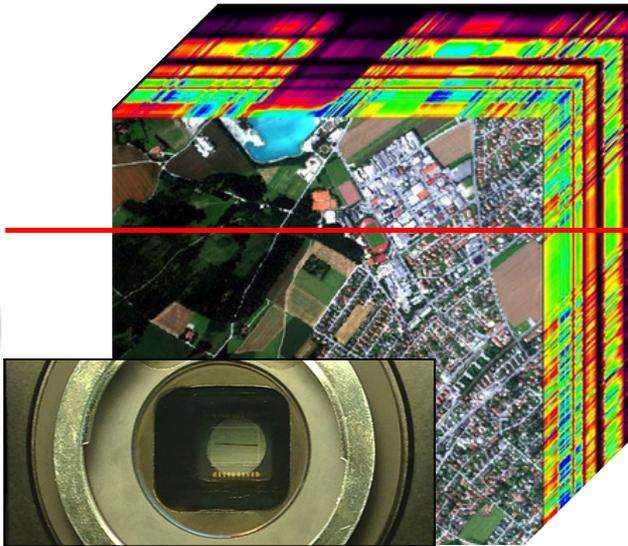


Hyperea

400-1700nm



Patent pending

Combining hyper- and multispectral imaging.

Applications

- UAV Applications
- Health care
- Food selection
- Precision agriculture
- R&D

Benefits

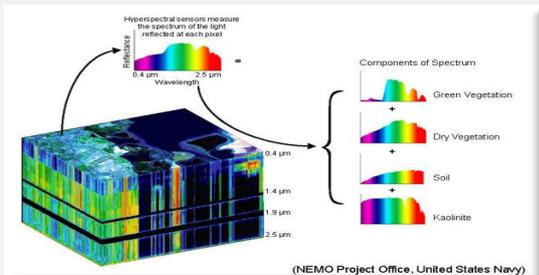
- Point and shoot imaging
- 400-1700nm in one camera
- Easy stitching of images
- Hyperspectral information on every pixel in the image
- 2D image of the hyperspectral box

Quest Innovations already presented the unique 5 channel multispectral camera. She is combining this now with the other high level remote sensing technique hyperspectral imaging.

Spectrometers will give you the full spectral fingerprint of one pixel, the first dimension. A hyper spectral camera is able to do the same with a full line, the second dimension.

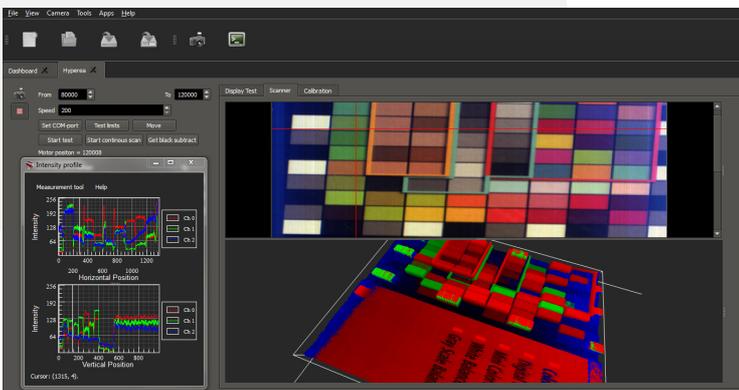
By adding the hyperspectral technique to her prism technology, Quest creates a third dimension. It shows the real image and projected on it the hyper spectral line: point and shoot!

Hyperspectral scanners give a lot of information. The problem is that the observer does not see at first glance what he is actually looking at. By locking the hyperspectral line to the 2D spatial image the observer always knows where the hyperspectral information is coming from.



Hyperspectral cube: every pixels shows the whole spectrum

Stitching hyperspectral images coming from an unstable UAV is next to impossible. Doing this with 2D images is a standard procedure. Since Hyperea's 2D images are 100% correlated with the hyperspectral information, they are stitched perfectly in the same procedure.

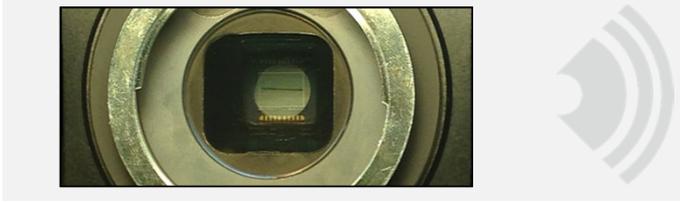


Hyperea is fully supported in the Quest' Architector software

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Features

The Hyperea comes in several different configurations: the Hyperea 660 line and the Hyperea 128 line.

Both are available as a single line hyperspectral camera and both can be build out with one or two 2D spatial sensors resulting in the following options:

Configurations can be build in an unfolded tube form, making it long and slim or in a folded version.

In the folded version the tube will be reshaped to a 'U', resulting in a more compact camera.

Hyperea 660

Hyperea 660 uses high resolution sCMOS sensors and can be outfitted with either GigE Vision or Camera Link interfaces.

The hyperspectral channel measures at 0.1 to 3nm per pixel, achieving 660 bands.

The hyperspectral channel can be supplemented with one or two 1280*1024 sCMOS sensors also operating at 11 or 22 bit.

Form the beginning of 2015 the third channel can also be outfitted with a SWIR sensor, realizing a Hyperea version with a continuum from 400-1700nm.

Hyperea 128

Hyperea 128 also uses a sCMOS sensors and can be outfitted with either GigE Vision or Camera Link interfaces. The frame rate depends on the bit depth, the number of channels (sensors) on the camera and the interface used.

The hyperspectral channel does 3-5nm per pixel, achieving 128 bands.

The hyperspectral channel can supplemented with one or two 640*512 sCMOS sensors operating at 11 bit.

Overview

	Hyper 400- 1000nm	RGB	Mono chrome
Hyperea 660 C1	660 bands		
Hyperea 660 C2	660 bands	1280x1024	
Hyperea 660 C3	660 bands	1280x1024	1280x1024

Overview

	Hyper 400- 1000nm	RGB	Mono chrome
Hyperea 128 C1	128 bands		
Hyperea 128 C2	128 bands	640x512	
Hyperea 128 C3	128 bands	640x512	640x512



The Condor¹⁻³ Hyperea 660 & 128



Specifications 660

Sensor	sCMOS
Active area	14.32 mm diagonal
Pixel size	6.5 um x 6.5 um
Pixel clock	280 Mhz (full sensor speed).
Active pixels 2D	1280*1024
<i>Active pixels Hyperspectral</i>	<i>1024 * 1</i>
Frame rate	max 50 Fps full resolution / line rate 50 Lps
Alignment accuracy	100% co registration with C 2
S/N Ratio	>88 dB
Full well	30.000 e-
Peak QE	55% at 600 nm
Dark current	35e-/pixel/sec
Read noise	1.2 e- RMS (Rolling shutter) tbd (Global shutter)
Sensitivity 2D	400-1000 nm/pixel
<i>Sensitivity Hypersectral</i>	<i>Average 1,55 pixels/nm (660 bands) Blue 0,1-, IR 3 pixels/nm</i>
System F/N 2D	1
<i>System F/N Hyperspectral</i>	<i>5</i>
Bit depths	11 or 22 bit.
Video output	Camera Link B/M/F
Trigger modes	Internal and external source (on Camera Link and Hirose connectors)
Synchronization	Synchronization sequenced with C2, based on trigger/sync setup
Electronic shutter	Global and Rolling shutter
Control interface	All commands through Camera Link serial interface
Lookup tables	Lookup tables available in 8bit mode, full access to table entries. Table data programmed in flash memory (on request)
External control capability *)Selectable per channel	Exposure, lookup tables, region of interest, image bit depth, trigger source, binning
Weight	C1: 1250 grams / C2 and C3: 1650 grams
Dimensions tube (unfolded)	C1: 60x60x260/ C2 and C3: 80x100x300
Lens mount options	M42 / F-mount
Operating temperature	-20 - +50 °C
Regulations	CE (EN 61000-6-2 EN 61000-6-3), FCC Part 15 class B, RoHS/WEE
Back focal length	≥ 65.5 mm in air
Power	18-24V DC +/-10%, 8W
Humidity	20-90% Non condensing

Specifications 128

Sensor	sCMOS
Active area	14.32 mm diagonal
Pixel size	6.5 um x 6.5 um
Pixel clock	280 Mhz (full sensor speed).
Active pixels 2D	1280*1024
<i>Active pixels Hyperspectral</i>	<i>1024 * 1</i>
Frame rate	max 50 Fps full resolution / line rate 50 Lps
Alignment accuracy	100% co registration with C 2
S/N Ratio	>88 dB
Full well	30.000 e-
Peak QE	55% at 600 nm
Dark current	35e-/pixel/sec
Read noise	1.2 e- RMS (Rolling shutter) tbd (Global shutter)
Sensitivity 2D	400-1000 nm/pixel
<i>Sensitivity Hypersectral</i>	<i>Average 8 pixels/nm (128 bands)</i>
System F/N 2D	1
<i>System F/N Hyperspectral</i>	<i>5</i>
Bit depths	11 bit.
Video output	Camera Link B/M/F
Trigger modes	Internal and external source (on Camera Link and Hirose connectors)
Synchronization	Synchronization sequenced with C2, based on trigger/sync setup
Electronic shutter	Global and Rolling shutter
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