

# OP940

## Insertion Loss & Return Loss Meter

### Overview

#### Insertion Loss & Return Loss Meter

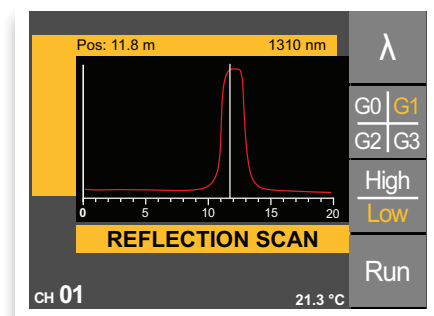
The **OP940** system is an insertion loss (IL) and return loss (RL) meter that features a color LCD screen, an optical reflectance scan mode, programmable pass/fail for editable test criteria and on screen context help. Additionally, the **OP940** can measure return loss (RL) at two positions simultaneously through the front panel and it offers expandable functionality. As with our other IL/RL systems, the **OP940** measures RL quickly and accurately without the need for mandrel wrapping or the use of index matching gel, and is available in Single Mode, Multimode, and FTTX variants.



An OP940 benchtop insertion loss and return loss test set displaying color-coded ILRL test results

### Features

- Fully automated, concurrent IL and RL displayed simultaneously
- Front panel optical reflectance trace
- Manually adjust RL reference position and value
- Measures RL at multiple connection points through the front panel
- Programmable pass/fail for multiple test criteria
- Various detector options for measuring simplex to multifiber connectors
- On screen help
- Configurable timer settings, such as dwell times
- User accessible source connector
- Color display
- Intuitive operation
- Can be controlled remotely via USB
- Integrated temperature monitoring
- Convenient benchtop size
- Wide dynamic range for RL measurements:
  - SM, FTTX: 10dB to 80dB
  - MM: 10dB to 58dB



Scan mode with reflection at 11.8m

# SPECIFICATIONS

Optical Power Meter	1mm InGaAs	3mm InGaAs	5mm InGaAs	10mm InGaAs	3mm Silicon
Measurement Range	+6dBm to -72dBm at 1490nm	+3dBm to -72dBm at 1490nm	0dBm to -65dBm at 1490nm	0dBm to -55dBm at 1490nm	0dBm to -65dBm at 980nm
Wavelength Range	850nm to 1650nm				400nm to 1100nm
Selectable Wavelength	Standard wavelengths (850nm, 980nm, 1300nm, 1310nm, 1490nm, 1550nm, 1625nm)				Standard wavelengths (650nm, 850nm, 980nm)
Measurement Resolution (Display)	0.001dB				
Absolute Accuracy	±0.25 dB at calibration conditions for all NIST traceable wavelengths				
<b>Measurement Linearity (Relative Accuracy)</b>					
Deviation ± 0.05dB	+3dBm to -65dBm at 1490nm	0dBm to -65dBm at 1490nm	0dBm to -55dBm at 1490nm	0dBm to -45dBm at 1490nm	0dBm to -55dBm at 980nm
Deviation ± 0.01dB	<10dB power variation	<10dB power variation	<10dB power variation	<10dB power variation	<10dB power variation

Return Loss	1310nm/1550nm	1310nm/1490nm/1550nm/1625nm	850nm/1300nm
Source Wavelength	1310nm, 1550nm	1310nm, 1550nm, 1490nm, 1625nm	850nm, 1300nm
Calibrated Measurement Range	-10dB to -80dB	-10dB to -80dB	-10dB to -58dB
Measurement Linearity	±1dB (-12dB to -72dB)	±1dB (-12dB to -72dB)	±1dB (-10dB to -45dB)
Distance Range	100 meters (standard)/ 2500 meters (Rep Rate adjusted)	100 meters (standard)/ 2500 meters (Rep Rate adjusted)	100 meters (standard)/ 2500 meters (Rep Rate adjusted)

Insertion Loss	1310nm/1550nm LASER	1310nm/1490nm/1550nm/1625nm LASER	850nm/1300nm LED
Source Center Wavelength	±30nm from nominal	±30nm from nominal	±30nm from nominal
Source Bandwidth	<10nm	<10nm	<140nm
Internal Fiber	9/125µm (SMF28)	9/125µm (SMF28)	50/125µm, 62.5/125µm, 105/125µm
Launch Condition	N/A	N/A	Available upon request
Output Power	Typical -1.5dBm	Typical -2.5dBm	-18dBm: 62.5/125µm
Source Stability*	±0.02dB	±0.02dB	±0.02dB

\* Over 1 hour with a max. change of 1°C

## Laser Classifications

All **OP930 Insertion Loss and Return Loss Test Sets** utilize a **Class I Laser Source**. Unless otherwise noted, all **OP250**, **OP715**, and **OP750** source units with internal laser sources utilize a **Class I Laser Source**. Unless otherwise noted, all **OP815** and **OP850 Insertion Loss Test Sets** with internal laser sources utilize a **Class I Laser source**. All **OP280 Visual Fault Finder** units utilize a **Class III Laser Source**.

*OptoTest strongly suggests that all necessary precautions be taken whenever any Class I or Class III laser source is used.*

Specifications are subject to change, please confirm specific performance characteristics of the product at the time of ordering. All specifications are valid within temperature range of 18°C to 24°C unless otherwise noted. For additional specifications please contact OptoTest.



## Parameter Testing of FTTX Components

*Insertion Loss Measurement*  
*Return Loss Measurement*

## Insertion Loss and Return Loss Meter for FTTX Wavelengths

Insertion Loss (IL) and Return Loss (RL) on fiber optic components are measured fast and accurately with the **OP940**. Return loss is measured with the “no mandrel” method, meaning neither index matching gel or mandrel wraps are required at the far end of the cable. Insertion Loss is measured by utilizing the stable transmitter of the Return Loss module as the source in combination with the precision optical power meter.

Like other OptoTest equipment, the **OP940** supports the USB interface. The **OPL-Suite** of turnkey software applications fully integrates this instrument into the data acquisition process of a highly-efficient production line.



### Features:

- Simultaneous Insertion and Return Loss readings
- Insertion Loss and Return Loss for FTTX
- Compact, space saving instrument
- Stabilized laser sources for IL measurement at 1310nm, 1490nm, 1550nm and 1625nm
- Easy-to-use OPL-Pro data logging application



### OP940-FTTX

<b>Optical Power Meter</b>	
Measurement Range	+10dBm to - 80dBm
Wavelength Range	830nm to 1700nm
Calibration Wavelength	850/1310/1490/1550/1625 nm
Measurement Resolution (Display)	0.01dBm (absolute) 0.001dB (relative)
Measurement Linearity (+3dBm to -65dBm) Relative Accuracy	0.05dB, 0.02dB (loss <10dB)
<b>Optical Source</b>	
Source Wavelengths	1310nm ± 10nm 1490nm ± 10nm 1550nm ± 10nm 1625nm ± 10nm
Source Output Power	typical 0dBm
Source Stability	±0.02dB (1hr) ±0.05dB (12hr)
<b>Return Loss Meter</b>	
Measurement Range	10dB .. 80dB
Absolute Accuracy	±1dB (10dB to 65dB) ± 2dB (>65dB) ± 5dB (>72dB)
Resolution	0.1dB
Distance Range	up to 2400m



**[www.optotest.com](http://www.optotest.com)**  
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DSFTTX\_BROCHURE Rev.B