IQS-1500

CALIBRATION POWER METER

Resolution of 0.001 dB and linearity of ± 0.010 dB—one of the most accurate power meters on the market.

SPEC SHEET

KEY FEATURES

- Operates in the WDM window
- Enables on-site power-meter calibration
- Linearity of ± 0.01 dB
- 5 mm cooled detector

COMPLEMENTARY PRODUCTS

WDM Laser Source
IQS-2400

Variable Attenuator
IQS-3150

Utility Module
IQS-9600

DELIVERING ACCURATE POWER MEASUREMENTS

Enjoy exceptional performance, flexibility, ease of use and extensive integration capabilities with EXFO's IQS-1500 Calibration Power Meter. Like all IQS products, this module features PC-based software and a standardized graphical user interface (GUI). What's more, the IQS-1500 offers very low uncertainty (± 2 % to 3 %) and high-performance linearity (± 0.01 dB). The Q1 model is calibrated at the National Institute of Standards and Technology (NIST), providing an uncertainty of as little as 0.9 % for three user-selected wavelengths.

The IQS-1500 comes with a 5 mm cooled germanium detector (750 nm to 1800 nm), delivering high accuracy—even at unstable temperatures—over a wide dynamic range.

Enabling In-House Verification and Calibration of Power Meters

Combine the IQS-1500 with the IQS-2400 WDM Laser Source (DFB laser) to perform in-house power-meter verification and calibration. The NIST-calibrated IQS-1500-Q1 model provides < ±0.9 % uncertainty at reference conditions, which enables local calibration of all optical power meters.

Because its central wavelength can easily be pinpointed, a DFB laser source such as the IQS-2400 is ideal for calibrating both at 1310 nm and 1550 nm. Use its coherence control setting to modulate the signal, therefore minimizing interference.

The IQS Solution: The Easy Way to First-Class Calibration

Housed in the IQS-600 Integrated Qualification System, the IQS-1500 Calibration Power Meter features user-friendly, flexible, Windows-compatible software, and allows you to easily select all configuration parameters from a single setup window.

The IQS-1500 also offers two operation modes: standard power measurement or calibration. A complete step-by-step procedure guides you through the power-meter calibration operation for systematic, repeatable and scientifically valid results. Experienced users can access individual steps directly from the main window.

This procedure yields a detailed calibration report (in HTML format), with total calibration uncertainty for each calibrated wavelength. Data can be saved on a floppy disk, the system's hard drive or a remote controller station, making storage space practically limitless. Thanks to Windows-based software, the IQS-1500 can be used in conjunction with any compatible system.

A typical power-measurement setup.

CALIBRATION MODE

The IQS-1500's Windows-compatible, highly intuitive GUI allows for easy control via mouse, touchscreen or keyboard. In addition, it allows you to save multiple user configurations and access the instrument's online user guide.

A- Start

Allows the user to select the calibration mode, start a new calibration sequence with template file, or view a report file.

B- Information

Allows the user to enter general and specific information about current measurement conditions. This information will be included in the calibration summary.

C- General

Contains the user and module information currently being used to perform calibration.

D- Conditions

Contains all information related to the conditions used to perform calibration, including source wavelength, power, bandwidth, temperature and humidity.

E- Device under Test (DUT)

Contains all information related to the DUT under calibration.

F- Uncertainties

Allows the user to enter specific information related to the calibration uncertainty calculation.

G- Null

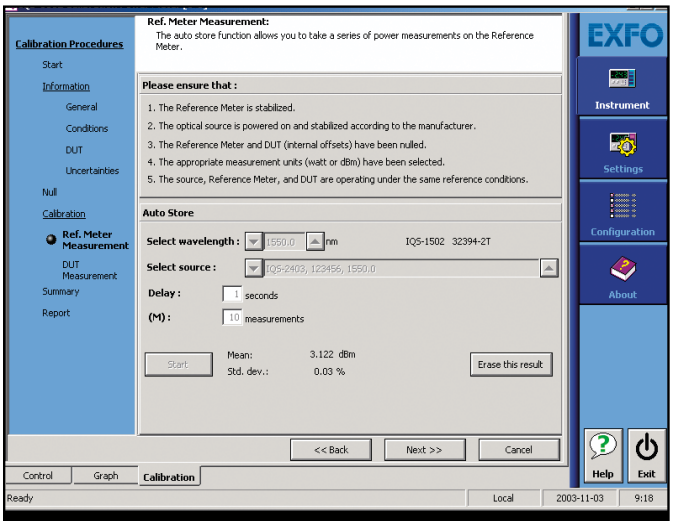
Allows the user to ensure accuracy by eliminating electronic offsets and dark currents.

H- Calibration

Allows the user to perform calibration measurements and calculations.

I- Ref. Meter Measurement

This auto-save function allows the user to select the number of measurements and the intervals between readings for automated measurements on the reference power meter (IQS-1500).



J- DUT Measurements

Allows the user to enter DUT power measurements.

K- Summary

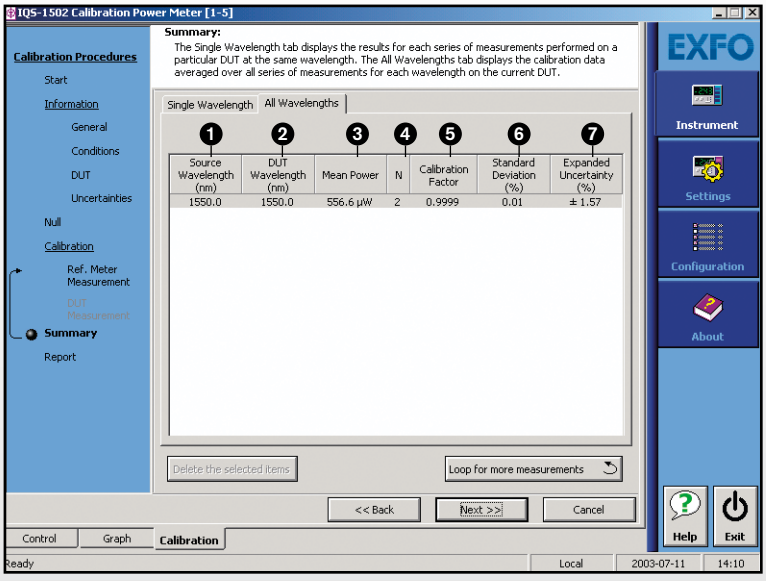
Displays complete calibration results, including mean power, calibration factor and total uncertainty.

L- Detailed calibration reports

Generates detailed calibration reports that include instrumentation identification, environmental information, reference conditions and a calibration summary for each wavelength.

The IQS-1500's Summary Window

1. Source wavelength
2. Wavelength setting of power meter under test
3. Mean power measured by the IQS-1500
4. Number of calibration measurements
5. Calibration factor for DUT readings (in W)
6. Standard deviation of the calibration factor
7. Expanded uncertainty of corrected DUT readings



SPECIFICATIONS [a]

Model	IQS-1502-Q0	IQS-1502-Q1
Detector type	Ge	Ge
Detector size (mm)	5	5
Power range [a] (dBm)	+5 to −60	+5 to −60
Wavelength range (nm)	750 to 1800	750 to 1800
Linearity [a, b] (dB)	± 0.01 (+5 dBm to −50 dBm)	± 0.01 (+5 dBm to −50 dBm)
Uncertainty [f]	± 2 % [c] (at 1310.0 ± 0.1 nm and 1550.0 ± 0.1 nm) (0 dBm to −10 dBm CW) ± 3 % [c] (750 nm to 1700 nm) (−30 dBm to −40 dBm CW)	≤ ± 0.9 %4 at 3 λ (−10 dBm CW) ± 3 % [d] (750 nm to 1700 nm) (−30 dBm to −40 dBm CW)
Power resolution (dB)	0.001	0.001
Wavelength resolution (nm)	0.1	0.1
Applicable fiber type (µm)	9/125 (B); 50/125 (C); 62.5/125 (D)	9/125 (B); 50/125 (C); 62.5/125 (D)

GENERAL SPECIFICATIONS

Temperature		
operating	23 °C to 5 °C	(73 °F to 9 °F)
storage	−40 °C to 70 °C	(−40 °F to 158 °F)
Relative humidity	0 % to 80 % noncondensing	
Size (H x W x D) (module only)	12.5 cm × 3.6 cm × 28.2 cm	(4 15/16 in x 1 7/16 in x 11 1/8 in)
Weight (module only)	0.63 kg	(1.4 lb)

STANDARD ACCESSORIES

User guide, fiber-optic adapter (FOA), one reference test jumper and Certificate of Calibration

Notes

a. At 1310 nm and 1550 nm.

b. At a ± 1 °C constant temperature.

c. Q0 option, uncertainty at EXFO reference conditions:

- ± 2 % uncertainty at (1310.0 ± 0.1) nm and (1550.0 ± 0.1) nm, with 9/125 µm (B) fiber, and source spectral width (FWHM) < 10 nm.
- ± 3 % uncertainty from 750 nm to 1700 nm, with 62.5/125 µm (D) fiber, and source spectral width (FWHM) ≤ 12 nm.
- FC/UPC connector (ceramic ferrule) with FOA-322.

d. Q1 option, calibration at NIST

1) • ≤ ±0.9 % uncertainty at three user-specified wavelengths within the following ranges at NIST reference conditions:

786 nm ± 0.5 nm
(840 to 860) nm ± 0.25 nm
(1280 to 1330) nm ± 0.25 nm
(1520 to 1625) nm ± 0.25 nm

- 9/125 to 62.5/125 µm (B to D) fiber
- FC, ST or SC connector
- Fiber-optic adapter (FOA) used at NIST
- Source spectral width (FWHM) < 10 nm

2) ± 3 % uncertainty from 750 nm to 1700 nm, 62.5/125 µm (D) fiber, source spectral width (FWHM) < 12 nm, and FC/UPC connector (ceramic ferrule) with FOA-322.

e. See Ordering Information for details.

f. All uncertainties are valid on the day of calibration after a warm-up time of 20 minutes, and specified with a 95 % confidence level.

ORDERING INFORMATION

IQS-150X-XX-X-XX

Model

IQS-1502-Q0-B = 5 mm TEC-Ge detector, 2 % uncertainty at (1310 ± 0.1) nm and (1550 ± 0.1) nm, singlemode 9/125 µm [a]
IQS-1502-Q1-B = 5 mm TEC-Ge detector, 0.9 % uncertainty calibrated at NIST, singlemode 9/125 µm
IQS-1502-Q1-C = 5 mm TEC-Ge detector, 0.9 % uncertainty calibrated at NIST, multimode 50/125 µm
IQS-1502-Q1-D = 5 mm TEC-Ge detector, 0.9 % uncertainty calibrated at NIST, multimode 62.5/125 µm

Example: IQS-1502-Q1-B-89

Test jumper connector

50 = FC/PC [c]
54 = SC/PC [c]
58 = FC/APC narrow key [b]
74 = ST/PC [c]
88 = SC/APC [b]
89 = FC/UPC narrow key [b]
90 = ST/UPC [b]
91 = SC/UPC [b]

Notes

a. Test jumper FC/UPC only.
b. Singlemode only.
c. Multimode only.

EXFO Headquarters > Tel.: +1 418 683-0211 | Toll-free: +1 800 663-3936 (USA and Canada) | Fax: +1 418 683-2170 | info@EXFO.com | **www.EXFO.com**

EXFO serves over 2000 customers in more than 100 countries. To find your local office contact details, please go to **www.EXFO.com/contact**.

SPIQS1500.3AN

Printed in Canada 13/08