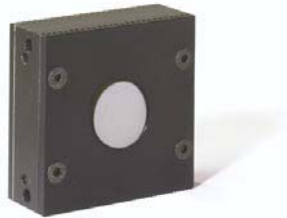




UP19K-30H-H5



UP19K-15S-H5

## POWER DETECTORS

Mid Power – Compact



- **Fast**
- **Small Size**
- **Flat Spectral Response**
- **Full NIST-Traceability**
- **High Damage Threshold: 36 kW/cm<sup>2</sup> to 45 kW/cm<sup>2</sup>**
- **Personal Wavelength Correction™**

### Ultra Series UP19K-H5/H9

Ultra Power and Ultra Performance are what you get with our new UP series detectors. Ultra performance means fast. These are the fastest detectors in the Gentec-EO arsenal. Ultra performance means compact. The UP series detectors can take a lot of laser power in a small body. 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. Each model is compatible with all Gentec-EO monitors. A UP series detector is the best choice for many applications.

#### Low Profile

The UP19K-15S-H5, just 21 mm thin, is ideal for laser maintenance and service applications. From a few mW to 15 W it is the smallest, toughest and fastest detector in its class. The absorber handles 36 kW/cm<sup>2</sup> of average power density. Only Gentec-EO's WB detectors can do better. It is fast with a response better than 0.6 seconds using a Gentec-EO monitor. You can even run it up to 23 watts for short periods. That's ultra performance and ultra value!

#### Convection Cooled

These models use convection cooling to increase the power range of the UP19K family. The UP19K-30H-H5 takes you to 30 W continuous and 45 W intermittent. Using our oversized custom heatsink the UP19K-50L-H5 pushes that to 50 W continuous and 75 W intermittent.

#### Air and Water Cooled

You want the same small package but for high average power. With a few volts to power the fan the UP19K-110F-H9 handles 110 W of laser power in an amazingly compact package. With water cooling, the UP19K-150W-H5 takes 150 watts. With the DI option it is perfect for clean deionized water cooling systems.

#### Energy Mode

With this option every member of the family can be equipped to measure single shot pulse energies as well as average power. From 20 mJ up to 5 J Q-switched or 25 J long pulse.

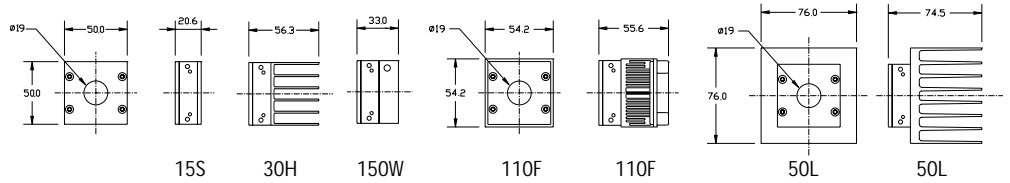
#### Fiber Optic Option

Optional fiber adapters are available for these detectors.

# ULTRA SERIES UP19K-H5 SPECIFICATIONS

## TYPICAL LASERS | COMMON APPLICATIONS

- CO<sub>2</sub>
  - YAG (diode pumped, CW or high rep. rate)
  - Excimer
  - DPSSL
  - Diode (pulse or CW)
  - Ruby (long pulse)
  - Argon ion
  - Ti:sapphire
- Concentrated beams
  - High repetition rate
  - Low energy OEM
  - Photolithography
  - Industrial machining
  - Medical
  - Energy detector for long (ms) pulse YAG & Ruby



All dimensions in mm

## MEASUREMENT CAPABILITY

	15S	30H	50L	110F	150W
<b>Spectral Range</b>	0.19 - 11 μm	0.19 - 11 μm	0.19 - 11 μm	0.19 - 11 μm	0.19 - 11 μm
<b>Maximum Measurable Power</b>	15 W	30 W	50 W	110 W	150 W
<b>Noise Equivalent Power<sup>a</sup></b>	1 mW	1 mW	1 mW	1 mW	1 mW
<b>Rise Time (nominal)<sup>b</sup></b>	0.6 sec	0.6 sec	0.6 sec	1.5 sec	0.6 sec
<b>Sensitivity (typ into 100 kW load)<sup>c</sup></b>	0.65 mV/W	0.65 mV/W	0.65 mV/W	0.23 mV/W	0.65 mV/W
<b>Calibration Uncertainty<sup>d</sup></b>	±2.5 %	±2.5 %	±2.5 %	±2.5 %	±2.5 %
<b>Repeatability</b>	±0.5 %	±0.5 %	±0.5 %	±0.5 %	±0.5 %
<b>Energy Mode</b>					
Sensitivity	0.65 mV/J	0.65 mV/J	0.65 mV/J	0.23 mV/J	0.65 mV/J
Maximum Measurable Energy <sup>e</sup>	15 J	15 J	15 J	15 J	15 J
Noise Equivalent Energy <sup>a</sup>	0.02 J	0.02 J	0.02 J	0.02 J	0.02 J
Minimum Repetition Period	4 sec	4 sec	4 sec	4 sec	4 sec
Maximum Pulse Width	88 ms	88 ms	88 ms	88 ms	88 ms
Accuracy with energy calibration option	±5 %	±5 %	±5 %	±5 %	±5 %

## DAMAGE THRESHOLDS

	15 W	30 W	50 W	110 W	150 W <sup>f</sup>
<b>Max Average Power (continuous)</b>	15 W	30 W	50 W	110 W	150 W <sup>f</sup>
<b>Max Average Power (2 minutes)</b>	23 W	45 W	75 W	135 W	170 W <sup>f</sup>
<b>Maximum Average Power Density<sup>g</sup></b>	36 kW/cm <sup>2</sup>	36 kW/cm <sup>2</sup>	36 kW/cm <sup>2</sup>	45 kW/cm <sup>2</sup>	36 kW/cm <sup>2</sup>
<b>Pulsed Laser Damage Thresholds</b>	Max Energy Density		Peak Power Density		
1.064 μm, 360 μs, 5 Hz	5 J/cm <sup>2</sup> (H5), 9 J/cm <sup>2</sup> (H9)		14 kW/cm <sup>2</sup> (H5), 25 kW/cm <sup>2</sup> (H9)		
1.064 μm, 7 ns, 10 Hz	1 J/cm <sup>2</sup>		143 MW/cm <sup>2</sup>		
532 nm, 7 ns, 10 Hz	0.6 J/cm <sup>2</sup>		86 MW/cm <sup>2</sup>		
266 nm, 7 ns, 10 Hz	0.3 J/cm <sup>2</sup>		43 MW/cm <sup>2</sup>		

## PHYSICAL CHARACTERISTICS

<b>Effective Aperture Diameter</b>	19 mm Ø				
<b>Absorber (High Damage Threshold)</b>	H5	H5	H5	H9	H5
<b>Dimensions</b>	50H x 50W x 20.6D mm	50H x 50W x 56.3D mm	76.2H x 76.2W x 74.7D mm	54.2H x 54.2W x 55.6D mm	50H x 50W x 33D mm
<b>Weight (head only)</b>	0.16 kg	0.21 kg	0.48 kg	0.25 kg	0.24 kg
<b>Effective Area</b>	2.84 cm <sup>2</sup>	2.84 cm <sup>2</sup>	2.84 cm <sup>2</sup>	2.84 cm <sup>2</sup>	2.84 cm <sup>2</sup>

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. Including linearity with power.

e. For 360 μs pulses. Higher pulse energy possible when customized for long pulses (ms), less for short pulses (ns).

f. Minimum cooling flow 0.5 liters/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.

g. At 1064 nm, 10W CW.

Specifications subject to change without notice.



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## Calibration centers

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**LEADER IN LASER BEAM MEASUREMENT SINCE 1972**