

# MULTIPURPOSE LASER ASSEMBLY FOR RESEARCH AND EDUCATION

## LASER ASSEMBLY LS-2132Y, LS-2134Y



*Laser assembly is developed especially for investigation and education in the field of solid-state laser physics and technology, nonlinear optics, laser spectroscopy, etc.*

LASER ASSEMBLY PROVIDES THE FOLLOWING INVESTIGATIONS OF SOLID-STATE LASERS FUNDAMENTALS:

- Stability, optimum cavity configuration and optimum output coupling for free running and Q-switched operation;
- Laser threshold and efficiency;
- Laser modes and mode selection;
- Passive and electro-optics Q-switching;
- External frequency doubling in Q-switched mode;
- Divergence and pulse duration of output radiation .

The base of the assembly is Q-switched Nd:YAG laser LS-2132Y (or LS-2134Y) with built-in second harmonic generator.

The lasers LS-2132Y, LS-2134Y are supplied with built-in indicator of fundamental frequency radiation (1064 nm), sealed cooling system with water-to-air heat exchanger, control software. Assembly has additional safe interlocking, which does not permit the access to laser radiation of unskilled user while alignment and adjustment cavity elements during the education process.

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### LASER ASSEMBLY KIT INCLUDES:

- Set of laser cavity mirrors that consists of: 3 output mirrors with different reflection coefficients and 3 "rear" mirrors – flat, concave and special, with diffractive structure for homogenization of output spot in passive Q-switched mode;
- Aiming red diode laser in adjustable holder for laser cavity alignment;
- Passive Q-switch from LiF:F2- crystal;
- IR vizualizer of Nd:YAG laser fundamental radiation (1064 nm);
- Fast photo detector unit with rise time <1ns (300-1100 nm);
- Set of intracavity pinholes;
- External beam stop;
- Lens and wedge for divergence measurements.

### ADDITIONAL UNITS CAN BE SUPPLIED ON CUSTOMERS REQUEST:

- Polarizing attenuator;
- Beam dumper;
- Gaussian and rear mirrors for unstable resonator;
- Third, forth and fifth harmonic generators.



### SPECIFICATIONS

Model	LS-2132Y	LS-2134Y
Energy, mJ		
free-running mode 1064 nm	≥220	≥300
Q-switched mode 1064 nm	180	250
Q-switched mode 532 nm	100	150
Q-switched mode 355 nm	20*	25*
Q-switched mode 266 nm	24*	33*
Q-switched mode 213 nm	2.5**	3**
Pulse duration 1064 nm, ( $\tau_{0.5}$ )		
free-running mode, $\mu$ s	150	150
passive Q-switched mode, ns	20-100	20-100
active Q-switched mode, ns	10-15 / 5-6***	10-15 / 7-8***
Pulse repetition rate, Hz	1-15	
Beam divergence, mrad		
full angle for 86% of energy	2-3 / <1***	
Jitter ****, ns	±1	
Energy stability****, %	±2.5	
Size LxWxH, mm (Weight, kg)		
Laser Head	876x206x136	
Power Supply	363x364x192	
Cooling System	363x364x192	
Remote Control	105x175 (0.5)	
HG-T	150x145x55 (2.5)	
HG-F	130x128x55 (2.5)	
HG-TF	205x145x55 (3.5)	
HG-Fifth	235x150x55 (2.0)	
Power requirements	Single Phase, 220±20 V, 50/60 Hz, 750 W	

\* with Harmonic Generator Assembly HG-TF (optional)

\*\* with Harmonic Generator Assembly HG-Fifth (optional)

\*\*\* with VRM (Unstable resonator) (optional)

\*\*\*\* relative to the external Q-switch trigger pulse (Active Q-switched mode)

\*\*\*\*\* shot to shot for 99% of pulses