

## OPTICAL POWER METER 3664

Optical/Telecom Measurement



From Blue-Ray, High Definition DVD to Near-Infrared Rays

### An Advanced Optical Power Meter to Meet Next Generation Needs



- Great Cost Performance in a Compact Package
- Ideal for all applications - from Production to R&D to Maintenance
- USB Ver.1.1 Compatible
- Scaling
- MAX/MIN/AVE Measurement
- Large, easy-to-read LCD display
- Analog Output



[www.hioki.com](http://www.hioki.com)

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ISO 9001  
JMI-0216



ISO14001  
JQA-E-90091

# A Truly Flexible Instrument Catering to Applications in R&D,

Optical Power Meter 3664 serves as a convenient tool for the R&D, manufacture and maintenance of equipment that incorporate laser light sources, such as DVD recorders, CD drives, copiers, and laser printers. With the addition of the Optical Sensors 9743 and 9743-10 specifically designed for blue-violet optical rays that have low dependency on the incidence angle and flat wave sensitivity characteristics over its 405nm bandwidth, the 3664 also proves to be a powerful instrument for inspecting next generation optical pickup drive devices.

## Four Sensors to Accommodate All Types of Testing Needs

Choose from 4 different optical sensors according to wavelength and sensor structure to aptly meet your application requirements.

### Two Different Bandwidths

#### Blue-violet Optical Sensor 9743/9743-10

Incorporated with characteristics that are ideal for measuring blue-violet lasers found in high-definition DVDs, Models 9743 and 9743-10 offer the following features:

- Planar wavelength sensitivity characteristics at the 405 nm bandwidth
- Low Incident Angle Dependency and Low Reflection



#### General-purpose Sensors 9742/9742-10 for an Extensive Range of Uses

Test DVD and CD drives, Copiers, Printers and much, much more.

- Wide 320 to 1100 nm wavelength



### Two Different Styles

#### Handheld model 9742/9743

Ideal for R&D and maintenance work when functionality is a priority.



Model 9743.

#### Detachable model 9742-10/9743-10

Enhance production efficiency by integrating the sensor into the inspection line.



Model 9743-10.

# Production and Maintenance of Laser- and LED-Dependent Equipment

## Powerful Features

### ■ Superior cost performance

Guaranteed accuracy of  $\pm 5\%$ , ideal for the production and testing of optical pickup devices (in combination with the Optical Sensor 9742/9742-10/9743/9743-10) Scaling functionality and USB compatibility all for one reasonable price.

### ■ Scaling

Adjust for sensitivity at the wavelength level, and easily integrate the 3664 into an inspection standard device.

### ■ Wavelength setting resolution up to 1 nm

Up to 10 wavelength memory presets can be configured, including the defaults for each optical sensor. The default wavelengths for each optional sensor are already stored in memory. Add up to 6 more custom wavelengths and call them up simply by pressing the  $\lambda$  key.

### ■ MAX/MIN/AVE measurement

Display maximum, minimum, and averages, as well as make relative measurements.



### ■ 2 Power settings

Compatible to both DC power and AC power. Choose a power method to suit your application.

### ■ Relative measurement

Display measurements as relative values, i.e., the difference from a set reference value. Load reference values from a measured value or define according to your requirements.

### ■ Upload data through the USB interface

Program your PC to download captured data, configure and even control the 3664 through the USB interface. (USB driver software included)

## Specifications

Accuracy:  $23^{\circ}\pm 5^{\circ}\text{C}$  ( $73^{\circ}\pm 9^{\circ}\text{F}$ ), less than 80% rh, One year accuracy guarantee

### ■ OPTICAL POWER METER 3664 Specifications

Optical power measurement	Units W/dBm
Range	Auto (manual settings available)
Accuracy	$\pm 0.7\%$ ( $\pm 5\%$ when used with optional light sensor)
Calibration wavelength	Resolution of 1 nm, automatic calibration of sensor, up to 10 wavelength presets available (including defaults for each sensor)
Scaling	Configurable for each wavelength
Optical loss measurement	Displays a measured value compared with a reference value (Displayed value = measurement - reference) * Reference value can be based on a measurement, or input manually * Settings range: 0.001 nW to 1.9999 W (-90.00 dBm to 33.00 dBm)
Display	4 1/2 digits, up to 19999. Display resolution: 0.01 dBm/0.01 dB
Measurement display	Units: nW/ $\mu$ W/mW/dBm/dB
Wavelength display	4 digits, unit: nm
Display refresh rate	Approx. 330 ms
MAX/MIN display	Displays MAX/MIN during measurement
AVE display	Moving average, average count configurable from 2 to 100
Analog Output	According to optional Optical Sensor in use 9742/9742-10: Approx. 1V at sensor correction input 9743/9743-10: Approx. 0.7V at sensor correction input
Output resistance	50 $\Omega$
Output connector	$\phi$ 3.5 mini jack
Interface	USB Ver1.1 Output of measurement data, configuration and control supported
Included features	Auto power save, configuration backup, battery check
Applicable standards	Safety standard: EN61010-1 EMC: EN61326, EM61000-3-2, EM61000-3-3
Power	LR6 (AA) Alkaline battery $\times$ 4, AC adapter (9445-02/9445-03)
Max. rated power	1.6 VA
Operating time	Approx. 60 hours (when using battery, continuous use with 9742 optical sensor as correction input)
Operating conditions	0°C to -40°C (32°F to 104°F), up to 80% rh (no condensation)
Storage conditions	-10°C to 50°C (14°F to 122°F), up to 80% rh (no condensation)
Operating environment	Indoor, up to elevation of 2000 meters (6562 ft)
Dimensions and mass	Approx. 85W $\times$ 160HX35Dmm (3.35W $\times$ 6.30HX1.38 D inches) (excluding protrusions), Approx. 270g (9.5 oz.) (without batteries)

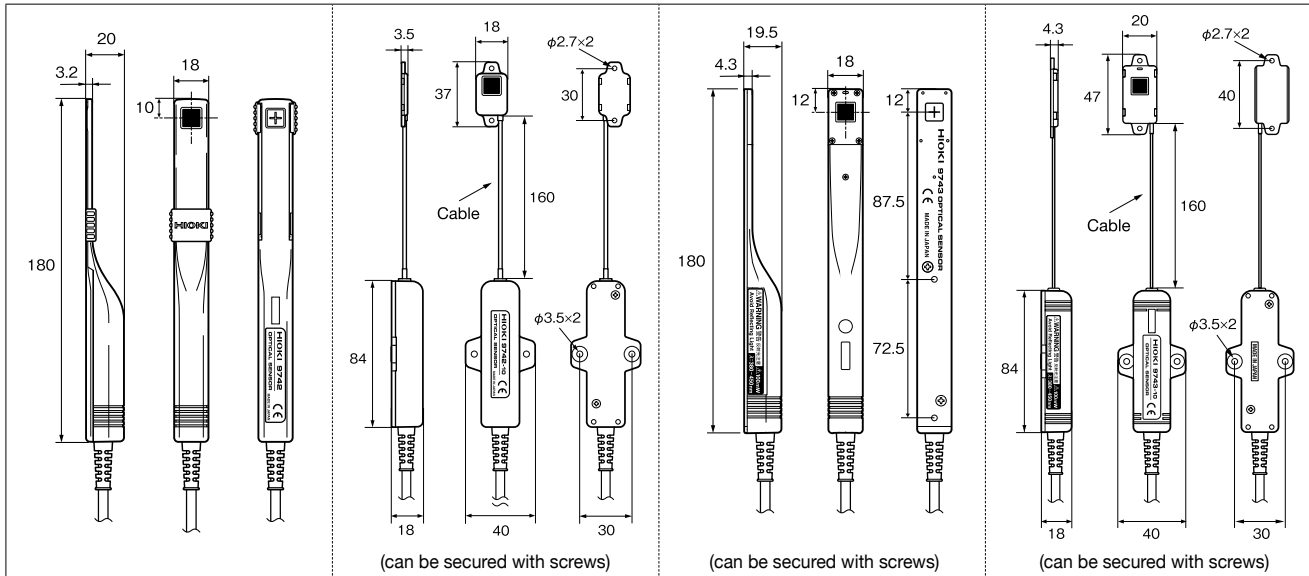
### ■ OPTICAL SENSOR Specifications

9742/9742-10	
Measured wavelength	320 to 1100 nm
Measured power	-59 dBm to +17 dBm (correction wavelength)
Maximum rated value	50 mW (+17 dBm) (under direct lighting)
Receiving element	Si Photo diode
Receptor size	Approx. 9.6 mm $\times$ 9.6 mm (0.38" $\times$ 0.38")
Accuracy	$\pm 4.3\%$ ( $\pm 5\%$ when used with OPTICAL POWER METER 3664) [Correction conditions] correction wavelength 633 nm, correction power 100 $\mu$ W, when $\phi$ approx. 2 mm (0.08") parallel beam strikes perpendicular to center of optical sensor, CW light
Wavelength configuration defaults	633 nm, 635 nm, 650 nm, 780 nm
Operating conditions	0°C to -40°C (32°F to 104°F), up to 80% rh (no condensation)
Storage conditions	-10°C to 50°C (14°F to 122°F), up to 80% rh (no condensation)
Operating environment	Indoor, elevation up to 2000 meters (6562 ft)
Mass	Approx. 100 g (3.5 oz.)
9743/9743-10	
Measured wavelength	380 to 450 nm
Measured power	-50 dBm to +20 dBm (correction wavelength)
Maximum rated value	100 mW (+20 dBm) (under direct lighting)
Receiving element	Si Photo diode
Receptor size	Approx. 10 mm $\times$ 10 mm (0.39" $\times$ 0.39")
Accuracy	$\pm 4.3\%$ ( $\pm 5\%$ when used with OPTICAL POWER METER 3664) [Correction conditions] correction wavelength 405 nm (Using a 405 $\pm$ 5 nm wavelength as the reference wavelength), correction power 100 $\mu$ W, when $\phi$ approx. 1.5 mm (0.06") parallel beam strikes perpendicular to center of optical sensor
Wavelength configuration defaults	400 nm, 403 nm, 405 nm, 408 nm
Operating conditions	0°C to -40°C (32°F to 104°F), up to 80% rh (no condensation)
Storage conditions	-10°C to 50°C (14°F to 122°F), up to 80% rh (no condensation)
Operating environment	Indoor, elevation up to 2000 meters (6562 ft)
Mass	[9743]: Approx. 110 g (3.9 oz.) [9743-10]: Approx. 100 g (3.5 oz.)

Please refer to the external diagrams depicted on the next page for the exact dimensions of the optical sensors.

## OPTICAL SENSOR exterior view

■ OPTICAL SENSOR 9742
■ OPTICAL SENSOR 9742-10
■ OPTICAL SENSOR 9743
■ OPTICAL SENSOR 9743-10











### ■ 3664 OPTICAL POWER METER

**Accessories :**

AC ADAPTER 9445-02 (UL) (1) or AC ADAPTER 9445-03 (CEE) (1),  
 OUTPUT CORD 9094 (1), USB CABLE (1), USB Driver CD-R (1),  
 Strap (1), Batteries (AAx4)

The **POWER METER 3664** must be used in conjunction with either the 9742 or 9742-10 or 9743 or 9743-10 OPTICAL SENSOR, sold separately.

Accessories		
 9445-02 (UL) or 9445-03 (CEE)	 9094 OUTPUT CORD Analog output Cord length 1.5m (4.92 ft)	 USB CABLE Cord length 1m (3.28 ft)
<b>9445-02 /-03 AC ADAPTER</b> DC 9 V, 1 A (AC 100 V to 240 V, 50/60 Hz)	<b>9094 OUTPUT CORD</b> Analog output Cord length 1.5m (4.92 ft)	<b>USB CABLE</b> Cord length 1m (3.28 ft)

Options				
OPTICAL SENSOR 9742	OPTICAL SENSOR 9742-10	OPTICAL SENSOR 9743	OPTICAL SENSOR 9743-10	CARRYING CASE 9246
 Handheld sensor	 (detachable model)	 Handheld sensor specifically for blue-violet optical rays	 Sensor specifically for blue-violet optical rays (detachable model)	 Handy for travel and storage

Optical Power Meters installed with firmware version 1.01 or earlier must be updated to support compatibility with the new Optical Sensor 9743/9743-10

When using Model 9743/9743-10 with an earlier version of Model 3664, upon connecting the sensor to the optical power meter and turning on the power, "Err1" will be displayed.

To update your Model 3664, please visit our website at [www.hioki.com](http://www.hioki.com) to download the latest firmware, "HIOKI 3664 Setup Utility" and refer to the instructions provided to learn how to set up the proprietary data for the new optical sensor.



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