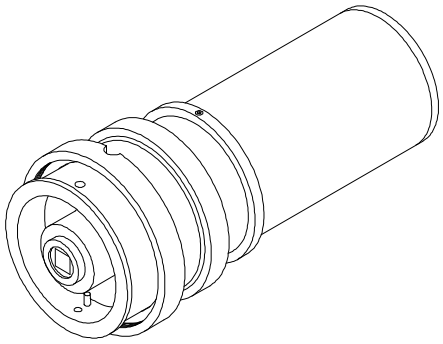
Gooch & Housego

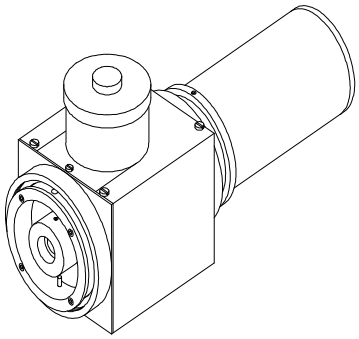
OL Series 750 High Sensitivity Detectors

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 µm.



>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 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.



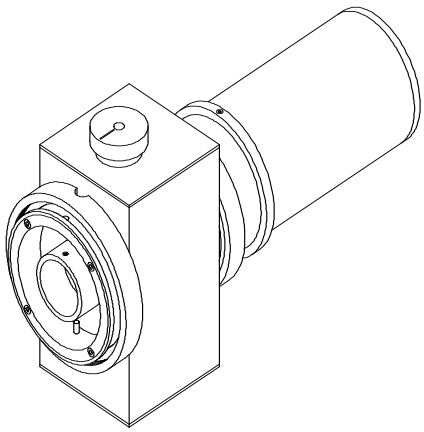
>OL 750-HSD-360
InSb DETECTOR

The acquisition, amplification, and mode of signal processing are 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

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.

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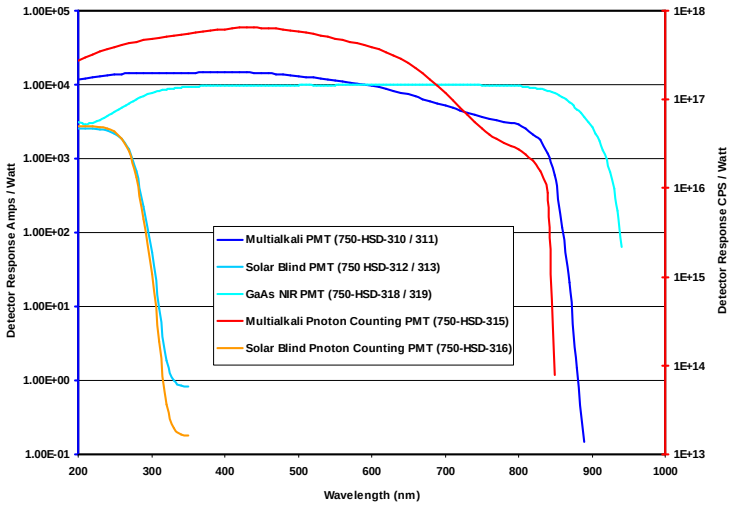
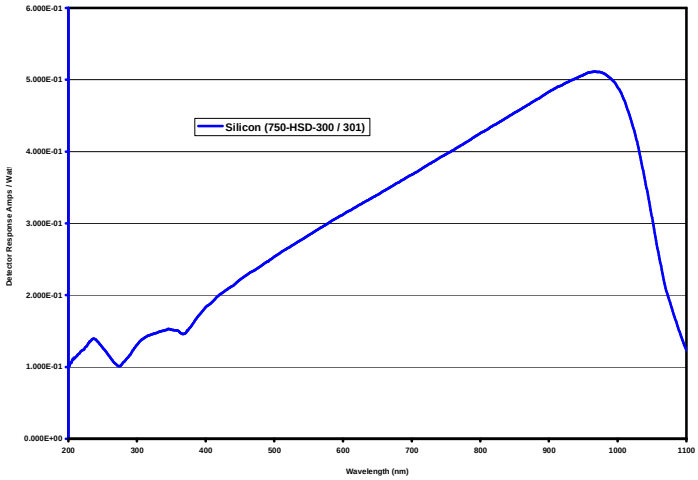


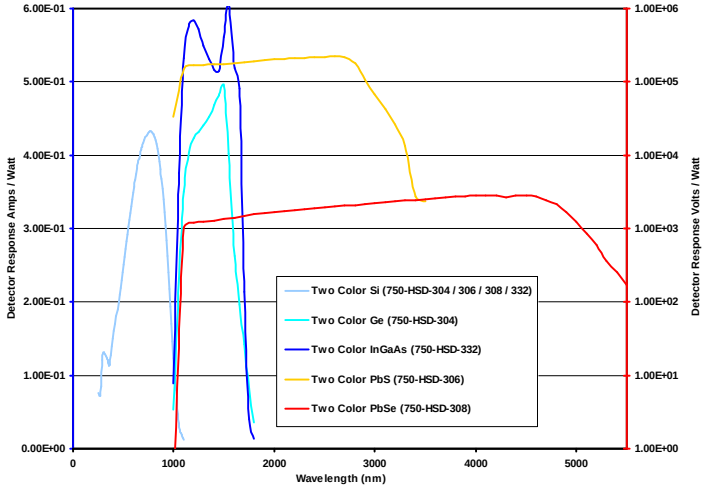
ULTRAVIOLET – VISIBLE – NEAR IR

750-HSD	TYPE[1/]	MODE[2/]	PEAK RESPONSIVITY
-310	PMT	(AC)	1.5 X 10^4 A/W
-311	PMT	(DC)	1.5 X 10^4 A/W
-312	PMT	(AC)	2.5 X 10^3 A/W
-313	PMT	(DC)	2.5 X 10^3 A/W
-318	PMT	(AC)	1.0 X 10^4 A/W
-319	PMT	(AC)	1.0 X 10^4 A/W

ULTRAVIOLET – VISIBLE – NEAR IR

750-HSD	TYPE[1/]	MODE[2/]	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[1/]	MODE[2/]	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)	2.0 X 10^5 V/A
-308	Si	(AC)	0.6 A/W
-308	PbSe	(AC)	3.4 X 10^3 V/W

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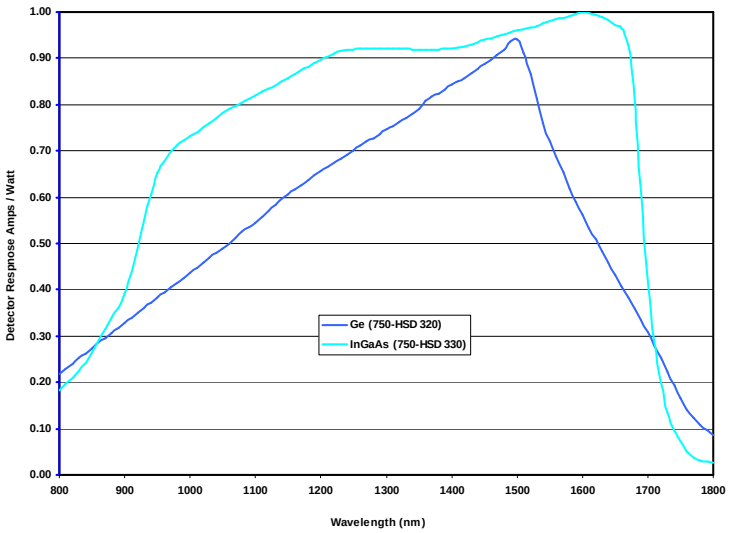
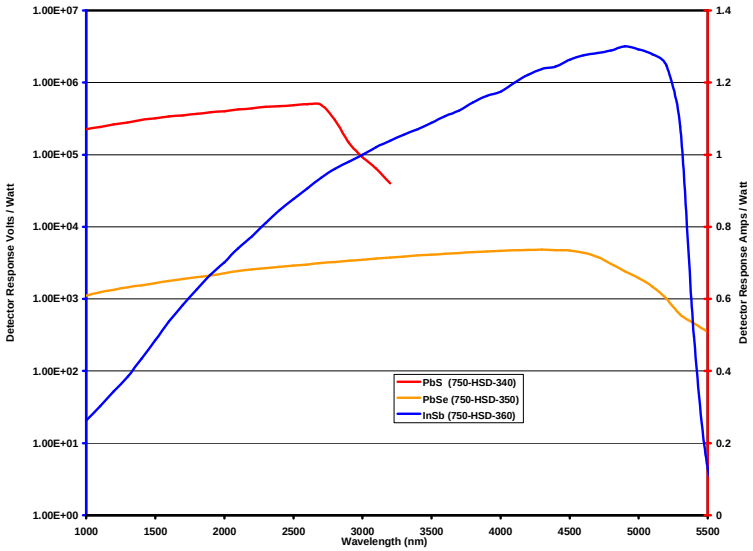


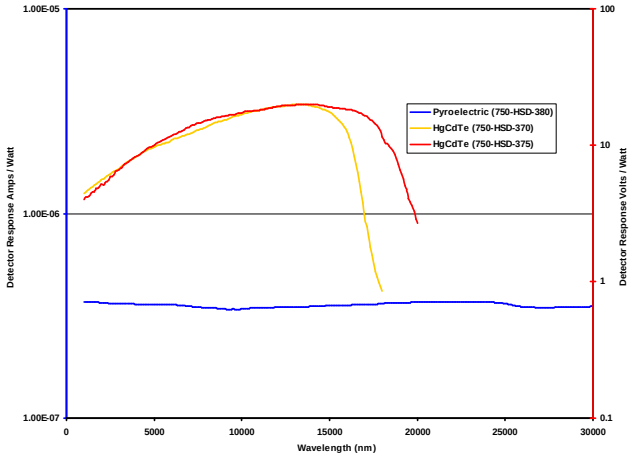
NEAR IR

750-HSD	TYPE[1/]	MODE[2/]	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[1/]	MODE[2/]	PEAK RESPONSIVITY
-340	PbS	(AC)	5.0 X 10^5 V/W
-350	PbSe	(AC)	4.8 X 10^3 V/W
-360	InSb	(AC)	1.3 A/W





MID IR – FAR IR

750-HSD	TYPE[1/]	MODE[2/]	PEAK RESPONSIVITY
-370	HgCdTe	(AC)	≈ 20 V/W
-375	HgCdTe	(AC)	≈ 20 V/W
-380	Pyroelectric	(AC)	3.2 X 10^{-7} A/W

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High Sensitivity Detectors

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

[1] 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.

[2] 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 10^5 vs. 10^4 for the PbSe.

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

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