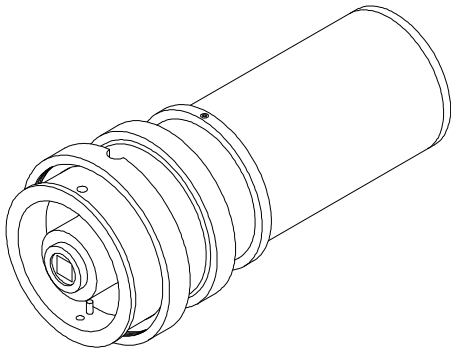


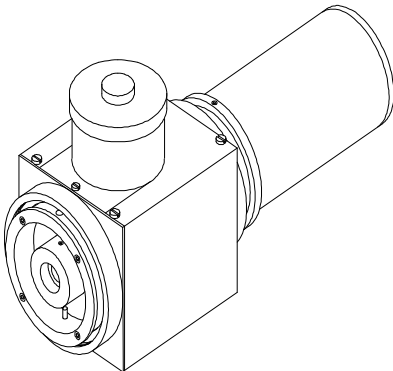
# **OL Series 750 High Sensitivity Detectors**

A large selection of high-sensitivity detector modules is available for use with the OL Series 750 Automated Spectroradiometric Measurement Systems. These detectors enable the OL Series 750 to effectively cover the entire wavelength range of 0.2 to 30  $\mu\text{m}$ .



**▲ OL 750-HSD-300  
SILICON DETECTOR**

Each high sensitivity detector module consists of two parts: the detector head and the detector support module. The detector head contains the detector element and thermoelectric or  $\text{LN}_2$  cooler (if applicable). The detector support module contains the high sensitivity preamplifier and detector bias electronics. An ultra low-noise connector is used to interface the detector head to the detector support module. By locating the preamplifier physically close to the detector, the optimum performance is realized.

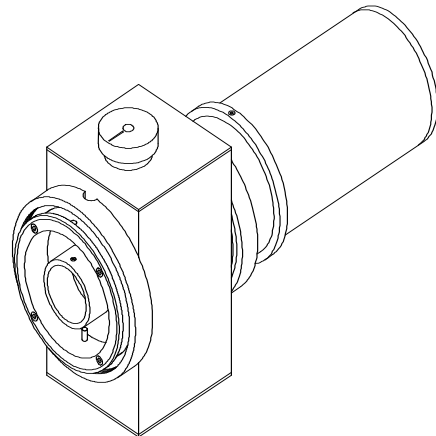


**▲ OL 750-HSD-360  
InSb DETECTOR**

The acquisition, amplification, and mode of signal processing is designated as the Signal Detection System. The OL Series 750 can be obtained with one or more of the following Signal Detection Systems:

- DC Amplification (OL 750-SDS-210).....DC
- AC Lock-In Amplification (OL 750-SDS-220) .....AC
- Pulse Integration (OL 750-SDS-230).....PI

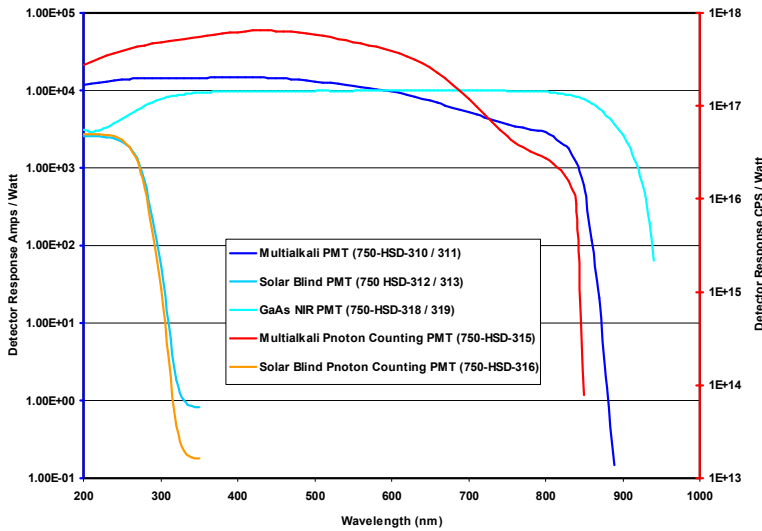
Accordingly, each High Sensitivity Detector is optimized for use with a specific Signal Detection System. This unique feature enables the user to optimize the overall system sensitivity for any application by coupling the Signal Detection System with the most appropriate High Sensitivity Detector.



**▲OL 750-HSD-310  
PMT DETECTOR**

A listing of the OL Series 750 High Sensitivity Detectors along with general specifications is given on page 4. Spectral response curves are given on pages 2 & 3.

OL Series 750  
High Sensitivity Detectors

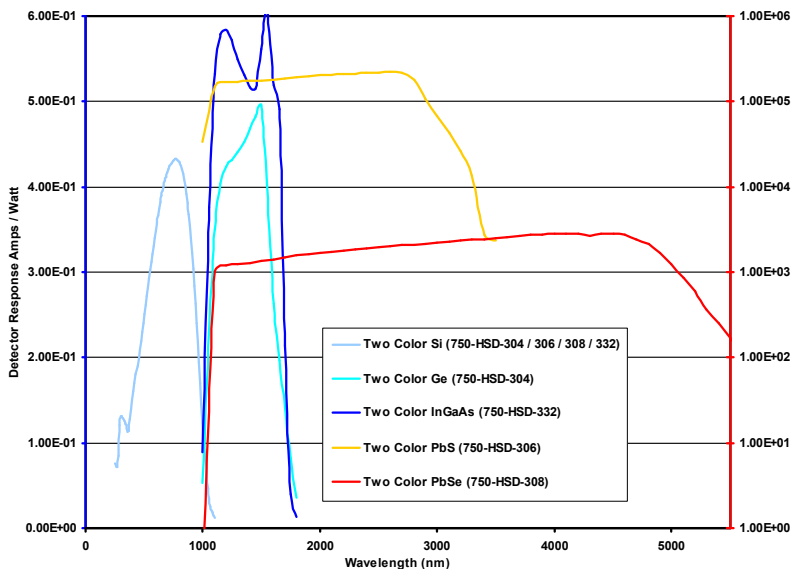
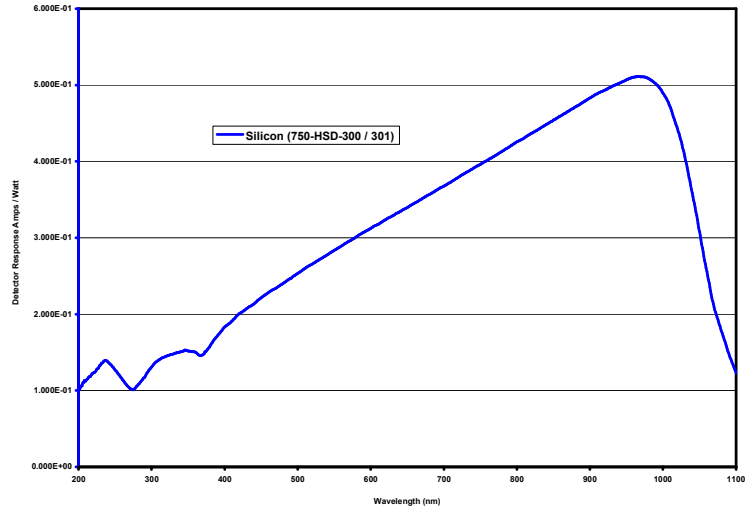


ULTRAVIOLET – VISIBLE – NEAR IR

750-HSD	TYPE <sup>1/</sup>	MODE <sup>2/</sup>	PEAK RESPONSIVITY
-310	PMT	(AC)	$1.5 \times 10^4$ A/W
-311	PMT	(DC)	$1.5 \times 10^4$ A/W
-312	PMT	(AC)	$2.5 \times 10^3$ A/W
-313	PMT	(DC)	$2.5 \times 10^3$ A/W
-315	PMT	(PC)	$6.5 \times 10^{17}$ CPS/W
-316	PMT	(PC)	$5.0 \times 10^{16}$ CPS/W
-318	PMT	(AC)	$1.0 \times 10^4$ A/W
-319	PMT	(AC)	$1.0 \times 10^4$ A/W

ULTRAVIOLET – VISIBLE – NEAR IR

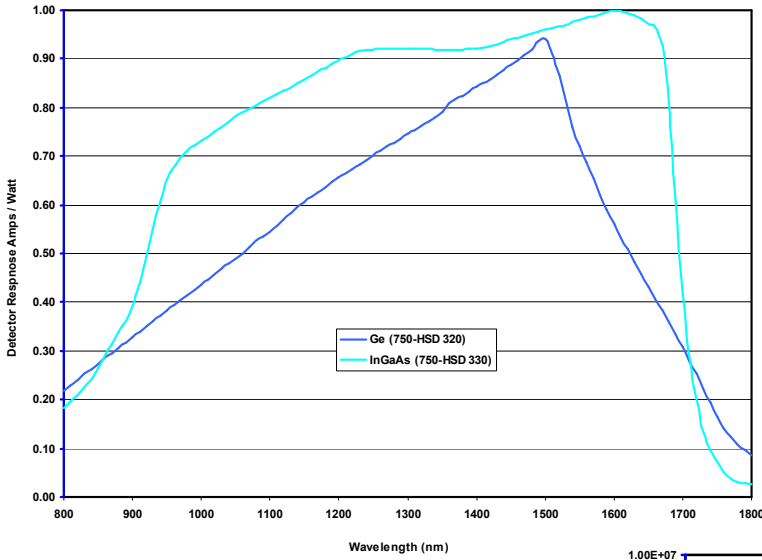
750-HSD	TYPE <sup>1/</sup>	MODE <sup>2/</sup>	PEAK RESPONSIVITY
-300	Si	(AC)	0.5 A/W
-301	Si	(DC)	0.5 A/W



ULTRAVIOLET – VISIBLE – NEAR IR – MID IR

750-HSD	TYPE <sup>1/</sup>	MODE <sup>2/</sup>	PEAK RESPONSIVITY
-304	Si	(AC)	0.6 A/W
-304	Ge	(AC)	0.5 A/W
-306	Si	(AC)	0.6 A/W
-306	PbS	(AC)	$3.4 \times 10^5$ V/W
-308	Si	(AC)	0.6 A/W
-308	PbSe	(AC)	$3.4 \times 10^3$ V/W
-332	Si	(AC)	0.6 A/W
-332	InGaAs	(AC)	0.5 A/W

OL Series 750  
High Sensitivity Detectors

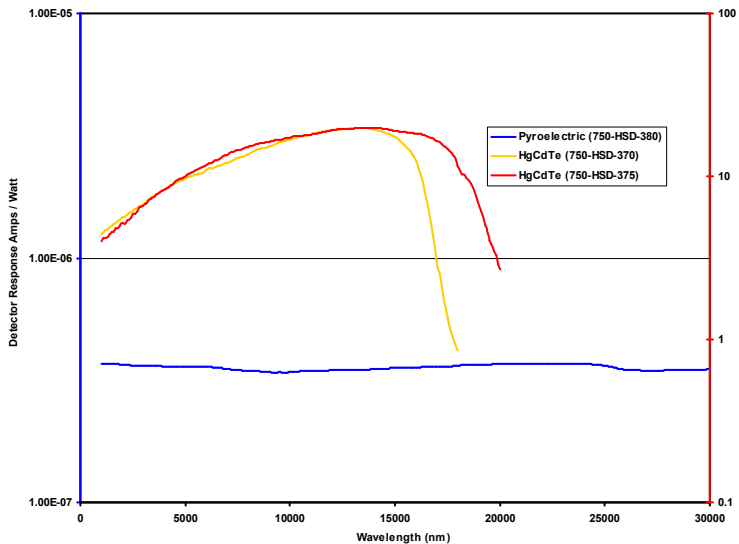
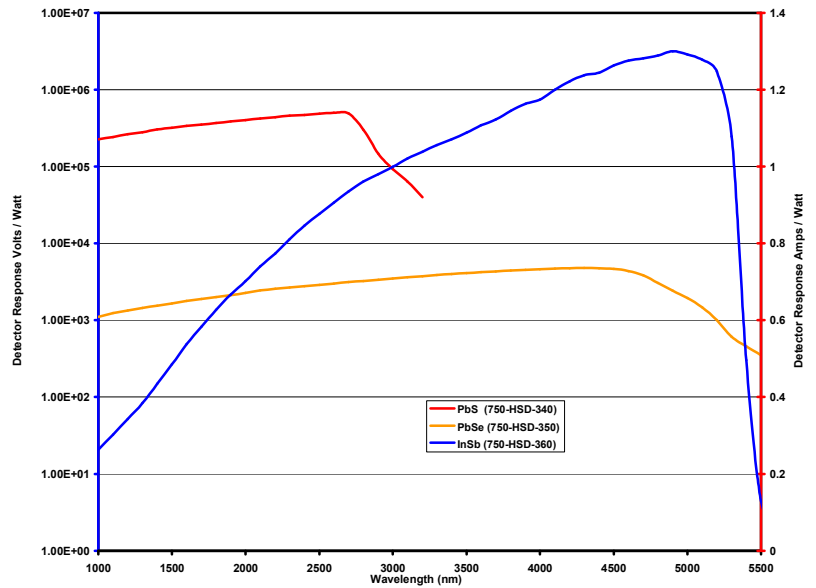


NEAR IR

750-HSD	TYPE <sup>1/</sup>	MODE <sup>2/</sup>	PEAK RESPONSIVITY
-320	Ge	(AC)	0.94 A/W
-321	Ge	(DC)	0.94 A/W
-330	InGaAs	(AC)	1.00 A/W
-331	InGaAs	(DC)	1.00 A/W

NEAR IR – MID IR

750-HSD	TYPE <sup>1/</sup>	MODE <sup>2/</sup>	PEAK RESPONSIVITY
-340	PbS	(AC)	$5.0 \times 10^5$ V/W
-350	PbSe	(AC)	$4.8 \times 10^3$ V/W
-360	InSb	(AC)	1.3 A/W



MID IR – FAR IR

750-HSD	TYPE <sup>1/</sup>	MODE <sup>2/</sup>	PEAK RESPONSIVITY
-370	HgCdTe	(AC)	$\approx 20$ V/W
-375	HgCdTe	(AC)	$\approx 20$ V/W
-380	Pyroelectric	(AC)	$3.2 \times 10^{-7}$ A/W

Model No.	Detector	Mode	Wavelength Range (μm)	Peak Wavelength (μm)	Active Area	Temperature (°C)	NEP (Watts) <sup>1/</sup>
750-HSD-300	Si <sup>3/</sup>	AC	0.2 to 1.1	0.96	1 x 1 cm	Ambient	2 x 10 <sup>-14</sup>
750-HSD-301	Si <sup>3/</sup>	DC	0.2 to 1.1	0.96	1 x 1 cm	Ambient	3 x 10 <sup>-15</sup>
<u>750-HSD-304</u> Two Color	<u>Si</u> Ge	AC	<u>.25 to 1.1</u> 1.05 to 1.8	<u>0.8</u> 1.8	<u>5 mm dia.</u> 2 mm	-20	<u>1.5 x 10<sup>-14</sup></u> 2 x 10 <sup>-12</sup>
<u>750-HSD-306</u> Two Color	<u>Si</u> PbS	AC	<u>.25 to 1.1</u> 1.1 to 3.0	<u>.8</u> 2.6	<u>5 mm dia.</u> 3 x 3 mm	-20	<u>1.5 x 10<sup>-14</sup></u> 2.5 x 10 <sup>-12</sup>
<u>750-HSD-308</u> Two Color	<u>Si</u> PbSe	AC	<u>.25 to 1.1</u> 1.1 to 5.5	<u>.8</u> 4.3	<u>5 mm dia.</u> 3 x 3 mm	-20	<u>1.5 x 10<sup>-14</sup></u> 6 x 10 <sup>-11</sup>
750-HSD-310	PMT (S-20) <sup>3/</sup>	AC	0.19 to 0.82	0.40	24 x 8 mm	Ambient	5.5 x 10 <sup>-16</sup>
750-HSD-311	PMT (S-20) <sup>3/</sup>	DC	0.19 to 0.82	0.40	24 x 8 mm	Ambient	8 x 10 <sup>-16</sup>
750-HSD-312	PMT (Solar Blind) <sup>3/</sup>	AC	0.16 to 0.32	0.20	24 x 8 mm	Ambient	9 x 10 <sup>-16</sup>
750-HSD-313	PMT (Solar Blind) <sup>3/</sup>	DC	0.16 to 0.32	0.20	24 x 8 mm	Ambient	1 x 10 <sup>-15</sup>
750-HSD-315	PMT (S-20)	Photon Counting	0.19 to 0.82	0.43	24 x 8 mm	Ambient	8 x 10 <sup>-18</sup> (.5 counts dark)
750-HSD-316	PMT (Solar Blind)	Photon Counting	0.19 to 0.32	0.43	24 x 8 mm	Ambient	8 x 10 <sup>-18</sup> (.5 counts dark)
750-HSD-318	PMT (GaAs) <sup>3/</sup>	AC	0.18 to 0.93	0.8	12 x 3 mm	-10	1.5 x 10 <sup>-16</sup>
750-HSD-319	PMT (GaAs) <sup>3/</sup>	DC	0.18 to 0.93	0.8	12 x 3 mm	-10	1.5 x 10 <sup>-16</sup>
750-HSD-320	Ge <sup>3/</sup>	AC	0.8 to 1.8	1.5	5 mm dia.	-20	1 x 10 <sup>-12</sup>
750-HSD-321	Ge <sup>3/</sup>	DC	0.8 to 1.8	1.5	5 mm dia.	-20	7.2 x 10 <sup>-13</sup>
750-HSD-330	InGaAs <sup>3/</sup>	AC	0.8 to 1.7	1.58	3 mm dia.	-20	1.5 x 10 <sup>-13</sup>
750-HSD-331	InGaAs <sup>3/</sup>	DC	0.8 to 1.7	1.58	3 mm dia.	-20	1 x 10 <sup>-13</sup>
<u>750-HSD-332</u> Two Color	<u>Si</u> InGaAs	AC	<u>.25 to 1.1</u> 1.1 to 1.8	<u>0.8</u> 4.3	<u>5 mm dia.</u> 2 mm	-20	<u>1.5 x 10<sup>-14</sup></u> 3 x 10 <sup>-13</sup>
750-HSD-340	PbS	AC	1.0 to 3.2	2.6	3 x 3 mm	-20	1 x 10 <sup>-12</sup>
750-HSD-350	PbSe	AC	1.0 to 5.5	4.3	3 x 3 mm	-20	4 x 10 <sup>-11</sup>
750-HSD-360	InSb <sup>2/</sup>	AC	1.0 to 5.5	4.9	3 mm dia.	-196	2 x 10 <sup>-12</sup>
750-HSD-370	HgCdTe	AC	1.0 to 15	≈ 12	2 x 2 mm	-196	8 x 10 <sup>-11</sup>
750-HSD-375	HgCdTe	AC	1.0 to 21	≈ 16	2 x 2 mm	-196	8 x 10 <sup>-11</sup>
750-HSD-380	Pyroelectric	AC	1.0 to 30	N/A	5 mm dia.	Ambient	1.5 x 10 <sup>-8</sup>

<sup>1/</sup> The NEP (noise equivalent power) is determined by computing the standard deviation of 10 successive OL 750 signal measurements with a 2 second integration time. The chopping frequency for AC mode detectors was 167 Hz.

<sup>2/</sup> The InSb covers the same wavelength range as the PbSe detector and is 20 times more sensitive. The full scale dynamic range of the InSb is 10<sup>5</sup> vs. 10<sup>4</sup> for the PbSe.

<sup>3/</sup> The detector component of these High Sensitivity Detector modules may be used with the Pulse Integration Signal Detection System (OL 750-SDS-230).