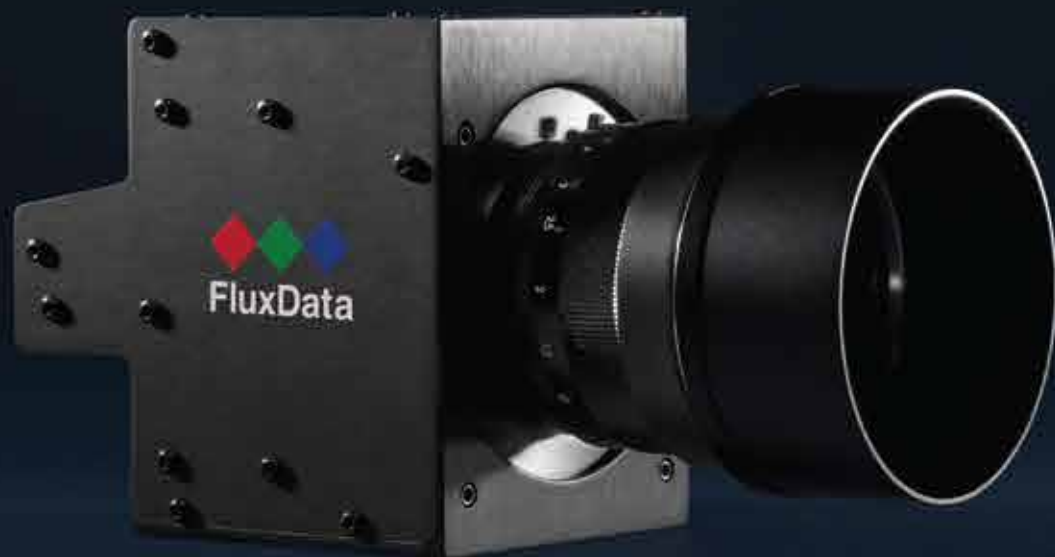


# There's a new way to go beyond RGB

Split incoming broadband light into  
three components with equal spectral,  
spatial and polarization content.

## FD-1665-P





**CUSTOMIZED**



**PRECISE**



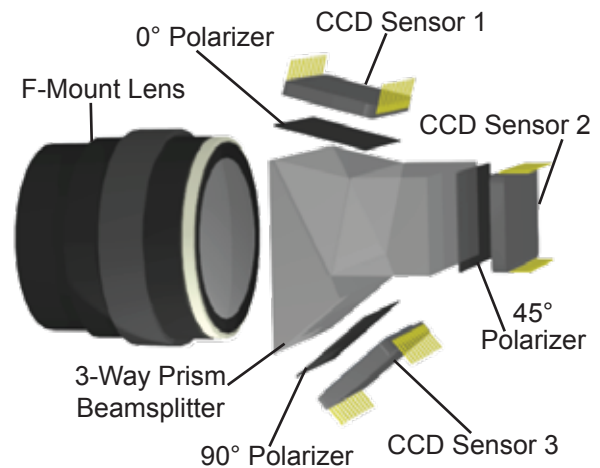
**COMPACT**



**DURABLE**

Polarimetric or polarization imaging is an active research area in medical, machine vision and defense applications. Because the polarimetric preserving and/or inducing properties of materials are often complementary to their spectral signatures, polarization provides additional information to analysts and researchers.

Polarization imaging has been used to identify stress and defects in aircraft assemblies; “see” into the water column in littoral and marine applications; separate specular from diffuse reflectances for material analysis and identification; and automatically detect manmade objects in natural surroundings.



**The FD-1665-P** Polarimetric/Polarization optical engine prism surfaces are fabricated with non-polarizing neutral beam splitter coatings. The first coating surface reflects 30% of the light and transmits 70%. The second coating provides a 50% transmittance and 50% reflectance. This combination results in splitting the incoming broadband light into three components with equal spectral, spatial and polarization content.

Linear polarization trim filters with >99% polarization efficiency and contrast ratio up to 3000:1 are placed in front of each CCD sensor. The filters can be oriented per customer specification. Commonly the filters are oriented at 0, 45 and 90 degrees or three equal angular spacing and cover the range 380-1000nm. The FD-1665-P polarization camera can be configured with either color or monochrome sensors for each channel.

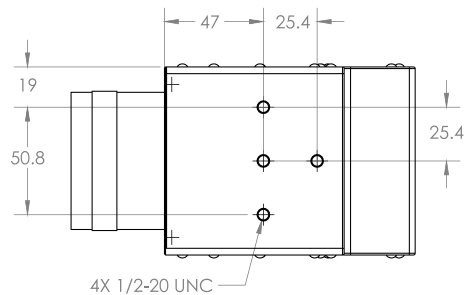
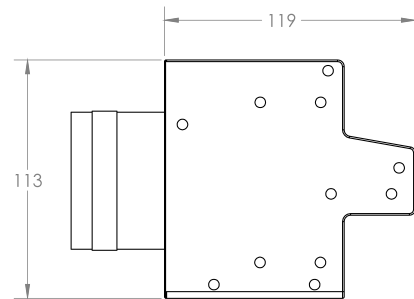
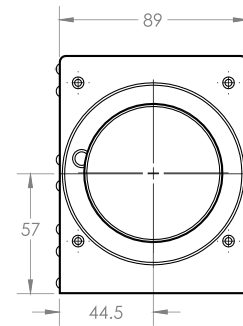
Three Firewire (1394B) or Gigabit Ethernet (GigE) outputs provide independent control of exposure, gain and readout. Each sensor's exposure can be automatically triggered simultaneously or separately via hardware or software.

# FD-1665-P SPECIFICATIONS

Image Device . . . . .	See sensor options
Sensor Size . . . . .	See sensor options
Pixel Size . . . . .	See sensor options
Pixel Depth . . . . .	12-bit ADC
Frame Rate . . . . .	See Sensor Options
Image Data Format . . . . .	Y8, Y16 (all models), RGB, YUV411, YUV422, YUV444, 8-bit and 16-bit raw Bayer data (color models)
Video Data Output . . . . .	8, 16 or 24-bit digital data
Digital Interface . . . . .	3 x IEEE-1394b (9 pin) or 3 x GigE (CAT 5)
Lens Mount . . . . .	Nikon F-Mount or T-Mount
Weight Without Lens . . . . .	2.9 lbs (1.3 kg)
Electronic Shutter . . . . .	Automatic / manual / one-push modes, programmable via software 1µsec - 65sec
Gain Selection . . . . .	0dB to 24dB in 0.04dB increments
General Purpose I/O Port . . . . .	12-pin Hirose GPIO connector
Operating Temperature . . . . .	0-40° C
Voltage Requirement . . . . .	8-32V, via the IEEE-1394b interface or Hirose 12-pin GPIO connector trigger
Power Consumption . . . . .	10 Watts

## SENSOR OPTIONS

Sensor Type	Sensor Size (HxV pixels)	Optical Size	Pixel Size (microns)	Max FSP (at full res)
Sony ICX424	659 x 494	1/3"	7.4 x 7.4	71
Micron MT9V022	752 x 480	1/3"	6.0 x 6.0	60
Sony ICX204	1034 x 779	1/3"	4.65 x 4.65	20/30
Sony ICX445	1296 x 966	1/3"	3.75 x 3.75	32
Sony ICX285	1392 x 1040	2/3"	6.45 x 6.45	17/30
Sony ICX274	1628 x 1236	1/1.8"	4.4 x 4.4	14
SUI SWIR	640 x 512	2/3"	12.5 x 12.5	30



## POLARIZATION OPTIONS

Model	Configuration
FD-1665P-C . . . . .	Color Bayer CCD's with 0, 45, 90 degree linear polarizer
FD-1665P-M . . . . .	Monochrome CCD's with 0, 45, 90 degree linear polarizers
FD-1665P-NIR . . . . .	Near Infrared Monochrome (700nm-1000nm) CCD's with 0, 45, 90 degree linear polarizer
FD-1665P-Custom . . . . .	Custom linear polarizer orientation or spectral polarimetric option (combination of multispectral filter and polarizer)



# FluxData

**FluxData, Inc. is an international leader in industrial in-line color process control and measurement.**

Fortune 100 companies trust FluxData to deliver in-line systems customized to their needs, seamlessly integrating with existing systems and manufacturing lines.

FluxData's in-line inspection equipment is used by some of the largest consumer electronics companies in the world and has resulted in dramatic reductions in costs and yield improvements.

FluxData's product line is rapidly expanding and includes customizable multispectral and polarimetric imaging systems for aerospace, industrial, medical, defense, and scientific markets.

*Our experienced team of engineers and color scientists are eager to work with you to customize our solutions to your needs. In addition to overcoming challenges specific to your application, we offer prompt and helpful support, both remote and on-site.*

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