



**MERIDIAN**  
TECHNOLOGIES

BXA/BXB-1L/1L-x

**DigiCool™**

One Bi-directional TTL Data Channel  
Transceiver



**FEATURES:**

- One Bi-directional High Speed TTL Data Channel
- Very Low Jitter and Latency
- DC-Coupled LVTTTL Inputs and Outputs
- Surface Mount Technology (SMT) for High Reliability and Repeatability
- Local LED Status Indicators to Monitor Received Optical Signal
- ST, FC Optical Connector
- SFF Form Factor
- Meets NEMA TS1 / TS2 & CALTRANS Specifications
- Wide Optical Dynamic Range: Optical Attenuators are Never Needed

**DESCRIPTION:**

The BXA/BXB-1L/1L-x system incorporates a new digital encoding technology. These fiber optic bare board modules transmit and receive one Bi-directional TTL data signal with a maximum data rate of 10Mb/s. Both, multimode or single-mode, one fiber versions are available (See "Part Numbers" section).

This module is designed to work with in-line cable structures for subsea applications. With its wide operating conditions and high performance, this module is also ideally suited to other data/control applications. One of its default operational conditions is in its optical fault performance. If the optical signal were to be lost due to a failed fiber, the receiver output on each end will go to a 'high' level. Optional conformal coating is also available for high humidity/condensation installations.

**MARKETS:**

- ✓ ROV applications
- ✓ Access control systems
- ✓ SCADA

## SPECIFICATIONS:

### Data

|                |                    |
|----------------|--------------------|
| Formats        | LVTTL Data         |
| Rate           | DC to 10Mb/s       |
| Bit Error Rate | 10 <sup>-9</sup> * |
| Jitter/PWD     | 10ns               |
| TX/RX Latency  | 50ns               |

### Optical

|                 |         |
|-----------------|---------|
| Fiber Data Rate | 10 Mb/s |
|-----------------|---------|

### Connectors

|         |                                  |
|---------|----------------------------------|
| Data    | Board to board pins              |
| Optical | ST - MM(default),<br>FC, ST - SM |
| Power   | Board to board pins              |

### Environmental

|                       |                         |
|-----------------------|-------------------------|
| Operating Temperature | -34°C to +74°C          |
| Storage Temperature   | -55°C to +85°C          |
| Relative Humidity     | 0 to 95% Non-condensing |

### Power

|                   |         |
|-------------------|---------|
| Input Voltage     | 3.3 VDC |
| Power Consumption | 0.6 W   |

### Indicators (LEDs)

|              |  |
|--------------|--|
| 1 - Bi-color | RX optical signal<br>Green - Present<br>Red - Absent |
|--------------|--|

### Physical

|               |  |
|---------------|--|
| Dimensions    | 15.2 (W) x 49.5 (L) x 12.7 (H) mm<br>(0.6 x 1.95 x 0.5 inch) |
| Weight (Card) | 23.5 gms (0.8 oz.)   |

### Quality

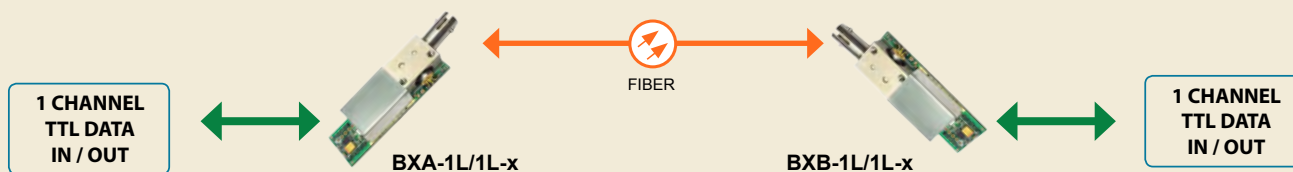
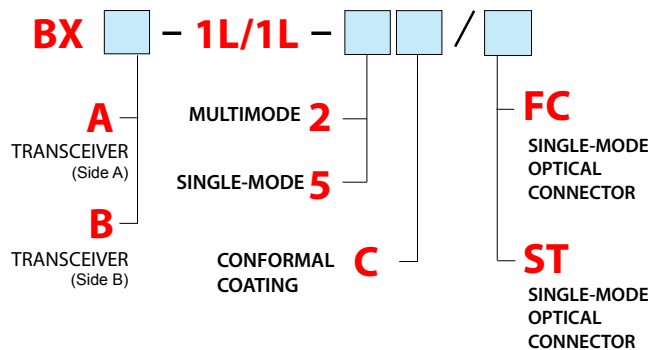
|      |  |
|------|--|
| MTBF | >200,000 hours, @ 35°C Ground<br>Fix as per MIL 217F |
|------|--|

\* measured @ max. optical budget

## Pin Assignment

| Pin | Symbol | Name/Description   | Logic Family |
|-----|--------|--|--------------|
| MS  | MS     | Mounting Studs - function as mechanical attachment and are connected to the Ground | N/A          |
| 1   | GND    | Ground   | N/A          |
| 2   | +3.3 V | 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   | +3.3 V | Power Supply   | N/A          |
| 7   | GND    | Ground   | N/A          |
| 8   | Tdis   | Transmitter Disable. Logic 1 - Disable   | N/A          |
| 9   | TD+    | Transmitter Non-Inverted DATA IN   | LVTTL        |
| 10  | TD-    | Transmitter Inverted DATA IN   | N/A          |

## Part Numbers



## OPTICAL:

| Meridian Optical Code | Fiber Type/Size (um)              | Optical Output (dBm) | Receiver Sensitivity (dBm) | Optical Budget (dB) | Wavelength (nm) | Optical Connector | Optical Dynamic Range (dB) | Max Distance (Km) |
|-----------------------|-----------------------------------|----------------------|----------------------------|---------------------|-----------------|-------------------|----------------------------|-------------------|
| 2                     | Multimode (Laser)<br>62.5 / 125   | -6                   | -22                        | 16                  | 850/1300        | ST                | 23                         | 6                 |
| 5                     | Single-mode (FP Laser)<br>9 / 125 | -6                   | -22                        | 16                  | 1310/1550       | ST, FC            | 23                         | 50                |

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