

FS-1600D-10GE

Technical Datasheet

IMX273*See the possibilities*

Apex Series



JAI's Fusion Series of multispectral prism cameras provide simultaneous images of multiple wavebands through a single optical path. The cameras split incoming light into two or three separate sensors with precise pixel-to-pixel alignment regardless of motion or viewing angle.

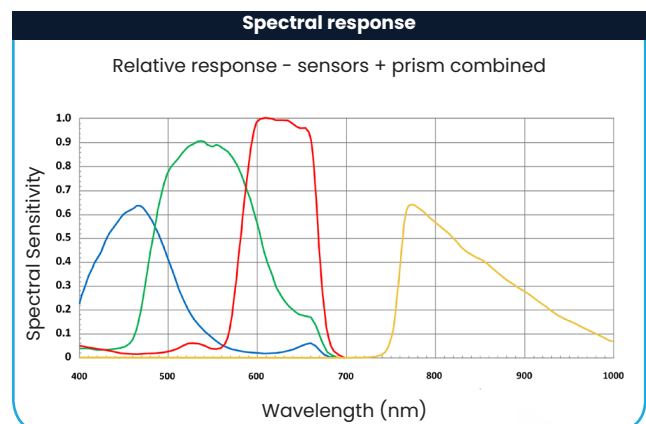
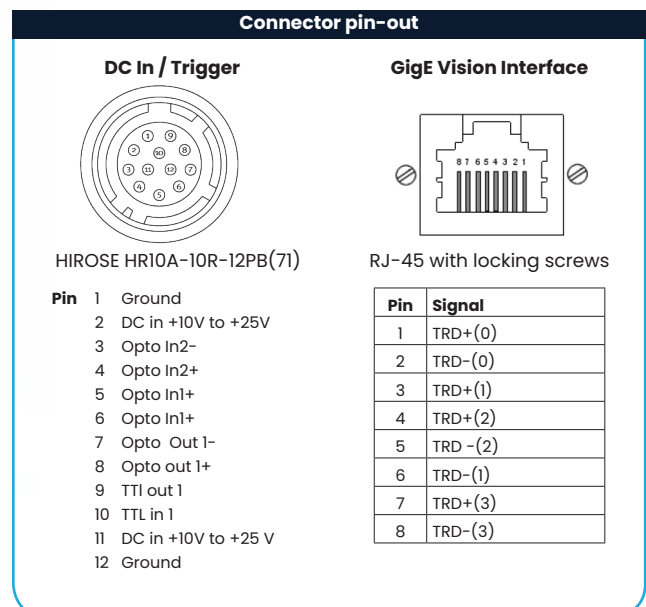
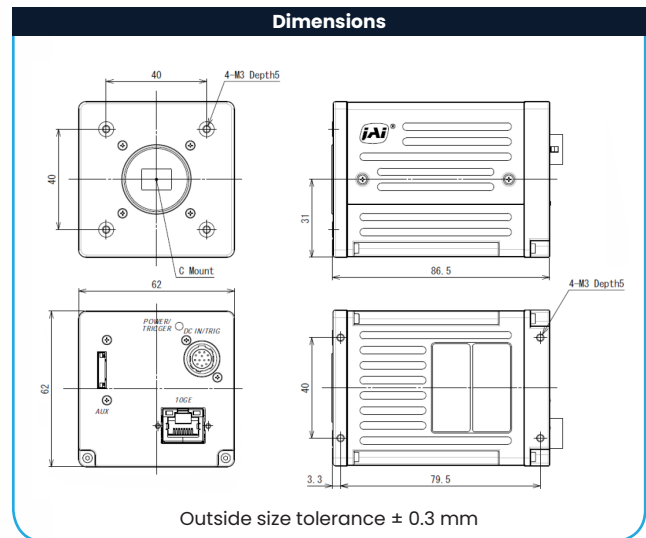
Fusion Series cameras are ideal for life sciences or surgical applications using NIR fluorescence; for intelligent farming techniques such as NDVI/NDRE vegetation analysis or autonomous weed removal systems; for fruit, vegetable, and other types of food sorting or inspection; for electronics/PCB inspection; and much more.

Specification Highlights

SENSOR:	IMX273	SHUTTER:	Global Shutter
FORMAT:	1/2.9"	FRAME RATE:	226 fps
PIXEL SIZE:	3.45 x 3.45 μ m	INTERFACE:	10 Gbps GigE Vision
LENS MOUNT:	C-Mount	RESOLUTION MP:	1.6 MP
SPECTRUM:	Multispectral (2-Bands Visible + NIR)	RESOLUTION WxH:	1440 x 1080 px

Specifications	FS-1600D-10GE
Sensor	1/2.9" 3-CMOS global shutter (IMX273)
Active pixels	1440 (h) x 1080 (v) x 2 (Bayer / NIR)
Frame rate, full frame	226 frames/sec. @ 8-bit
Active area	4.97 mm (h) x 3.73 mm (v) - 6.21 mm diagonal
Pixel size	3.45 μm x 3.45 μm
System clock	74.25 MHz (for pulse generator)
Read-out modes	
Full ROI (single)	1440 (h) x 1080 (v) for each channel H: 16 to 1440 pixels in 16 pixel steps V: 8 to 1080 lines in 4 line steps
ROI (multi) Binning	Up to 4 areas can be defined. No overlap. 1x2, 2x1, 2x2 (NIR only)
EMVA 1288 Parameters	12-bit output format
Absolute sensitivity	4.85 p ($\lambda = 525 \text{ nm}$), 10.8 p ($\lambda = 810 \text{ nm}$)
Maximum SNR	39.65 dB green, 39.36 dB NIR
Traditional SNR*	
Color NIR	>60 dB (0 dB gain, 10-bit) >60 dB (0 dB gain, 10-bit)
Video signal output† (Two streams)	Visible: BayerRGB8, BayerRG10, BayerRG10Packed, BayerRG12, BayerRG12Packed, RGB8, RGB10VIPacked, RGB10p32 NIR: Mono8, Mono10, Mono10Packed, Mono12, Mono12Packed
Video modes	Normal, Single ROI, Multi ROI, Sequencer (2 modes)
Gain	Manual control - master mode 0 to +24 dB R/B channels - individually -7 to +15 dB Auto gain control - off, continuous, one-push
White balance (Color channel only)	Off, 4 presets (3200K, 5000K, 6500K, 7500K), or one-push/continuous AWB (3000K to 9000K)
Gamma/LUT	0.45 to 1.0 (9 steps) or 257-point programmable LUT
Shading correction	Flat shading, color shading
Trigger input	Opto In (2), Pulse Generators (4), Software, TTL In (2), NAND Out (2), User Output (4)
Exposure modes	Timed/EPS, Trigger Width (to ∞), Auto. Delayed readout option.
Electronic shutter	(can be set independently for each channel) 15.26 μs to 8 sec. in 1 μs steps
Auto Level Control (ALC)	Shutter range from 100 μs , gain range from 0 dB to +24 dB. Tracking speeds and max. values adjustable.
Blemish compensation	Up to 200 px/channel
Operating temp. (ambient)	-5°C to +45°C (20 to 80% non-condensing)
Storage temp. (ambient)	-25°C to +60°C (20 to 80% non condensing)
Vibration	3G (20 Hz to 200 Hz, XYZ directions)
Shock	50G
Regulations	CE (EN61000-6-2, EN61000-6-3) FCC Part 15 Class B, RoHS/WEEE
Power 12-pin	+10V to +25V DC. 10.4 W typical @ +12 V
Lens mount	C-mount
Dimensions (H x W x L)	62 mm x 62 mm x 86.5 mm (excl. connectors)
Weight	270 g
Ordering Information	
FS-1600D-10GE	2-CMOS multi-spectral camera with GigE Vision

*Traditional SNR is based on random noise in a single frame, where EMVA SNR measurements consider more comprehensive noise sources and variance over time.



†12-bit output available in video processing bypass mode. See manual for details.

Product Highlights

- Multi-spectral prism camera with two 1/2.9" CMOS imagers
- Simultaneously captures visible color and near-IR images through the same optical path
- 3.45 x 3.45 μm pixel sizes with support for 1x2, 2x1, or 2x2 binning
- Up to 226 fps over high performance 10GBASE-T (10 gigabits per second) interface
- Backwards compatible to NBASE-T (5GBASE-T/2.5GBASE-T) and standard GigE (1000BASE-T)
- Single and multi-ROI modes provide higher speeds with lower processing loads
- 8, 10, or 12-bits per channel*
- 5x5 de-Bayering available for RGB output on color channel
- Supports separate or unified control of key camera parameters for each channel
- Excellent shock and vibration resistance
- GigE Vision 2.0 interface with dual-stream output
- C-mount lens mount

* Some video processing functions not available with 12-bit output

Additional Product Images



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