

# Gigabit Ethernet Copper-to-Fiber Converters



*Illustrated: Gigabit Ethernet converter family with standard and single fiber connectors*

Canary's Gigabit Ethernet Copper-to-Fiber converters combine existing 100 meter Category-5(E) UTP and Fiber optic segments to deliver Gigabit data across the network. They are ideal for data intensive backbones in the enterprise or campus and can be used to take advantage of low-cost Gigabit capable switches. As bandwidth demand increases, Canary's Gigabit UTP-to-Fiber converters are used to economically distribute Gigabit Ethernet capacity to user desktops throughout the network.

***Setting the standard ... the state of the art.***

**GFT-10XX**  
Standard multi-mode  
& single-mode  
1000BASE-T

**GFT-105SE**  
Extended Reach  
Multi-Mode over  
standard fiber

**GFT-1037A/B**  
Single-Fiber,  
Bi-Directional  
Single-Mode

**GFT-10W-XX**  
Single-mode  
with ITU specified  
CWDM wavelengths

**Combine existing  
copper and fiber  
segments to support  
Gigabit data across  
the network**



## Product Specifications

### Power:

- External switching
- 100/240 VAC, 1.2/0.6 Amp
- 50/60 Hz

### Environment:

- Operating Temp.: 0 to 49°C
- Storage Temp.: -10 to 66°C
- Relative Humidity: 5% to 95% non-condensing

### Mechanical:

- Height: 1.00" (2.54 cm)
- Length: 5.75" (14.61 cm)
- Width: 2.85" (7.24 cm)
- Ship Weight: 2.0 lb (0.9 Kg)
- Single Unit: 0.4 lb (0.2 Kg)

### Regulatory:

- Designed in compliance with FCC Class A-Part 15, CE, UL, CSA & TUV standards
- IEEE 802.3z, A/B; 1000BASE-T/SX/LX/ZX
- Class 1 lasers conform to US 21CFR101.11, EN 60825-1, UL 1950 and IEC-825

### Warranty:

- Five (5) Years, parts and labor

### Specifications for GFT-1055E

#### Environment:

- Operating Temp.: 0 to 49°C
- Storage Temp.: -10 to 66°C
- Relative Humidity: 5% to 95% non-condensing

#### Mechanical:

- Height: 1.50" (3.8 cm)
- Length: 5.27" (13.5 cm)
- Width: 8.14" (20.7 cm)
- Ship Weight: 3.0 lb (1.4 Kg)
- Single Unit: 2.5 lb (1.2 Kg)

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## Gigabit Ethernet Copper-to-Fiber Converters



Illustrated: Gigabit copper-to-fiber converter

The pages that follow provide ordering information for Canary's Gigabit Ethernet Copper-to-Fiber Converter products:

- **Standard multi-mode & single-mode 1000BASE-T/SX/LX/ZX**  
GFT-10XX
- **Extended Reach Multi-Mode links over standard fiber**  
GFT-1055E
- **Single-Fiber, Bi-Directional Single-Mode**  
GFT-1037A & GFT-1037B
- **Single-mode with ITU specified CWDM wavelengths**  
GFT-10W-XX



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# Gigabit Ethernet Copper-to-Fiber Converters

**GFT-10XX** – Standard UTP-to-Fiber: 1000BASE-T to 1000BASE-SX/LX/ZX

**GFT-1055E** – Extended Reach Multi-Mode over standard fiber



*Illustrated: Extended reach, multi-mode Gigabit converter.*

Standard GFT-105X multi-mode converters guarantee minimum transmission distances of 220+ meters over 62.5/125  $\mu\text{m}$  fiber or 500+ meters over 50.0/125  $\mu\text{m}$  fiber.

Standard GFT-103X single-mode models provide transmission distances ranging from 10 to 70 kilometers over 9.0  $\mu\text{m}$  single-mode fiber.

Canary's Extended Reach Multi-Mode GFT-1055E versions can span up two kilometers over multi-mode fiber. With Extended Reach Capability, users on maximum length fiber segments can deploy and take full advantage of the increased speed and capacity of Gigabit Ethernet!

- 1000BASE-T Autonegotiation for Full-duplex and Half-duplex operation with Flow-Control and;
- Switch selectable, Fiber-Port Autonegotiation for common, end-to-end Flow-Control, and link awareness, or for blind connection to Gigabit fiber ports on older switches
- Internal Auto-sensing, MDI / MDI-X crossover switch for Network Interface Card or Switch connections
- Dual power jacks for connecting optional, redundant power supply
- Optional: UK, Continental European power
- Auto-sensing 100/240 VAC power supply
- Transparent to Flow-Control commands such as PAUSE
- A full array of status / diagnostic LEDs

## Ordering Information

Gigabit Ethernet Model Numbers	Media Types	Optical Specifications								
		Min. Tx PWR	Max. Tx PWR	Rx Sensitivity	Min. PWR Budget	Max.PWR Budget	Max. Input PWR	Connector Type	Wavelengths ( $\eta\text{m}$ )	Transmit Distance
GFT-1055	UTP / MM	-9.5 dBm	-4.0 dBm	-17.0 dBm	7.5 dB	13.0 dB	0.0 dBm	SC	850 $\eta\text{m}$	220/550 m
GFT-1056	UTP / MM	-10.0 dBm	-4.0 dBm	-17.0 dBm	7.0 dB	13.0 dB	0.0 dBm	LC	850 $\eta\text{m}$	220/550 m
GFT-1055E	UTP / MM	-10.5 dBm	-3.5 dBm	-19.5 dBm	9.0 dB	16.0 dB	-3.0 dBm	SC	1310 $\eta\text{m}$	2000 m
<i>Specifications above in blue are for multi-mode, fiber connectors. Specifications below for single-mode, fiber connectors.</i>										
GFT-1031	UTP / SM	-10.0 dBm	-3.0 dBm	-20.0 dBm	10.0 dB	17.0 dB	-3.0 dBm	SC	1310 $\eta\text{m}$	10 Km
GFT-1036	UTP / SM	-10.0 dBm	-3.0 dBm	-20.0 dBm	10.0 dB	17.0 dB	-3.0 dBm	LC	1310 $\eta\text{m}$	10 Km
GFT-1031L	UTP / SM	-5.0 dBm	0.0 dBm	-24.0 dBm	19.0 dB	24.0 dB	-3.0 dBm	SC	1310 $\eta\text{m}$	30 Km
GFT-1031XL**	UTP / SM	-5.0 dBm	0.0 dBm	-24.0 dBm	19.0 dB	24.0 dB	-3.0 dBm	SC	1550 $\eta\text{m}$	50 Km
GFT-1031E43**	UTP / SM	-5.0 dBm	0.0 dBm	-24.0 dBm	19.0 dB	24.0 dB	-3.0 dBm	SC	1550 $\eta\text{m}$	50 Km
GFT-1031E75	UTP / SM	-2.0 dBm	3.0 dBm	-24.0 dBm	22.0 dB	27.0 dB	-3.0 dBm	SC	1550 $\eta\text{m}$	70 Km

\* NOTE: Most versions of GFT-10XX standalone converters are available as card modules for Canary's CCM-1600 and CCN-2000 / CCN-0400 Chassis models. Please refer to the CCM-1600 and CCN-2000 / CCN-0400 Data Sheets for more information.

\*\* Alternate part numbers

More versions of the GFT-10XX series may be found on the Canary web site as they become available.



# Gigabit Ethernet Copper-to-Fiber Converters

## GFT-1037A and GFT-1037 – UTP-to-Single-Fiber, Bi-Directional Single-Mode

Canary's Gigabit, Single-Fiber Bi-Directional Single-mode converters deliver long-range Gigabit data access over single fiber strand, single mode segments. GFT 1037A/B converters are designed to free-



*Illustrated: Gigabit Ethernet Single-Fiber, Bi-Directional converter.*

up fiber capacity by using dual wavelengths over a single strand of a duplex fiber pair. They are ideal for data intensive backbones in the enterprise or across the campus where extra fiber capacity is lacking but redundancy or additional access is needed to add channels or alternate protocols.

Canary's Single-Fiber, Bi-Directional converters are functionally identical to standard units with the exception that units designated with an A (GFT-1037A) transmit at 1550 nm and receive on 1310 nm, while B units (GFT-1037B) transmit at 1310 nm and receive on 1550 nm. Single-Fiber converters must be connected as complementary A & B pairs. (A and B units must be ordered in pairs because every A unit must be connected to a B unit.) Similarly, standalone A & B units can be connected to complementary A & B modules used in the CCN-2000/0400 or CCM-1600 Chassis families. Canary Gigabit Single-Fiber converters are available with 20 or 40 kilometer transmission ranges.

- 1000BASE-T Autonegotiation for Full-duplex and Half-duplex operation with Flow-Control and;
- Switch selectable, Fiber-Port Autonegotiation for common, end-to-end Flow-Control, and link awareness, or for blind connection to Gigabit fiber ports on older switches
- Internal Auto-sensing, MDI / MDI-X crossover switch for Network Interface Card or Switch connections
- Uses Single-Fiber, single-mode connectors operating on 1550 nm and 1310 nm wavelengths
- Dual power jacks for connecting optional, redundant power supply
- Optional: UK, Continental European power
- Auto-sensing 100/240 VAC power supply
- Transparent to Flow-Control commands such as PAUSE
- A full array of status / diagnostic LEDs

### Ordering Information

Gigabit Ethernet Model Numbers	Media Types	Optical Specifications								
		Min. Tx PWR	Max. Tx PWR	Rx Sensitivity	Min. PWR Budget	Max.PWR Budget	Max. Input PWR	Connector Type	Wavelengths (nm)	Transmit Distance
GFT-1037A	UTP / SM	-8.0 dBm	-3.0 dBm	-21.0 dBm	13.0 dB	18.0 dB	-3.0 dBm	SC	1550/1310	20 Km
GFT-1037B	UTP / SM	-8.0 dBm	-3.0 dBm	-21.0 dBm	13.0 dB	18.0 dB	-3.0 dBm	SC	1310/1550	20 Km
GFT-1037E4A	UTP / SM	-3.0 dBm	2.0 dBm	-23.0 dBm	20.0 dB	25.0 dB	-3.0 dBm	SC	1550/1310	40 Km
GFT-1037E4B	UTP / SM	-3.0 dBm	2.0 dBm	-23.0 dBm	20.0 dB	25.0 dB	-3.0 dBm	SC	1310/1550	40 Km

\* NOTE: GFT-1037X / GFT-1037E4X standalone converters are available as card modules for Canary's CCM-1600 and CCN-2000 / CCN-0400 Chassis models. Please refer to the CCM-1600 and CCN-2000 / CCN-0400 Data Sheets for more information.

More versions of the GFT-1037A/B series may be found on the Canary web site as they become available.



# Gigabit Ethernet Copper-to-Fiber Converters

## GFT-10W-XX – UTP to Single-mode with ITU-specified CWDM wavelengths

Canary's GFT-10W-XX series of Gigabit Coarse Wavelength Division Multiplexing (CWDM) converters provide an economical way to launch Gigabit Ethernet data for transport through CWDM Multiplexers and provide access to high capacity CWDM based networks.

Coarse Wavelength Division Multiplexing reduces network congestion with a minimum infrastructure investment. Using discrete wavelengths (one per channel), multiple data channels can be transported in parallel over a single-mode fiber cable.

GFT-10W-XX CWDM converters are designed to meet industry needs for an efficient way to access CWDM point-to-point campus and metro-ring networks. They are used with Main Distribution Frame (central office) Multiplexers and with remote site Optical Add/Drop Multiplexers (OADMs) to insert and/or drop optical traffic from single-mode fiber segments. Specific models provide transmission on one of eighteen discrete  $\lambda$ s, each an ITU specified, CWDM wavelength. Versions are available for either 40+ or 60+ Kilometer transmission distances.

CWDM converters are functionally identical to standard units with the exception that units at opposite ends of a fiber link must be models with identical wavelengths in order to maintain a common channel link e.g. if one device is operating at 1470 nm, the second must transmit and receive on the same wavelength. Similarly, a standalone 1470 nm unit can be connected to a CCM-1600 or CCN-2000 / CCN-0400 chassis module with the same wavelength.

- 1000BASE-T Autonegotiation for Full-duplex and Half-duplex operation with Flow-Control and;
- Switch selectable, Fiber-Port Autonegotiation for common, end-to-end Flow-Control, and link awareness, or for blind connection to Gigabit fiber ports on older switches
- Internal Auto-sensing, MDI / MDI-X crossover switch for Network Interface Card or Switch connections
- Dual power jacks for connecting optional, redundant power supply
- Optional: UK, Continental European power
- Auto-sensing 100/240 VAC power supply
- Transmits individual ITU specified CWDM wavelengths
- Transparent to Flow-Control commands such as PAUSE
- A full array of status / diagnostic LEDs

## Ordering Information

Gigabit Ethernet Model Numbers	Media Types	Optical Specifications								
		Min. Tx PWR	Max. Tx PWR	Rx Sensitivity	Min. PWR Budget	Max.PWR Budget	Max. Input PWR	Connector Type	Wavelengths (nm)	Transmit Distance
GFT-10W-XX *	UTP / SM	-5.0 dBm	0.0 dBm	-22.0 dBm	17.0 dB	22.0 dB	-3.0 dBm	SC	CWDM	40 Km
GFT-10W-XXE6	UTP / SM	0.0 dBm	5.0 dBm	-24.0 dBm	24.0 dB	29.0 dB	-3.0 dBm	SC	CWDM	60+ Km
GFT-10W-XXE8	UTP / SM	dBm	dBm	dBm	dB	dB	dBm	SC	CWDM	80 Km

\* NOTE 1: W-XX designates one of eighteen CWDM optical transmission wavelengths (λ) e.g. GFT-10W-47=1470nm or GFT-10W-61=1610nm transmission. Please refer to other CWDM (Coarse Wavelength Division Multiplexing) Data Sheets for additional information.

\* NOTE 2: Canary CWDM standalone converters are available as card modules for the CCM-1600 and SNMP manageable CCN-2000 / CCN-0400 Chassis models. Please refer to the CCM-1600 and CCN-2000 / CCN-0400 Data Sheets for more information.

Please refer to the Standalone / Rackable CWDM data pages for information on Passive Optical Multiplexer / De-Multiplexers and OADMs.

There are eighteen CWDM wavelengths (λs) specified. Eight standard wavelengths plus four O-band λs are usable over most standard single-mode fiber.

Canary offers products for the standard eight wavelengths plus four O-band λs: 1470, 1490, 1510, 1530, 1550, 1570, 1590, 1610 nm + 1290, 1310, 1330, 1350 nm

More versions of the GFT-10W-XX series may be found on the Canary web site as they become available.

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