T-41-41

PHOTODETECTOR/PREAMPLIFIER MODULES

Detector/preamplifier modules using Silicon, Germanium, Indium Gallium Arsenide, and Indium Arsenide photovoltaic detectors are available in convenient, plug-in packages (TO-5 & TO-8). All PD/AMP modules are available with up to 5mm diameter or square photodiodes or photoconductors, and with TE cooling options. These modules contain low-noise transconductance amplifiers with selectable gain resistors.

Typical Specifications @ 22 °C

Model No	Active Area (Dia mm)	Wavelength Range (μm)	Output Responsivity (V/W)	NEP ($W/Hz^{½}$)
SE-XXX	0.3-10	0.25-1.1	10^3-10^9	to 1 X 10^{-15}
GE-XXX	0.3-10	0.8-1.8	10^3-10^7	to 5 X 10^{-13}
IGAE-XXX	0.3-3.0	0.9-1.7	10^3-10^8	to 1 X 10^{-15}
IAE-XXX	1	1-3.6	10^3-10^5	to 1 X 10^{-12}

NOTE: Custom gain bandwidth products can be supplied. For bandwidth limiting and/or gain peaking prevention, a capacitor shunting the feedback resistor maybe required. The exact value will depend on the specific detector, but as a guide the 3 dB roll off frequency is determined from:

$$f_{-3dB} = 1/2\pi R_F C_F$$

where R_F and C_F are the gain resistor and selected capacitor.

These modules are designed for maximum flexibility from the user's standpoint and can be operated in the following formats:

A. Current Mode- zero bias, photovoltaic operation (ultra low noise),

B. Variable Offset Mode- apply bias to amplifier to reduce DC offset, and

C. Bias Mode- apply bias (photoconductive) to the photodiode to increase frequency response, linearity, and maximum power.

ELECTRO-OPTICAL SYSTEMS, INC.
1000 Nutt Rd, Phoenixville, Pa, 19460, Telephone 215-935-5838, Fax 215-935-8548