

# TERRA TWINS

Double-pulse diode-pumped Nd:YLF laser, kHz repetition rates



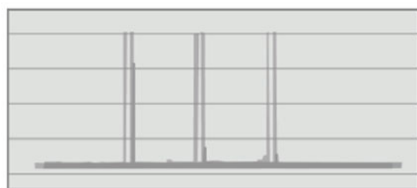
## MAIN FEATURES

- > 60 mJ total energy at 1 kHz
- Average power > 100 W @ 3 kHz
- Independent external trigger for each oscillator
- External and internal triggering
- Built-in optics for beam combination
- 3 min. diode module replacement
- Flexible time delay and energy adjustment

## MAIN APPLICATIONS

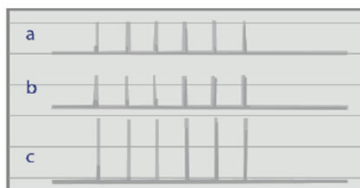
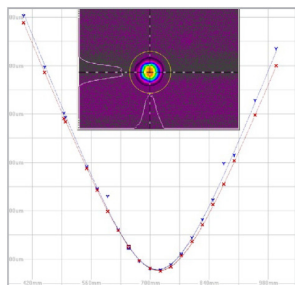
- PARTICLE IMAGE VELOCIMETRY
- LASER INDUCED FLUORESCENCE
- LASER INDUCED BREAKDOWN SPECTROSCOPY

## CAPABILITIES

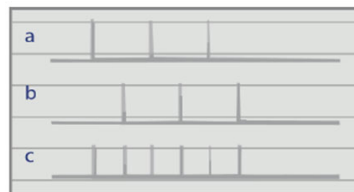


Generation of pulse pairs  
Flexible time delay adjustment

### Typical beam profile and M<sup>2</sup> fittings



Two laser outputs synchronized to double the pulse energy and peak power,  
a) one laser output,  
b) a second laser output,  
c) combined laser output



Two laser outputs combined with an adjustable delay to double the repetition rate of the pulse,  
a) one laser output,  
b) a second laser output with delay,  
c) combined laser output

Many options and configurations are available.  
Please contact Lumibird to find the best match for  
your needs and compatibility between options.

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## SPECIFICATIONS

|                                             | Terra Twins<br>527-100 | Terra Twins<br>527-80 | Terra Twins<br>527-60 | Terra Twins<br>527-40 |
|---------------------------------------------|------------------------|-----------------------|-----------------------|-----------------------|
| Wavelength (nm)                             | 527                    |                       |                       |                       |
| Pulse repetition rate (kHz) <sup>(1)</sup>  | 0.1 - 10               |                       |                       |                       |
| Energy per oscillator at 0.1 - 1 kHz (mJ)   | 30                     | 25                    | 20                    | 15                    |
| Total pulse energy at 0.1 - 1 kHz (mJ)      | 60                     | 50                    | 40                    | 30                    |
| Average power @ 3 kHz (W)                   | 100                    | 80                    | 60                    | 40                    |
| Pulse-to-pulse energy stability (% RMS)     | < 0.5                  |                       |                       |                       |
| Pulse width (ns)                            | < 210                  | < 230                 | < 250                 | < 270                 |
| Beam diameter at output (mm) <sup>(2)</sup> | ~ 3.0                  |                       |                       |                       |
| Beam divergence (mrad) <sup>(2)</sup>       | 8                      |                       |                       |                       |
| Pointing stability (μrad RMS)               | < 25                   |                       |                       |                       |
| Time jitter (ns RMS)                        | < 3                    |                       |                       |                       |
| Polarization <sup>(3)</sup>                 | Circular               |                       |                       |                       |
| Beam quality (M <sup>2</sup> )              | < 25                   |                       |                       |                       |

All specifications at 1 kHz unless otherwise noted

(1) Single shot to 0.1 kHz available with external trigger

(2) Measured at 13.5 % level at output window

(3) Cross-polarization available as option

## OTHER INFORMATION

|                                    |                                                         |                                                                                     |
|------------------------------------|---------------------------------------------------------|-------------------------------------------------------------------------------------|
| Power requirements                 | Power supply                                            | Single phase: 200-240 VAC, 50/60 Hz<br>Operating current: 10 A, max current: 20 A   |
|                                    | Chiller                                                 | Single phase: 230 ± 10 % VAC, 50/60 Hz<br>Operating current: 12A, max current: 20 A |
| Cooling                            | Water to air - Water to water cooling options available |                                                                                     |
| Operating temperature              | + 15 °C to + 35 °C                                      |                                                                                     |
| Storage temperature <sup>(1)</sup> | - 20 °C to + 50 °C                                      |                                                                                     |
| Relative humidity                  | 8 - 80 %, non-condensing                                |                                                                                     |
| Cable length (m)                   | 3.65                                                    |                                                                                     |
| Weight (kg)                        | Laser head                                              | 31.5                                                                                |
|                                    | Power supply                                            | 27                                                                                  |
|                                    | Chiller                                                 | 65                                                                                  |
| Control interface                  | Serial interface                                        | RS 232                                                                              |
|                                    | Rear connections                                        | External beam enable, external trigger                                              |
|                                    | Control software                                        | MS Windows-based laser commander                                                    |

(1) System flushed and drained with ethylene glycol/water mixture

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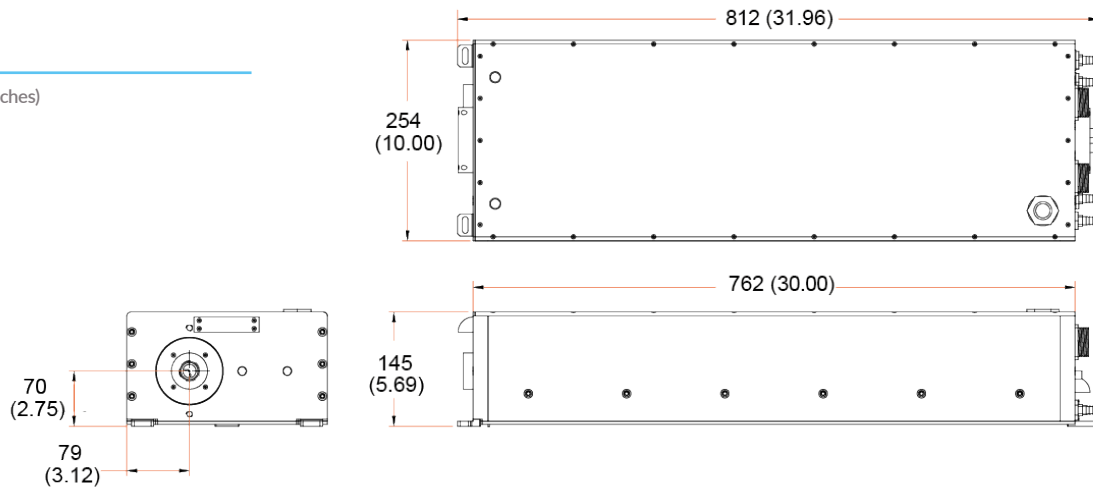
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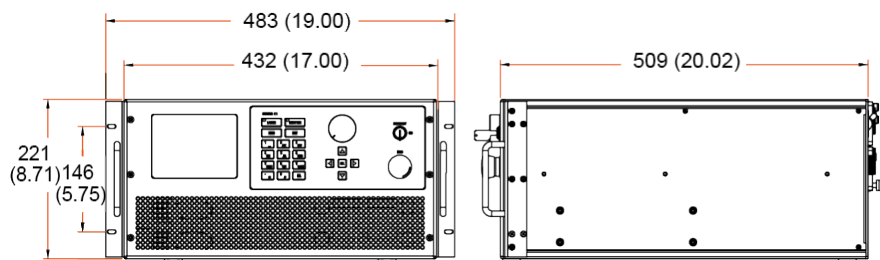


## Laser head

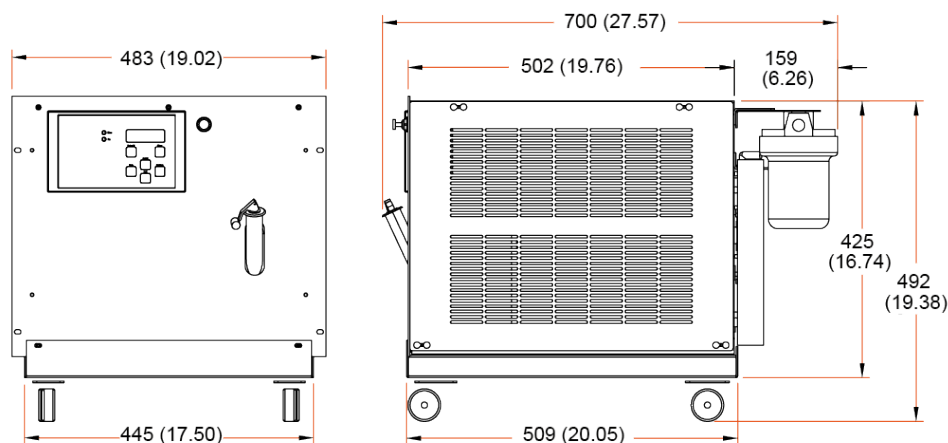
Dimensions in mm (inches)



## Power supply



## Chiller



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