

# The EPL Series

## Picosecond Pulsed Diode Lasers

EPL-375, EPL-405, EPL-445, EPL-450, EPL-475, EPL-485, EPL-510  
EPL-635, EPL-640, EPL-655, EPL-670, EPL-785, EPL-800, EPL-980



The EPL picosecond pulsed diode lasers are a family of high performance, cost effective excitation sources for fluorescence lifetime measurements. In Time-Correlated Single Photon Counting (TCSPC) they bridge the gap between the nanosecond flashlamp and expensive mode locked Titanium Sapphire femtosecond lasers.

The EPL lasers are pre-adjusted for an optimum pulse width, with particular attention paid to reducing a secondary shoulder. The output has a typical pulse width of less than 100 ps.

The EPL lasers are robust, maintenance free, easy to operate and have proprietary beam conditioning optics.

### EPL Product Features:

- Optimised for TCSPC
- 10 Pre-set Repetition Frequencies from 20 KHz to 20 MHz
- External Trigger Capability
- Spectrally Purified Output
- Fully Integrated, Compact Design
- Extremely Low RF Radiation
- Optimised Collimated Beam
- Drive Electronics Included

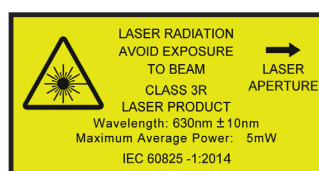
## Technical Specifications

|                                     | EPL-375 | EPL-405 | EPL-445 | EPL-450 | EPL-475 | EPL-485 | EPL-510 | EPL-635 | EPL-640 | EPL-655 | EPL-670 | EPL-785 | EPL-800 | EPL-980 |
|-------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Nominal Wavelength (nm)             | 375     | 405     | 445     | 450     | 475     | 485     | 510     | 635     | 638     | 655     | 672     | 782     | 800     | 975     |
| Wavelength Range (nm)               | 370-380 | 400-410 | 440-450 | 440-460 | 470-480 | 475-490 | 505-515 | 630-640 | 630-650 | 650-660 | 669-675 | 780-790 | 795-805 | 965-985 |
| Linewidth (nm)                      | < 1.5   | < 2.0   | < 3.0   | < 3.0   | < 4.5   | < 6.5   | < 5.0   | < 2.5   | < 2.5   | < 2.5   | < 2.5   | < 4.0   | < 6.0   | < 5.0   |
| Max. Pulse Width @10 MHz (ps)       | 85      | 75      | 95      | 150     | 90      | 120     | 130     | 90      | 100     | 90      | 80      | 85      | 110     | 400     |
| Typical Pulse Width @10 MHz (ps)    | 65      | 55      | 85      | 90      | 80      | 100     | 85      | 70      | 85      | 70      | 65      | 70      | 95      | 350     |
| Typical Average Power @ 20 MHz (mW) | 0.15    | 0.11    | 0.15    | 0.18    | 0.15    | 0.10    | 0.14    | 0.13    | 0.25    | 0.15    | 0.15    | 0.12    | 0.15    | 0.07    |
| Min. Average Power @ 20 MHz (mW)    | 0.10    | 0.09    | 0.10    | 0.10    | 0.10    | 0.06    | 0.06    | 0.10    | 0.15    | 0.12    | 0.10    | 0.09    | 0.10    | 0.04    |
| Typical Peak Power @10 MHz (mW)     | 140     | 110     | 50      | 50      | 80      | 35      | 85      | 80      | 155     | 120     | 130     | 115     | 100     | 30      |
| Min. Peak Power @10 MHz (mW)        | 80      | 80      | 35      | 25      | 65      | 20      | 30      | 60      | 110     | 80      | 75      | 80      | 60      | 25      |

|                                    |    |     |     |     |      |       |     |     |     |    |    |
|------------------------------------|----|-----|-----|-----|------|-------|-----|-----|-----|----|----|
| Pulse Repetition Frequencies (MHz) | 20 | 10  | 5   | 2   | 1    | (KHz) | 500 | 200 | 100 | 50 | 20 |
| Pulse Period (ns)                  | 50 | 100 | 200 | 500 | 1000 | (µs)  | 2   | 5   | 10  | 20 | 50 |

|                                     |                                                                                      |
|-------------------------------------|--------------------------------------------------------------------------------------|
| Bias Supply                         | 15 – 18V dc, 15W (2.1 mm DC jack)                                                    |
| Trigger Output                      | SMA, NIM Standard                                                                    |
| Interlock Input                     | Hirose HR10-7R-4S(73)                                                                |
| Trigger Input                       | Hirose HR10-7R-4S(73), +3.3V                                                         |
| Key Switch                          | Yes                                                                                  |
| Cooling                             | Yes, actively controlled                                                             |
| Beam Quality: Near Field Dimensions | ≤4.75 mm (fast axis), ≤1.75 mm (slow axis)                                           |
| Beam Quality: Divergence            | ≤1.5 mrad (fast axis), ≤0.75 mrad (slow axis)                                        |
| Spectral Conditioning               | by interference filter                                                               |
| Physical Dimensions                 | Overall: 168 mm length x 64 mm x 64 mm. collimator tube: ø30 mm x 38 mm              |
| Tapped Holes for Stud Mount         | 2 off M6                                                                             |
| Weight                              | 800 g                                                                                |
| Laser Safety                        | The EPL 375, 785, 800 and 980 are Class 3B lasers. All other EPL Lasers are Class 3R |

We have a policy of continuing product development and reserve the right to amend specification without prior notice.



### CLASS 3R/3B LASER PRODUCT.

Avoid exposure to beam. Light emitted by the laser may be harmful to the human eye and to skin. Please obey laser safety regulations.

This product complies with the US federal laser product performance standards.

#### Edinburgh Instruments

2 Bain Square,  
Kirkton Campus,  
Livingston,  
EH54 7DQ  
United Kingdom

#### Telephone

+44 (0)1506 425 300 (UK Office)  
+1-800-323-6115 (US Office)

#### Facsimile

+44 (0)1506 425 320

#### Email

sales@edinst.com (UK Office)  
ussales@edinst.com (US Office)

#### Website

www.edinst.com

Customer support is available worldwide

