

## DSS-SIA020

Two Color Silicon and Indium Arsenide Solid State Detector

ELEMENTAL ANALYSIS
FLUORESCENCE
GRATINGS & OEM SPECTROMETERS
OPTICAL COMPONENTS
FORENSICS
PARTICLE CHARACTERIZATION
RAMAN
SPECTROSCOPIC ELLIPSONOMETRY
SPR IMAGING

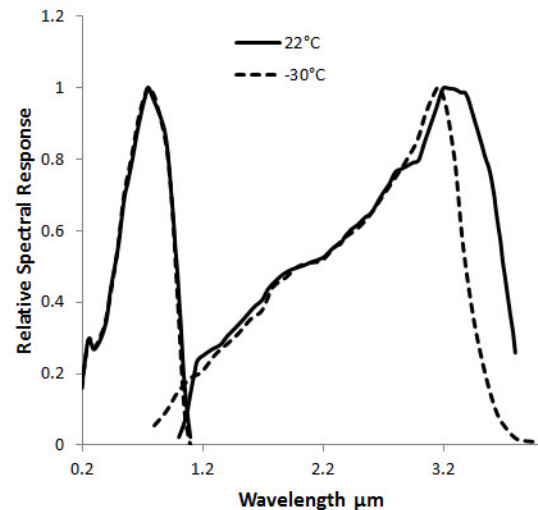
An excellent two-color detector composed of silicon and indium arsenide photodiodes, available in two different cooling levels, provides broad spectral response from the UV to near-IR.

These dual color single point detectors detect signals across a broad wavelength range, with a dual layered photodiode design using silicon on top of indium gallium arsenide. The silicon photodiode is transparent to wavelengths above 1000 nm allowing the InGaAs to detect those longer NIR wavelengths. With high sensitivity ( $D^*$ ) and two options for ambient and thermoelectric cooling, responsivity extends from 200 nm to 2600 nm. This is one of a number of dual color single point solid state detectors available from HORIBA Scientific. Contact us for further information.

Used in conjunction with optically optimized housings, these detectors integrate seamlessly with HORIBA's extensive selection of monochromators. In addition, the SpectrAcq2 acquisition module allows for software integration with LabSpec, SynerJY, or LabVIEW. With all of the additional Optical Building Blocks available from HORIBA, a user can easily go from individual components to a complete spectroscopy solution.

### Features and Benefits

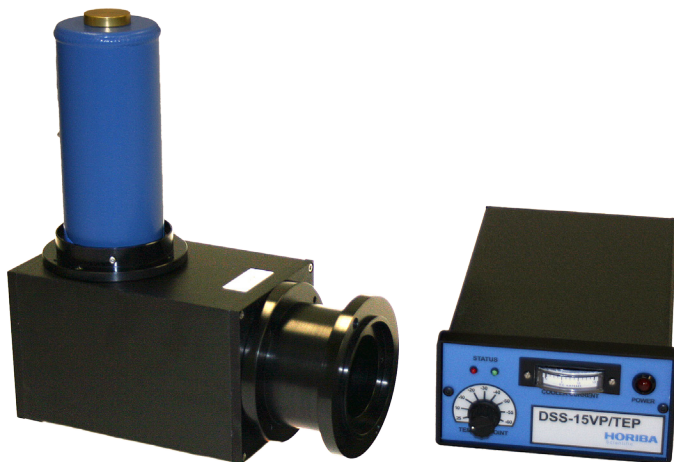
- Wide spectral responsivity from 200 nm to 3500 nm
- High sensitivity ( $D^* \sim 10^{11}$ )
- Compact ambient and TE detector housing



### Accessories

Various accessories are available for powering the detectors, optically coupling detectors to HORIBA monochromators, and data acquisition.

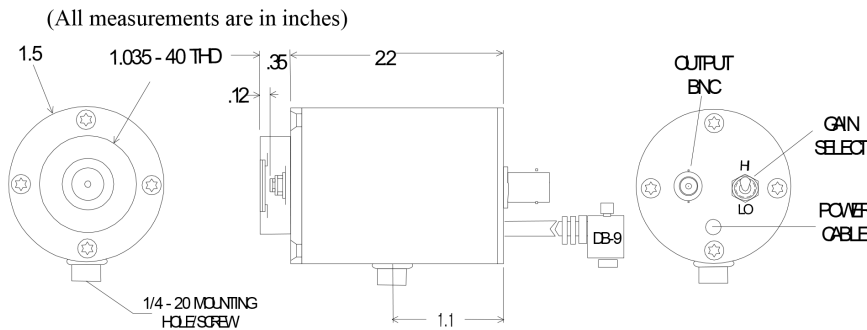
- Power supply for TE cooled detector, DSS-15V-TEP
- Power supply for ambient, DSS-15VP
- Mirror-based housing, 1427C
- BNC cable, J30646
- SpectrAcq2 data acquisition module
- SMA fiber adapter, DSS-SMA
- Dual 1427C housing adapter, J23078370
- Dual detector housing, J23079050
- BNC switchbox for dual detectors, SWB-AB



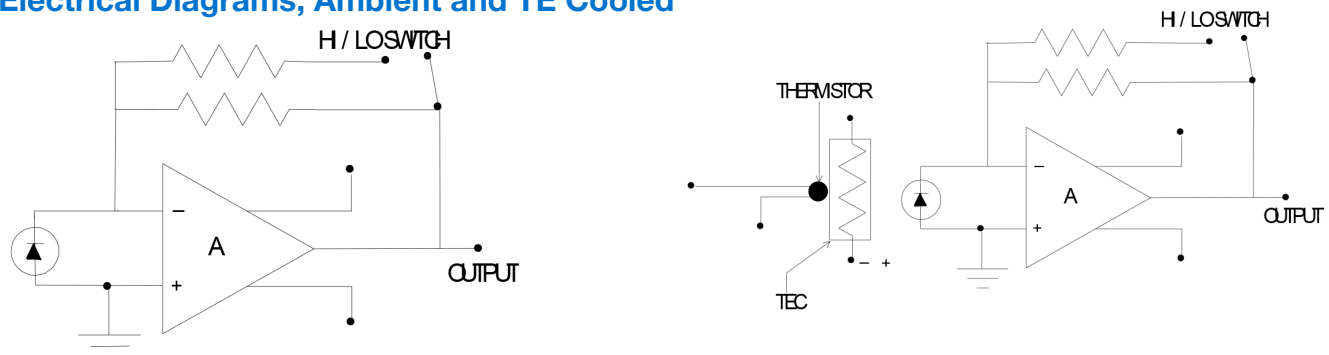
## Specifications

<b>Part number</b>	DSS-SIA020A		DSS-SIA020T	
<b>Detector type</b>	2.5 mm diameter silicon photodiode / 2 mm diameter indium arsenide photodiode			
<b>Operating temperature</b>	22°C ambient		-30°C TE cooled	
<b>Operating wavelength</b>	0.2 – 1.0 μm	1.0 – 3.5 μm	0.2 – 1.0 μm	1.2 – 2.5 μm
<b>Responsivity (V/W @ peak)</b>	0.6 x 10 <sup>8</sup> / 10 <sup>7</sup>	0.6 x 10 <sup>4</sup> / 10 <sup>3</sup>	0.55 x 10 <sup>9</sup> / 10 <sup>8</sup>	1 x 10 <sup>4</sup> / 10 <sup>3</sup>
<b>Noise (V/Hz<sup>1/2</sup>)</b>	1.2 x 10 <sup>-6</sup> / 1.2 x 10 <sup>-7</sup>	1.2 x 10 <sup>-6</sup> / 1.6 x 10 <sup>-7</sup>	3.6 x 10 <sup>-6</sup> / 10 <sup>-7</sup>	0.2 x 10 <sup>-6</sup> / 10 <sup>-7</sup>
<b>NEP pk, (W/Hz<sup>1/2</sup>)</b>	< 2.0 x 10 <sup>-14</sup>	< 2.0 x 10 <sup>-10</sup>	0.6 x 10 <sup>-15</sup>	1.5 x 10 <sup>-11</sup>
<b>Detectivity (D*)</b>	2.22 x 10 <sup>14</sup>	5.91 x 10 <sup>9</sup>	3.69 x 10 <sup>14</sup>	1.18 x 10 <sup>11</sup>
<b>Bandwidth (-3dB – Hz, typical)</b>	DC – 2 kHz			
<b>Power requirements</b>	± 9 VDC to ± 15 VDC			
<b>Connections</b>	BNC signal output. Shielded power cable terminated with a DB-9 connector directly couples the unit with the PS/TC-1 Low Noise Power Supply / Controller.			

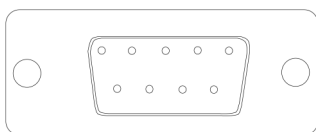
## Mechanical Dimensions, Ambient and TE Housing



## Electrical Diagrams, Ambient and TE Cooled



## DB-9 Pin Out Diagrams, TE Cooled [Ambient]



- |                            |             |
|----------------------------|-------------|
| 1. Cooler (+) [No connect] | 6. +V       |
| 2. Cooler (-) [No connect] | 7. -V       |
| 3. Thermistor [No connect] | 8. GND      |
| 4. Thermistor [No connect] | 9. Case GND |
| 5. No connect              |             |



**OPTICAL BUILDING BLOCKS**



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