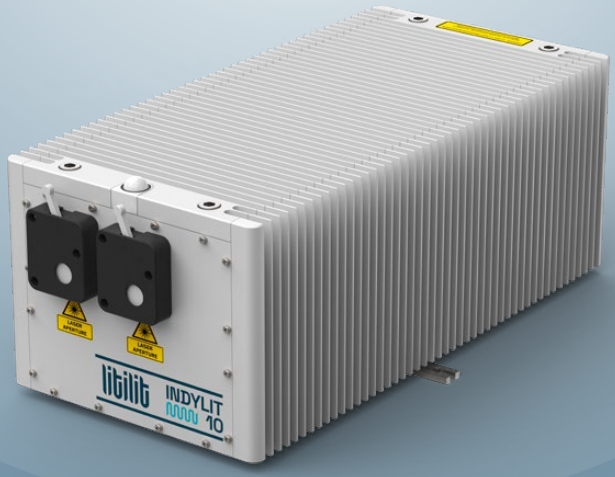
litilit

INDYLIT 10

Industrial Femtosecond Laser for Material Processing

1030/515 nm, 400 fs – 4 ps, > 10 W, 100 kHz – 1.6 MHz



WWW.LITILIT.COM

ROBUST DESIGN FOR FLEXIBLE APPLICATIONS

FEATURES

- Extremely robust and stable
- Adjustable repetition rate, pulse duration, power
- High pulse energy and clean pulse shape
- Passively air cooled
- Maintenance-free & turn-key

APPLICATIONS

- Material microprocessing
- Ophthalmology
- Semiconductor and electronics
- Display manufacturing
- Battery manufacturing
- Stainless steel black and color marking

PNEUM プネウム株式会社
TEL: 048-985-2720
Mail: contact@pneum.co.jp
担当：営業部　堀 俊之

INDYLIT 10

The Indylit 10 is a high energy air-cooled femtosecond laser designed for a variety of ultrafast applications.

The laser head features innovative passively-cooled design, ensuring high stability of the optical parameters such as pulse duration, beam pointing and power. Its mechanical construction can withstand almost everything you can throw at it, making the Indylit a new industrial femtosecond technology.

Built-in second harmonics (SH) module provides wavelength extension enabling even wider range material processing applications.

SPECIFICATIONS

Model	Indylit 10	Indylit 10 SH [1]
Central wavelength	1030 ± 2 nm	515 ± 1 nm
Spectral bandwidth (FWHM)	< 4 nm	< 3 nm
Average power [2]	> 10 W @ 100 kHz > 12 W @ 1000 kHz	> 5 W @ 100 kHz > 2 W @ 1000 kHz
Max. pulse energy [2]	> 100 µJ	> 50 µJ
Pulse duration	< 400 fs	
Pulse duration tunability	400 fs – 4 ps	N/A
Switch time between outputs	< 1 s	
Internal pulse repetition rate	100 kHz – 1.6 MHz, down to 30 kHz in burst mode	
Pulse picker	integrated	
Triggering mode	Pulse picker control via TTL gate	
Burst length	1...12 pulses	
Max. energy in burst	> 400 µJ	> 150 µJ
Power attenuation [3]	100 – 1%	
Beam quality	$M^2 < 1.2$	
Beam circularity [4]	> 0.90	> 0.85
Beam diameter (at $1/e^2$ level)	2.6 ± 0.2 mm	2.2 ± 0.2 mm
Polarization	Linear horizontal, > 200:1 extinction	
Prepulse contrast	> 1:1000	
Post pulse contrast	> 1:100	

INDYLIT 10

SPECIFICATIONS (continued)

Model	Indylit 10	Indylit 10 SH [1]
Beam divergence (full angle)	< 1 mrad	
Beam pointing (RMS) [5]	< 20 µrad	
Beam pointing vs temperature	< 20 µrad/° C	
Power stability (RMS) [6]	< 1%	< 2%
Pulse energy stability (RMS) [7]	< 1%	< 2%
Warm-up time (cold start)	< 30 min	
Warm-up time (warm start)	< 3 min	
Laser control interface	CAN, USB	
Operating voltage	24V, 25A (100...240 V AC, 47...63 Hz to 24V AC/DC converter included)	
Average power consumption (after warm-up)	300 W	
Maximal power rating	700 W	
Operating temperature	18 – 30 ° C[8]	
Humidity	non condensing	
Transportation/storage temperature	-20 – +70 ° C	
Dimensions: Laser head (L × W × H) Control unit (L × W × H) AC/DC converter (L x W x H)	 498 x 248 x 194 mm 449 x 370 x 140 mm 250 x 125 x 60 mm	
Umbilical length	3 ± 0.1 m	
Colling: Laser head Control unit	 air (passive) forced air (fans)	

[1] Indylit 10 SH model has also 1030 nm output with the same specifications as Indylit 10 model. The outputs can be switched by GUI interface or CAN command.

[2] Please refer to the power and energy vs. pulse repetition rate curves for typical values.

[3] Attenuation can be controlled by a few different methods: a) by PC user interface, b) by CAN register, c) by analog input (0 – 1 V, rise time < 1µs). Beam quality specifications are maintained down to 10% power level.

[4] Defined as the worst case ellipticity along the z-scan ($\pm 5 \times L_{Rayleigh}$) of the beam.

[5] Measured during 8 h operation starting 30 minutes after warm-up. Environmental temperature stability within ± 1 ° C.

[6] Measured with integration time of 1 s at the same conditions as (6).

[7] Measured within 10 s time interval for at least 1000 pulses.

[8] Higher operational temperature is available on request. Please contact LITILIT for details.

[9] Technology is protected by international patents: LT6261 (B); JP6276471 (B2); US10038297 (B2); EP3178137; DK3178137 (T3); CN106575849 (B); PL3178137 (T3); LT6639 (B); LT2020 563

CE RoHS

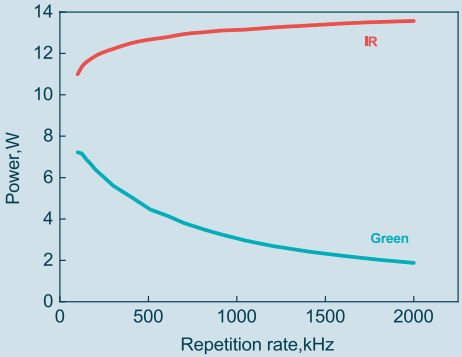
info@litilit.com | +370 669 79833 | litilit.com

DANGER: VISIBLE AND/OR INVISIBLE LASER RADIATION AVOID EYE OR SKIN EXPOSURE TO DIRECT, REFLECTED OR SCATTERED RADIATION
CLASS 4 LASER PRODUCT

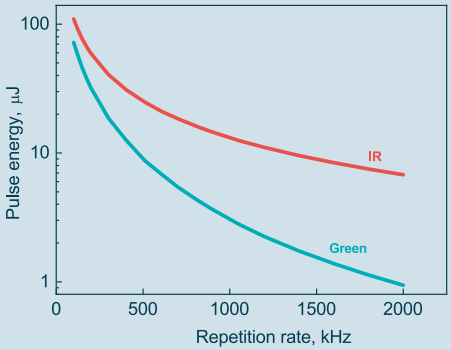
litilit

INDYLIT 10

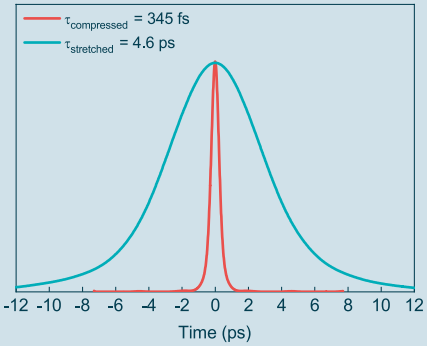
PERFORMANCE



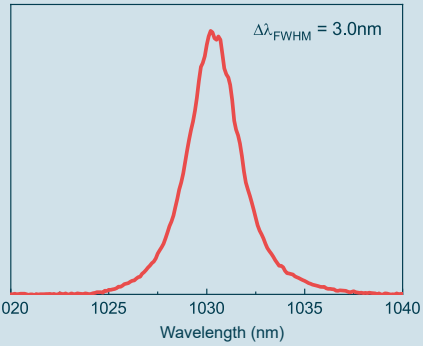
Average power dependence on the pulse repetition rate for infrared and green (SH) output



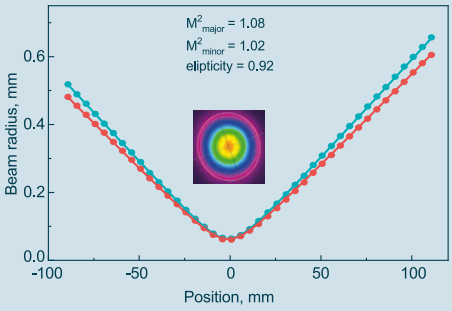
Pulse energy dependence on the pulse repetition rate for infrared and green (SH) output



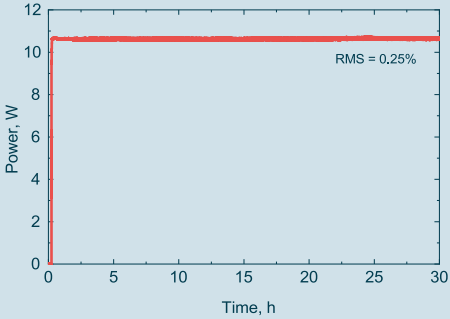
Pulse autocorrelation traces of compressed and maximally stretched 100 µJ pulses



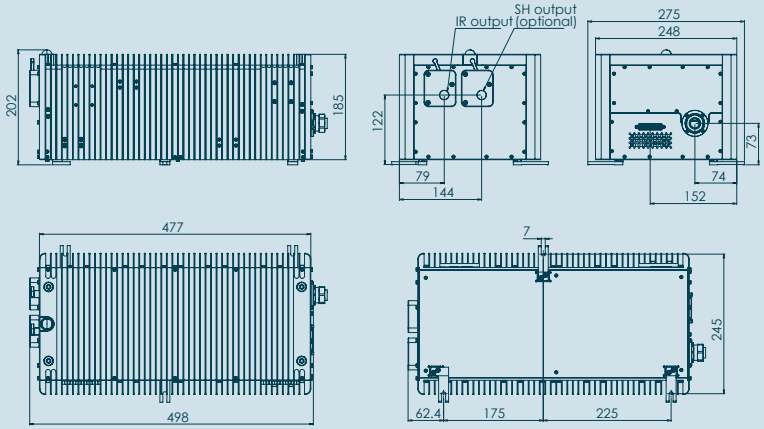
Optical spectrum



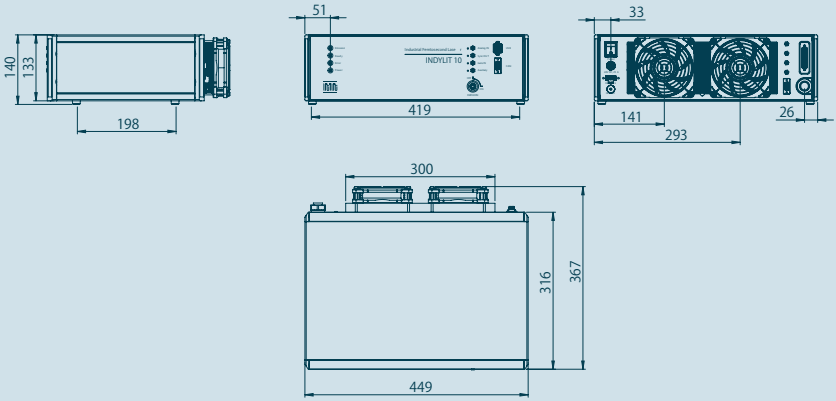
Beam quality measurement and beam profile in far field



Power stability measurement after cold start



Drawing of Indylit 10 laser head (in mm)



Drawing of Indylit 10 laser control unit (in mm)

NOTES

Savanoriu ave 235, LT-02300 Vilnius, Lithuania
info@litilit.com | +370 669 79833 | litilit.com