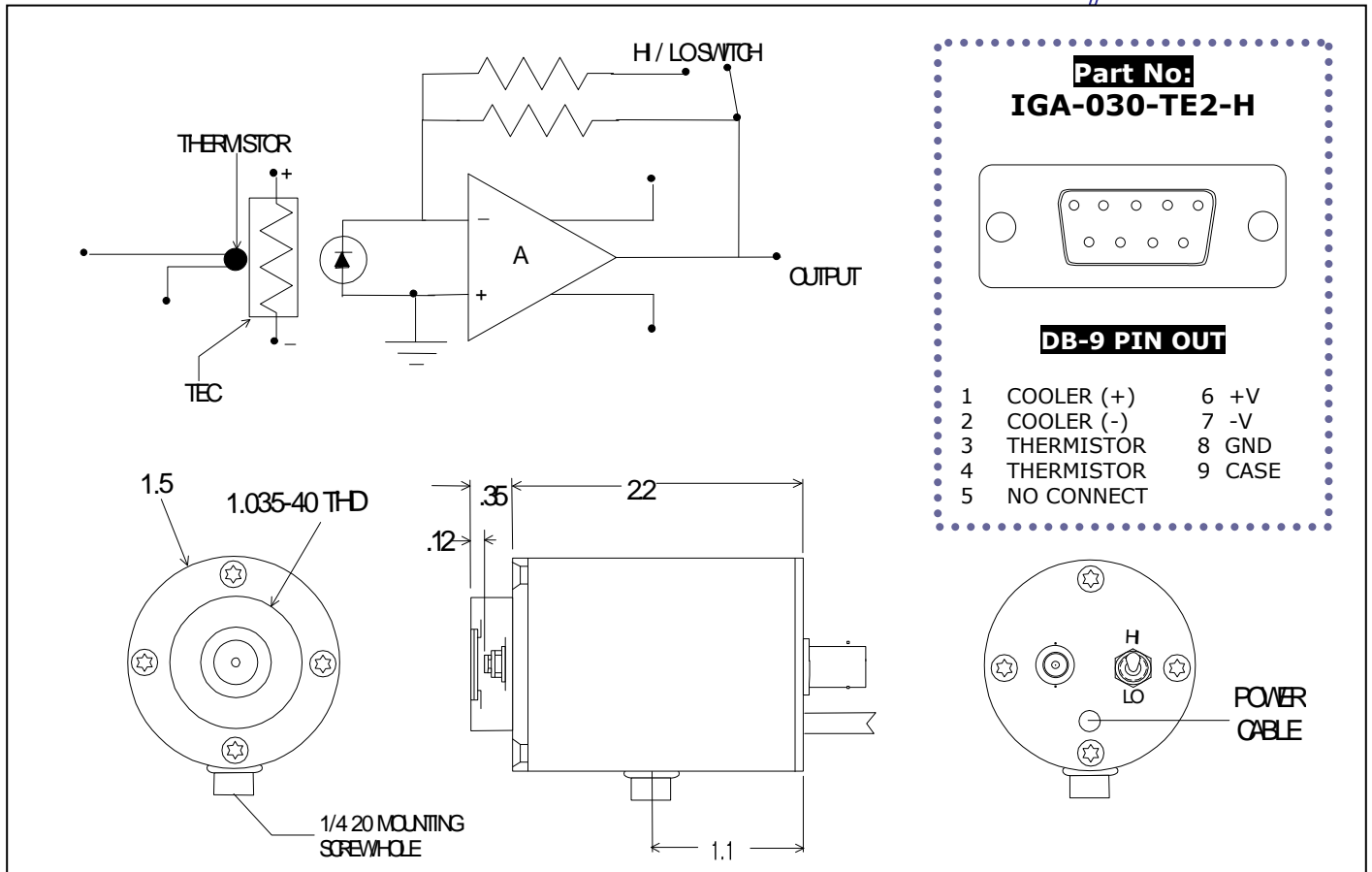


TE - SERIES PHOTODIODE / RECEIVER



Application Note

This unit is a high performance photodiode/receiver operated with a thermoelectric cooler for stabilization/cooling with a dual gain FET input transimpedance amplifier. The output voltage is proportional to the input signal current: $V_{out} = I_{signal} \cdot R_f$. The PD/AMP is a DC coupled dual gain system. Care should be taken in shielding the unit from stray light during operation to prevent saturation of the amplifier (and potential failure).

SPECIFICATIONS

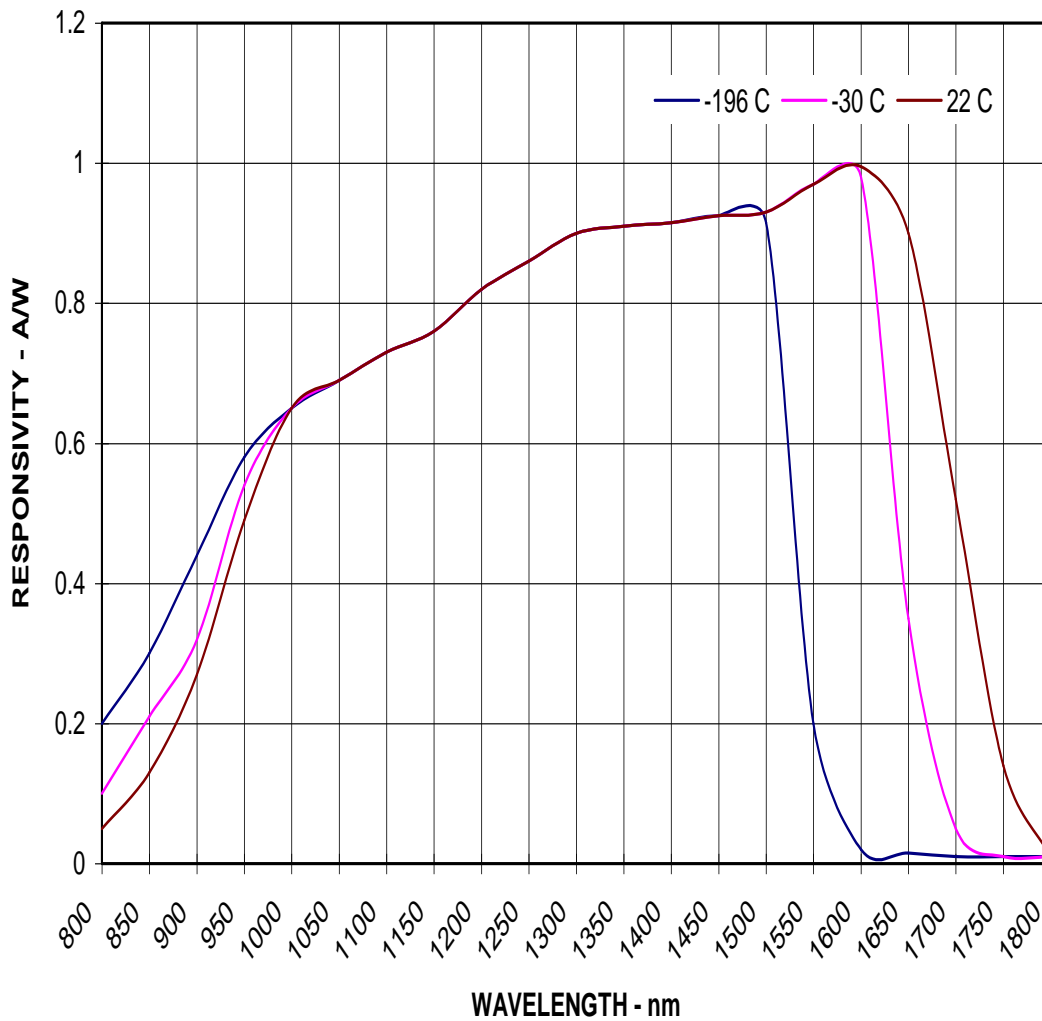
Detector Type	3mm InGaAs Photodiode	
Operating Temperature- °C	22 @ $I_{tec} = 0.0 A$	-30 @ $I_{tec} = 0.5 A$
Operating Wavelength - μm	0.8 - 1.7	0.8 - 1.6
Responsivity- V/W @ pk	$0.9 \times 10^8 / 10^7$	$0.9 \times 10^8 / 10^7$
Noise- V/Hz ^{1/2}	$5 \times 10^{-6} / 0.5 \times 10^{-6}$	$2.0 \times 10^{-6} / 0.4 \times 10^{-6}$
NEP- W/Hz ^{1/2} pk	$< 7 \times 10^{-14}$	$< 2.0 \times 10^{-14}$
Bandwidth (-3dB)- Hz	DC - 2k	DC - 2k
Power Requirements	+/- 9 VDC to +/- 15 VDC	
Connections	BNC signal output. Shielded power cable terminated with a DB-9 connector directly couples the unit with the PS/TC -1 Low Noise Power Supply / Controller.	

RoHS Compliant



TE - SERIES PHOTODIODE / RECEIVER

IGA-series PHOTODIODE
Typical Spectral Response





TE - SERIES PHOTODIODE / RECEIVER

OPERATING THE H-SERIES PHOTODIODE/AMPLIFIER

POWER SUPPLY: A bipolar power supply is required, $\pm 6\text{VDC}$ to $\pm 15\text{VDC}$, 20mA. This means a $+V$, central/common ground and a $-V$ connection - 3 wires total, to pins 6, 7, & 8 on the D-sub connector. The power supply pins should be bypassed physically close to the amplifier module. Double check wiring prior to turning on power. Improper /reverse wiring will damage the unit.

GAIN SELECT: The unit is supplied with a switch which provides a 10:1 HI/LO gain function. "UP" position is HI; "DOWN" position is LO gain. Consult the individual data sheet for specific values. The adjustable gain units have a single-turn control potentiometer which adds another x1 to x10 variable gain following the first stage. Clockwise rotation of the pot increases the gain.

AMBIENT LIGHT: Because of the high gains involved, the unit must be shielded from ambient background light during operation. Measurement errors and/or saturation can result from improper shielding.

OUTPUT CONNECTION: The signal output is thru a BNC connector (or BNC terminated cable in the case of the 2-color and adjustable gain units) located on the back of the module.