

Fiber-Optic Systems

User Manual



Model: FO-LIN & FO-LIN-R

EM Hardened LIN Transceiver Link



1. Description

The FO-LIN and FO-LIN-R modules combine to create a robust and versatile multi-channel solution. In addition to LIN compatibility the units can be used with K-Line, L-Line, and KWP2000. The bi-directional link supports rates of 1 kbit/s up to 20 kbit/s with up to 50 m of fiber-optic cable.

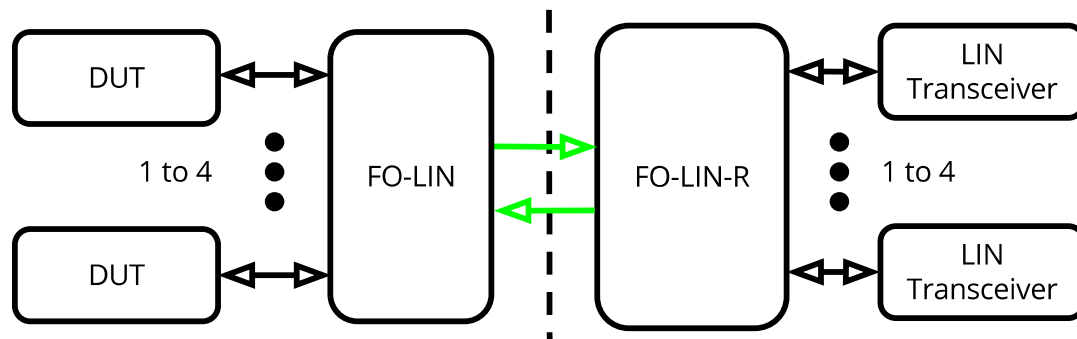


Figure 1: Possible setup configurations

You will not have to interrupt tests to recharge equipment because a battery run time of more than 50 hours will exceed even the longest tests. The FO-LIN modules are compatible with 'AA' sized alkaline batteries for easy replacement, or for a more cost effective option rechargeable batteries may be used.

FO-LIN modules have integrated filtering to ensure signal integrity. In addition the FO-LIN module shielding provides high immunity from electromagnetic interference (EMI) and electromagnetic pulse (EMP), while providing low radiated emissions. This allows for uncompromising electromagnetic compatibility (EMC) testing/engineering. The FO-LIN modules are validated for EMC up to 200 V/m (46 dBV/m) at 500 kHz to 18 GHz, and 600 V/m (pulsed 5 % duty-cycle, 5 μ s rise-time) 1 GHz to 2.55 GHz.

2. Setup

Connect the FO-LIN to the DUT. Connect the FO-LIN module to the FO-LIN-R module with ST multimode fiber-optic cables. The module connected to the DUT is battery powered. The remote module uses an external power adapter.

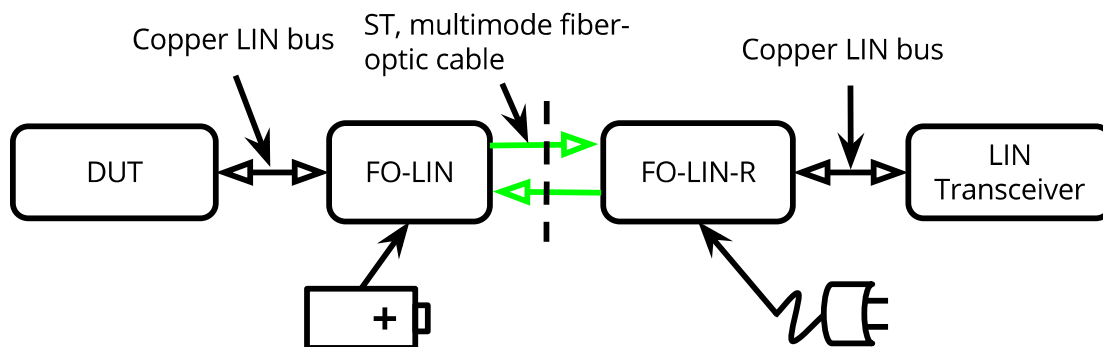


Figure 2: Setup Connections

Note: Fiber-optic cables must be cross connected as shown in Figure 3.

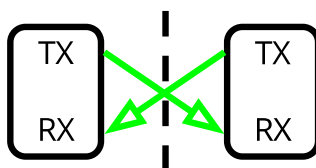


Figure 3: Cross connected modules

WARNING: The module connected to the DUT must be separated from the ground plane on a 50 mm thick foam block. The module enclosure cannot be touching any other piece of testing equipment (another module, cable harness, etc.).

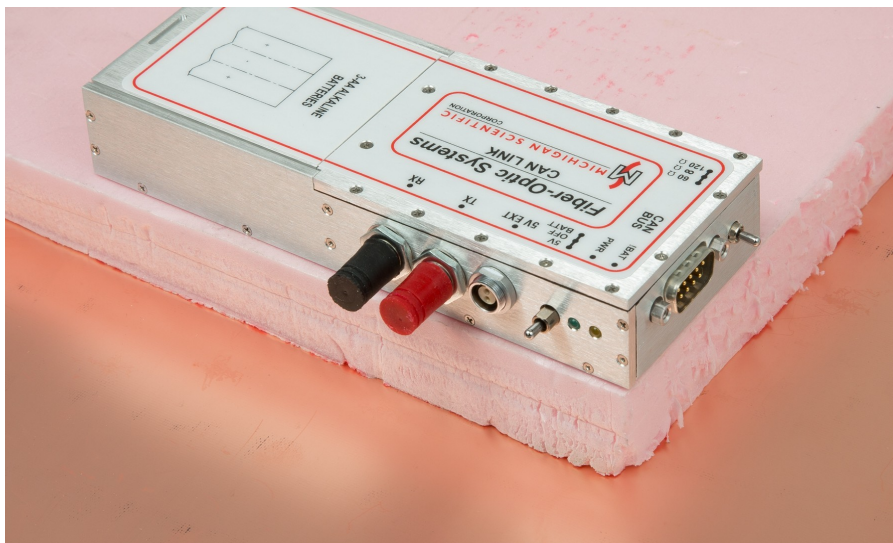


Figure 4: FO-CAN on 50 mm of foam

3. Operation

3.1. FO-LIN

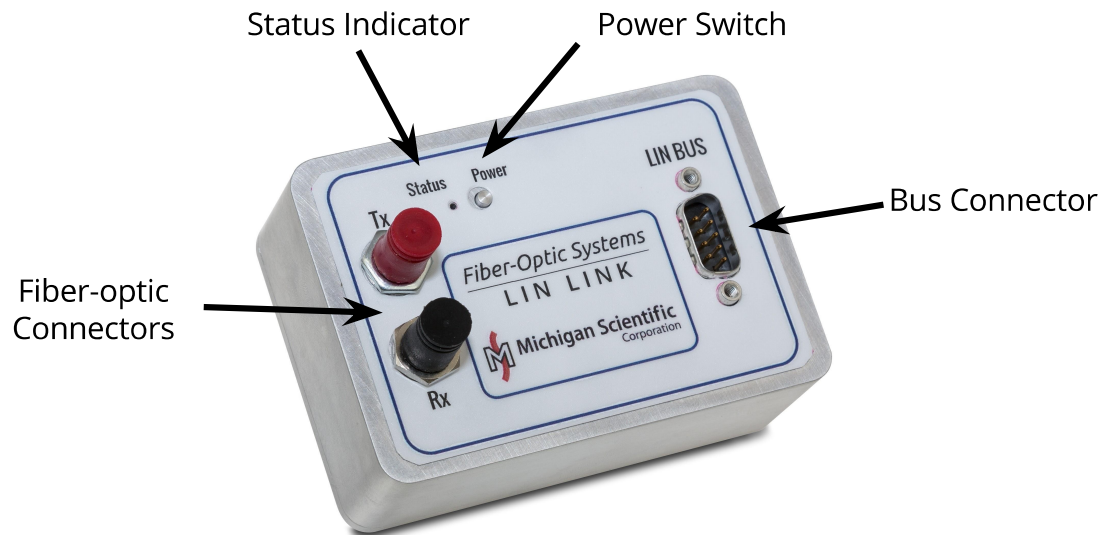


Figure 5: FO-LIN point out

The FO-LIN was designed for use with alkaline batteries. The yellow **Status** indicator illuminates when the alkaline batteries need replacement. NiMH may be used but the low-battery indicator will not work as intended. To power the unit press **Power**, to power off the unit press **Power** again. The green **Status** indicator shows communication is established between the FO-LIN and FO-LIN-R modules. The red **Status** indicator shows communication is not working between the FO-LIN and FO-LIN-R modules. This could be because one of the modules is off or a problem with the fiber-optic cables.

3.2. FO-LIN-R

The FO-LIN-R works similar to the FO-LIN but does not use batteries. 5 V Power must be supplied externally. The green **Status** indicator shows communication is established between the FO-LIN and FO-LIN-R modules. The red **Status** indicator shows communication is not working between the FO-LIN and FO-LIN-R modules. This could be because one of the modules is off or a problem with the fiber-optic cables. The yellow **Status** indicator illuminates when the alkaline batteries need replacement on the remote FO-LIN.

3.3. LIN Bus Pinout

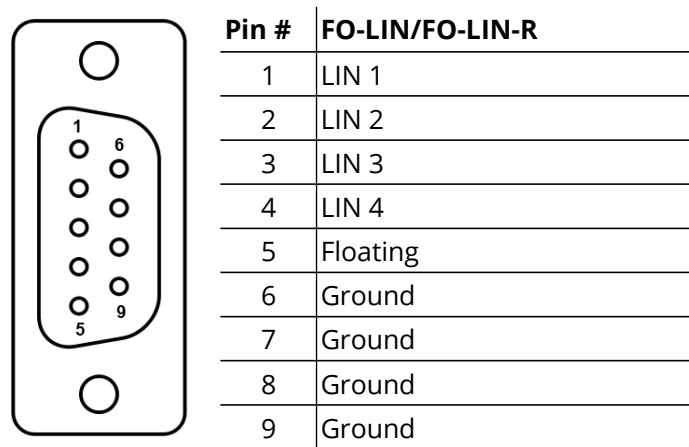


Figure 6: D-sub 9 pin male pin-out

4. Technical Support

For technical support please contact:

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5. Specifications

FO-LIN

Operating temperature	0 °C to 85 °C
Battery life	50 h
Power requirement	3-AA alkaline batteries
Dimension (L x W x H)	100 mm x 70 mm x 18 mm
Weight	330 g (400 g with batteries)
EMC	300 V/m 500 kHz to 1 GHz 200 V/m 1 GHz to 18 GHz 600 V/m pulsed 1 GHz to 2.5 GHz

FO-LIN-R

Operating temperature	0 °C to 50 °C
Power requirement	5 V input
Dimension (L x W x H)	100 mm x 70 mm x 33 mm
Weight	260 g

System General

Signal connector	D-sub 9 pin male
Signal Type	LIN, K-Line, L-Line, KWP2000
Data Rate	1 kbit/s to 20 kbit/s
Optical connector	ST
Optical cable	multimode
Optical cable length	up to 50 m