Ultra Series UP19K-W5

Ultra Performance means ultra damage threshold with the UP19K-W5. This is the marriage of our revolutionary WB absorber with our high performance Ultra detector. This surface absorber stands up to average power densities of 100 kW/cm^2. That is the best in the world for average power density.

All the other Ultra performance features are available without compromise. That means ultra fast and ultra compact. They are ultra flexible for mounting too. 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 also means accurate. It is hard to do better than our NIST traceable calibration and Personal wavelength correction™. Ultra performance means versatile too. All models measure pulse energy as well as power, fiber optic adapters are available, and they are compatible with all Gentec-EO monitors. This UP series detector is the best choice for any high average power density application.

A Complete Family

Just as with the standard UP19 family, the UP19K-W5 family has a full range of detectors to provide the best choice for any application. They include the low profile **UP19K-15S-W5** stand alone detector good for measurements from a few mW to 15 W. It is ideal for laser maintenance and service applications. **UP19K-30H-W5** is good to 30 W with its heatsink. The oversized heatsink of the **UP19K-50L-W5** pushes that to 50 W. For embedding in machines or for greater immunity from environmental fluctuations we offer the fan cooled **UP19K-50F-W5** and water cooled **UP19K-50W-W5**. Both are good to 50 W continuous and 75 W intermittent power. There is even a DI version for clean deionized water cooling systems.

New Disk Technology with the best absorber

The Ultra performance of the UP detectors comes from new disk technology developed at Gentec-EO. The UP disk is designed for both maximum power and maximum speed. Our modular body and cooling modules make the UP detectors series the most versatile detector family available. Combined with the W5 coating it is the most damage resistant detector you can have.

OEM Ultras

The modular Ultra family provides the flexibility to meet a wide range of diverse OEM requirements. See the UP19K 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 450 mJ up to 6 J Q-switched or 200 J long pulse.

Fiber Optic Option

Optional fiber adapters are available for these detectors.

UP19K-30H-W5

UP19K-15S-W5

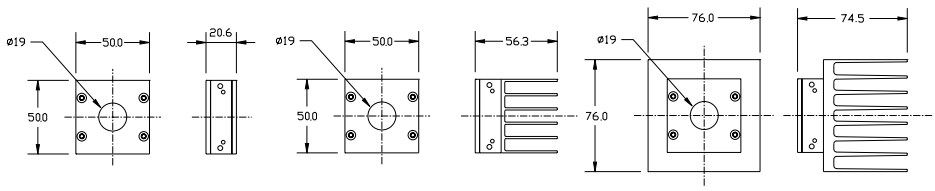
POWER DETECTORS

High Average Power Density

- **Highest Damage Threshold: 100 kW/cm^2**
- **Durable**
- **Full NIST-Traceability**
- **Personal Wavelength Correction™**
- **Smart Interface**

ULTRA SERIES UP19K-W5 SPECIFICATIONS

TYPICAL LASERS	COMMON APPLICATIONS
• YAG (various)	• Concentrated beams
• Solid-state	• Low power OEM
• Ti :sapphire	• High repetition rate
• Ruby (long pulse)	• Medical
• Argon ion (CW)	• Photolithography
	• Long pulse energy applications



All dimensions in mm

	15S	30H	50L	50F	50W
MEASUREMENT CAPABILITY					
Spectral range	0.19 -10 µm	0.19 -10 µm	0.19 -10 µm	0.19 -10 µm	0.19 -10 µm
Maximum Measurable Power	15 W	30 W	50 W	50 W	50 W
Minimum Detectable Power[a]	1 mW	1 mW	1 mW	1 mW	1 mW
Rise Time (nominal)[b]	1.4 sec	1.4 sec	1.4 sec	1.4 sec	1.4 sec
Sensitivity[c,d]	0.6 mV/W	0.6 mV/W	0.6 mV/W	0.6 mV/W	0.6 mV/W
Calibration Uncertainty[e]	±2.5%	±2.5%	±2.5%	±2.5%	±2.5%
Repeatability	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%
Power Resolution	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%
Calorimeter Mode					
Sensitivity	0.3 mV/J	0.3 mV/J	0.3 mV/J	0.3 mV/J	0.3 mV/J
Maximum Measurable Energy [f]	200 J	200 J	200 J	200 J	200 J
Minimum Measurable Energy	450 mJ	450 mJ	450 mJ	450 mJ	450 mJ
Minimum Repetition Period	5 sec	5 sec	5 sec	5 sec	5 sec
Maximum Pulse Width	133 ms	133 ms	133 ms	133 ms	133 ms
Accuracy with energy calibration option	±5%	±5%	±5%	±5%	±5%
Beam size dependence[g]	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%
DAMAGE THRESHOLDS					
Max Average Power (continuous)	15 W	30 W	50 W	50 W	50 W[h]
Max Average Power (2 minutes)	23 W	45 W	75 W	75 W	75 W[h]
Maximum Average Power Density[i]			100 kW/cm^2		
Pulsed Laser Damage Thresholds		Max Energy Density		Peak Power Density	
1.064 µm, 150 µs, 10 Hz		100 J/cm^2		667 kW/cm^2	
1.064 µm , 7 ns, 10 Hz		1.1 J/cm^2		157 MW/cm^2	
532 nm , 7 ns, 10 Hz		1.1 J /cm^2		157 MW/cm^2	
248 nm , 26 ns, 10 Hz		0.7 J /cm^2		27 MW/cm^2	
PHYSICAL CHARACTERISTICS					
Effective aperture diameter	17 mm Ø				
Absorber	High Damage Threshold – W5				
Cooling	convection	convection	convection	fan	water
Dimensions	50 H x 50 W	50 H x 50 W x	76.2 H x 76.2 W x	54.2 H x 54.2 W x	50 H x 50 W x
	20.6 D mm	56.3 D mm	74.7 D mm	55.6 D mm	33 D mm
Weight (head only)	0.16 kg	0.21 kg	0.48 kg	0.25 kg	0.24 kg
Effective Area	2.27 cm^2	2.27 cm^2	2.27 cm^2	2.27 cm^2	2.27 cm^2

a. Nominal value, actual value depends on electrical noise in the measurement system.
b. With Gentec-EO TPM 300CE, DUO, SOLO and 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 150 µs pulses. Higher pulse energy possible when customized for long pulses (ms), less for short pulses (ns).
g. Beam centered.
h. Minimum cooling flow 1 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.

Specifications subject to change without notice

gentec-eo

GENTEC ELECTRO-OPTICS INC.

www.gentec-eo.com

445 St-Jean-Baptiste, Suite 160, Québec, QC, G2E 5N7, Canada, T 418.651.8003, 1 888 5GENTEC, F 418.651.1174, E info@gentec-eo.com

PRINTED IN CANADA 05-05-2004