

Application Note

Measuring Signals in Fiber Optic Cables using the FI-100

Introduction

The Tempo Communications fiber identifier FI-100, can measure the approximate core power and direction of travel of signals in fiber optic cables by introducing a Macrobend. This is very useful because the technician is able to determine if a fiber is carrying potentially critical traffic before they disconnect that fiber. The FI-100 will not place the fiber link being measured into alarm condition because the Macrobend does not create a large insertion loss. The FI-100 tone detect can be used to uniquely identify fiber optic cables when used in conjunction with a compatible laser source.

Measuring Approximate Core Power

The technician selects the appropriate fiber adapter (250um/Ribbon, 900um, 2mm or 3mm) for the type of cable to be measured. The clamping mechanism is activated and the approximate core power is then measured and displayed on the seven segment display.

Sensing Direction of Light Travel

During the measurement the direction of the signal transmission is indicated by the LED's with the arrow designation.

Using Tone Detect for Fiber Tracing

The FI-100 can uniquely identify a fiber by using the tone detect feature. A laser source is connected to one end of the fiber and a 270Hz, 330Hz, 1kHz or 2kHz tone is activated on the laser source. The FI-100 can then be used to clamp onto any number of fibers until the FI-100 senses the fiber with the injected tone by means of an audible tone and the respective LED being illuminated. The technician then knows that they have identified the cable that has the laser source connected to it on the other end of the fiber.

Battery Indicator

The battery condition is reported with the battery level indicator LED.

Green = Good

Yellow = OK for another measurement

Red = Change the battery



Approximate Core Power

LED Indicates a 1kHz Tone

Battery Level LED

Direction of Signal Travel

Detecting Signals in Bend Insensitive Fibers

The FI-100 is capable of detecting the presence of signal in bend insensitive fibers (BIF). The approximate core power is not accurate since the amount of light that can be detected in the macrobend on BIF is low and can be quite variable between successive measurements and cable manufacturers. The FI-100 specifications are not guaranteed for BIF but the FI-100 can give the technician a good idea if signal is present in the cable.

Summary

The FI-100 fiber Identifier:

- Measures the approximate core power in the fiber.
- Senses the direction of light travel in the fiber.
- Uniquely identifies the fibers using tone detect when used with a laser source.
- Measures the presence of light in bend insensitive fibers.