1940-R and 2940-R Advanced Benchtop Optical Power Meters

∴mks | **Newport**

The 1940-R and 2940-R optical power meters represent Newport™ high-precision benchtop instruments, engineered for fast, accurate, and stable photonics measurements across R&D labs, and high-volume production environments including active fiber alignment and more.

Each meter is supplied with a full calibration certificate (NIST-traceable with ISO/IEC 17025 accreditation), a quick-start guide and a power cord.

Features

The 1940-R (single channel) and 2940-R (dual channel)

- Advanced optical measurement platform for R&D labs, high-volume production environments

- High-speed architecture optimized for modulated and pulsed laser sources

- Time-stamped acquisition and logging at 10 kHz with 2GB internal memory or external USB flash drive

- Trigger-In/Out for synchronized measurement and automation workflows

- Ethernet, USB, and RS-232 communication interfaces for seamless integration into systems

- NIST-traceable calibration with ISO/IEC 17025 ensures audit-ready accuracy

- SCPI based Advanced Programming toolkit for automation

- Compatible with PMManager™ Application Software

Advanced Optical Power Meter

The front panel contains:

- Full 7" high-resolution touchscreen

- Large, tactile rotary control knob

- Function shortcut buttons

This hybrid interface enables rapid channel navigation, fine range adjustments, fast graph scaling, and intuitive data review even when operators wear gloves.

Ideal For High Speed, Modulated Light Measurements
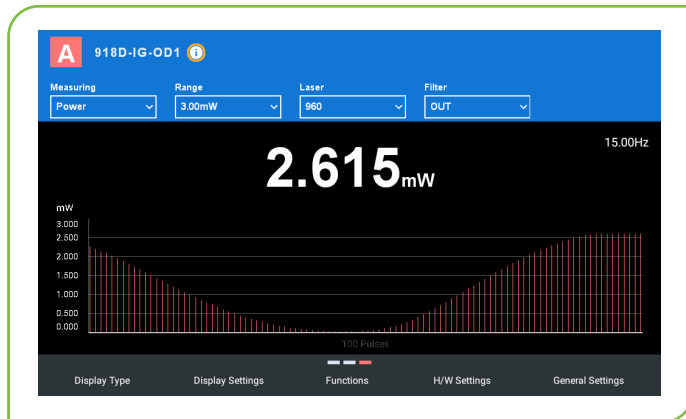
Depending on sensor configuration and range, the 1940-R and 2940-R provide up to 200 kHz analog bandwidth, enabling detailed characterization of:

- Modulated photodiode
- Pulsed and chopped beams
- Dynamic waveform behavior
- Rapid changing optical signals in optical alignment

Real-time acquisition up to 10 kHz allows precise visualization of transient optical changes. A high-speed analog output mirrors the raw sensor signal, enabling oscilloscope or DAQ capture.

Time-stamped data acquisition at up to 10 kHz
High-rate, time-stamped data can be logged to:

- 2 GB internal memory (stores approximately 40 million measurements)
- External storage via user-supplied USB flash drive

Users can immediately review trends, zoom into events, or export data for offline processing. Time-correlation enables tuning, alignment, and automation workflows with precise traceability.

Full-Color 7" Touchscreen and Rotary Control Knob

The instrument's interface combines the best of both worlds:

Touchscreen

- 1024 × 600 pixel high-brightness display
- Multi-view graphical modes
- Intuitive navigation and configuration
- Clear visibility from across the lab or production floor
- The device operates in multiple languages

Rotary Control Knob

- Fast and precise manual adjustment
- Ideal for tuning, threshold setting, scaling, and scrolling
- Provides tactile control for operators who prefer physical inputs
- Enhances usability when interacting with long menus or graphical zooming
- Allows operators to wear gloves

Analog Output

- The analog output provides an output voltage proportional to the power measured
- Selectable analog output ranges 0–1 V, 0–2 V, 0–5 V, 0–10 V (raw and digital)
- 50 Ω output impedance

## Trigger In For Synchronized Measurements and TTL Out
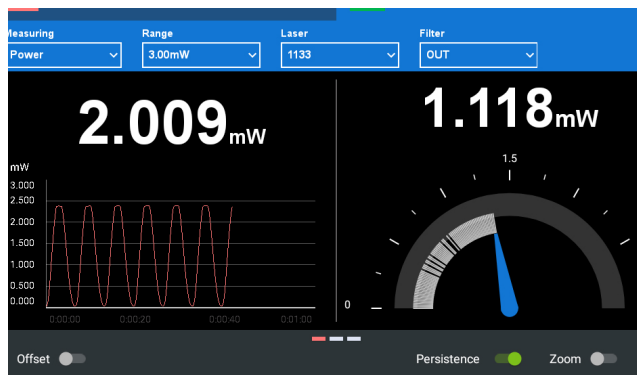
Hardware triggering ensures repeatable, event-driven data acquisition:

- Trigger-In: accepts TTL signals, manual trigger, or remote software commands
- TTL-Out: outputs TTL indicators for measurement status, saturation, errors, or user-defined measurement limits

This enables connection to laboratory test equipment and integration into automated systems, alignment stations, and high-speed test setups.

Communication Interfaces:
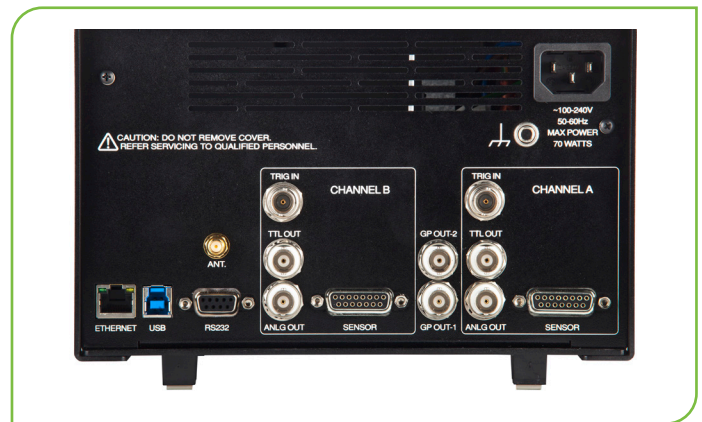
Connectivity options include:

- USB 3.0 Type-B (rear) / USB 2.0 Type-A (front)
- Ethernet 10Base-T/100Base-TX
- RS-232 serial interface

These interfaces support remote operation, data logging, software integration, with ATE and PLC-controlled environments.

PMManager™ Application Software*

PMManager™ is a powerful application software controlling and taking measurement data. It turns a PC into a laser power multi-channel analysis workstation. The PMManager software features include extensive graphic display of data, advanced measurement processing, data logging for future review, printing of graphs and data, and the ability to connect additional devices during active measurements. Please see the PMManager tutorial for more details on its capabilities.

*The release is scheduled for April 2026

General Specifications

Models	1940-R / 2940-R
Number of Channels	1 or 2
Bandwidth	Up to 200 kHz, depending on Range
Measurement Rate	10 kHz for photodiode 15Hz for thermopile-based sensors
Compatible Detectors	818-xx/DB, 918D, 819C, 819D ,819-xx-1.5 (photodiode and integrated spheres) 919P (thermopile)
Detector connector	15-Pin D-Sub type-female
Detector Input	Up to 25 mA for photodiode
Resolution	0.0019% of Range Full Scale (10KHz Power) 0.00001% of Range Full Scale (15Hz Power)
Accuracy	±0.2 % for CW, ±1 % for Peak to Peak, Pulse to Pulse and Integration Mode
Frequency Measurement Range	1 Hz - 200 kHz
Gain Ranges	8 ranges, 7 decades
Analog Output Connector	BNC Socket
Analog Output	0-1 V, 0-2 V, 0-5 V or 0-10 V (raw and digital) full-scale, 0.003% resolution, 50Ω impedance
Data Storage	2 GB internal memory (can store ~40,000,000 measurements) External storage defined by user supplied USB Type-A flash drive via front panel (up to 32GB)
Communication Interfaces	Ethernet -10Base-T/100Base-TX , Auto-MDIX USB 3.0 Type-B / USB 2.0 Type-B RS-232 RS-232 DB-9 Female
Display Mode	Numeric display Pulse, Line & Bar Charts Pass/Fail Statistics Analog Needle Math Channel (applicable with 2940-R)
Display Type	7 in. Full color Touch screen (1024 X 600)
Display Refresh Rate	10 Hz
Speaker	1.2 Watt Speaker for Audio Notifications / Warnings
Photodiode Measurement	Power, Peak-to-Peak Power, Low frequency power, Frequency, Exposure
Thermopile Measurement	Power (15Hz), Average Power, Single Shot Energy, Pulsed power,
Power Requirements	100-240 V AC 50-60Hz, Max 70W
Dimensions	280D x 221W x 132H (mm)
Weight	2.9kg
Use Location	Indoor use only
CE	Compliant
RoHS	Compliant
Operating Temperature	5°C to 40°C, <70% RH
Storage Temperature	-20°C to 60°C, <90% RH
Altitude	<3000m

Dimensional Drawing
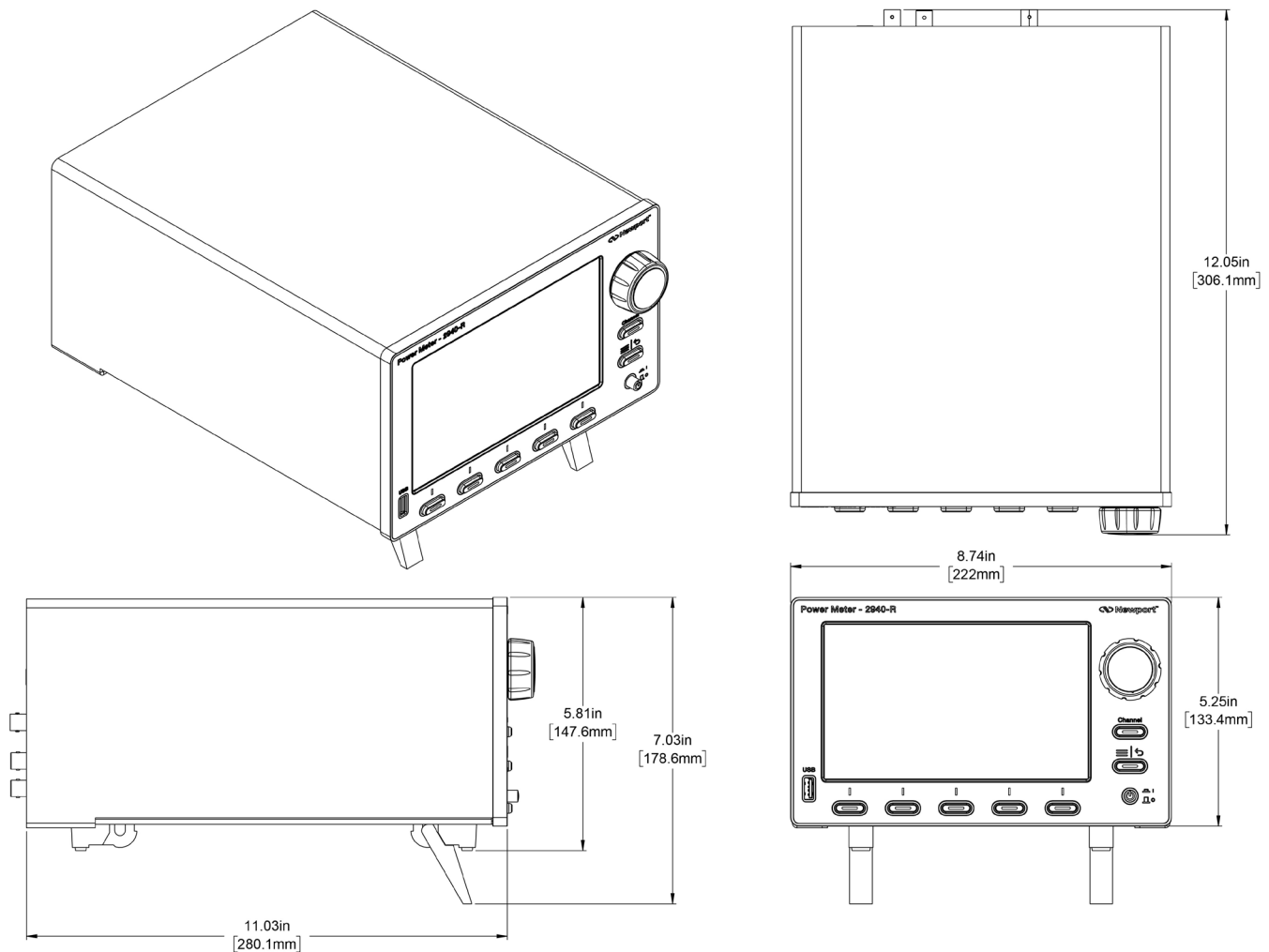
Order Information

Models	Description
1940-R	Advanced Benchtop Optical Power & Energy Meter, Single Channel
2940-R	Advanced Benchtop Optical Power & Energy Meter, Dual Channel