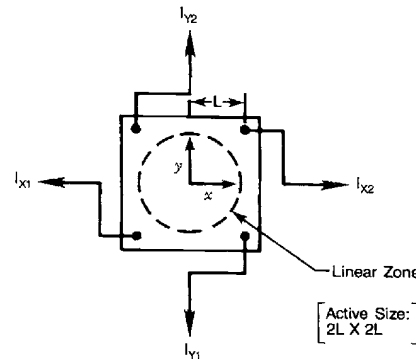


■ J16PS, J12PS, J10PS

Position Sensors

A Ge, InAs, or InSb position sensor consists of a single element photodiode with a quadrupole electrode geometry. These devices can provide linear X-Y beam position information for lasers and other infrared beams. Positioning information is determined as shown in Fig. 29-1. Request Product Bulletin #203 for additional information.

Figure 29-1
Position Sensor Detector Configuration



Conversion Formula:

$$x \approx L \left[\frac{(I_{x2} + I_{y1}) - (I_{x1} + I_{y2})}{I_{x1} + I_{x2} + I_{y1} + I_{y2}} \right]$$

$$y \approx L \left[\frac{(I_{x2} + I_{y2}) - (I_{x1} + I_{y1})}{I_{x1} + I_{x2} + I_{y1} + I_{y2}} \right]$$

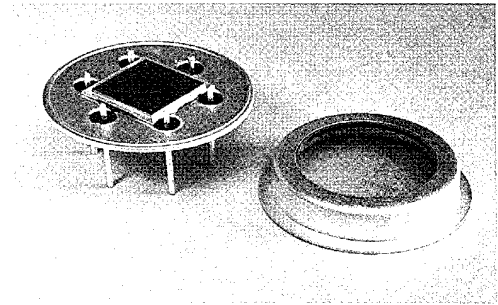
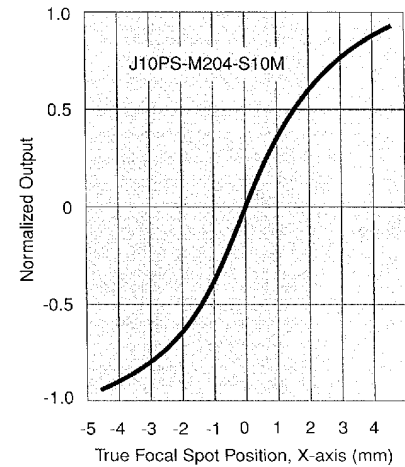


Figure 29-2
Example of Position Linearity



■ J16QUAD, J10QUAD, J15QUAD

Quadrant Detectors

A Ge, InAs, or HgCdTe quadrant detector consists of four separate detector elements arranged in a quadrant geometry with element separations of approximately 0.05mm. The PA7:4 preamplifier is available for J16Quad and J10Quad detectors.

Typical Specifications Linear Position Sensors

Model Number	Detector Type	Wavelength Range (μm)	Active Size "2L" (mm)	Linear Position Zone (Dia.) (mm)	Typical Position Resolution (μm)	Typical Interelectrode Resistance (Ω)	Peak Responsivity	Detector Temperature	Package Type
J16PS-P6-S10M	Ge	0.8-1.8	10 x 10	6	25	~ 100	0.6	22°C	P6
J16TE2PS-66G-S05M	Ge	0.8-1.8	5 x 5	3	25	~ 500	0.6	-30°C	TE
J12PS-66D-S05M	InAs	1-3.5	5 x 5	3	50	~ 100	0.5	-30°C	TE
J10PS-M204-S05M	InSb	1-5.5	5 x 5	3	25	~ 100	2.0	77°K	Dewar

Typical Specifications Quadrant Detectors

Model	Detector Type	Total Active Size "S" (mm)	Operating Temperature	Wavelength Range (μm)	Packages	
					Standard	Optional
J16QUAD-8D6-R02M	Ge	2 (Dia.)	Room Temperature	.8 - 1.8	6 Pin TO-8	
J16QUAD-8D6-R05M	Ge	5 (Dia.)	Room Temperature	.8 - 1.8		
J10QUAD-M204-R01M	InSb	1 (Dia.)	77°K	1 - 5.5	M204 Metal Sideview Dewar (Page 34)	Dewars Shown on Pages 32-36
J10QUAD-M204-R02M	InSb	2 (Dia.)	77°K	1 - 5.5		
J10QUAD-M204-R05M	InSb	5 (Dia.)	77°K	1 - 5.5		
J15QUAD-M204-S02M	HgCdTe	2 x 2	77°K	2 - 13		
J15QUAD-M204-S04M	HgCdTe	4 x 4	77°K	2 - 13		