

# Trouble shooting

## Fiberlink Optics Troubleshooting Guide - Common Issues

All newer Fiberlink transmitters, receivers and transceivers come equipped with diagnostic LEDS that can help determine the origin of many transmission problems. The following rules apply for all recent-generation transmission systems

- Power LEDs are not lit.
- Transmitter SIGNAL LED is not lit.
- Transmitter CARRIER LED is not lit.
- Receiver CARRIER LED is not lit.
- Receiver SIGNAL LED is not lit.

### Power LEDs are not lit.

If a POWER LED is not lit, it indicates that your unit is not properly plugged in. It is important to check that all units within an installation are receiving power in order for your system to work correctly.

For units requiring an external power supply, make sure that the power supply you are using is intended to work with the voltage provided from your wall outlet. We do offer international power supplies and line cords to conform to various worldwide standards.

Fiberlink units that feature an internal power supply are designed to accept current from 95 to 250 VAC.

### Transmitter SIGNAL LED is not lit.

This indicates that a signal is not reaching the transmitting LED or LASER diode within the transmitting unit. This is most likely due to a problem with the incoming signal.

Make sure that the correct signal level is present at the input. To do this, you may need to disconnect the input from the transmitter and connect it to a piece of test equipment.

### Transmitter CARRIER LED is not lit.

This indicates that the transmitting diode is not functioning.

Check to see if the transmitting diode is emitting light. If you are using an LED-driven transmitter at 850 nm wavelength, you can simply look at the LED to see if it is glowing dimly. If you are using either an LED or LASER-driven system at 1300 nm, you will have to connect the output to a piece of test equipment.

***NEVER look directly at an operating laser diode, as it may cause permanent eye damage.***

### **Receiver CARRIER LED is not lit.**

This indicates that a signal is not reaching the photodiode within the optical receiver. There are many potential reasons for this.

Check your optical connectors (at both ends of the fiber).

Are you using the correct size connectors for the fiber you are using?

Are the connectors free of all dust and dirt? Even the most minute particle of dust may cause an interruption in the signal. Use a clean cloth or gauze moistened with alcohol to gently clean the tip of the connectors.

Is the fiber broken in any of the connectors? Use a jeweller's loop to conduct a quick inspection.

Is the fiber protruding from the tip of the connector? If so, refinishing will be necessary.

If you are using 906-type SMA optical connectors, make sure that you are using the short, plastic alignment sleeves that came with the connectors. Without these sleeves, the connectors may not work properly.

### **Check the fiber optic cable.**

Are you using the right size fiber? Multimode fiber (with a core of 50 or 62.5 microns) should be used with LED-driven systems. Single mode fiber (with a core of 8 to 10 microns) should be used with a LASER-driven system.

Does the fiber pass light at all? A small penlight or flashlight can be used for this test.

Make sure the fiber optic cable is not pulled sharply around any corners, and that there are no tight bends throughout its length. The turning radius of any bends in the cable should measure at least an inch.

Does the fiber have too much attenuation for the system? If you measured the attenuation when the cable was on the reel, keep in mind that it will change once the cable is installed. Contact our sales department if you need help measuring your system's attenuation.

If you are using a very short length of fiber, there is the possibility that the signal arriving at your receiver unit is overloading the system. This is especially likely with lengths of cable shorter than 30 feet (10 meters). To alleviate this problem, you should try adding an additional length of cable, loosely wound, between your system's transmitter and receiver, so that the total distance between transmitter and receiver exceeds 30 feet. Doing so will adjust the system's attenuation to an acceptable level.

### **Check the receiver.**

Is light coming out of the fiber optic cable? At 850 nm, it may be possible to see a dim glow. At 1300 nm, you will need to attach the cable to test equipment to see if any light is present.

Is the optical connector on the receiver's optical port clear of any obstruction, dirt or dust? Even the most minute particle of dust may cause an interruption in the signal. Use a clean cloth or gauze moistened with alcohol to gently clean the tip of the connector.

### **Receiver SIGNAL LED is not lit.**

If all LEDs are lit except for this one and your system is not working, you have a defective receiver unit. Contact Communications Specialties to arrange for a repair or replacement unit.