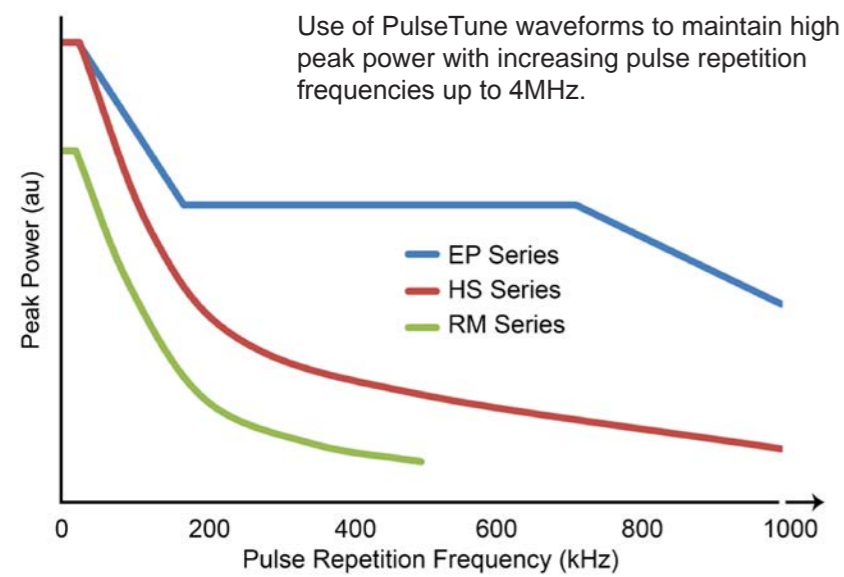
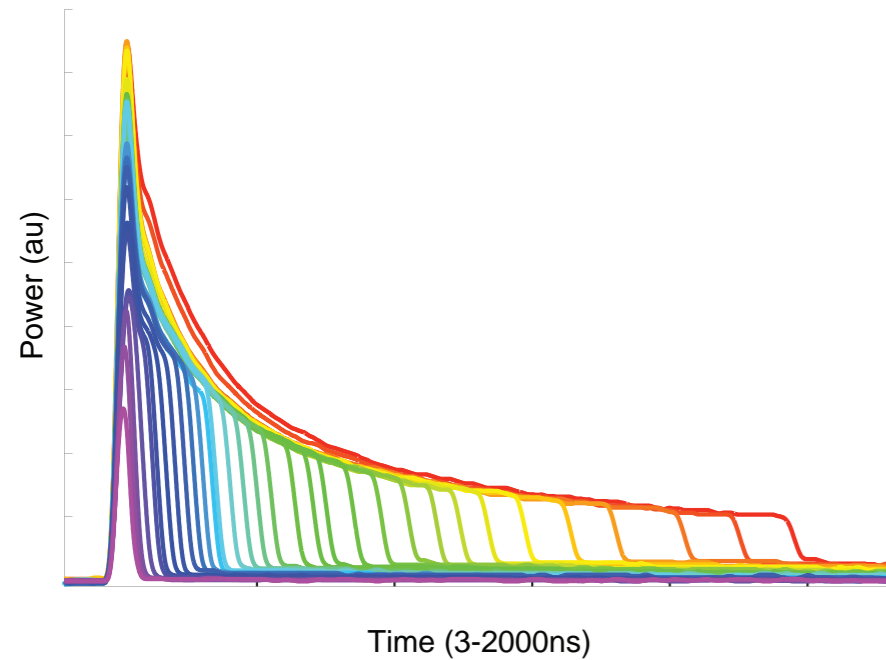


PulseTune Technology

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.



Link to latest datasheet.



✓✓ = Optimal for ✓ = Good for

| Type | S Type | Z Type | L Type | H Type | M 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.



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 Type | | | |
| M ² | <1.3 | | <1.3 | <1.6 | | | | | | | | 1.8 | 3 | | 5 | | | |
| Rated average power (W) | 20 | | 50 | 20 | 30 | 50 | | 70 | 100 | 130 | 200 | 20 | 40 | 70 | 130 | 200 | | |
| PulseTune Functionality ⁽²⁾ | HS | EP | HS | RM | EP | RM | RM | EP | RM | EP | EP | EP | EP | HS | HS | HS | EP | EP |
| Beam delivery cable length (m) | 2 | | | 3 | | | | 3/5 | 1/3 | 3/5 | | 2/3 | 3/5 | | | | | |
| Beam delivery optic / connector | ILOC | | | | | | | | HE-ILLK | IBeam1 | | ILOC | | IBeam2 | | | | |
| Pulse parameters | | | | | | | | | | | | | | | | | | |
| Max peak power (kW)* | >7 | | | >10 | | | | | | | | >12 | >20 | | >40 | | | |
| Max pulse energy (mJ) | >0.6 | >0.7 | | >1 | | | | | | | | >1.5 | >0.8 | >1.25 | | >5 | | |
| Pulse repetition frequency range (kHz) | 1-1000 | | | 1-500 | 1-1000 | 1-500 | | 1-1000 | 1-500 | 1-1000 | | 1-4000 | | 1-1000 | | 1-4000 | | |
| PulseTune waveforms | 24 | 40 | 24 | 2 | 40 | 2 | | 38 | 2 | 37 | 32 | >40 | | 25 | 24 | | >40 | |
| Pulse duration range (ns) | 10-240 | 3-500 | 11-220 | 26-250 | 3-500 | 26-250 | | 6-500 | 28-260 | 9-500 | 12-500 | 5-2000 | 9-2000 | 10-220 | 10-240 | 10-250 | 3-2000 | |
| CW mode with modulation | Yes | | | No | Yes | No | | Yes | No | Yes | | No | | Yes | | No | | |
| Modulation range in CW (kHz) | 1-100 | | | N/A | 1-100 | N/A | | 1-100 | N/A | 1-100 | | N/A | | 1-100 | | N/A | | |
| 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 | 10-40 | | 0-45 | 0-40 | 10-40 | | | |
| Relative humidity | 5-95% RH (non-condensing) | | | | | | | | | | | | | | | | | |

* 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 (M² <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 - (M² <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 (M² 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 (M² 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.

M Type - Multimode (M² 4.0 - 6.0)
Highest pulse energies and longer pulse durations ideal for welding and cleaning.

Feature Combinations

| | At a glance | PulseTune Functionality ⁽²⁾ | | |
|---------------|-------------|--|----------|---------------------------------|
| | | RM | HS | EP |
| S Type | | | 20W, 50W | 20W |
| Z Type | | 20W, 30W, 50W, 70W | | 20W, 50W, 70W, 100W, 130W, 200W |
| L Type | | | 20W | |
| H Type | | | 40W, 70W | |
| M Type | | | | 130W, 200W |

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

