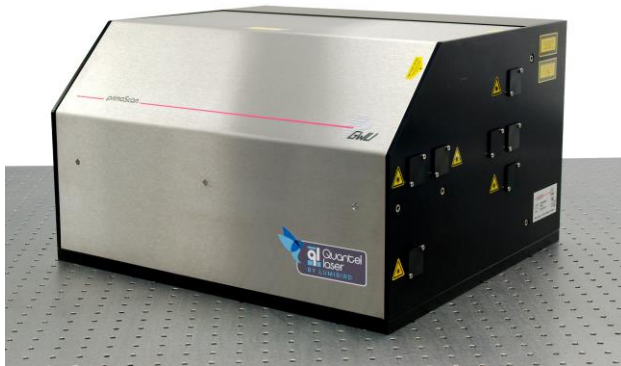


# primoScan

## High End Optical Parametric Oscillator



### primoScan Specification

The primoScan is GWU's modular high-end OPO, available in **broadband and midband configuration**. Pumped at 355 nm it provides widest, continuous tuning from the **UV** range, across the **visible** spectrum up to **infrared** wavelengths with highest output energies. The fast-switching capability allows for **changing its wavelength from shot-to-shot** across the entire range with < 100 ms shifting time. The modular design of the primoScan ensures the **optimum versatility** for almost any application. Additional features, e. g. a common port for all wavelengths, are available. All options, including UV generation, are **integrated in one single box**.

The broadband (/BB) version of the primoScan offers an **extraordinary efficiency**, allowing for the **highest output energy** on the market together with a wide tunability across the visible to the mid-IR spectral range.

The midband type OPO is employing the **ultra-low divergence (/ULD)** technology, providing an excellent beam quality, highest UV efficiencies and **gap-free tuning** from 190 nm to 2700 nm.

Following GWU's design philosophy, the OPOs of the primoScan series are using a **soft pumping scheme** with low fluence, ensuring **maximum reliability**. Moreover, the BBO crystals are coated with an advanced "p-coating" – a layer that protects the crystal surface from degradation due to environmental effects for **maximum lifetime**. Our advanced optical and mechanical design grants for optimum performance and is virtually maintenance-free.

### Features and Benefits

Fully integrated midband and broadband OPO

Ultra-low divergence version available

Highest UV efficiency

Widest tuning range  
190-2700 nm

Single output port for entire tuning range

Fully automated control standard

Fast shot-to-shot wavelength switching

Soft pumping scheme for high reliability and long lifetime

#### Applications

Material Analysis

Laser ind. fluorescence

Combustion studies

Remote sensing

Multiphoton interactions

Medical & Biotechnology

### Notes

All specifications depend in the pump laser specifications and performance. Please contact the factory or our sales representatives for details. All specifications are subject to change without notice.



Scan Me!

# primoScan Specification

primoScan Broadband	/BB/140		/BB/300		/BB/550		/BB/850	
Repetition Rate	10 Hz	20 Hz	10 Hz		10 Hz		10 Hz	
Pump Energy	130 mJ	120 mJ	230 mJ	280 mJ	400 mJ	520 mJ	620 mJ	850 mJ
Output Energy <sup>1</sup> at 450 nm	50 mJ	45 mJ	90 mJ	110 mJ	155 mJ	205 mJ	240 mJ	320 mJ
Beam Diameter at Exit Aperture	< 7.5 mm		< 10 mm		< 12.5 mm		< 16 mm	
Tuning Range Signal Wave	405 nm – 690 nm							
Tuning Range Idler Wave	730 nm – 2700 nm							
Linewidth	10 cm <sup>-1</sup> – 500 cm <sup>-1</sup>							
OPO Pulse Width	0 – 3 ns < Pump							
Beam Divergence at 450 nm (FWHM)	< 10 mrad							
Wavelength Shift Time	< 100 ms							

primoScan Midband	/ULD/140		/ULD/280		/ULD/500		/ULD/650	
Repetition Rate	10 Hz	20 Hz	10 Hz		10 Hz		10 Hz	
Pump Energy	130 mJ	120 mJ	230 mJ	280 mJ	400 mJ	500 mJ	620 mJ	
Output Energy <sup>1</sup> at 450 nm	40 mJ	35 mJ	71 mJ	85 mJ	125 mJ	155 mJ	190 mJ	
Output Energy <sup>2,3</sup> at 345 nm	9 mJ	8 mJ	16 mJ	19 mJ	28 mJ	35 mJ	40 mJ	
Output Energy <sup>2,3</sup> at 280 nm	5.2 mJ	4.5 mJ	9.2 mJ	11 mJ	16 mJ	20 mJ	25 mJ	
Output Energy <sup>2,3</sup> at 240 nm	5.2 mJ	4.5 mJ	9.2 mJ	11 mJ	16 mJ	20 mJ	25 mJ	
Output Energy <sup>3,4</sup> at 200 nm	1.3 mJ	1.1 mJ	2.3 mJ	2.8 mJ	4 mJ	5 mJ	6 mJ	
Beam Diameter at Exit Aperture	< 6.5 mm		< 8.5 mm		< 11 mm		< 12.5 mm	
Tuning Range OPO	405 nm – 2700 nm							
Tuning Range UV <sup>5</sup>	190 nm – 405 nm							
Linewidth <sup>6</sup>	3.5 cm <sup>-1</sup> – 6 cm <sup>-1</sup>							
OPO Pulse Width	0 – 3 ns < Pump							
Beam Divergence (FWHM)	< 2 mrad							
Wavelength Shift Time	< 100 ms							

## Footnotes:

<sup>1</sup>: Output Peak  $\pm$  10 nm

<sup>4</sup>: Output Peak  $\pm$  5 nm

<sup>2</sup>: Output Peak  $\pm$  5 nm

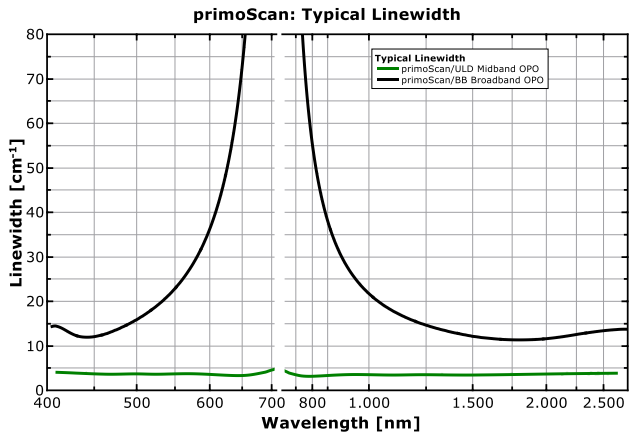
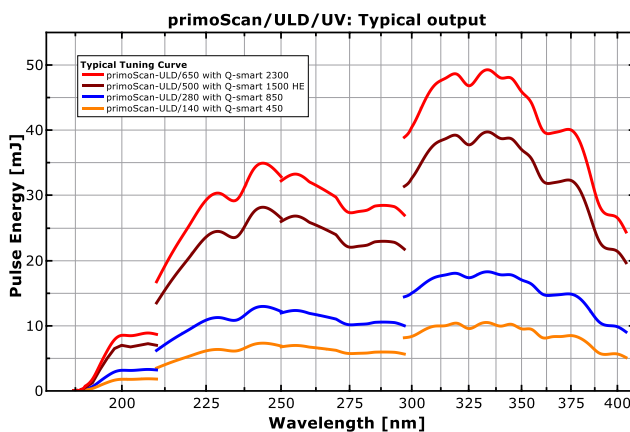
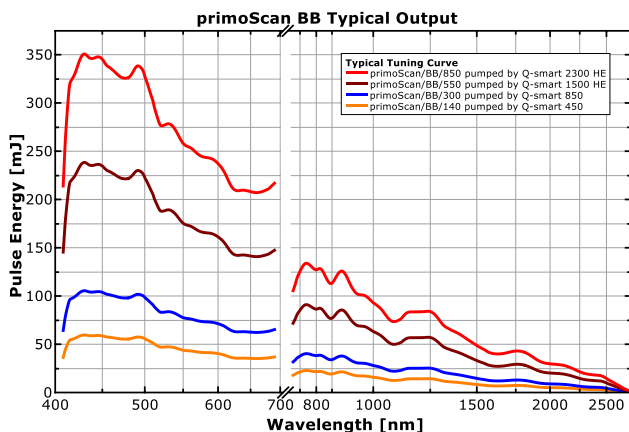
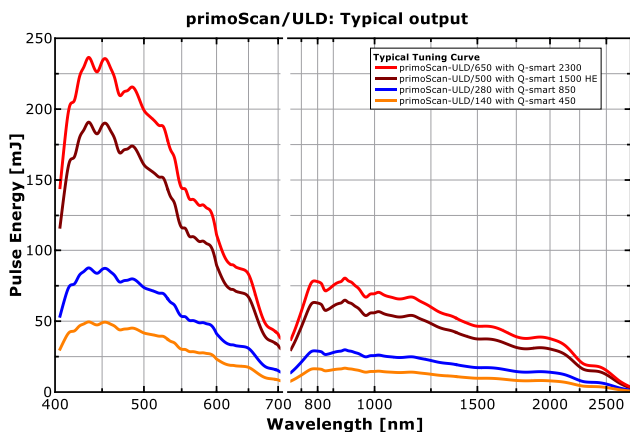
<sup>5</sup>: Depending on UV Options

<sup>3</sup>: Losses are to be expected with additional add-ons, e. g. up to 10% losses on UV wavelengths (210 – 405 nm) when deep-UV (< 210 nm) or common port UV is added. Please contact sales for detailed specification.

<sup>6</sup>: Except deep UV < 300 nm linewidth < 8 cm<sup>-1</sup>

# primoScan Performance

Typical performance with Lumibird Q-Smart Lasers, not a guaranteed or warranted specification



## Pump Laser Requirements

Wavelength	355 nm
Energy	80 – 750 mJ
Pulse Width	3.5 – 10 ns
Repetition Rate	1 – 400 Hz
Spatial Beam Profile	homogeneous
Divergence	< 0.5 mrad

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Germany

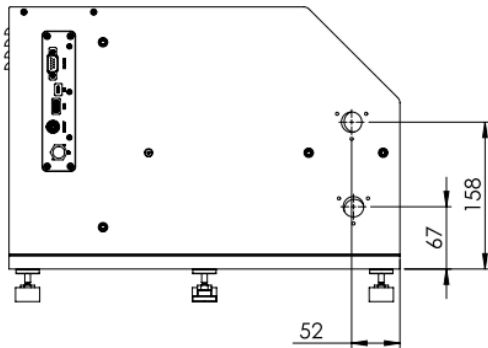
Fon +49.(0) 22 35.9 55 22-0  
Fax +49.(0) 22 35.9 55 22-99

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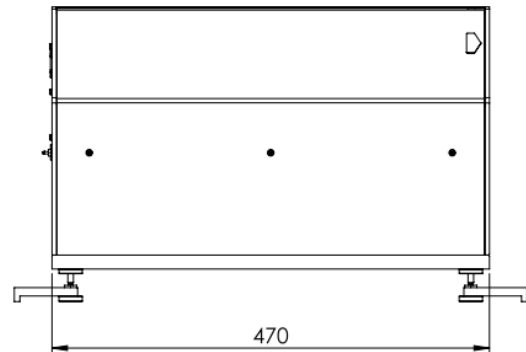
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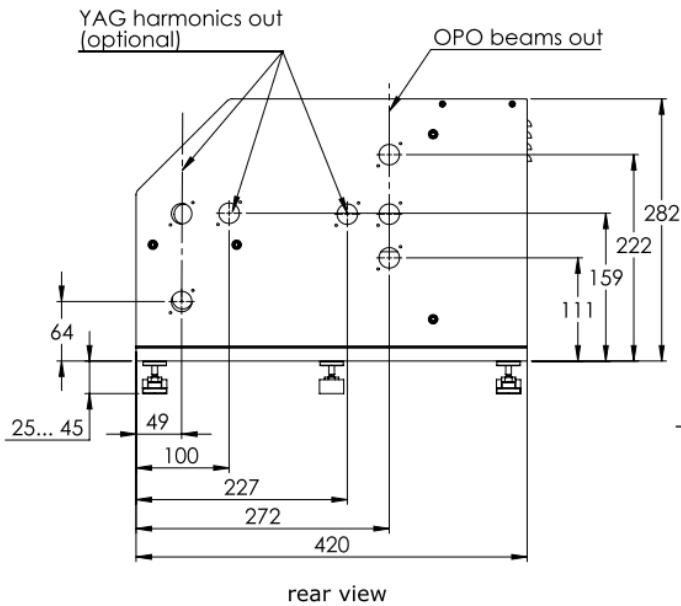
# primoScan Dimensions and Properties



front view



side view



rear view

## Mechanical + Utilities

Size OPO body  
(L x W x H):  
470 x 420 x 317 mm<sup>3</sup>

Weight OPO body:  
24 – 29 kg (depending on configuration)

Power requirements  
Electronics & Motorizers:  
100 – 240 V, 50 – 60 Hz

For dimensions with feet  
please refer to the  
dimensional drawing