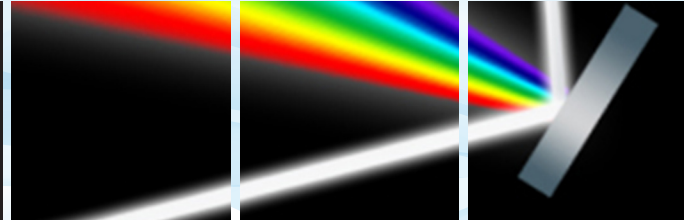




Synapse Linear InGaAs Array Scientific CCD Camera

ELEMENTAL ANALYSIS
FLUORESCENCE
GRATINGS & OEM SPECTROMETERS
OPTICAL COMPONENTS
CUSTOM SOLUTIONS
PARTICLE CHARACTERIZATION
RAMAN / AFM-RAMAN / TERS
SPECTROSCOPIC ELLIPSOMETRY
SPR IMAGING

Ideal for low-light-level measurements in the near infrared (NIR) spectral region from 800–1700 nm

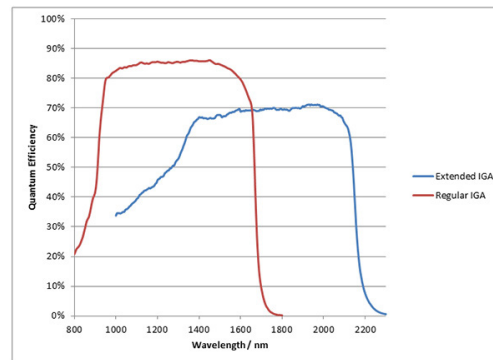


HORIBA Scientific's Synapse InGaAs arrays are the ideal choice for demanding, low-light-level measurements in the near infrared (NIR) spectral region from 800–1700 nm. Available in 512×1 ($25 \times 500 \mu\text{m}$), 512×1 ($50 \times 500 \mu\text{m}$), and 1024×1 ($25 \times 500 \mu\text{m}$) pixel formats, these InGaAs detectors provide high resolution while maintaining full well capacity. Synapse InGaAs arrays feature a 16-bit dynamic range, are deep thermoelectrically cooled, and use a mechanical shutter for subtraction of the dark background. Metal seals provide a permanent vacuum seal.

A plug-and-play USB 2.0 interface allows portability and easy setup on PC notebooks and desktop computers with 100% data integrity. Applications include near-IR Raman, photoluminescence measurements of semiconductors, SWCNTs, and nanowires. Detectors with sensitivity from $1 \mu\text{m}$ to $2.2 \mu\text{m}$ are also available.

Features and Benefits

- Deep thermoelectric cooling cools the array to -60°C to minimize dark noise (-75°C with external watercooling option)
- High accuracy of data over the full dynamic range
- Easy to use USB 2.0 interface; connects to PC notebooks and desktops with 100% data integrity
- High sensitivity (HiS) and high dynamic range (HiD) modes—software selection of acquisition mode to optimize detector for best signal-to-noise ratio
- Auxiliary signal input—unique ability to add measurements from single-channel detectors without additional electronics
- HORIBA Scientific's SynerJY® software—complete control of a Synapse CCD and HORIBA Scientific Spectrographsystem with full analysis capabilities
- LabVIEW VIs and SDK available—flexible software to integrate a Synapse CCD into existing apparatus or as an OEM component



Linear extended InGaAs to 2200 nm

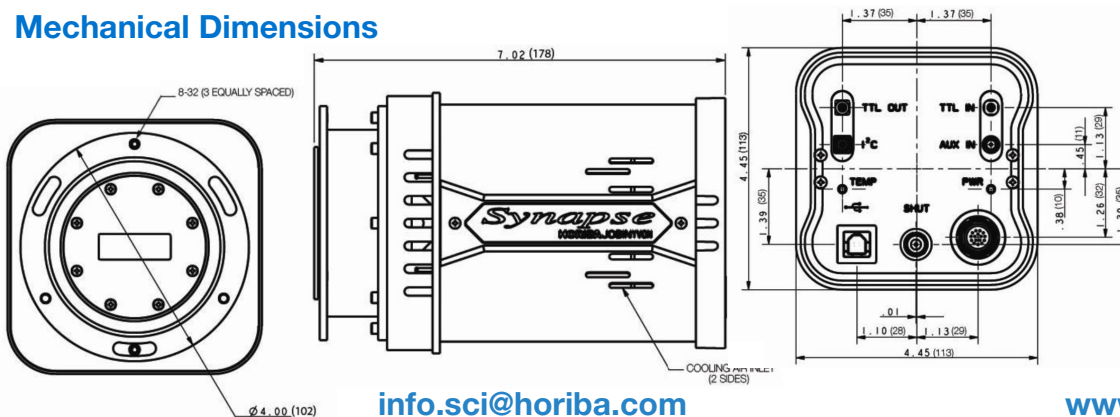
Linear InGaAs to 1700 nm

IGA format	512 x 1	512 x 1	1024 x 1
Element size	25 µm x 500 µm	50 µm x 500 µm	25 µm x 500 µm
Array size	12.8 mm	25.6 mm	25.6 mm
Cooling system	Four-stage thermoelectric cooling. Typical operating temperature -60°C. External cooling option available (-75°C typical.)		
Typical readout noise	High gain: 0.5 – 0.7 ke- rms; Low gain: 5-7 ke- rms		
Typical full well capacity	High gain: 5 Me-; Low gain: 130 Me-		
Typical dark current at -60°C	32 ke-/p/s	56 ke-/p/s	45 ke-/p/s
Typical dark current at -75°C	11 ke-/p/s	18 ke-/p/s	15 ke-/p/s
Response nonuniformity	± 10%	± 5%	± 10%
Response nonlinearity	< ± 1%		
Gain (normal)	High gain: 58 e-/count; Low gain: 1545 e-/count		
Dynamic range	16 bits		
Pixel defects	Max of 5 dark pixels	Max of 5 dark pixels	Max of 10 dark pixels

Linear extended InGaAs to 2200 nm

IGA format	512 x 1	512 x 1	1024 x 1
Element size	25 µm x 500 µm	50 µm x 500 µm	25 µm x 500 µm
Array size	12.8 mm	25.6 mm	25.6 mm
Cooling system	Four-stage thermoelectric cooling. Typical operating temperature -60°C. External cooling option available (-75°C typical.)		
Typical readout noise	High gain: 0.5 – 0.7 ke- rms; Low gain: 5-7 ke- rms		
Typical full well capacity	High gain: 5 Me-; Low gain: 130 Me-		
Typical dark current at -60°C	10 Me-/p/s	16 Me-/p/s	14 Me-/p/s
Typical dark current at -75°C	3 Me-/p/s	5 Me-/p/s	5 Me-/p/s
Response nonuniformity	± 10%	± 5%	± 10%
Response nonlinearity	< ± 1%		
Gain (normal)	High gain: 58 e-/count; Low gain: 1545 e-/count		
Dynamic range	16 bits		
Pixel defects	Max of 5 dark pixels	Max of 5 dark pixels	Max of 10 dark pixels

Mechanical Dimensions



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