SPECIM FX19

IMPROVE ACCURACY AND REDUCE COSTS

Specim FX19 camera is designed for industrial and laboratory use. It works in a line-scan mode, and collects hyperspectral data in the near-/ shortwave infrared (NIR/SWIR) region (1130-1920 nm).

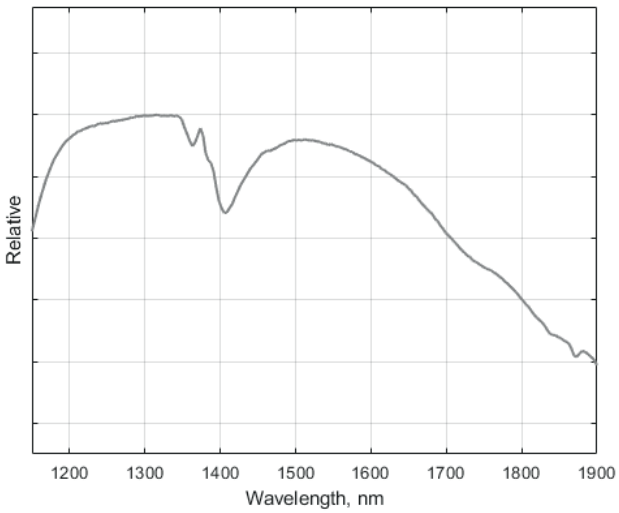
Specim FX19 is best suited for:

- Plastics, textile, and paper sorting
- Electronic waste sorting
- Foil and thin-film inspection
- R&D

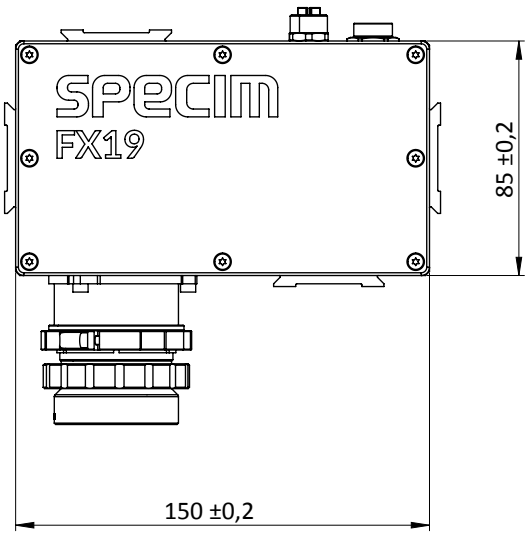
FEATURES

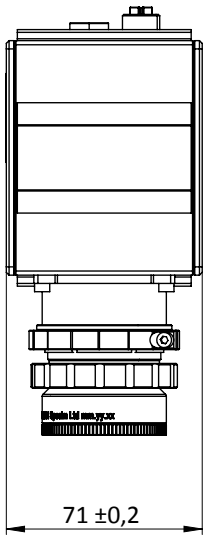
- Spectral range 1130-1920 nm
- High spatial resolution of 640 pixels
- High image speed 527 FPS (full range)
- Free wavelength selection from 224 bands within the camera coverage
- Built-in image correction
- Unified spectral calibration between units
- GigE interface
- Easy mounting to industrial environment
- Certificates: CE, RoHS

SPECTRAL RESPONSE



DIMENSIONS



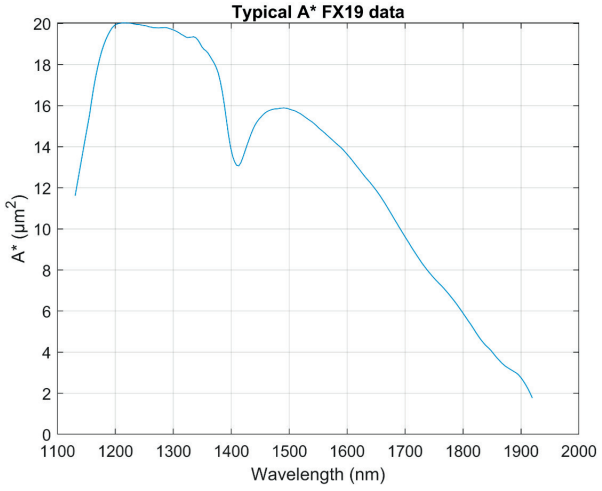


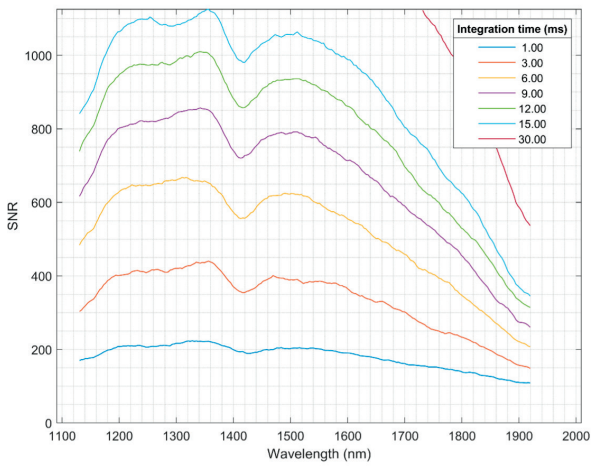
SPECIFICATIONS

Spectral Range	1130–1920 nm	
Spectral resolution (FWHM)	8 nm (mean)	
Spectral sampling/pixel	3.5 nm	
Spectral bands	224	With default binning
Spatial pixels	640	Specifications on two first and two last pixels may differ
Numerical aperture	1.7	With default lens
Optics magnification	0.8	
Effective pixel size	18.7 µm	At fore lens image plane
Effective slit width	Physical width 42µm. Projection on sensor 32 µm (M=1.3)	At fore lens image plane
Effective slit length	12.0 mm	At fore lens image plane
SNR @ max. signal	1170:1	
Dynamic range	72 db = 4200:1	
Bit depth	12	
Maximum frame rate	527 FPS full range	
Binning	1,2,4 spectral and spatial	Default: 1 spectral x 1 spatial
ROI	Freely selectable multiple bands of interest	Minimum height of ROI is two 1-binned rows. Maximum frame rate is determined by total number of rows between first row of first mROI and last row of last mROI and the total number of rows included in the mMROI's.
Pixel operability	99%	
Image corrections	Non uniformity correction Bad pixel replacement Automatic Image Enhancement (AIE)	One point NUC AIE: Unified spectral calibration + corrected smile and keystone aberrations
Sensor	InGaAs	
Sensor cooling	TEC	
Full well capacity	1.4 Me-	
Read-out modes	IWR / ITR	
Lens mount	Custom mount	
Fore lens FOV options	12°, 22°, 38°, 53°, 66°, 75°, 90°, macro lens	
Camera digital data output/control interface	GigE Vision	Trigger and synchronization: Shaft encoder interface (A,B,Z) and three digital outputs
Camera control protocols	GenICam	
Power input	12V -10% to 24V +10%	
Power consumption	Max 24 W	
Triggers	Shaft encoder inputs A,B,Z,Alarm TTL out, Two wide voltage/TTL outputs	
Connectors	17 pin M12 for power and I/O, M12 X-coded Ethernet connector for GigE	
IP	IP52	
Dimensions (L x W x H)	150 x 71 x 85 mm	Mounting surface option on four sides. Mounting kit adds 20 mm distance on mounting side.
Weight	1.5 kg	
Storage temperature	-20 ... +50 °C (non-condensing)	
Operating temperature	+5 ... +40 °C (non-condensing)	
Relative humidity	5% – 95% (non-condensing)	

IEEE 4001 STANDARD SPECIFICATIONS

MAIN FEATURES	Min	Mean/nominal	Max	Unit	Note
Spectral Range		1130.6 –1919.6		nm	
Number of bands		224			
Spectral sampling interval	3.5	3.5	3.6	nm	
Equivalent Band Count		92			
Field of view		715		mm	1m working distance with FOV38
Pixel format		640 x 1 320 x 1 160 x 1 80 x 1			Bin 1 Bin 2 Bin 4 Bin 8
Equivalent Pixel Count		400 320 160 80			Bin 1 Bin 2 Bin 4 Bin 8
Effective throughput A*	1.8	13	20	μm^2	Bin 1, See figure
Output processing level		Raw			
OTHER CHARACTERISTICS					
SPATIAL					
SPSF peak width		1.8	2.3	mm	1m working distance with FOV38
RADIOMETRIC					
Signal-to-noise ratio			1170		See figure
Read noise		340		e-	
Normalized read noise	17	26	190	$e^-/\mu m^2 sr$	
TEMPORAL					
Frame rate	2.15		520	Hz	Full image (224 bands). Min is with internal triggering.
Integration time	0.01		419	ms	
OTHER					
Real-time output		Yes			
Synchronization interface	Shaft encoder, TTL in/out, RS422 in/out, DHTL in, HTL in, 2x open drain output.				
Invalid data flag		No			
Environmental - operation		5 ... +40°C			
Environmental - storage		-20 ... +50°C			





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