

# D2250 Single-Wavelength detector

## Data sheet



NLIR | Mid-Infrared Sensors

- 2.2 – 5.0  $\mu\text{m}$  center wavelength
- Tuning optional
- Down to 10 fW/ $\sqrt{\text{Hz}}$  noise-equivalent power
- DC – 10 GHz bandwidth
- Plug-and-play



The greatest challenge for mid-infrared detectors is typically the substantial inherent noise and that they collect large amounts of radiation from the surroundings. Our detectors alleviates both limitations by using narrowband and efficient upconversion technology together with low-noise silicon-based detectors.

Besides the excellent sensitivity, speed and low-noise properties, the output of all our detectors is pre-amplified to voltage levels easily measurable with standard oscilloscopes. There is no need to apply further noisy amplification; all detectors are designed to be plug-and-play for user who are looking for the most sensitive mid-infrared detectors commercially available.

	S2250-DC	S2250-2M	S2250-100M	S2250-240M	S2250-1G	S2250-10G	unit
Center wavelength	2.2–5.0 (Tuning optional from 2.7 to 4.5 $\mu\text{m}$ )						$\mu\text{m}$
Optical bandwidth <sup>(1),(2)</sup>	15–200						nm
Electrical bandwidth, 3 dB	DC – 20	DC – 2E6	10E3 – 100E6	10E3 – 240E6	10E3 – 1E9	20E3 – 10E9	Hz
Noise-equivalent power	10E-15	3E-13	0.5E12	0.5E-12	2E-12	1E-9	W/ $\sqrt{\text{Hz}}$
Minimum detection power <sup>(3)</sup>	45E-15	4E-10	5E-9	8E-9	6E-8	100E-6	W
AC Responsivity <sup>(4)</sup>	NA	20E6	2E6	300E3	3E3	120	V/W
DC Responsivity <sup>(4)</sup>	200E9	20E6	NA	NA	NA	50	V/W
Dark noise (std)	9	TBD	6	4	TBD	TBD	mV
Output voltage, limit (50 $\Omega$ )	10	4.7	1.5	1.5	1	0.45	V
Rise time (10–90 %)	NA	170	3.4	1.41	0.34	0.034	ns
Optical input <sup>(5)</sup>	Free space, collimated (Fiber input optional)						
Polarization direction	Vertical						
Optimal input beam size	0.5 (customizable)						mm
Maximum operating temperature	30						$^{\circ}\text{C}$
Physical dimensions (H×L×W)	100 × 306 × 200						mm <sup>3</sup>
Weight	5						kg
Mounting	4x 1" posts						

(1) The minimum bandwidth depends on the center wavelength; higher center wavelengths implies higher minimum bandwidth (at 4.2  $\mu\text{m}$  the bandwidth is 200 nm).

(2) Broadband options is available upon request, broader response typically reduce the response.

(3) Minimum power in full electrical bandwidth.

(4) Specification valid for smallest optical bandwidth at center wavelength 3.5  $\mu\text{m}$ .

(5) Built-in 532 nm low power guide beam for alignment is included.

Got any questions or need a quote? Do not hesitate to contact us at [info@nlir.com](mailto:info@nlir.com).