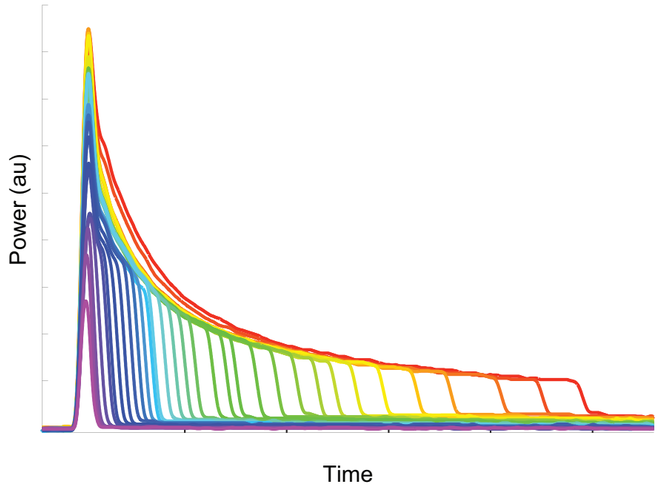
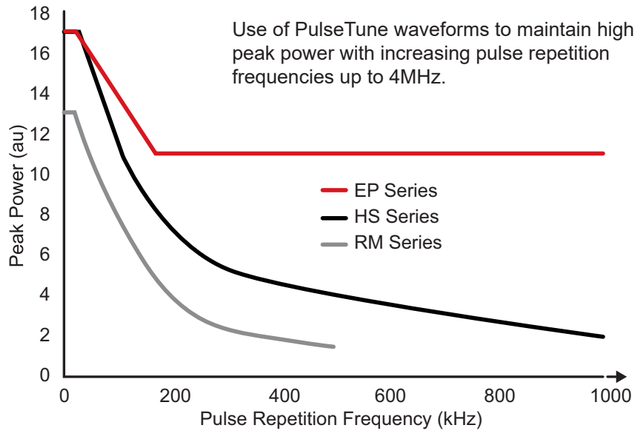
PulseTune Technology

Our PulseTune technology provides the ability to select waveforms, offering pulse durations from 3 ns - 2000 ns. Each pulse waveform is designed for maximum peak power and pulse energy at an optimised pulse repetition frequency.





✓✓= 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 K 06/18

SPI® Lasers

redENERGY® G4

20W - 200W

Pulsed Fiber Lasers

WITH GTwave®
AND PulseTune TECHNOLOGY

GREATER FLEXIBILITY

SUPERIOR QUALITY

INCREASED PRODUCTIVITY

IMPROVED PROFITABILITY

redENERGY G4 20W - 200W Pulsed Fiber Lasers

Product selection parameters

Wavelength	1060nm																				
Beam quality options [1]	**S Type**			**Z Type**														**L Type**	**H Type**		
M^2	<1.3			<1.6														1.8	3		
Rated average power (W)	20		50	20		30	50		70		100			130	200			20	40		70
PulseTune Functionality[2]	HS	EP	HS	RM	EP	RM	RM	EP	RM	EP	EP			EP	EP			HS	HS		HS
Beam delivery cable length (m)	2			2/3		3				3/5	1/3		3/5					2/3	3/5		
Beam delivery optic / connector	ILOC/ ILLK										ILOC +		IBeam1					ILOC/ ILLK			
Pulse parameters																					
Max peak power (kW)*	>7			>10														>12	>20		
Max pulse energy (mJ)	>0.6	>0.7		>1								>1.3	>1.5					>0.8	>1.25		
Pulse repetition frequency range (kHz)	1-1000			1-500	1-1000	1-500		1-1000	1-500	1-1000			1-4000					1-1000			
PulseTune waveforms	24	40	24	2	40	2		38	2	37	32	48	47	45				25	24		
Pulse duration range (ns)	10-240	3-500	11-220	26-250	3-500	26-250		6-500	28-260	9-500	12-500	4-2000	5-2000	9-2000				10-220	10-240		10-250
CW mode with modulation	Yes			No	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			N/A					1-100			
Output power stability %p-p*	<5																	<8	<5		
Cooling options																					
Air cooled or Water cooled	Air										Water	Air									
Environmental																					
Ambient temperature range (°C)	0-45	0-42	0-45	0-40							15-35	5-40	10-45	10-40	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. Models with longer Beam Delivery cables may have lower Peak Power than stated

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.

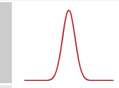
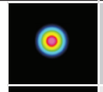
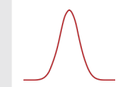
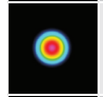
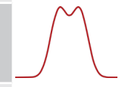
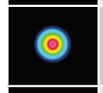
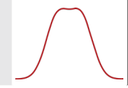
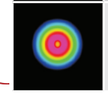
L Type - Low mode (M^2 1.6 - 2.0)
General marking applications giving slightly larger spots and features that are more appropriate to making marks visible to the naked eye.

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.

Visit our NEWLY configured redENERGY G4 Page

Still not sure which is the ideal solution, visit our selector tool online:

Feature Combinations

At a glance			PulseTune Functionality[2]		
			RM	HS	EP
Beam Quality[1]	S Type	 		20W, 50W	20W
	Z Type	 	20W, 30W, 50W, 70W		20W, 50W, 70W, 100W, 130W, 200W
	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)
- Up to 25 PulseTune waveforms
- Up to 1 MHz pulse repetition frequencies

EP Series (Extended Performance)
- Up to 40 optimised PulseTune waveforms
- Up to 4 MHz pulse repetition frequencies