

Model 407A

Portable Meter

The Spectra-Physics Model 407A portable meter is compact and affordable, yet offers features not found on many larger, more expensive units. It's the same unit used worldwide by our own field service technicians, for whom it was designed. The detector head and display will fit easily into a crowded briefcase or toolbox, and battery power makes the Model 407A ideal for service calls or busy labs.

Super-Performance Detector

The Model 407A features a practically unbreakable thermopile detector which can withstand power densities as high as $20\text{kW}/\text{cm}^2$. This sensor delivers linear response over almost four decades of dynamic range and wavelengths ranging from UV to infrared without bulky heat dump attachments or other compensators. Conservatively rated at 20W of continuous exposure, the 407A can be pushed to 30W intermittently. This high power handling capability is achieved in a compact format by incorporation of efficient cooling fins which are integral to the detector housing. In addition, the thermopile's high sensitivity enables measurements down to powers as low as a few milliwatts. Readings are extremely accurate since the detector's absorbance only varies by $\pm 1\%$ from 400 to 1000nm, giving the Model 407A performance which rivals that of much more expensive power meters.

Thermopiles Offer Versatility and Economy

The thermopile detector derives its signal from a temperature change created by the absorption of optical fluence which is then converted to a voltage by an array of thermoelectric junctions. It offers spectral

Fast, accurate measurements in a rugged, compact design

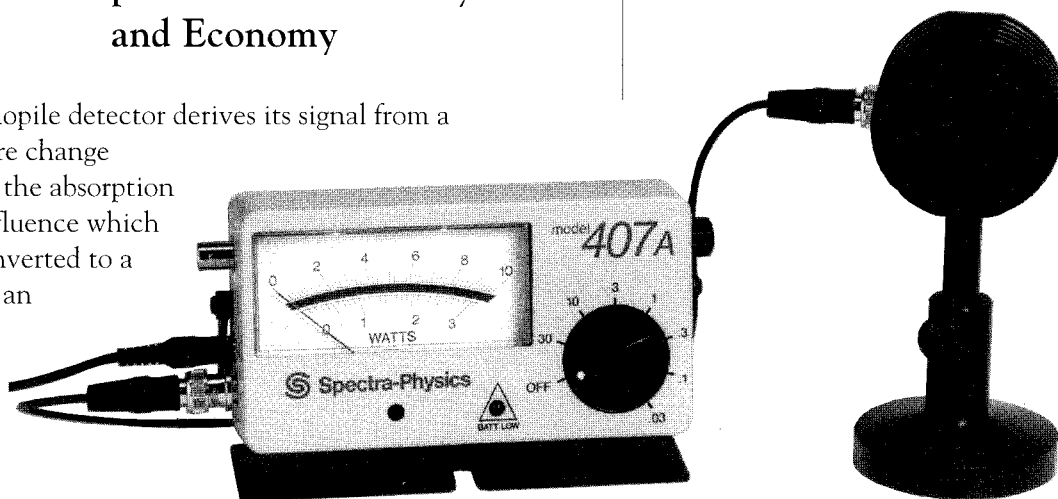
flatness, linearity and excellent spatial uniformity. The inherent ruggedness and simplicity of the thermopile make it an ideal choice for quick measurement or adjustment of power levels anywhere - field service, production, and crowded laboratories, for example.

User-Friendly Design

The precision-machined head lets you choose the most convenient mounting position. Use it free-standing on its milled flats in confined spaces, or attach its base to match the head's height to that of the incident beam. A set of three universal $\frac{1}{2}$ " diameter posts allows the detector to be centered in beams from 3.5" (8.9cm) to 8.3" (21.1cm) above the table. To provide the most convenient exit direction for the signal cable, two locations are available on the head for attaching the posts.

The display unit provides accurate measurement with hand-held convenience. The 407A's electronics speed up the natural detector response to give you fast readings. The large analog meter permits quick and easy alignment of your laser, and its illuminated face and mirrored scale make accurate readings a breeze - even in the dark. To permit unattended monitoring, the signal output is also fed to an external BNC connector. The unit swivels in its cradle for optimal viewing and can be mounted securely to an optical table or from below an overhead equipment rack.

Rechargeable batteries let you take the 407A anywhere you go, confident of over a week's service (at least 60 hours of continuous use) on a single charge. A battery charger - which doubles as an AC power supply - comes standard. A low-battery indicator blinks to show that the battery needs recharging.



 **Spectra-Physics**

Model 407A



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P E R F O R M A N C E	Wavelength Range	250nm to 11 μ m
	Power Range Continuous	< 5mW to 20W
	Intermittent	up to 30W
	Maximum Power Density	20kW/cm ²
	Peak Pulsed Energy Density	300mJ/cm ² in 50nsec pulses
	Detector Diameter	1.8cm
	Sensitivity Variation	\pm 1%, 400-1000nm \pm 3%, 250nm-11 μ m
	Calibration Accuracy for 1W at 514nm	\pm 1%
	Detector Spatial Sensitivity Variation (using a 2mm beam)	\pm 2.5%
	Maximum p-p Noise & Zero Drift per Minute	<0.2% full scale, 1W scale <2% full scale, 30mW scale
	Meter Time Constant	<0.5sec, 1W scale or higher <1sec, 30mW scale
	Maximum Nonlinearity	2%, 5mW to 20W
	Meter Ranges	30mW, 100mW, 300mW, 1W, 3W, 10W, 30W
	Battery Charge	60 hour (minimum)
Electrical Requirements	90-132VAC, 50-60Hz, Model 407A-1 198-264VAC, 50Hz, Model 407A-2	

Display Unit

Detector Head

M E C H A N I C A L	Width	17.5cm (6.8in)	\varnothing 6.3cm (2.5in)
	Height	9.5cm (3.75in)	8.9 to 21.1cm (3.5 to 8.3in)
	Depth	5.8cm (2.28in)	3.4cm (1.3in)
	Weight	0.6kg (1.4lbs)	0.3kg (0.7lbs)

Note: Specifications subject to change without notice.

Warranty

The Model 407A is protected by a one-year warranty. All mechanical, electronic and optical parts and assemblies are unconditionally warranted to be free of defects in workmanship and materials for the first year following delivery.

This warranty is in lieu of all other warranties, expressed or implied, and does not cover incidental or consequential loss.

To discuss your application or to order your Model 407A, contact your Spectra-Physics representative. In the United States, call toll free 1-800-SPL-LASER.