

## Ultra Series UP25N

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 UP25N Family

This family was designed for beams a little too large for the ultra compact UP19K's. Stand alone they handle 40 W. Raise that to 100 W with the heatsink. Go to 250 W with a fan and with water cooling, 300 W in a package that is only 44 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 H9 absorber is one of the most damage resistant available today.

### OEM Ultras

The large Ultra family accommodates a wide range of OEM requirements. Use a Gentec-EO monitor or your own electronics (requires our internal circuit board). We offer several output connector options. The BNC output gives you fast, easy installation and the best EMI noise shielding. The Molex connector allows you to unplug the detector for service or for use at other locations. The DB-15 contains an EEPROM with the custom calibration data used by Gentec-EO power meters.

There are 3 output signal options:

1. Natural voltage from the thermopile,
2. Adjusted to a specific sensitivity,
3. Amplified.

Please contact us for the specs on the OEM versions with the internal circuitry. If you don't see exactly what you need, we will provide you with a custom solution.



UP25N-40S-H9



UP25N-300W-H9



UP25N-250F-H9

## POWER DETECTORS

High Power – Mid Aperture

- **Fast**
- **Compact and Versatile**
- **Flat Spectral Response**
- **Full NIST-traceability**
- **High Damage Threshold**
- **Smart Interface**



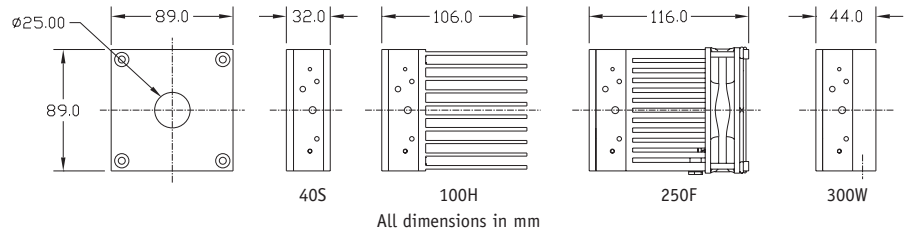
# ULTRA SERIES UP25N SPECIFICATIONS

## TYPICAL LASERS

- CO<sub>2</sub>
- YAG (various)
- Excimer
- DPSSL
- Ti :sapphire
- Ruby (long pulse)

## COMMON APPLICATIONS

- Materials processing
- Mid power OEM
- Welding
- Medical
- Engraving
- Soldering



## MEASUREMENT CAPABILITY

	40S	100H	250F	300W
<b>Spectral range</b>	0.19 -11 μm	0.19 -11 μm	0.19 -11 μm	0.19 -11 μm
<b>Maximum Measurable Power</b>	40 W	100 W	250 W	300 W
<b>Minimum Detectable Power<sup>a</sup></b>	3 mW	3 mW	3 mW	3 mW
<b>Rise Time (nominal)<sup>b</sup></b>	1.3 sec	1.3 sec	1.3 sec	1.3 sec
<b>Sensitivity<sup>c,d</sup></b>	0.26 mV/W	0.26 mV/W	0.26 mV/W	0.26 mV/W
<b>Calibration Uncertainty<sup>e</sup></b>	±2.5%	±2.5%	±2.5%	±2.5%
<b>Repeatability</b>	±0.5%	±0.5%	±0.5%	±0.5%
<b>Power Resolution</b>	±0.5%	±0.5%	±0.5%	±0.5%
<b>Calorimeter Mode</b>				
Sensitivity	0.18 mV/J	0.18 mV/J	0.18 mV/J	0.18 mV/J
Maximum Measurable Energy <sup>f</sup>	40 J	40 J	40 J	40 J
Minimum Measurable Energy	4 J	4 J	4 J	4 J
Minimum Repetition Period	4.6 sec	4.6 sec	4.6 sec	4.6 sec
Maximum Pulse Width	123 ms	123 ms	123 ms	123 ms
Accuracy with energy calibration option	±5%	±5%	±5%	±5%
<b>Beam size dependence (centered)</b>	±0.5%	±0.5%	±0.5%	±0.5%

## DAMAGE THRESHOLDS

	40 W	100 W	250 W	300 W <sup>g</sup>
<b>Max Average Power (continuous)</b>	40 W	100 W	250 W	300 W <sup>g</sup>
<b>Max Average Power (2 minutes)</b>	60 W	150 W	300 W	300 W <sup>g</sup>
<b>Max. Average Power Density<sup>i</sup></b>	45 kW/cm <sup>2</sup>	45 kW/cm <sup>2</sup>	45 kW/cm <sup>2</sup>	45 kW/cm <sup>2</sup>
<b>Pulse Laser Damage Thresholds</b>		<b>Max Energy Density<sup>h</sup></b>		<b>Peak Power Density</b>
1.064 μm, 360 μs, 5 Hz	9 J/cm <sup>2</sup>		25 kW/cm <sup>2</sup>	
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

	25 mm Ø			
<b>Effective aperture diameter</b>	25 mm Ø			
<b>Absorber</b>	High Damage Threshold – H9			
<b>Cooling</b>	convection	convection	fan	water
<b>Dimensions</b>	89 H x 89 W x 32 D mm	89 H x 89 W x 106 D mm	89 H x 89 W x 116 D mm	89 H x 89 W x 44 D mm
<b>Weight (head only)</b>	0.68 kg	0.99 kg	1.44 kg	0.90 kg
<b>Effective Area</b>	4.9 cm <sup>2</sup>	4.9 cm <sup>2</sup>	4.9 cm <sup>2</sup>	4.9 cm <sup>2</sup>

a. Nominal value, actual value depends on electrical noise in the measurement system.  
 b. With Gentec-E0 TPM 300CE, DUO, SOLO or P-LINK monitor.  
 c. Maximum output voltage = sensitivity x maximum power.  
 d. Higher sensitivity with internal circuit. Contact Gentec-E0.  
 e. Including linearity with power. With Gentec-E0 monitor.

f. For 360 μs pulses. Higher pulse energy possible when customized for long pulses (ms), less for short pulses (ns).  
 g. Minimum cooling flow 1 liter/min, water temperature 22°C, 1/8 NPT compression fittings for 1/4 inch semi-rigid tube. Contact Gentec-E0 for clean deionized water cooling module option.  
 h. A slight discoloration may occur without affecting the performance of the detector head.  
 i. 1064 nm, 10W CW.

Specifications subject to change without notice



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