TEMPO COMMUNICATIONS

Renewed Vision. Innovation Forward.

Application Note

Measuring Insertion Loss and using Tone Detect with the Tempo Communications fiberTOOLS

Introduction

The Tempo Communications fiberTOOLS optical power meters and laser or LED sources can be used to measure the insertion loss of a fiber link. They can also be used to trace and identify fiber cables using the tone detect function.

All connections on the laser and LED sources are flat polished. Do not use angle polished connectors to connect to the lasers or LED's.

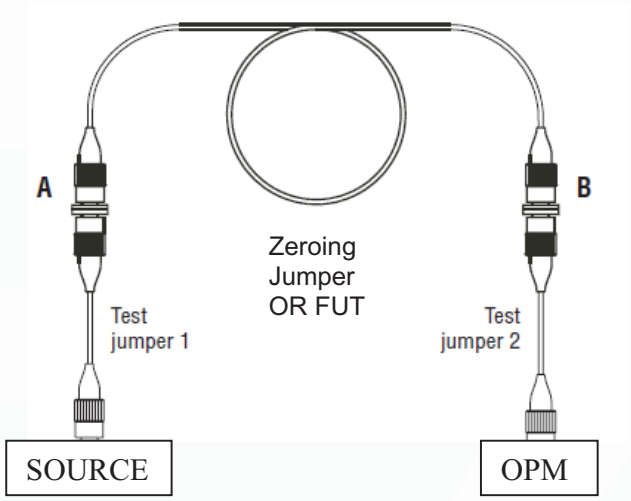
There is no physical optical connection to the power meters, so flat or angle polished connectors can be used.

All OPM and sources are supplied standard with SC connectors. Optional LC, FC and ST adapters are available.

Use hybrid cables if fiber links with angle polished connectors is required. ie SC/APC to SC/UPC.

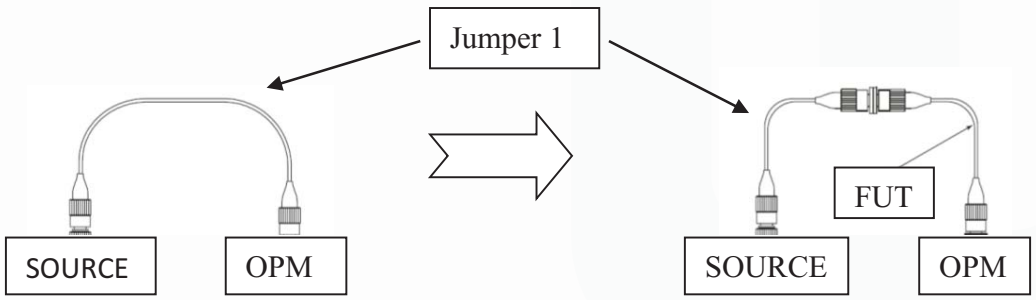
Measure Insertion Loss of a Fiber Link not Including Connector Losses

1. Clean and inspect all fibers prior to connecting.
2. Connect a patch cord (Jumper 1) to the output of the SLS520 laser source.
3. Connect a patch cord (Jumper 2) to the input of the OPM510 optical power meter.
4. Connect the two patch cords with another patch cord (Zeroing Jumper). This third patch cord will simulate the fiber link to be tested.
5. Turn the laser and OPM on.
6. Set the wavelength of the laser and OPM to the desired wavelength.
7. Push the db/dBm key until the power meter display shows 0dB.
8. Remove the Zeroing Jumper patch cord and replace it with the fiber under test (FUT).
9. Read the insertion loss of the fiber under test on the power meter display.



Measure the Loss of a Fiber Link and Include the Connector Losses:

1. Clean and inspect all fibers prior to connecting.
2. Connect a patch cord (Jumper 1) to the output of the SLS520 laser source.
3. Connect the other end of the patch cord (Jumper 1) to the OPM510 optical power meter.
4. Turn the laser and OPM on.
5. Set the wavelength of the laser and OPM to the desired wavelength.
6. Push the db/dBm key until the power meter display shows 0dB.
7. Remove the patch cord from the OPM. Connect the fiber under test to this connector and the other end of the fiber under test to the OPM.
8. Read the insertion loss of the fiber under test on the power meter display.



Trace and Identify Fibers using Tone Detect

1. Clean and inspect all fibers prior to connecting.
2. Connect the SLS520 laser to the fiber to be identified.
3. Turn the laser on and set the 2kHz tone on.
4. Connect the OPM510 optical power meter to successive fibers until the power meter detects the 2kHz tone from the laser. The power meter will indicate it has sensed a 2kHz tone with an audible beep and a 2kHz indicator on the LCD.

Typical use Strategy

The OPM510 is a standard power Optical Power Meter and is typically used in Telco applications. The OPM520 is a "filtered" Optical Power Meter which means that there is an attenuator in front of the detector diode to attenuate the signal levels that are likely present in cable (MSO) networks. The attenuator will prevent permanent damage to the detector diode in the event a high power signal is applied. Both the OPM510 and OPM520 use Indium Gallium Arsenide (InGaAs) detector diodes; Germanium (Ge) diodes no longer have a cost advantage. CATV systems can have in excess of +20dBm of optical power at 1550nm and protective eyewear should be used to prevent serious injury.

Summary

The OPM510 and SLS520:

- Are able to quickly measure the insertion loss of a fiber link.
- Are able to precisely identify cables using tone detect.

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