

Nano Series Ultra Compact Pulsed Nd:YAG Lasers

Product Range Specification



Nano Range Specification Stable & Stable Telescopic Resonators

Model	Nano S 130-10	Nano S 120-20	Nano S 60-30	Nano S 30-50	Nano L 340-10	Nano L 200-10	Nano L 290-20	Nano L 200-20	Nano L 200-30	Nano L 150-50	Nano L 90-100
Max. Repetition Rate (Hz)	10	20	30	50	10	10	20	20	30	50	100
Output Energy (mJ) ⁽¹⁾											
1064nm	130	120	60	30	340	200	290	200	200	150	90
532nm	65	60	30	15	200	110	145	110	110	75	50
355nm	25	15	10	6	45	40	50	40	40	30	15
266nm	16	12	6	3	30	25	30	25	25	15	10
213nm	3	3	2	1	5	4	5	3	3	3	2
Parameter											
Pulse - pulse Stability ($\pm\%$) ⁽²⁾	2	2	2	2	2	2	2	2	2	2	2
Beam diameter (mm)	4	4	4	4	6.5	5	6.5	5	5	4	4
Beam divergence (mrad) ⁽³⁾	<2.5	<2.5	<2.0	<2.0	<2.0	<2.0	<1.5	<2.0	<2.0	<1.5	<1.5
Pulse length @ 1064nm (ns)	6-8	6-8	6-8	6-8	7-9	6-9	7-9	6-9	6-9	7-9	7-9
Pointing stability (μ rad) ⁽⁴⁾	<70	<70	<70	<70	<70	<70	<70	<70	<70	<70	<70
Resonator type	Stable	Stable	Stable	Stable	Stable	Stable	Stable	Stable	Stable	Stable	Stable
TEM ₀₀ (mJ) @ 1064nm ⁽⁵⁾	10	10	8	8	20	20	20	20	20	10	10
Lamp life (pulses)	5x10 ⁷	5x10 ⁷	5x10 ⁷	5x10 ⁷	5x10 ⁷	5x10 ⁷	5x10 ⁷	5x10 ⁷	5x10 ⁷	5x10 ⁷	5x10 ⁷
Timing jitter (ns) ⁽⁶⁾	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Services											
Voltage (VAC)	90-250	90-250	90-250	90-250	90-250	90-250	220-250	90-250	220-250	220-250	220-250
Frequency (Hz)	47-63	47-63	47-63	47-63	47-63	47-63	47-63	47-63	47-63	47-63	47-63
Power	Single Phase	Single Phase	Single Phase	Single Phase	Single Phase	Single Phase	Single Phase	Single Phase	Single Phase	Single Phase	Single Phase
Ambient (°C) ⁽⁷⁾	5-35	5-35	5-35	5-35	5-35	5-35	5-35	5-35	5-35	5-35	5-35
Consumption (W)	<300	<300	<300	<300	<350	<350	<450	<650	<650	<850	<850
PSU Type	LPU350 ⁽⁸⁾	LPU350 ⁽⁸⁾	LPU350 ⁽⁸⁾	LPU350	LPU350	LPU350	LPU1000	LPU350	LPU1000	LPU1000	LPU1000

Model	Nano T 290-10	Nano T 250-10	Nano T 270-20	Nano T 250-20	Nano T 100-50
Max. Repetition Rate (Hz)	10	10	20	20	50
Output Energy (mJ) ⁽¹⁾					
1064nm	290	250	270	250	100
532nm	145	125	135	125	50
355nm	50	45	45	45	20
266nm	27	30	25	30	15
213nm	4	4	3	4	2
Parameter					
Pulse - pulse stability ($\pm\%$) ⁽²⁾	2	2	2	2	2
Beam diameter (mm)	6.35	5	5	5	5
Beam divergence (mrad) ⁽³⁾	<0.8	<0.8	<0.8	<0.8	<0.8
Pulse length @ 1064nm (ns)	7-11	7-11	7-11	7-11	7-11
Pointing stability (μ rad) ⁽⁴⁾	<70	<70	<70	<70	<70
Resonator type	Telescopic	Telescopic	Telescopic	Telescopic	Telescopic
TEM ₀₀ (mJ) @ 1064nm ⁽⁵⁾	40	40	40	40	25
Lamp life (pulses)	5x10 ⁷	5x10 ⁷	5x10 ⁷	5x10 ⁷	5x10 ⁷
Timing jitter (ns) ⁽⁶⁾	<0.5	<0.5	<0.5	<0.5	<0.5
Services					
Voltage (VAC)	90-250	90-250	90-250	90-250	220-250
Frequency (Hz)	47-63	47-63	47-63	47-63	47-63
Power	Single Phase	Single Phase	Single Phase	Single Phase	Single Phase
Ambient (°C) ⁽⁷⁾	5-35	5-35	5-35	5-35	5-35
Consumption (W)	<650	<350	<650	<650	<650
PSU Type	LPU350	LPU350	LPU350	LPU350	LPU1000

(1) Variable by mean of lamp voltage control. Energy stability remains within specification from 20% to 100% of output energy. The maximum energy is quoted for a system having a 15 minute warm-up period.

(2) At 1064nm.

(3) Full angle for 90% of the output energy.

(4) Full angle.

(5) With the addition of optional intra-cavity aperture. Factory fitted option on the Nano S range, this is not customer removable. On the Nano L and Nano T ranges the TEM₀₀ aperture can be added or removed as required.

(6) RMS jitter, measured with respect to the Q-switch trigger input.

(7) 0-80% non condensing atmosphere.

(8) LPU350R option available as 4U 19" Rackmounted PSU.

Nano stable resonators and stable telescopic resonators

This Nano range allow a great deal of flexibility both in scientific and industrial applications. The output of these systems is multimode, however the telescopic resonators offer high energy beams with low divergences - comparable to those from unstable Gaussian coupled resonators but with a more uniform spatial profile, and a smoother temporal profile. Such features lend these systems to the pumping of narrow band dye lasers and optical parametric oscillators. All Nano L and Nano T models can be fitted with intra-cavity apertures to give a true TEM₀₀ output.

Nano Range Specification Gaussian Coupled Resonators

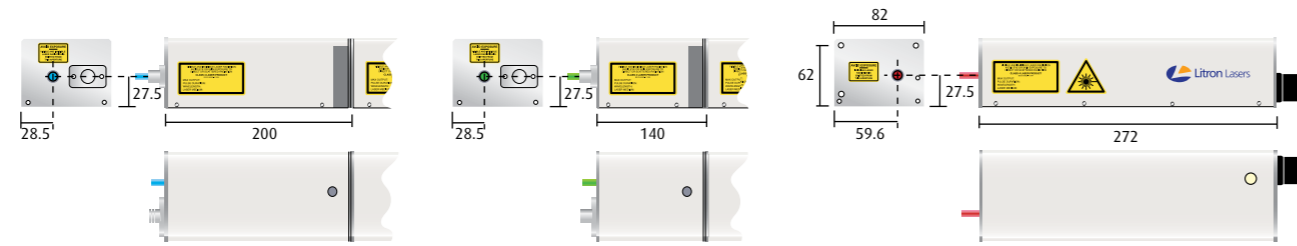
Model	Nano SG 150-10	Nano SG 120-20	Nano SG 60-30	Nano LG 300-10	Nano LG 225-10	Nano LG 250-20	Nano LG 200-20	Nano LG 150-30	Nano LG 130-50
Max. Repetition Rate (Hz)	10	20	30	10	10	20	20	30	50
Output Energy (mJ)									
1064nm	150	120	60	300	225	250	200	150	130
532nm	75	65	35	150	120	125	110	75	65
355nm	30	15	10	60	50	45	40	25	20
266nm	15	12	6	35	30	30	25	18	15
213nm	3	2	1	6	5	4	4	2	2
Parameter									
Pulse - pulse Stability (±%) ⁽¹⁾	2	2	2	2	2	2	2	2	2
Beam diameter (mm)	5	4	4	5	5	5	5	5	5
Beam divergence (mrad) ⁽²⁾	<0.7	<0.5	<0.5	<0.7	<0.5	<0.7	<0.5	<0.5	<0.5
Fit to Gaussian N/F field (%)	70/95	70/95	70/95	70/95	70/95	70/95	70/95	70/95	70/95
M ²	<2	<2	<2	<2	<2	<2	<2	<2	<2
Pulse length @ 1064nm (ns)	4-6	6-8	6-8	4-6	4-6	4-6	4-6	4-6	4-6
Pointing stability (μrad) ⁽³⁾	<100	<70	<70	<100	<70	<100	<70	<100	<100
Lamp life (pulses)	>5x10 ⁷	>5x10 ⁷	5x10 ⁷	5x10 ⁷	5x10 ⁷	5x10 ⁷	5x10 ⁷	5x10 ⁷	5x10 ⁷
Timing jitter (ns) ⁽⁴⁾	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Services									
Voltage (VAC)	90-250	90-250	90-250	220-250	90-250	220-250	220-250	220-250	220-250
Frequency (Hz)	47-63	47-63	47-63	47-63	47-63	47-63	47-63	47-63	47-63
Power	Single Phase	Single Phase	Single Phase	Single Phase	Single Phase	Single Phase	Single Phase	Single Phase	Single Phase
Ambient ⁽⁵⁾ (°C)	5-35	5-35	5-35	5-35	5-35	5-35	5-35	5-35	5-35
Consumption (W)	<350	<350	<350	<650	<400	<650	<650	<650	<650
PSU Type	LPU350 ⁽⁶⁾	LPU350 ⁽⁶⁾	LPU350 ⁽⁶⁾	LPU1000	LPU350	LPU1000	LPU1000	LPU1000	LPU1000

- (1) At 1064nm.
- (2) Irreducible beam divergence measured full angle for cone containing 90% of energy.
- (3) Full angle.
- (4) RMS jitter, measured with respect to the Q-switch trigger input.
- (5) 0-80% non condensing atmosphere.
- (6) LPU350R option available as 4U 19" Rackmounted PSU.

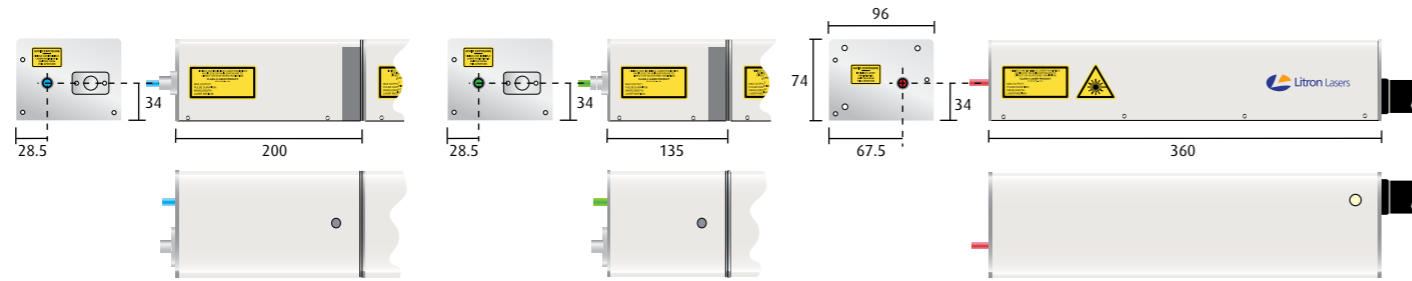
Nano geometrically unstable Gaussian coupled resonators

This Nano series is available with unstable Gaussian coupled resonators giving very low divergence single transverse mode output beams.

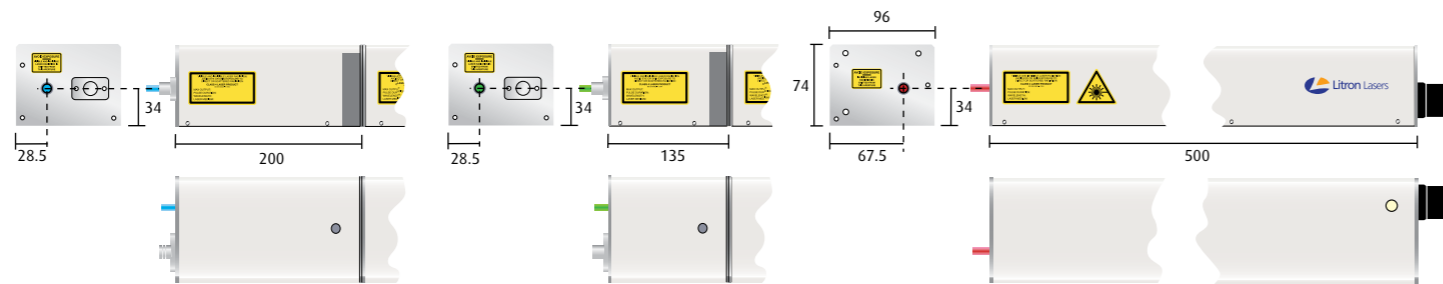
Nano Range Dimensions



Nano S Laser Head with Doubler & Tripler/Quadrupler Units. (Quintupler/5th HG Unit length is 265mm.)

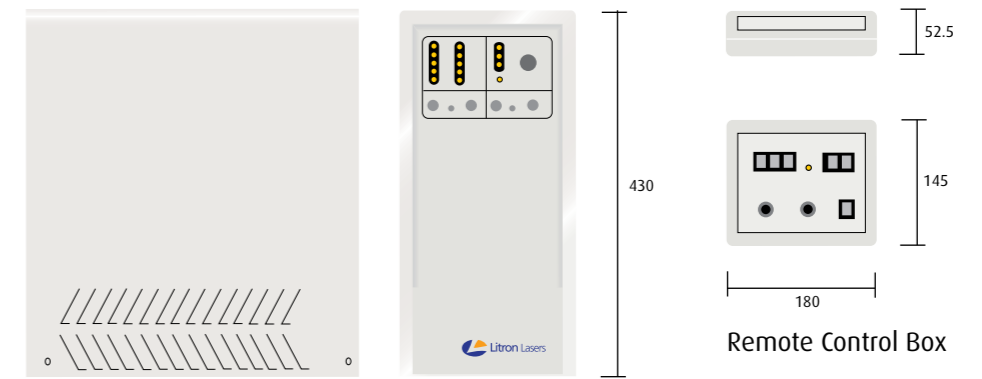


Nano L Laser Head with Doubler & Tripler/Quadrupler Units. (Quintupler/5th HG Unit length is 260mm.)

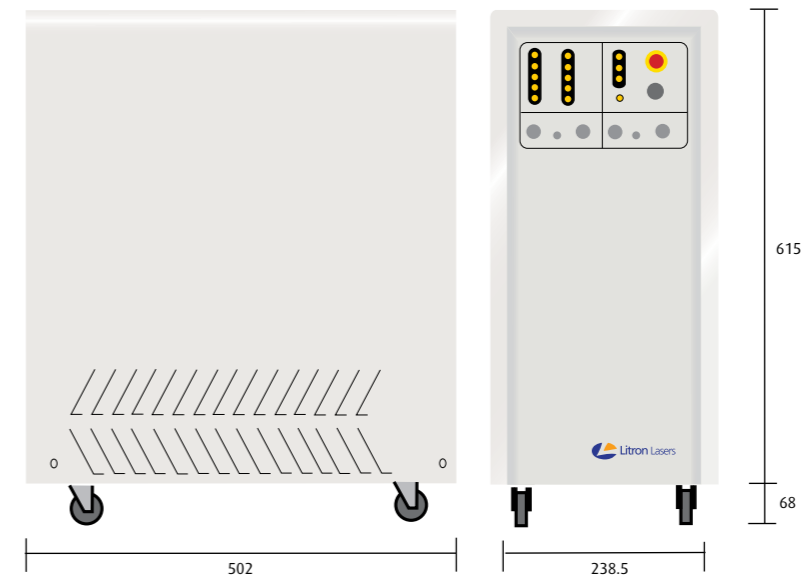


Nano T Laser Head with Doubler & Tripler/Quadrupler Units. (Quintupler/5th HG Unit length is 260mm.)

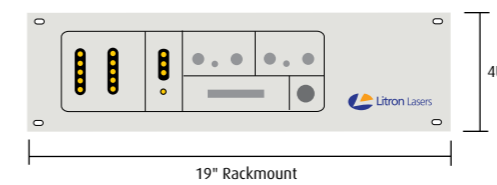
All dimensions shown in mm



LPU350 PSU



LPU1000 PSU



LPU 350R PSU



Our policy is to improve the design and specification of our products. The details given in this document are not to be regarded as binding.

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