

# DET-100 PHOTO DETECTORS & PREAMPLIFIERS



## PHOTODETECTORS

## PRODUCT BULLETIN

Hinds' detection systems are specifically designed for use with high frequency optical signals including those generated in Photoelastic Modulator (PEM) applications.

Hinds' detection features include:

- Frequency response. DC to several times the operating frequency of the PEM being used.
- Dark-current and/or background DC null.
- Preamplification for current to voltage conversion and buffering for impedance matching to signal cables.
- For many applications, separate lowpass or DC signals and wide-band AC signals derived from the detector output.

### PHOTO DETECTOR/ PREAMPLIFIERS

These detectors are supplied in cylindrical housings 2-5/8 inches long by 2-1/2 inches in diameter, with a 1/4 x 20 tapped hole for post mounting.

#### Typical Performance

(5mm<sup>2</sup>, photoconductive, Red/IR)

- Power, bipolar, +/- 12 to 18 volts.
- Operating Temperature Range, 0° to 70° C.
- Current to Voltage Transfer Ratio, 2000 mV/mA.
- Frequency Bandwidth, DC to 1 MHz.
- Spectral Response, 350 to 950 nm.
- Noise Equivalent Power,  $5 \times 10^{-13}$ .

Silicon detector models are available in either photovoltaic or photoconductive versions, and in either red/IR or UV/visible spectral sensitivity. A photovoltaic germanium detector/preamplifier is also available.

The DET-100 detectors include a universal power supply and also have the option of receiving power from the SCU-100.



### DET-100 MODEL OPTIONS

| MODEL  | TYPE  | SPECTRAL RANGE, nm | ACTIVE AREA        | FREQUENCY RESPONSE | MAXIMUM LIGHT INPUT POWER <sup>1</sup> | DETECTOR DC OUTPUT <sup>2</sup> |
|--|-------|--------------------|--------------------|--------------------|--|---------------------------------|
| 001  | Si-PC | 350 - 950          | 5 mm <sup>2</sup>  | DC – 1 MHz         | 6.5 mW                                 | 8.2 V <sub>DC</sub>             |
| 002  | Si-PC | 350 - 950          | 16 mm <sup>2</sup> | DC – 1 MHz         | 6.6 mW                                 | 7.7 V <sub>DC</sub>             |
| 003  | Si-PV | 350 - 950          | 5 mm <sup>2</sup>  | DC – 350 kHz       | 6.5 mW                                 | 6.4 V <sub>DC</sub>             |
| 004  | Si-PV | 350 - 950          | 16 mm <sup>2</sup> | DC – 300 kHz       | 6.5 mW                                 | 6.8 V <sub>DC</sub>             |
| 005  | Si-PV | 200 - 950          | 5 mm <sup>2</sup>  | DC – 400 kHz       | 6.1 mW                                 | 6.4 V <sub>DC</sub>             |
| 006  | Si-PV | 200 - 950          | 20 mm <sup>2</sup> | DC – 200 kHz       | 2 mW                                   | 2.25 V <sub>DC</sub>            |
| 007  | Ge-PV | 800 -1600          | 3 mm <sup>2</sup>  | DC – 260 kHz       | 6.1 mW                                 | 0.81 V <sub>DC</sub>            |
| PC = Photoconductive                                 |       |                    | PV = Photovoltaic  |                    |  |                                 |
| <sup>1</sup> For linear response, 632.8 nm laser     |       |                    |                    |                    |  |                                 |
| <sup>2</sup> Into a 5.6k load at maximum light input |       |                    |                    |                    |  |                                 |