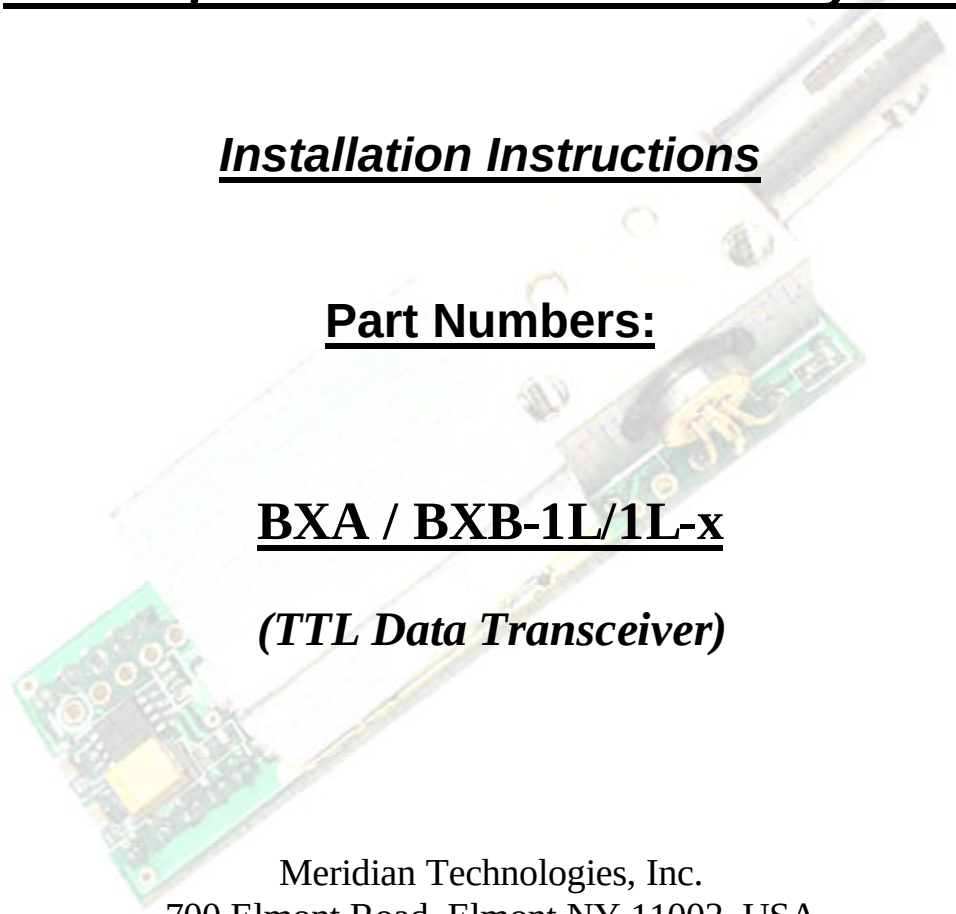
Fiber Optic Data Transmission System

Installation Instructions

Part Numbers:

BXA / BXB-1L/1L-x

(TTL Data Transceiver)



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BXA / BXB-1L/1L-x
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1.0 Product Description

Meridian's BXA-1L/1L-x and BXB-1L/1L-x products are fiber optic modems that transmit and receive one bi-directional channel of TTL data signal over one optical fiber using digital transmission technologies. The BXA/BXB -1L/1L-x is the small form-factor (SFF) size board. This product will accept 3.3VDC.

Both ST and FC optical connectors are supported, depending on the part number. An ST optical interface is available for both multimode and single-mode fiber applications while the FC optical interface is available only on single-mode products. Optional conformal coating provides an additional level of protection from environments with high humidity.

2.0 Installation

The BXA/BXB-1L/1L-x is mounted as a typical SFF transceiver module. A 10-pin plug-in connector is located on the bottom side of the unit for the power and data interface.

3.0 Product Part Number Description

The BXA/BXB-1L/1L-x series products are available in one fiber versions for either multimode or single-mode fiber. The table below lists the various part numbers and their optical transmission characteristics:

Module Part #		Wavelength (nm)	Fiber Type	Optical Connector
BXA-1L/1L-2	BXB-1L/1L-2	850/1300	Multimode	ST
BXA-1L/1L-5/FC	BXB-1L/1L-5/FC	1310/1550	Single-mode	FC
BXA-1L/1L-5/ST	BXB-1L/1L-5/ST	1310/1550	Single-mode	ST

For proper operation, it is necessary to match the BXA unit with the associated BXB unit.

4.0 Product Signal Format & Specifications

The BXA/BXB-1L/1L-x series products transmit or receive the following signal:

Signal Type	Channels	Transmit	Receive
TTL Data	1	Yes	Yes

The tables below identify the specifications for the various signals that these modems transmit/receive.

Data	
Formats	LVTTL
Date Rate	DC to 10Mb/s
Bit Error Rate (BER)	Better than 10^{-9}
Jitter/PWP	10ns
TX/RX Latency	50ns

Connectors	
Data	5 pin terminal strip
Power	5 pin terminal strip
Optical	Single-mode – ST or FC Multimode - ST

4.1 Optical Specifications

The table below lists the optical specifications for both single-mode and multimode fiber applications.

Optical Specifications								
Meridian optical code	Fiber Type/Size (um)	Optical Output (dBm)	Rx Sensitivity (dBm)	Optical Budget (dB)	Wavelength (nm)	Optical connector	Optical Dynamic Range (dB)	Max Distance (Km)
2	Multimode (Laser) 62.5 / 125	-5	-23	18	850/1300	ST	23	5
5	Single-mode (FP Laser) 9 / 125	-5	-23	18	1310/1550	ST, FC	23	50

Compliant with Class 1 Laser Safety Rating.

5.0 Data Connector Pin Assignment & Indicator Light

The 10 pin terminal block connector on the bottom side of the board is used for power and data interfaces.

Connector Pin Assignment			
Pin #	**Symbol**	**Name/Description**	**Logic Family**
MS	MS	Mounting Studs – function as mechanical attachment and are connected to Ground	N/A
1	GND	Ground	N/A
2	+3.3V	Power Supply	N/A
3	SD	Signal Detect. Logic 1 indicates normal operation	LVTTL
4	RD-	Receiver Inverted DATA OUT	N/A
5	RD+	Receiver Non-Inverted DATA OUT	LVTTL
6	+3.3V	Power Supply	N/A
7	GND	Ground	N/A
8	Tdis	Transmitter Disable. Logic1 - Disable	N/A
9	TD+	Transmitter Non-Inverted DATA IN	LVTTL
10	TD-	Transmitter Inverted DATA IN	N/A

There is one indicator light located on the top of the board that provides visual operational status of the optical signal. The function of this LED indicator is as follows:

RX optical signal: Rx signal present - Green (OK) / Red (Absent)

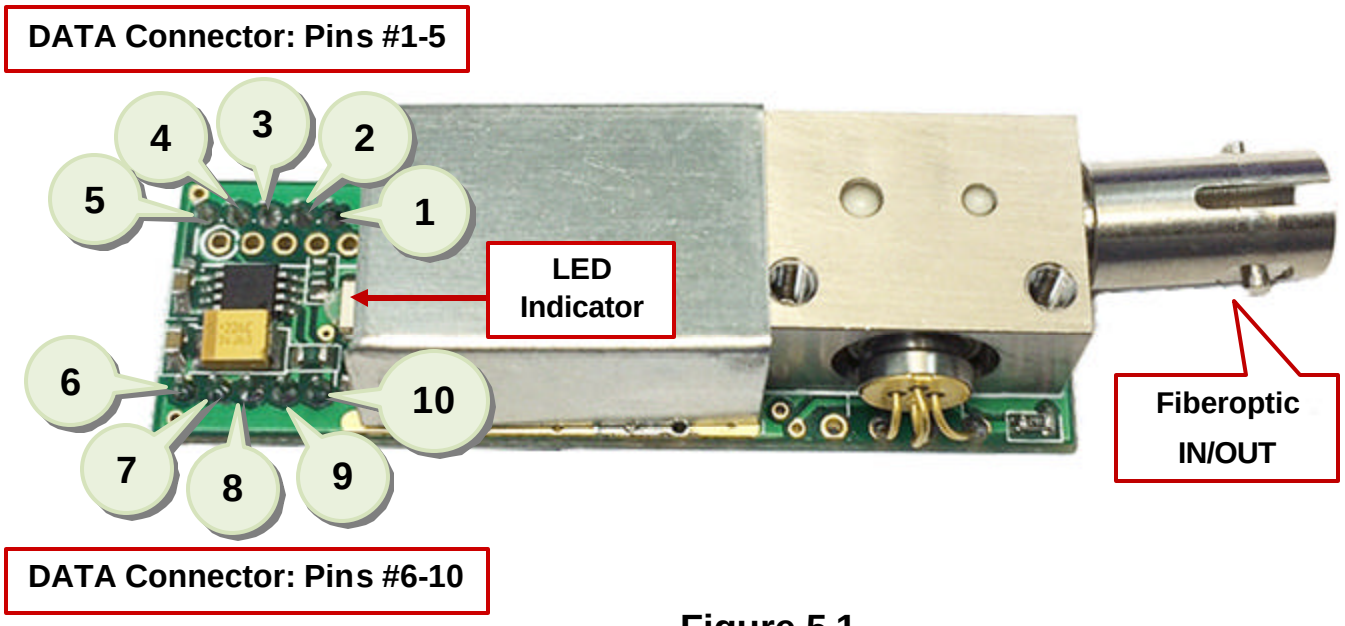

Figure 5.1
BXA/BXB-1L/1L-x Top Side Module Layout Diagram

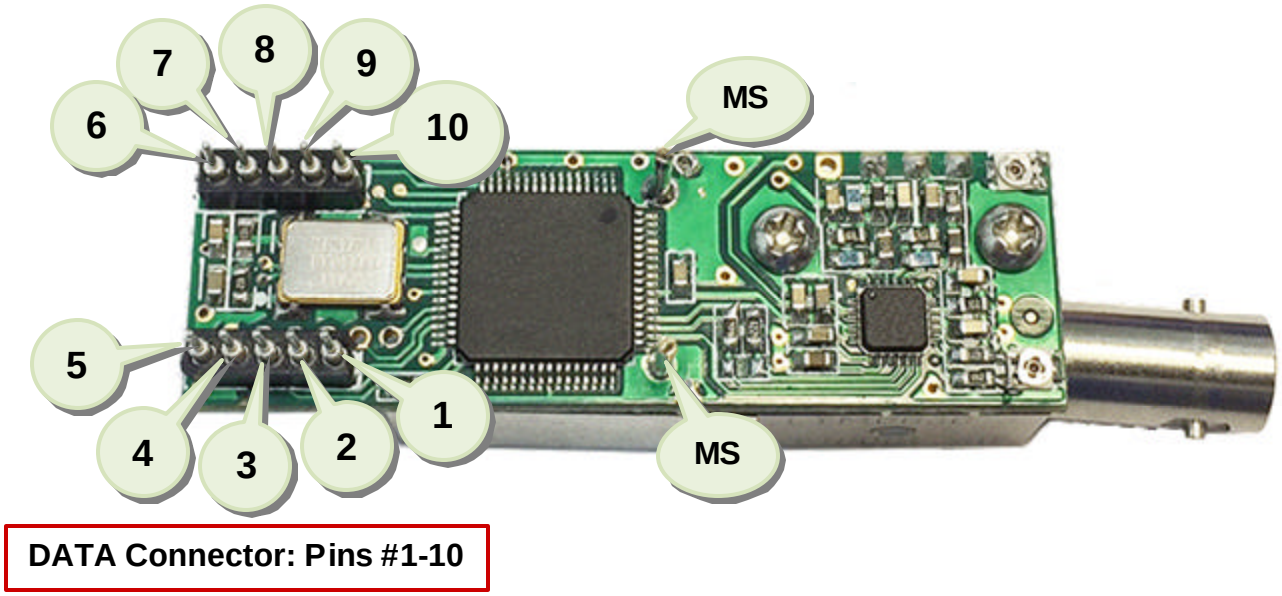

Figure 5.2
BXA/BXB-1L/1L-x Bottom Side Module Layout Diagram

There are no jumpers or switches for the user to configure for these data cards.

6.0 Mechanical Dimensions

Module physical dimensions:
Length – 1.95” (49.5mm), Width – 0.6” (15.2mm), Height – 0.5” (12.7mm).
Module weight: 0.8 oz (23.5g)

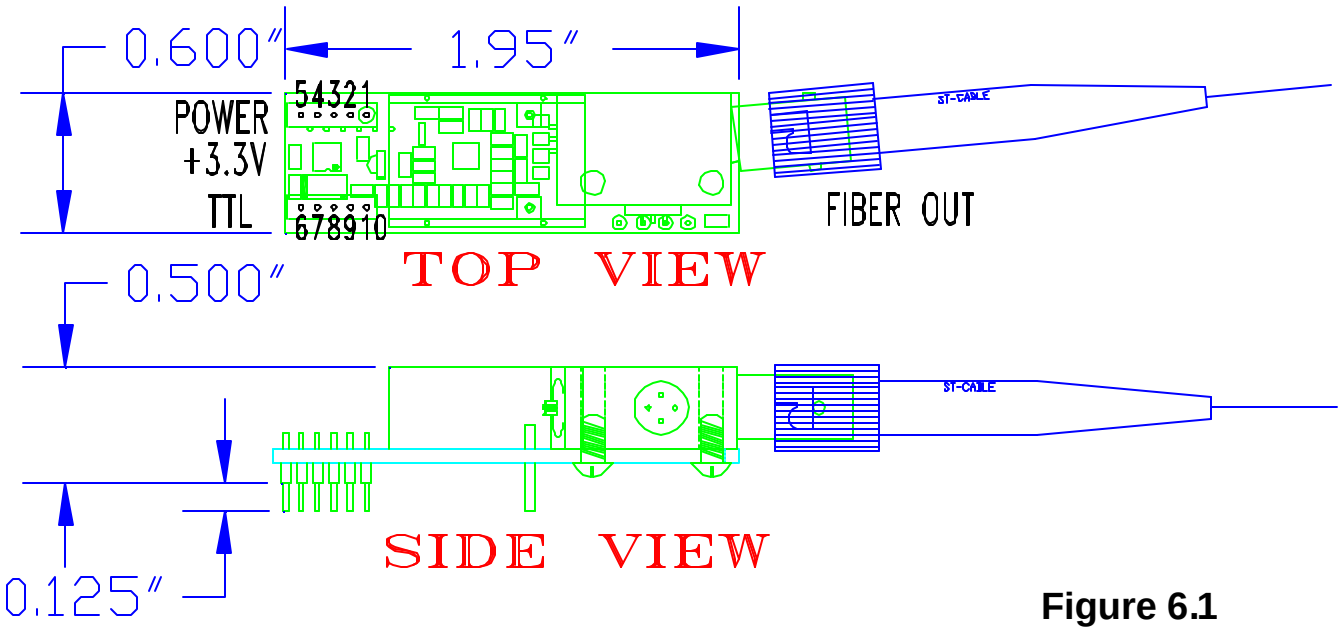

Figure 6.1

7.0 Connection Diagram

Figure 7.1 below show the 10 pin terminal connector and host board recommended connection diagram for both the BXA-1L/1L-x and BXB-1L/1L-x modules.

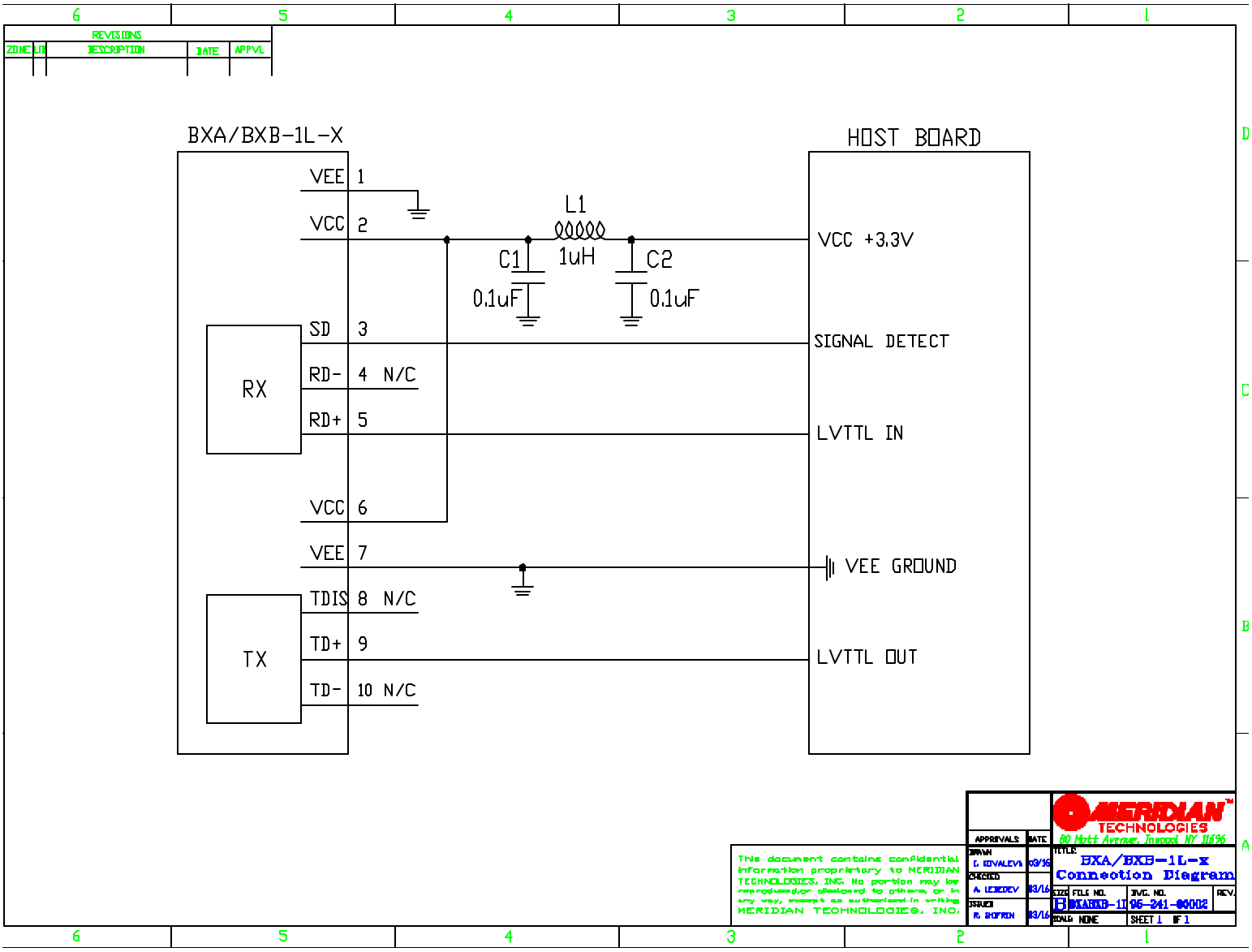

Figure 7.1
Module Connection Diagram

6.0 Troubleshooting

Below is a listing of several problems that may arise during the installation & operation of the modules. If you are having difficulty installing or operating the modules please refer to this list below.

Problem: *Rx Signal red*
Action: Received optical signal absent or low. Check fiber connection and optical power at receiver.

Problem: *No Data*
Action: Check to ensure that a BXA unit is optically connected to a BXB unit. A BXA will not communicate with a module of the same type BXA or BXB with BXB. Check the data input/output connections.

If the problem still persists after reviewing the above items, please contact Meridian technical support: +1-516-285-0570 / support@meridian-tech.com

Notes:

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