

## CRYOGENIC RECEIVERS

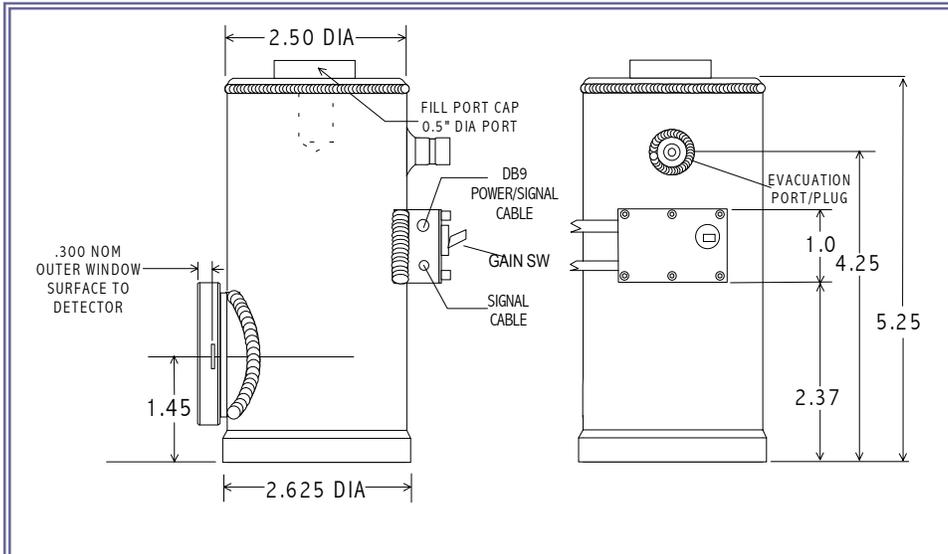
**Part No. IGA-020-E-LN4**

### Application Note

This unit is a high performance cryogenically operated photodiode/receiver. The output voltage is proportional to radiation incident on the active area as follows:

$$V_{out} = P_{sig} \times R_{\lambda} \times R_f$$

where  $P_{sig}$  is incident power in watts,  $R_{\lambda}$  is the photodiode responsivity in A/W at the wavelength of interest, and  $R_f$  is the amplifier transimpedance gain. The unit is DC coupled, and extensive care should be taken in shielding from any ambient light during operation. Exposure to room lights may cause amplifier saturation and can lead to failure of the unit.



### PIN OUT

**Connector: DB9**

- 1 = n/c
- 2 = n/c
- 3 = n/c
- 4 = n/c
- 5 = n/c
- 6 = +V
- 7 = -V
- 8 = GND
- 9 = CASE

**Cable: Signal BNC**

**Note:** For units ordered without PS-1 power supply, flying leads are provided color-coded as:

- RED = +V
- BLACK = -V
- WHITE/SHIELD = GND

### SPECIFICATIONS

<b>Active Area</b>	<b>2 mm diameter</b>
<b>Spectral Range</b>	<b>900 – 1700 nm @ 298 K; 900 – 1550 nm @ 77K</b>
<b>Shunt Resistance</b>	<b>5 MΩ min @ 298K, &gt;10000 MΩ @ 77K</b>
<b>Shunt Capacitance</b>	<b>500 pF typical @ 298 K</b>
<b>Responsivity @ 1.3 μm (x Rf = 10<sup>10</sup>/10<sup>9</sup>)</b>	<b>0.8 A/W minimum, 0.9 A/W typical @ 298 K</b>
<b>Dewar Hold Time</b>	<b>10 hours min, 12 typ with liquid N<sub>2</sub></b>
<b>Field of View</b>	<b>60° nominal</b>
<b>Amplifier</b>	<b>Dual Gain Transimpedance</b>
<b>Bandwidth</b>	<b>DC – 100 Hz typ</b>
<b>Connections</b>	<b>BNC signal coaxial cable with 3 lead shielded power cable. Red = +V, Black = -V, White/Shield = ground</b>