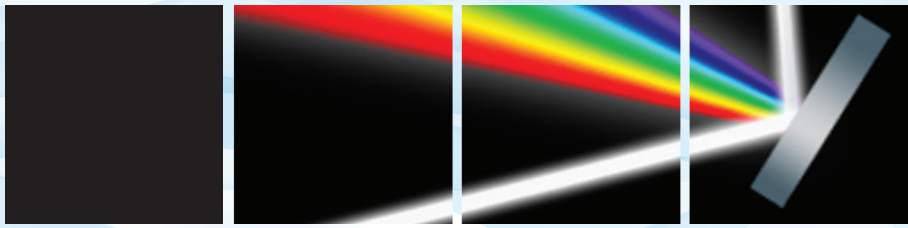
HORIBA Scientific

Synapse 1024 x 1024i

Scientific CCD Imaging Camera

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

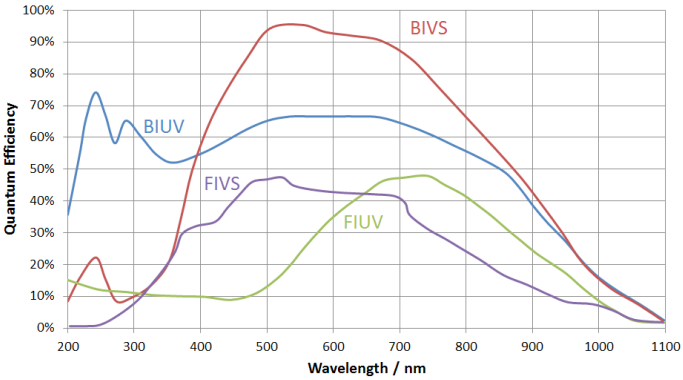
Back or front illuminated sensors, -80°C (-95°C), 1024 x 1024 pixels



The Synapse i series expands the broad line of Synapse detectors to include cameras suitable for both spectroscopy and imaging. A quick-change flange allows for easy and rapid switching between spectroscopy and an F-mount lens adapter.

The i-Series can be controlled through SynerJY or LabSpec6 for spectroscopy applications, or through V++ for high-performance scientific imaging. VSpecPro combines the features of a full spectroscopy package with the power of V++ in a simple-to-use package.

The result is a camera that can easily switch between imaging and spectroscopy applications, without sacrificing performance in either area.



Features and Benefits

- Deep thermoelectric cooling for low dark signal
- Excellent linearity
- Scientific Grade 1 CCD with fewer defects to skew image or effect scaling
- Auxiliary signal input allows for normalization of images for source intensity variation
- USB 2.0 interface
- V++ Imaging software
- SynerJY and LabSpec6 spectroscopy software
- VSpecPro imaging and spectroscopy package
- LabVIEW libraries and SDK for custom software integration
- ±15 V supply for external devices such as solid state detector preamplifiers

Primary Applications

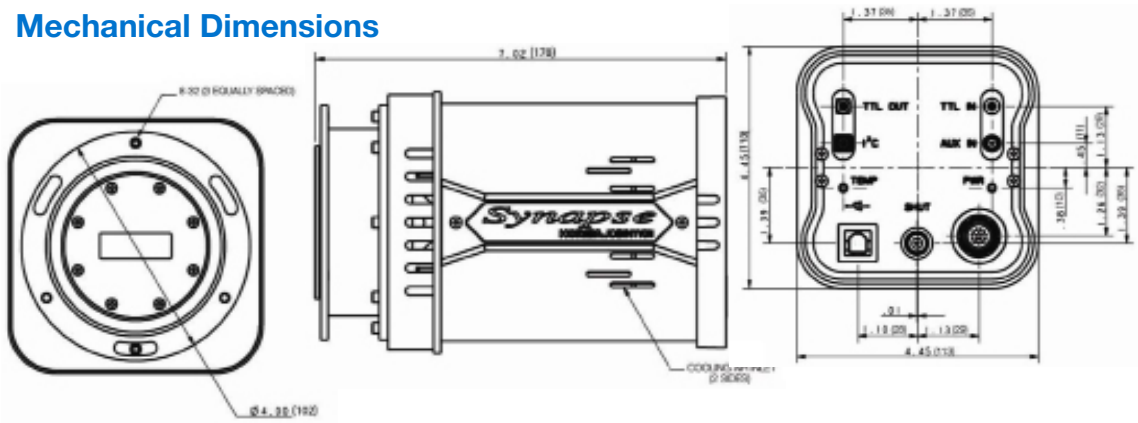
Suitable for spectroscopy or imaging, the Synapse i series is particularly well suited to low light level imaging applications

- Chemiluminescence
- Plant genetics
- Photovoltaic inspection
- Combustion
- Flow analysis
- In-vivo fluorescence imaging

Specifications

CCD format		1024 x 1024, BIVS, Scientific Grade 1	1024 x 1024, BIUV, Scientific Grade 1	1024 x 1024, FIVS, Scientific Grade 1	1024 x 1024, FIUV, Scientific Grade 1
Pixel size		13 µm x 13 µm			
Image area		13.3 mm x 13.3 mm, 100% Fill factor			
Cooling system		Four-stage thermoelectric cooling. Typical operating temperature -80°C, guaranteed to -75°C. External cooling option available (-95°C).			
Typical readout noise	**20 kHz**	2 e- rms	2 e- rms	2 e- rms	2 e- rms
	1 MHz	8 e- rms	8 e- rms	8 e- rms	8 e- rms
Maximum readout noise	**20 kHz**	5 e- rms	5 e- rms	5 e- rms	5 e- rms
	1 MHz	15 e- rms	15 e- rms	15 e- rms	15 e- rms
Minimum pixel well capacity		60 ke-			
Typical pixel well capacity		100 ke-			
Typical register well capacity		500 ke-			
Typical dark current		0.001 e-/pixel/s	0.001 e-/pixel/s	0.001 e-/pixel/s	0.001 e-/pixel/s
Nonlinearity	**20 kHz**	<0.4%			
	1 MHz	<1%			
Scan rates		20 kHz and 1 MHz, software selectable			
Software-selectable gains		3 software selectable gains			
Dynamic range		16 bit			
Vertical shift rates		36 µs, 9 µs			
Maximum spectral rate	**20 kHz**	8 Hz			
	1 MHz	97 Hz			
Minimum image readout time	**20 kHz**	63 s			
	1 MHz	1.5 s			

Mechanical Dimensions



OPTICAL BUILDING BLOCKS

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