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# REDEYE

## NIR Hyperspectral Imaging Camera

The **RedEye** is a linescan (pushbroom) hyperspectral imaging camera in the near-infrared (NIR) spectral range (950 – 1700 nm or 1200 – 2200 nm) that allows the acquisition of real-time data with high spectral and spatial resolution.

This new approach of material characterization yields in a combination of chemical and spatial information, i.e. in a map of variations. It therefore enables comprehensive analysis possibilities for both laboratory as well as manufacturing processes in numerous applications.

Combining superior optical design with advanced 3-D transmission grating technology, fast FPA detector and high-end electronics, the **RedEye** camera brings an outstanding performance even under harsh environmental conditions.

Furthermore, depending on the measured object dimensions and its properties, various camera lenses (fore optics) can be chosen for the optimal image quality.

To meet different user demands, multiple software packages are available: from hardware drivers, through laboratory software up to fully automated real-time programs for rapid data acquisition, evaluation and process control.



### Features:

- Transmission grating configuration for superior sensitivity
- High spatial and spectral resolution
- High frame rate
- Excellent imaging performance
- Robust design without moving parts



## Technical Specifications:

### RedEye 1.7

### RedEye 2.2

#### Spectrograph

Spectral range	typ. 950 – 1700 nm	typ. 1200 – 2200 nm
Dispersion	106 nm/mm	140 nm/mm
Spectral resolution	10 nm (with 80 µm slit)	13 nm (with 80 µm slit)
Spatial resolution	rms spot radius < 35 µm	rms spot radius < 85 µm
Smile	< 60 µm	< 75 µm
Keystone	< 50 µm	< 25 µm
F-number	2,6	2,6
Slit width, default	80µm (others on request)	80µm (others on request)

#### Electronics

Sensor	InGaAs	InGaAs
Pixels in full frame	320 x 256	320 x 256
Pixel size	30 x 30 µm	30 x 30 µm
Bit depth	14 bit	14 bit
Frame rate	330 fps full resolution	330 fps full resolution
Data interface	Gigabit Ethernet	Gigabit Ethernet
Camera control	RS 485	RS 485
Power consumption	< 9W	< 9W
Power supply	24 V/10 A DC	24 V/10 A DC
Cooling	1-Stage TEC	2-Stage TEC

#### Operating Conditions

Temperature (operating)	-5 °C - +40 °C	-5 °C - +40 °C
Temperature (storage)	-10 °C - +50 °C	-10 °C - +50 °C

#### Mechanics

Dimensions l x w x h	400 x 184 x 180 mm
Weight	7 kg
Lens mount	Standard C-mount

Optionally, by replacing the input optics with a multifiber cable, the **RedEye** can be used as a synchronous multipoint, multichannel spectrometer.

As a well established manufacturer of spectroscopic measurement equipment, **inno-spec** provides optimized solutions for any individual applications: from customized OEM components for system suppliers up to fully integrated turnkey solutions for the end-customers.

## Accessories:

- Tungsten halogen light sources in modular sizes
- Various mounting accessories
- Different fore optics: 8 mm, 16 mm, 25 mm, 35 mm, 50 mm
- Numerous software packages
- Multifiber cable (up to 66 channels)