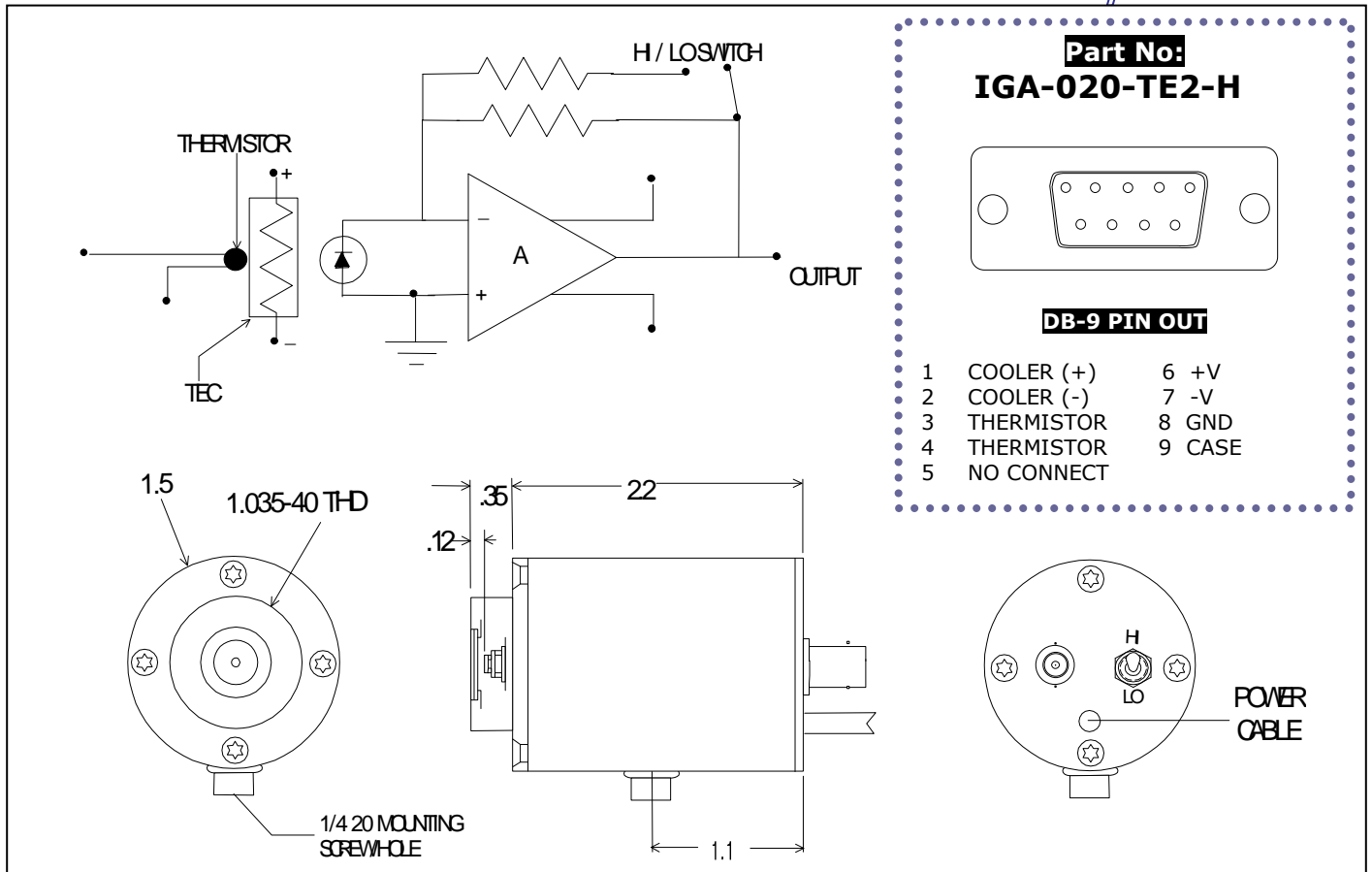


TE - SERIES PHOTODIODE / RECEIVER



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)

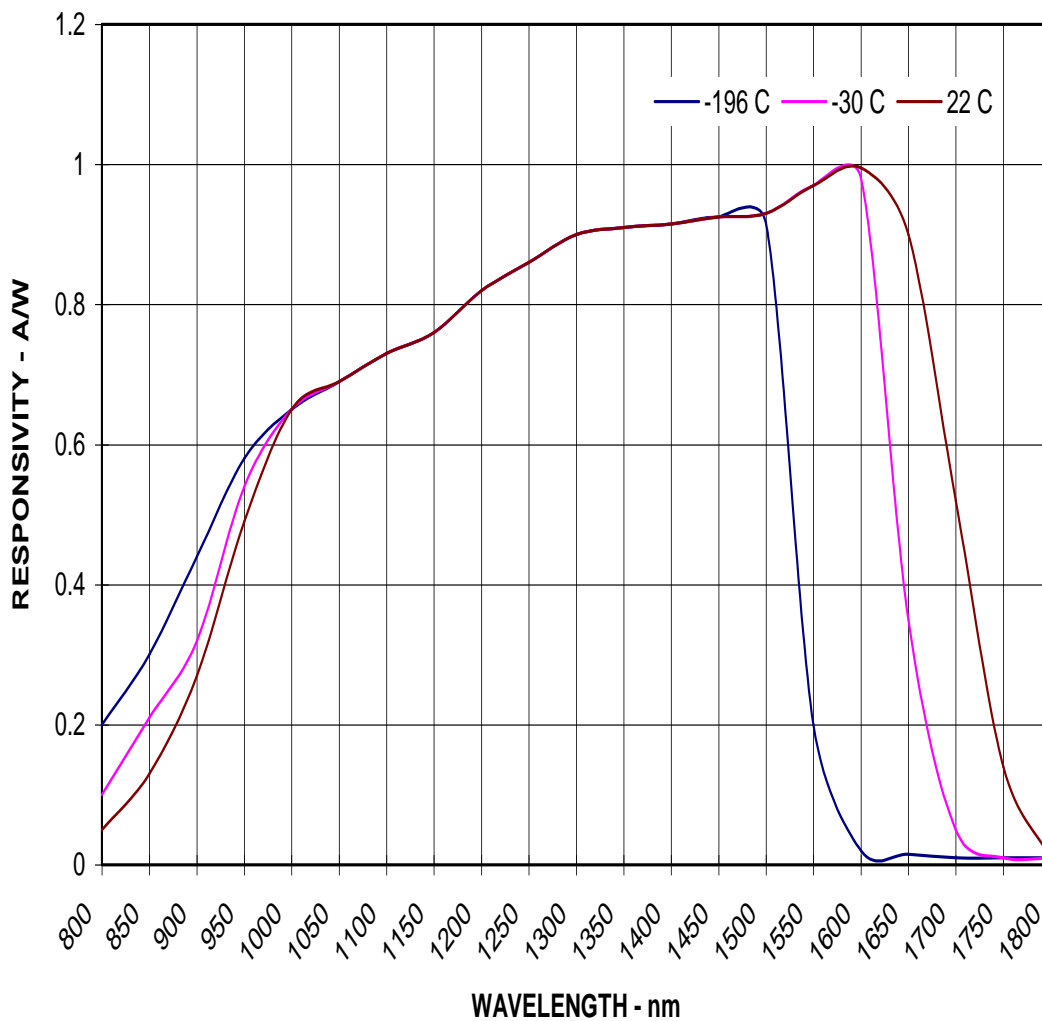
SPECIFICATIONS

Detector Type	2 mm InGaAs Photodiode	
Operating Temperature- °C	22 @ $I_{tec} = 0.0 \text{ A}$	-30 @ $I_{tec} = 0.5 \text{ A}$
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}	$4.5 \times 10^{-6} / 0.4 \times 10^{-6}$	$1.2 \times 10^{-6} / 0.4 \times 10^{-6}$
NEP- W/Hz ^{1/2} pk	$< 5 \times 10^{-14}$	$< 1.5 \times 10^{-14}$
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.