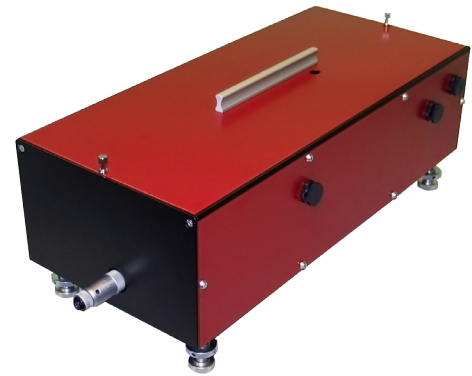




# ATsG. Second and Third Harmonic Generator

- High conversion efficiency
- Small walk-off angle
- Low beam divergence
- No heating



Second and Third harmonic generator ATsG-O-800

## Product overview

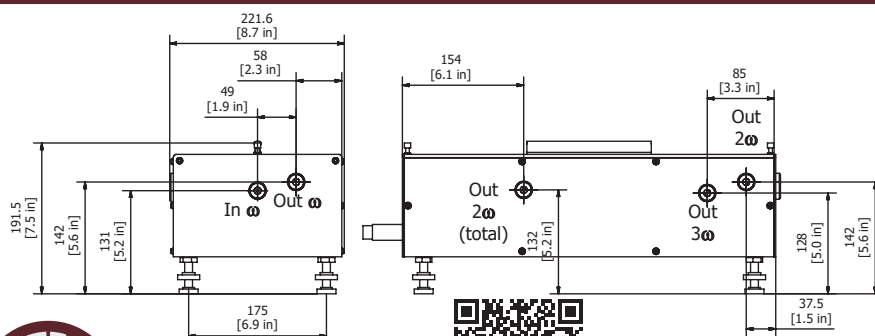
Second and third harmonic (SH and TH) generators are used for doubling and tripling of optical frequency for a wide range of input wavelengths produced by various ultrafast laser sources. The sources may be titanium-sapphire femtosecond lasers (Ti:S, 700-1000 nm), various ultrafast solid-state and fiber lasers around 1030-1064 nm region, chromium-forsterite oscillators (Cr:F, 1230-1270 nm), as well as other ultra-short pulse sources including parametric light conversion systems. The principle of operation is based on second harmonic generation in a non-linear crystal with phase-matching technique and sum frequency generation approach for third harmonic output. The units provide highly efficient stable output with good beam quality and little pulse broadening in fs scale.

The models are subdivided into two main branches: the ATsG-O-W for usage with ultrafast oscillators (multi-MHz rep. rates with nJ-level output) and the ATsG-A-W with increased input aperture and modified layout for usage with amplifier systems (single-shot to several MHz, uJ- and mJ-level output). The "W" in the model name takes on the exact central wavelength value for a certain model, e.g. the ATsG-O-1250 (i.e. designed for an oscillator with ~1250 nm output).

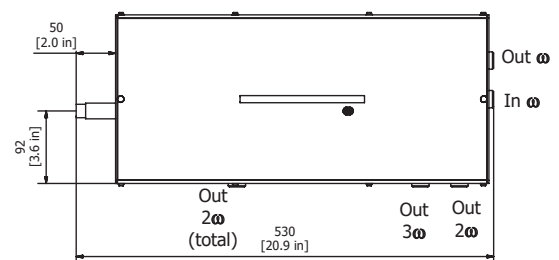
### ATsG technical specifications

	ATsG-O (for oscillators)		ATsG-A (for amplifiers)	
<b>Possible input wavelength range*</b>	750-1600 nm			
<b>Input wavelength tuning range**</b>	50-100 nm			
<b>Output wavelengths***</b>	375-800 nm (SH) 250-533 nm (TH)			
<b>Input pulse duration</b>	>20 fs			
<b>Input polarization</b>	linear, horizontal			
<b>Input average power</b>	0.3-3 W		<10 W	
<b>Input pulse energy</b>	<2 uJ		2 uJ - 10 mJ	
<b>Input beam dia at level of 1/e<sup>2</sup></b>	<2 mm		<10 mm	
<b>Conversion efficiency****</b>	20-50% (SH)	3-8% (TH)	30-50% (SH)	8-15% (TH)
<b>Pulse broadening</b>	<100 fs (SH)	<200 fs (TH)	<100 fs (SH)	<180 fs (TH)
<b>Output polarization</b>	SH - linear, vertical; TH - linear, horizontal			
<b>Dimensions</b>	480x222x192 mm			

\* - may be covered by several exchangeable optics sets, please indicate the desired wavelength range upon your request;  
 \*\* - typical with one optics set, depends on exact central wavelength and pulse duration;  
 \*\*\* - defined by input wavelength;  
 \*\*\*\* - defined by input pulse energy and input pulse duration.



ATsG dimensions in mm [inches]



**AVESTA**  
LASERS AND OPTICAL SYSTEMS



Avesta Ltd., 11 Fizicheskaya Street  
Troitsk, 108840, Moscow, Russia  
Tel.: +7 (495) 967-94-73  
Fax: +7 (495) 646-04-95

fs@avesta.ru  
www.avesta.ru