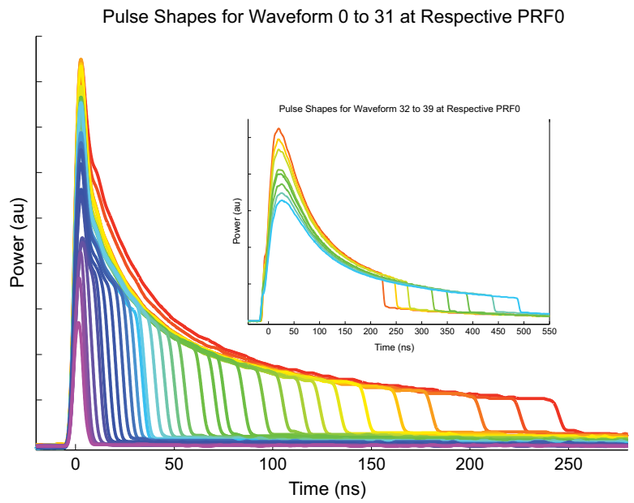
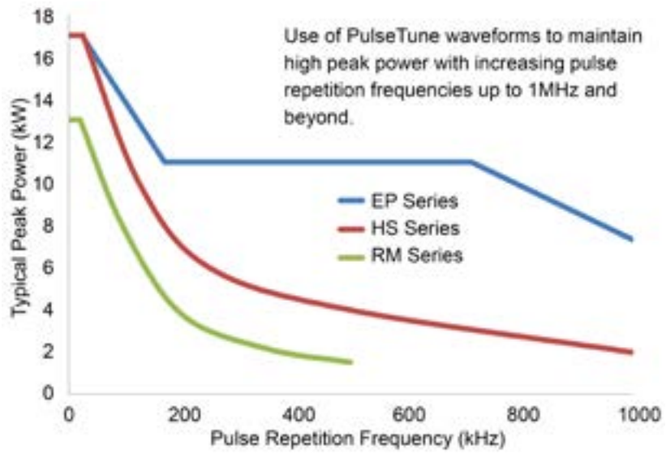
PulseTune Technology

Our PulseTune technology provides the ability to select waveforms, offering pulse widths from 3 ns to 500 ns. Each waveform is designed for maximum peak power and pulse energy at an optimised pulse repetition frequency. This gives users greater control of pulse conditions over the full repetition frequency range.



The graph shows typical pulses from the 20W EP- S with the option to select from 40 PulseTune Waveform.



Link to latest datasheet.

✓✓= Optimal for ✓= Good for

Type	S Type	Z Type	L Type	H Type
Key Applications				
Ablation	✓✓	✓✓	✓	✓
Cleaning		✓	✓	✓✓
Drilling	✓✓	✓✓	✓	✓
Engraving, deep	✓	✓✓	✓	✓✓
Engraving, fine	✓✓	✓✓	✓	
Marking, anodised & painted materials	✓	✓✓	✓✓	✓
Marking, general	✓	✓✓	✓✓	✓
Marking, metal	✓	✓✓	✓✓	✓
Marking, plastic (night & day)	✓✓	✓	✓✓	✓
Micro-machining	✓✓	✓		
Precision cutting	✓✓	✓✓		✓
Scribing	✓✓	✓✓	✓	
Solar cell processing	✓✓	✓✓	✓	✓
Thin film patterning	✓✓	✓✓	✓	✓✓
Thin foil cutting	✓✓	✓✓	✓	✓✓
Welding	✓	✓✓		✓✓

Terms and Conditions

All product information is believed to be accurate and subject to change without notice. A complete product specification will be issued on request and also at time of order acknowledgement. The user assumes all risks and liability whatsoever in connection with the use of the product and its application. These lasers are designed as products for incorporation or integration into other equipment.

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SM-S00219 Rev H 01/17

SPI® Lasers

redENERGY® G4

20W - 100W

Pulsed Fiber Lasers

WITH GTwave®
AND PulseTune TECHNOLOGY

GREATER FLEXIBILITY

SUPERIOR QUALITY

INCREASED PRODUCTIVITY

IMPROVED PROFITABILITY

redENERGY G4 20W-100W Pulsed Fiber Lasers


redENERGY G4 70W

Product selection parameters

Wavelength	1060nm																
Beam quality options [1]	**S Type**					**Z Type**								**L Type**	**H Type**	
M²	<1.3		<1.2	<1.3	<1.2	<1.6								1.6 - 2.0	2.5 - 3.5	
Rated average power (W)	20	20	20	50	50	20	20	30	50	50	70	70	100	20	40	70
PulseTune Functionality[2]	HS	EP	EP	HS	EP	RM	EP	RM	RM	EP	RM	EP	EP	HS	HS	HS
Beam delivery cable length (m)	2		0	2	0	3	3	3	3	3	3	3/5	3	3	3/5	3/5
Beam delivery optic / connector	ILOC												HE-ILLK	ILOC		
Pulse parameters																
Max peak power (kW)*	>7		>20	>10	>20	>10							>8	>12	>20	
Max pulse energy (mJ) *	>0.7					>1								>0.8	>1.25	
Pulse repetition frequency range (kHz)	1-1000		1 - 2000	1-1000	1- 2000	1-500	1-1000	1-500		1-1000	1-500			1-1000		
PulseTune waveforms	25	40		25	40	2	40	2		38	2	37	32	25		
Pulse duration range (ns)	10-240	3-500		10-240	3-500	26-250	3-500	26-250		6-500	26-250	9-500	12-500	10-220	10-250	
CW mode with modulation	Yes					No	Yes	No		Yes	No			Yes		
Modulation range in CW (kHz)	1-100					N/A	1-100	N/A		1-100	N/A			1-100		
Output power stability %p-p*	<5															
Cooling options																
Air cooled or Water cooled	Air												Water	Air		
Electrical																
Power supply voltage (V)	24															
Power supply current (A)	<10			<16		<10			<16		<20			<10		<20
Mechanical																
Weight (kg)	10		13.5	10	13.5	10					13			10		13
Laser module length (mm)	347		421	347	421	347					377		400	347		377
Laser module width (mm)	201		205	201	205	201					249			201		249
Laser module height (mm)	95		110	95	110	95							63	95		
Environmental																
Ambient temperature range (°C)	0-45		10-45	0-42	10-45	0-45				0-40			15-35	0-45		0-40
Relative humidity	5-95% RH (non-codensing).															

* As measured at rated average power, waveform 0, max pulse energy and over full operating temperature range.

1. Beam quality options

S Type - Single mode (M^2 <1.3)
Generating very fine spot size <20 microns with high power stability and large depth of focus. Ideally suited to applications requiring small feature sizes.

Z Type - General purpose - (M^2 <1.6)
Offering higher peak power and pulse energy with only minor increase in spot size and good depth of focus.

L Type - Low mode (M^2 1.6 - 2.0)
General marking applications giving slightly larger spots and features that are more appropriate to making marks visible to the naked eye.

H Type - High mode (M^2 2.5 - 3.5)
Offering higher pulse energies, peak powers and even larger spots ideal for wide lines, filled font type applications and large area coverage.

Feature Combinations

At a glance			PulseTune Functionality[2]		
			RM	HS	EP
Beam Quality[1]	S Type			50W	20W
	Z Type		20W, 30W, 50W, 70W		20W, 50W, 70W, 100W
	L Type			20W	
	H Type			40W, 70W	

2. PulseTune Functionality

Gives users greater control of pulse conditions providing increased pulse energy, peak power and pulse repetition frequency.

RM Series (Reduced Mode)
- Models benefit from 2 PulseTune waveforms
- Up to 0.5 MHz pulse repetition frequencies

HS Series (High Specification)
- 25 PulseTune waveforms
- Up to 1 MHz pulse repetition frequencies

EP Series (Extended Performance)
- Up to 40 optimised PulseTune waveforms
- Up to 2 MHz pulse repetition frequencies