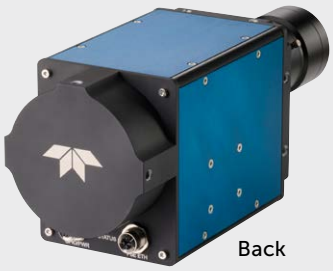
Kaleido™ SWIR Hyperspectral Camera

Front



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KEY FEATURES

- High speed, in-line inspection:
  - 2,300 Hz (full range)
- Spatial resolution:
  - 1,280 or 640-pixels
- Wavelength selection:
  - Up to 220 bands
- Optics-first imaging with minimal algorithmic correction, maximizing native signal integrity
- Optimized for speed and responsivity to decrease processing and illumination costs
- High spatial resolution for expanded inspection ability
- Flexible lighting options including SWIR LED capability

TYPICAL APPLICATIONS

- Food inspection
- Recycling and waste sorting
- Pharmaceuticals
- Chemical composition
- Coating control and measurement
- Wood inspection
- Moisture measurement
- Textile sorting

High Speed, High Spatial Resolution

Kaleido is a short-wave infrared (SWIR) hyperspectral camera developed for high-speed industrial sorting and inspection applications. Fully designed and manufactured by Teledyne, including the sensor, spectrograph and interface, Kaleido is available with 1,280 or 640 pixel spatial resolution and delivers full-frame line rates exceeding 2.3 kHz, enabling high throughput without compromising spectral accuracy. Its compact, integrator-ready design and optimized sensor responsivity support reliable low-light operation and effective use of modern SWIR LED lighting, helping reduce illumination requirements while enabling accurate material discrimination.

SPECIFICATIONS

Model		06H03H	12H03H
Spectral information - nm	Wavelength Range # of Bands	950-1750 220	
Sampling/Pixel - nm	Spectral	3.5	
Resolution - # of Pixels - nm	Spatial (FOV) Spectral (FWHM)	640 8 (Typical)	1,280 8 (Typical)
Pixel Size - µm	–	14	
Pixel Format - bits	Bit Depth	12, 12 packed	
Line Rate - Hz	Max Bands, 12bp 32 Bands, 12bp	2,300+ 15,000	
Dynamic Range - dB	Typical	61	
Signal to Noise SNR – dB	Typical	48	
Spectral Calibration Accuracy - Pixels	–	<1	
Temperature Control	In-camera	TEC	
Sensor Material	–	InGaAs	
Slit Width - µm	–	28	
ROI – Spatial and Spectral	Software- Selectable	Multi ROI Camera speed scales proportional to spectral ROI	
Binning	–	1, 2, 4x spectral and spatial (2x spectral on-sensor)	
Operating Temperature Range	–	5 to 45C	
Lighting Recommendation	–	LED, halogen, sunlight	

Stable performance across temperature range due to athermal design.

AVAILABLE LENSES

	25	12	6
1,280 x 256	✓ (default)	(coming soon)	–
640 x 256	✓	(coming soon)	(coming soon)

PRELIMINARY

TELEDYNE

Kaleido
SWIR Hyperspectral Camera


RECYCLING


FOOD


PHARMA

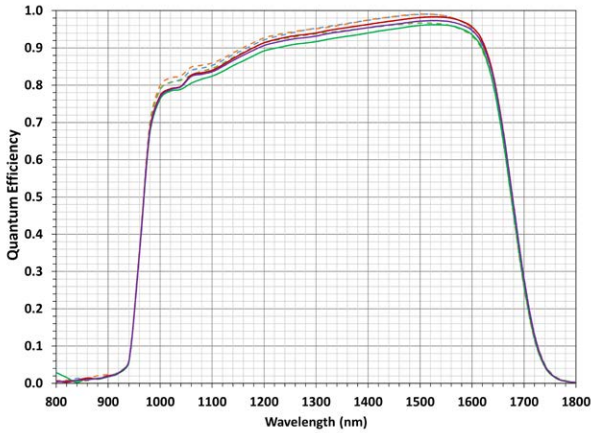

WOOD

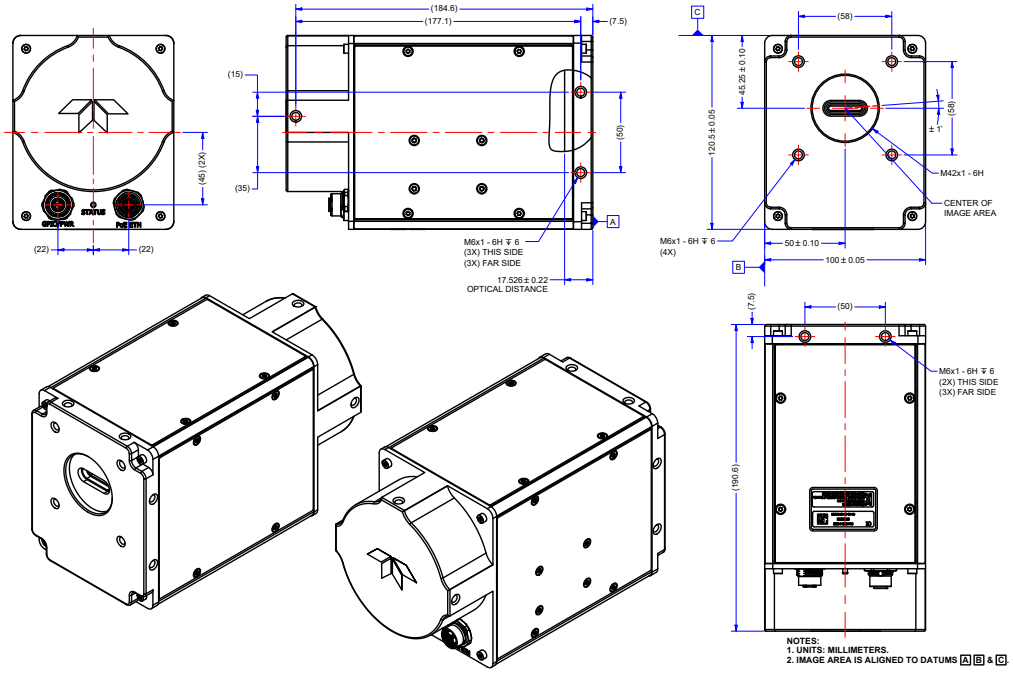

WASTE SORTING

SPECIFICATIONS

Item	Detail	Unit	Specification
Interface	DATA/Control	—	10 GigE (GigE Vision)
Power	Typical Max.	—	12~24V, 12W 22W
IP Rating	—	—	IP54
Dimension	—	W x L x H mm	100 x 191 x 121
Weight (not including lens)	—	—	3.0 kg
Lens Mount	—	—	M42x1, C-mount (adapter)

Spectral Sensitivity (Sensor)





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