**Laser Lab Instruments**

**DET Series of High-Speed Photodetectors**

**Features**
- High-Speed Response
- Wavelength Range of 150-2600nm
- Easy to Use
- Low-Profile Housing Minimizes Light Path Interference
- Includes Threaded Mount for Ø1” (25mm) Optics
- Compatible With SM1 & SM05 Series Products
- Battery-Level Check Included
- Internal A23 +12V Bias Battery Included

These photodetectors have a thin profile, enabling use in tight spaces. All connections and controls have been moved away from the light path. Each DET housing includes a detachable 1” lens tube coupler (SM1T1) to aid in the installation of neutral density filters, spectral filters, and lenses. The optical head is fully compatible with Thorlabs’ SM1 Series and SM05 Series assemblies. Also available are fiber optic adapters for use with connectorized fiber.

**Operating Circuit**

The DET series of photodetectors are compact, versatile, high-speed optical detectors. Each model comes complete with a fast PIN photodiode and an internal bias battery packaged in a rugged aluminum housing. With a wide-bandwidth, DC-coupled output, these detectors are ideal for monitoring fast-pulsed lasers as well as DC sources. The direct photodiode anode current is provided on a side panel BNC. This output is easily converted to a positive voltage using a terminating resistor.

We recommend a 50Ω load resistance for fastest response times (see the T4119 shown below).

![Operating Circuit Diagram](image)

**TYPICAL SPECTRAL RESPONSIVITY**

### T505

- **VOLTAGE**: 12V
- **DESCRIPTION**: DET Series

### A23

- **VOLTAGE**: 12V
- **DESCRIPTION**: DET Series

**Terminators**

See page 892 for full presentation.

50Ω Terminators

Ideal termination for DET Series of detectors to achieve maximum bandwidth.

<table>
<thead>
<tr>
<th>ITEM#</th>
<th>METRIC</th>
<th>S</th>
<th>£</th>
<th>€</th>
<th>RMB</th>
<th>TYPE (W/√Hz)</th>
<th>RISE TIME</th>
<th>ACTIVE AREA</th>
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<tbody>
<tr>
<td>DET25K</td>
<td>DET25K/M</td>
<td>$189.00</td>
<td>£119.10</td>
<td>€175.80</td>
<td>¥1,805.00</td>
<td>GaP 1.6 x 10^-14</td>
<td>1ns</td>
<td>4.8 mm² (2.2 x 2.2 mm)</td>
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<td>£95.70</td>
<td>€134.40</td>
<td>¥1,356.00</td>
<td>Si 1.6 x 10^-13</td>
<td>14 ns (max)</td>
<td>15 mm² (3.6 x 3.6 mm)</td>
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<td>DET10A/M</td>
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<td>€134.40</td>
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<td>Si 1.5 x 10^-14</td>
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<td>DET100A</td>
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<td>€328.80</td>
<td>¥3,170.60</td>
<td>Ge 4 x 10^-11</td>
<td>270 ns (typ)</td>
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<tr>
<td>DET50B</td>
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<td>£220.90</td>
<td>€328.80</td>
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<td>Si 5.5 x 10^-13</td>
<td>45 ns (max)</td>
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<td>€254.80</td>
<td>¥2,619.70</td>
<td>InGaAs 1.6 x 10^-14</td>
<td>10 ns (max)</td>
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<td>InGaAs 2 x 10^-12</td>
<td>25 ns (max)</td>
<td>0.8 mm² (Ø3.1 mm)</td>
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1) At peak response wavelength
2) Full time: 140ns
3) 10ns maximum
4) Specific to Aperture size, detectors size is 10x10mm square

**Replacement Batteries**

The A23 battery is the replacement battery for the current DET series of photodetectors (see above). The T505 replaces batteries used in our older, discontinued detector series.

<table>
<thead>
<tr>
<th>ITEM#</th>
<th>S</th>
<th>£</th>
<th>€</th>
<th>RMB</th>
<th>VOLTAGE</th>
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<td>€3.90</td>
<td>¥40.10</td>
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<td>DET Series</td>
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<td>T505</td>
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<td>£9.90</td>
<td>€14.60</td>
<td>¥149.90</td>
<td>22.3V</td>
<td>DET1-SI &amp; DET2-SI</td>
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