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FS-3200D-10GE

Technical Datasheet

See the possibilities

IMX252

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:	IMX252	**SHUTTER:**	Global Shutter
FORMAT:	1/1.8"	**FRAME RATE:**	123 fps
PIXEL SIZE:	3.45 x 3.45 µm	**INTERFACE:**	10 Gbps GigE Vision
LENS MOUNT:	C-Mount	**RESOLUTION MP:**	3.2 MP
SPECTRUM:	Multispectral (2-Bands Visible + NIR)	**RESOLUTION WxH:**	2048 x 1536 px

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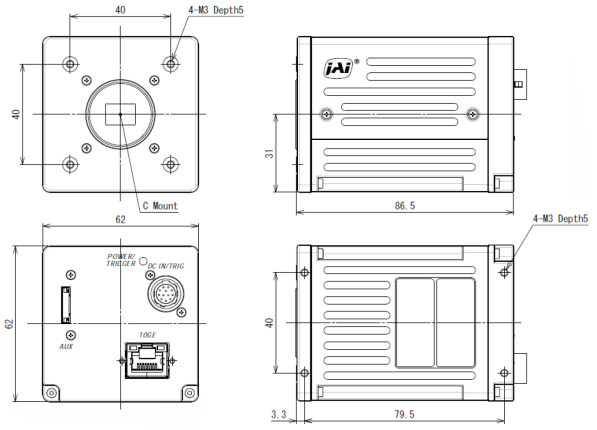
Specifications	FS-3200D-10GE
Sensor	1/1.8" 2-CMOS global shutter (IMX252)
Active pixels	2048 (h) x 1536 (v) x 2 (Bayer / NIR)
Frame rate, full frame	123 frames/sec. @ 8-bit
Active area	7.07 mm (h) x 5.30 mm (v) - 8.83 mm diagonal
Pixel size	3.45 µm x 3.45 µm
System clock	74.25 MHz (for pulse generator)
Read-out modes	
Full ROI (single)	2048 (h) x 1536 (v) for each channel H: 16 to 2048 pixels in 16 pixel steps V: 8 to 1536 lines in 4 line steps
ROI (multi) Binning	Up to 64 areas can be defined. No overlap. 1x2, 2x1, 2x2 (NIR only)
EMVA 1288 Parameters Absolute sensitivity Maximum SNR	12-bit output format 4.30 p (λ = 525 nm), 8.86 p (λ = 810 nm) 39.45 dB green, 39.02 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: BayerRG8, BayerRG10, BayerRG10Packed, BayerRG12, BayerRG12Packed, RGB8, RGB10V1Packed, 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) 14.73 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-3200D-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.

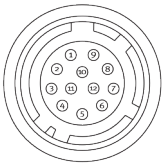
Dimensions



Outside size tolerance ± 0.3 mm

Connector pin-out

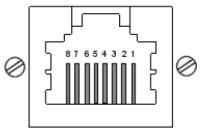
DC In / Trigger



HIROSE HR10A-10R-12PB(71)

Pin		
	1	Ground
	2	DC in +10V to +25V
	3	Opto In2-
	4	Opto In2+
	5	Opto In1+
	6	Opto In1+
	7	Opto Out 1-
	8	Opto out 1+
	9	TTl out 1
	10	TTL in 1
	11	DC in +10V to +25 V
	12	Ground

GigE Vision Interface

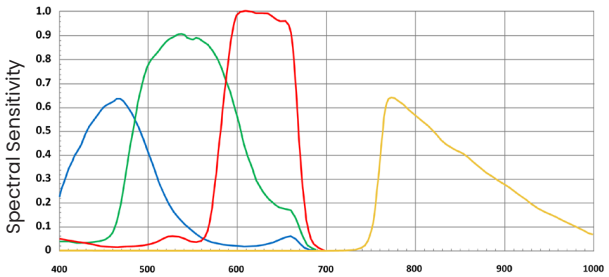


RJ-45 with locking screws

Pin	Signal
1	TRD+(0)
2	TRD-(0)
3	TRD+(1)
4	TRD+(2)
5	TRD -(2)
6	TRD-(1)
7	TRD+(3)
8	TRD-(3)

Spectral response

Relative response - sensors + prism combined



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

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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 123 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