mode fiber (short reach up to long reach), Bi-directional single fiber, and CWDM optical
- Low power consumption
- IEEE 802.3af compliant PoE PD (Powered Device) design

1.2 Specifications



Twisted-Pair Interface (Copper Port)

Connector	Shielded RJ-45
Signal Compliance	IEEE 802.3ab 1000BASE-T std.
Pin Assignments	Auto MDI/MDI-X detection
Data Speed	1000Mbps
Configuration	Auto-negotiation support
Cable Types	Category 5 or higher UTP
Link Distance	Up to 100 meters

Fiber Optic Interface (Fiber Port)

Signal Compliance	IEEE 802.3z 1000BASE-SX/LX std.
Connector	SFP for pluggable fiber transceiver
Data Speed	1000Mbps, full duplex
Cable Types	MMF - 50/125, 62.5/125 mm SMF - 9/125 mm
Link Distance	MMF up to 500m SMF -model dependent
Eye Safety compliance	IEC825 Class 1

PoE (Power over Ethernet)

Standard	IEEE 802.3af PD (Powered Device)
Power Reception	TP port RJ-45 Pin 1,2,3,6 or Pin 4,5,7,8
Input Voltage	36 ~ 57VDC via Cat.5
Power Classification	Class 1

DC Power Input

Interface	DC Jack (-D6.3mm/+D2.0mm)
Operating Voltages	DC input +7V ~ +57V
Power consumption	max 2W @+7.5VDC input
Power Supply Options	External AC-DC power adapters Input options: AC 100V/120V/230V/240V Rated output: DC7.5V 500mA min.

Mechanical

Dimension (base)	W 108mm x D72.5mm x H 23mm
Housing	Enclosed metal with no fan
Weight	205g

LED Indicators

PWR	ON	Power on
	OFF	Power off
SFP	ON	SFP transceiver is installed.
	OFF	No SFP transceiver is installed.
LINK	ON	Copper-fiber link up
	OFF	Copper-fiber link down
	BLINK	Copper-fiber link with data traffic
OL	ON	Fiber port optical signal detected
	OFF	Fiber port no optical signal

Environmental

Operating Temperature	-5 ~ 55°C
Storage Temperature	-40 ~ 85°C
Relative Humidity	5% ~ 95%

Approval

FCC	Part 15 Class B
CE/EMC	EMI EN50081-1 Class B, EMS EN55024
Safety	IEC60950(CE/LVD)

1.3 Model Definition

Model Series: KGC-352-X

Duplex fiber

<u>X</u>	<u>FiberCon.</u>	<u>Fiber Distance (Typ.)</u>
none	Free SFP	no SFP transceiver
SX	LC	Duplex MMF 500m
LX	LC	Duplex MMF 550m, SMF 10km
LX20	LC	Duplex SMF 20km
LX30	LC	Duplex SMF 30km
LX50	LC	Duplex SMF 50km
LX70	LC	Duplex SMF 70km

Bi-directional WDM over single SMF

W3510	LC	Simplex SMF 10km
W5310	LC	Simplex SMF 10km
W3520	LC	Simplex SMF 20km
W5320	LC	Simplex SMF 20km
W3410	LC	Simplex SMF 10km
W4310	LC	Simplex SMF 10km
W3410S	SC	Simplex SMF 10km
W4310S	SC	Simplex SMF 10km

All models listed below except Model 300 are shipped with a pre-installed SFP fiber transceiver.

1.4 Optical Specifications

Model Series : KGC-352-X

Duplex Fiber Series

<u>X</u>	<u>Wavelength</u>	<u>Tx Power</u> *1	<u>Rx Sen.</u> *2	<u>Max.Rx</u> *3
SX	850nm	-9.5~-4	-18	0
LX	1310nm	-9.5~-3	-20	-3
LX20	1310nm	-8~-2	-23	-1
LX30	1310nm	-4~+1	-24	-3
LX50	1550nm	-4~+1	-24	-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
W3520	T1310/R1550	-8~-2	-23	-1
W5320	T1550/R1310	-8~-2	-23	-1
W3410	T1310/R1550	-9~-3	-21	-1
W4310	T1550/R1310	-9~-3	-21	-1
W3410S	T1310/R1550	-9~-3	-21	-1
W4310S	T1550/R1310	-9~-3	-21	-1

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

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

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

2. Installation

2.1 Unpacking

Check that the following components have been included:

- Installation guide (or contained in the product CD)
- The Media Converter

If any item is found missing or damaged, please contact your local reseller for replacement.

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.
- If any of the following conditions occur, unplug the product from the electrical outlet and replace the part or contact your trained service provider:
 - 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.

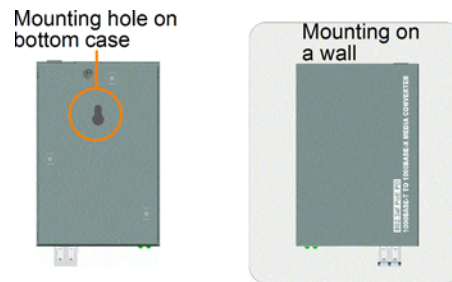
2.3 Mounting the Device

Desktop Mounting

The media converter can be mounted on a desktop or shelf. Make sure that there is proper heat dissipation from and adequate ventilation around the device. Do not place heavy objects on the device.

Wall Mounting

The media converter also can be mounted on a wall. On bottom of the device, wall mounting hole is provided for wall mounting.



Din-rail Mounting

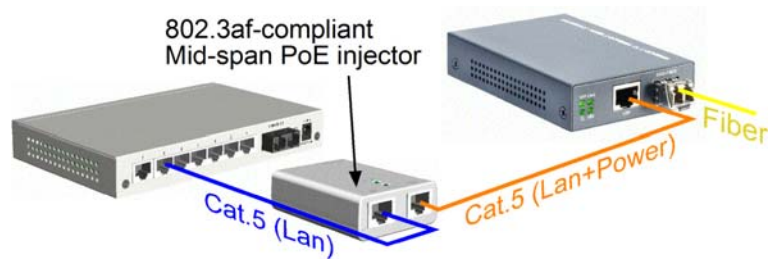
For a Din-Rail chassis, the media converter can support mounting on a Din-Rail. An optional Din-Rail bracket, KC-3DR can be purchased separately. Consult your dealer for details. The following figures show an example after bracket installation:



2.4 Powered by PoE over Cat.5

Power supply by a Mid-Span PoE Injector

The following figure illustrates the converter is powered by the PoE delivered from a remote mid-span PoE injector over Cat.5.



Power supply by a PoE PSE Switched Port

The following figure illustrates the converter is powered by the PoE delivered from a remote PoE PSE switch over Cat.5.



Note:

1. The Cat.5 used can be the standard Cat.5 cable for Ethernet connection.
2. Check the power LED on the converter to see whether the power is received on the Cat.5.
3. For the compatibility, the remote PoE PSE used must be IEEE 802.3af compliant.

2.5 Notice When Installing SFP transceiver

It is suggested to use the recommended SFP transceivers for being installed in this media converter. Consult your dealer for the details.

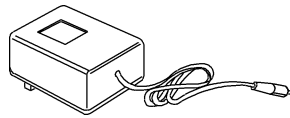
Some SFP transceivers in the market have improper design that the metal case of the transceiver connected internal circuitry of the transceiver. The design might cause damage to both the transceiver and the media converter under ESD. Make sure your SFP transceiver has no such issue.

The transceiver should have design that the metal case isolates from the circuitry.

2.6 Powered by External Power Adapter

The converter can support being powered by an external power adapter as an alternative when PoE power is not available on Cat.5. Before you begin the installation, check the AC voltage of your area. The AC power adapter which is used to supply the DC power for the unit should have the AC voltage matching the commercial power voltage in your area.

The AC Power Adapter Specifications



AC input power: AC power voltage of your area,
Rated input options -
AC120V/60Hz, AC230V/50Hz,
AC100V/50-60Hz, Rated AC240V/50Hz
Rated output - DC7.5V 500mA min.

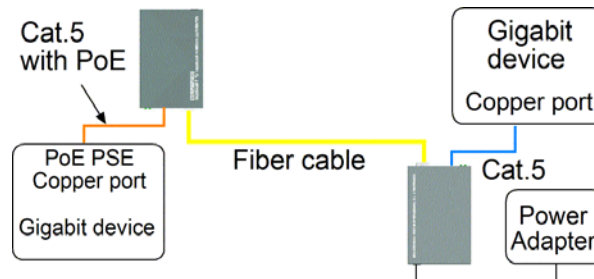
Steps to apply the power to the converters are:

1. Connect power adapter DC plug to the DC input jack located on the back of the converter before connecting to the AC outlet.
2. To ensure against accidental disconnection, tie the DC cable with the cable tie located the back of the converter.
3. Connect the power adapter to the AC outlet.
4. Check Power LED indication.

3. Applications

3.1 Extending Connection Distance

Use two media converters connected with an appropriate fiber cable to extend the connection distance between two Gigabit copper devices as shown below:



3.2 Connecting to a Fiber Gigabit Ethernet Port

The converter can also connect to a remote fiber Gigabit Ethernet port over a fiber cable. It extends the connection distance between a copper port and a fiber port as shown below:

