

# ICF-1170I Series

## Industrial CAN-to-fiber converters



15 kV ESD

- > Transmits up to 2 km over optical fiber
- > Converts CAN signals to fiber and fiber to CAN signals
- > Baudrate up to 1 Mbps
- > Dual power inputs for redundancy
- > DIP switch for 120 ohm terminal resistance
- > DIP switch for fiber test mode
- > LEDs for Fiber TX, Fiber RX, Power 1, Power 2
- > Wide temperature model available for -40 to 85°C environments
- > Fully compatible with the ISO 11898 standard



### Introduction

The ICF-1170I series CAN-to-fiber converters are used to convert CAN signals from copper to optical fiber. The converters come with 2 kV optical isolation for the CANbus system and dual power inputs with

alarm contact relay to ensure that your CANbus system will remain online.

### Fiber Test Mode

Fiber Test Mode can be used to test the fiber cable between two ICF-1170I units, and it provides a simple way to determine if the fiber cable is transmitting data correctly. When in Fiber Test Mode, the fiber transceiver (TX) will continuously send out a data signal and the “Fiber

TX” LED will light up. On the other side of the connection, when the ICF-1170I fiber transceiver (RX) receives the data signal from the TX side, the “Fiber RX” LED will light up.

### Specifications

#### CAN Communication

**CAN Interface:** ISO 11898-2, Terminals (CAN\_H, CAN\_L, CAN\_GND)

**Protocols:** CAN 2.0A and 2.0B (ISO 11898-2)

**Connector Type:** 3-pin removable screw terminal x1

**Termination Resistor:** Dip switch selector for 120 Ω terminal resistor

**Transfer Rate:** Up to 1 Mbps

**System Delay:** 150 ns

**Isolation Protection:** 2 kV

**Transmission Distance:** Max 2 km (depends on the data rate and the protocol used)

**Note:** The transmission distance is limited by the signal rate, as indicated in the ISO 11898-2 standard.

**LED Indicators:** PWR1, PWR2, Fiber TX, Fiber RX

#### Fiber Communication

**Connector Type:** ST (multi-mode) fiber ports

**Fiber Cable Requirements:**

Low-Speed Fiber Module		Multi-Mode
Fiber Cable Requirements		50/125 μm, 800 MHz
		62.5/125 μm, 500 MHz
Typical Distance		5 km
Wave-length	Typical (nm)	850
	TX Range (nm)	840 to 860
	RX Range (nm)	800 to 900
Optical Power	TX Range (dBm)	0 to -5
	RX Range (dBm)	0 to -20
	Link Budget (dB)	15
	Dispersion Penalty (dB)	1

### Physical Characteristics

**Housing:** Metal  
**Dimensions:** 30.3 x 70 x 115 mm (1.19 x 2.76 x 4.53 in)  
**Weight:** 178 g (0.39 lb)

### Environmental Limits

**Operating Temperature:**  
 Standard Models: 0 to 60°C (32 to 140°F)  
 Wide Temp. Models: -40 to 85°C (-40 to 185°F)  
**Storage Temperature:** -40 to 85°C (-40 to 185°F)  
**Ambient Relative Humidity:** 5 to 95% (non-condensing)

### Power Requirements

**Input Voltage:** 12 to 48 VDC dual power for redundant power  
**Input Current:**  
 ICF-1170I: 221 mA @ 12 VDC  
 Alarm Contact: 1 relay output with current-carrying capacity of 1 A @ 24 VDC  
**Voltage Reversal Protection:** Protects against V+/V- reversal  
**Overcurrent Protection:** 1.1 A (protects against two signals shorted together)

### Standards and Certifications

**Safety:** UL 508  
**EMC:** EN 55032/24  
**EMI:** CISPR 32, FCC Part 15B Class A  
**EMS:**  
 EN 61000-4-2 (ESD): Contact: 8 kV; Air: 15 kV  
 EN 61000-4-3 (RS): 80 MHz to 1 GHz: 3 V/m  
 EN 61000-4-4 (EFT): Power: 4 kV; Signal: 2 kV  
 EN 61000-4-5 (Surge): Power: 2 kV; Signal: 1 kV  
 EN 61000-4-6 (CS): 150 kHz to 80 MHz: 3 V/m  
 EN 61000-4-8 (PFMF)

**Green Product:** RoHS, CRoHS, WEEE

**Freefall:** IEC 60068-2-32

**MTBF (mean time between failures)**

**Time:** 792,085 hrs

**Standard:** Telcordia (Bellcore), GB

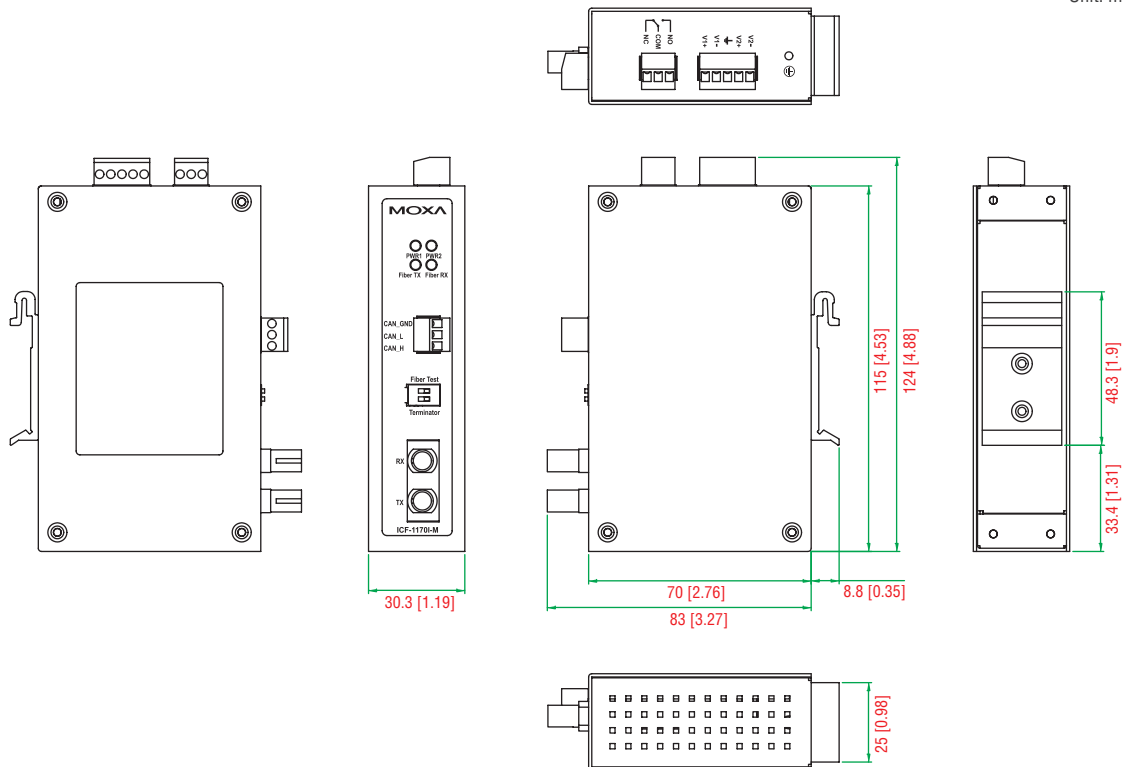
### Warranty

**Warranty Period:** 5 years

**Details:** See [www.moxa.com/warranty](http://www.moxa.com/warranty)

### Dimensions

Unit: mm (inch)



### Ordering Information

#### Available Models

**ICF-1170I-M-ST:** CAN-to-fiber converter, multi-mode, ST connector, 0 to 60°C

**ICF-1170I-M-ST-T:** CAN-to-fiber converter, multi-mode, ST connector, -40 to 85°C

#### Package Checklist

- 1 ICF-1170I CAN-to-fiber converter
- Quick installation guide (printed)
- Warranty card