Ultra Series UP12E

Ultra Power and Ultra Performance are what you get with our new UP series detectors. Ultra performance means fast. Ultra performance means flexible. They come ready to mount on a rod, a bracket and the square case even lets you set them right on the table. Ultra performance means expandable. We can easily increase the power capability of your modular UP series detector as your needs change. Ultra performance means accurate. It is hard to do better than our NIST traceable calibration and *Personal wavelength correction*™. Ultra performance means versatile. For all models you can measure pulse energy as well as power (in calorimeter mode). Fiber optic adapters are available, and the Ultras are compatible with all Gentec-EO monitors. A UP series detector is the best choice for many applications.

The UP12E Family

The UP12E family was design for portability. It is an excellent choice for field service or small beam OEM applications. The low profile stand alone detector measures a few mW to 10 W and to 20 W with its heatsink. Water cooling takes it to 70 W of continuous power. That is great for embedding in machines and immunity from environmental fluctuations. Great performance in a package as little as 14 mm deep!

New Disk and Absorber

The Ultra performance of the UP detectors comes from new disk technology developed at Gentec-EO for both power and speed. Our modular body and cooling modules make it the most versatile detector family available. Moreover, our new H5 absorber is broadband and is one of the most damage resistant available today.

OEM Ultras

The modular Ultra family provides the flexibility to meet a wide range of diverse OEM requirements. See the OEM data sheet for the details or contact Gentec-EO. You can manage the profile, aperture, cooling, and electrical output to suit your specific needs. That's ultra performance and ultra value!

Calorimeter Mode

With this option every member of the family can be equipped to measure single shot pulse energies as well as average power from 50 mJ up to 5 J long pulse

Fiber Optic Option

Optional fiber adapters are available for these detectors.

UP12E-20H-H5

UP12E-10S-H5 with FC fiber connector

POWER DETECTORS

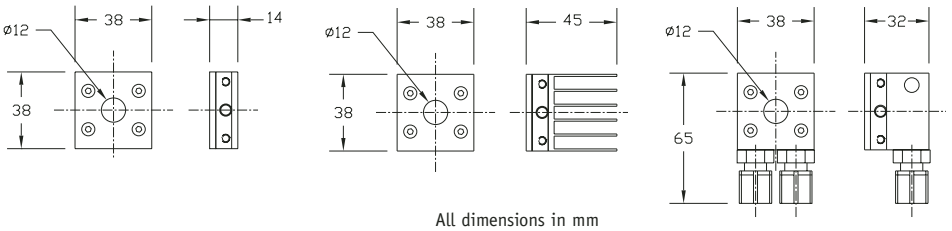
Mid Power – Ultra Compact

- **Very Fast**
- **Ultra Compact**
- **Flat Spectral Response**
- **Full NIST-Traceability**
- **High Damage Threshold: 36 kW/cm^2**
- **Personal Wavelength Correction™**

CE

ULTRA SERIES UP12E SPECIFICATIONS

TYPICAL LASERS	COMMON APPLICATIONS
• CO_2	• Low energy OEM
• YAG (various)	• High repetition rate
• Diode bars	• Photolithography
• Excimer	• Medical
• Ti:sapphire	
• Ruby (long pulse)	



All dimensions in mm

	10S	20H	70W
MEASUREMENT CAPABILITY			
Spectral Range	0.19 – 11 µm	0.19 – 11 µm	0.19 – 11 µm
Maximum Measurable Power	10 W	20 W	70 W
Minimum Detectable Power [a]	1 mW	1 mW	1 mW
Rise Time (nominal) [b]	0.3 sec	0.3 sec	0.3 sec
Sensitivity [c,d]	0.6 mV/W	0.6 mV/W	0.6 mV/W
Calibration Uncertainty [e]	±2.5 %	±2.5 %	±2.5 %
Repeatability	±0.5 %	±0.5 %	±0.5 %
Power Resolution	±0.5 %	±0.5 %	±0.5 %
Calorimeter mode			
Sensitivity	0.95 mV/J	0.95 mV/J	0.95 mV/J
Maximum Measurable Energy [f]	5 J	5 J	5 J
Minimum Measurable Energy	0.2 J	0.2 J	0.2 J
Minimum Repetition Period	1.5 sec	1.5 sec	1.5 sec
Maximum Pulse Width	50 ms	50 ms	50 ms
Accuracy with energy calibration option	±5 %	±5 %	±5 %
Beam Size Dependence [g]	±0.5 %	±0.5 %	±0.5 %
DAMAGE THRESHOLDS			
Max Average Power (continuous)	10 W	20 W	70 W [h]
Max Average Power (2 minutes)	15 W	30 W	90 W [h]
Maximum Average Power Density [i]	36 kW/cm²	36 kW/cm²	36 kW/cm²
Pulsed Laser Damage Thresholds	Max Energy Density	Peak Power Density	
1.064 µm, 360 µs, 5 Hz	5 J/cm²	14 kW/cm²	
1.064 µm, 7 ns, 10 Hz	1 J/cm²	143 MW/cm²	
532 nm, 7 ns, 10 Hz	0.6 J/cm²	86 MW/cm²	
248 nm, 26 ns, 10 Hz	0.3 J/cm²	43 MW/cm²	
PHYSICAL CHARACTERISTICS			
Effective Aperture Diameter	12 mm Ø		
Absorber	High Damage Threshold – H5		
Dimensions	38H x 38W x 14D mm	38H x 38W x 45D mm	38H x 38W x 32D mm
Weight (head only)	0.13 kg	0.15 kg	0.19 kg
Effective Area	1.13 cm²	1.13 cm²	1.13 cm²

a. Nominal value, actual value depends on electrical noise in the measurement system.
b. With Gentec-EO TPM 300CE, DUO, SOLO or P-LINK monitor.
c. Maximum output voltage = sensitivity x maximum power.
d. Higher sensitivity with internal circuit. Contact Gentec-EO.
e. Including linearity with power. With Gentec-EO monitor.
f. For 360 µs pulses. Higher pulse energy possible when customized for long pulses (ms), less for short pulses (ns).
g. Beam centered.
h. Minimum cooling flow 0.5 liter/min, water temperature ≤ 22°C, 1/8 NPT compression fittings for 1/4 inch semi-rigid tube. Contact Gentec-EO for clean deionized water cooling module option.
i. At 1064 nm, 10W CW.

Specifications subject to change without notice.

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