ELSE^s

Full-Frame Deep Cooling Scientific CCD Camera for Spectroscopy Applications
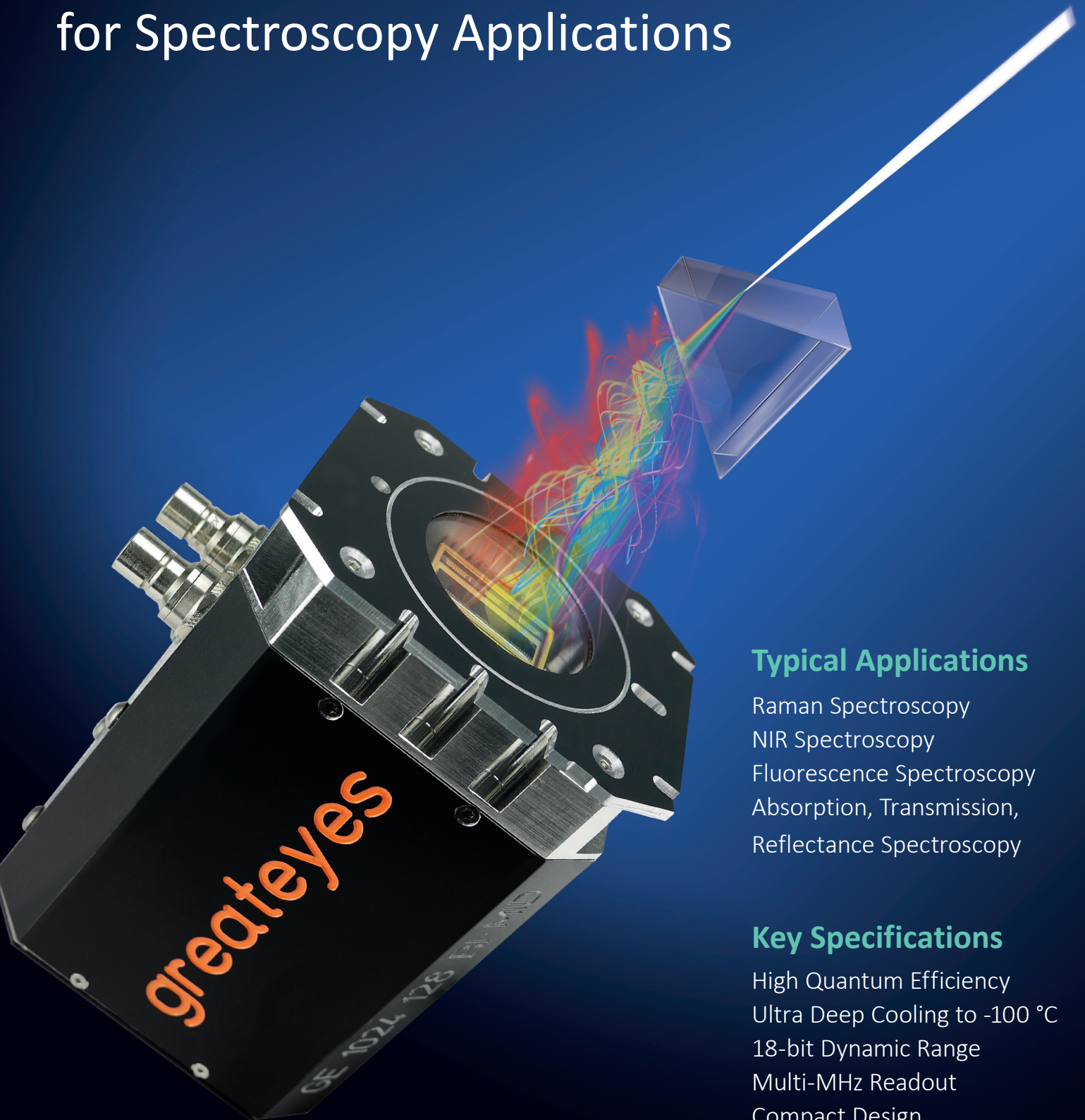
Typical Applications

Raman Spectroscopy
NIR Spectroscopy
Fluorescence Spectroscopy
Absorption, Transmission,
Reflectance Spectroscopy

Key Specifications

High Quantum Efficiency
Ultra Deep Cooling to -100 °C
18-bit Dynamic Range
Multi-MHz Readout
Compact Design

ELSE ᔆ

THE GOLDEN CHILD
of LOW NOISE CCD CAMERAS

Straight out of Berlin comes ELSE, greateyes' new platform for your spectroscopy and imaging applications in the UV-VIS-NIR range. ELSE integrates cutting-edge low-noise electronics and ultra-deep cooling technology while keeping a compact camera design. Multiple readout speeds can be selected supporting pixel rates from 50 kHz up to 5 MHz. True 18-bit AD conversion allows to exploit the full dynamic range of the CCD sensor for highest performance and SNR. Choose from a wide range of sensors to find the best match with your requirements. ELSE is ideally suited for detection of very weak signal intensities where a low-noise floor is paramount. ELSE offers unprecedented possibilities for your measurements of tomorrow.
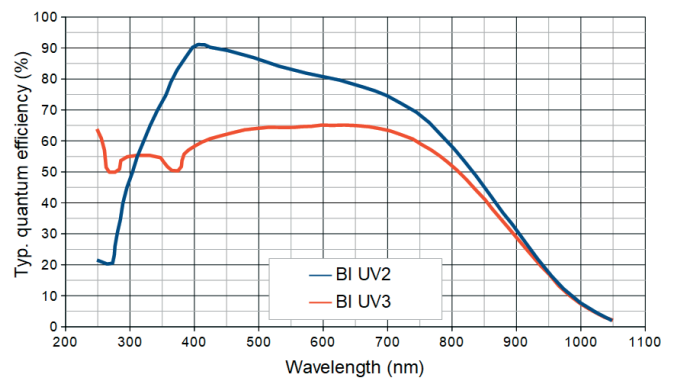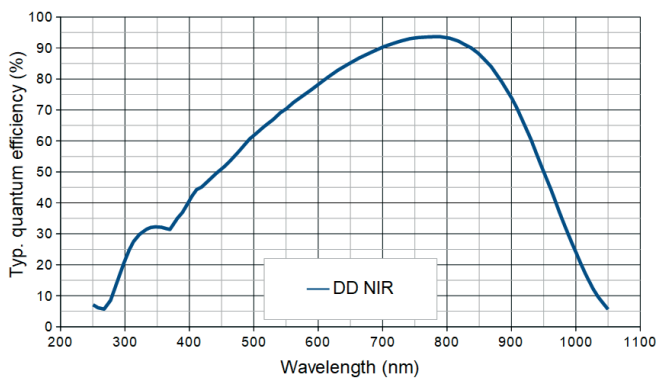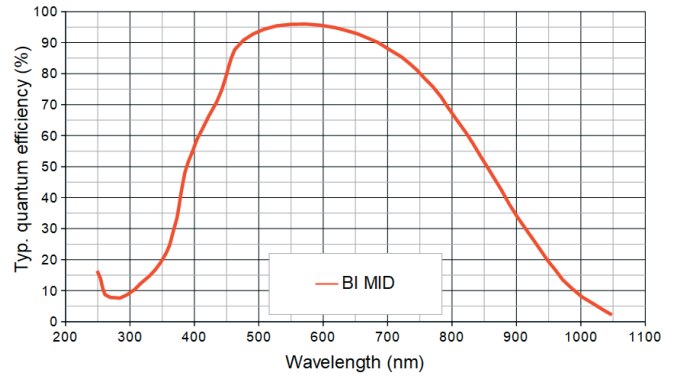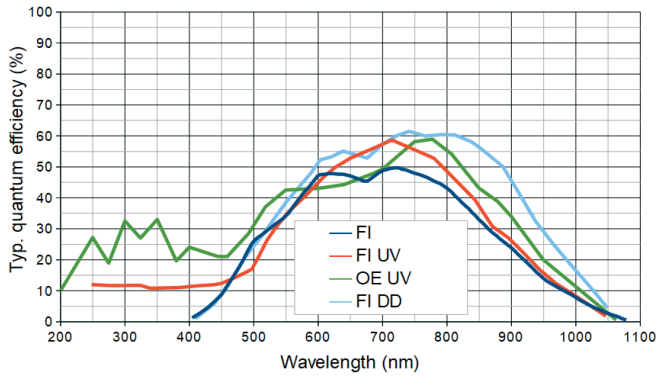
Features & Benefits

- **Ultra deep TE cooling to -100 °C**
  lowest dark current for better detection limit

- **Hermetic vacuum seal**
  low camera maintenance and sensor protection

- **GigE & USB 3.0 data interface**
  local or remote network operation – your choice!

- **Multiple sensor options**
  UV, VIS or NIR coatings for different sensor formats

- **High QE up to 98%**
  very sensitive sensors for low light applications

- **User selectable gain**
  balance your detector for best SNR and dynamic range

- **Fast readout speeds up to 5 MHz**
  fast frame rates paired with low-noise electronics

- **Flexible software options**
  camera software and SDKs available

Common specifications

Pixel readout frequency	50 kHz, 250kHz, 1 MHz, 3 MHz (5 MHz for visualization mode; up to 6 speeds)
AD converter resolution	18-bit
Linearity	Better than 99%
Window material	MgF_2 or UVFS for UV sensitive models, otherwise BK7
Distance flange - focal plane	10.0 mm
CCD sensor cooling	-100°C to 20°C, forced air or liquid cooling
Temperature monitoring	Two thermistors at CCD sensor and thermoelectric cooler (hot side)
Data link	Gigabit Ethernet, USB 3.0
Software	greateyes Vision software for Windows 7 / 10
SDK and drivers	DLL for Windows; LabVIEW, EPICS, Linux driver (optional)
TTL interface signals	Exposure out, shutter out, external trigger in
Operating conditions	Temperature: 0°C to 35°C ambient, relative humidity <80% (non-condensing)
Power supply	80-264 VAC (115/230 VAC typical), 47-63 Hz (50/60 Hz typical), max. 1.1 A (230 VAC), 1.9 A (115 VAC)
Certification	CE
Dimensions	8.3 cm (3.27″) × 10.0 cm (3.94″) × 13.1 cm (5.16″) (W × H × L)
Weight	1 800 g

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THE EYE CAN'T SEE

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The golden statue of Victoria upon the Berlin Victory Column has been given the nickname "Else" by Berliners.

Step 1: Choose your camera model

	ELSE 1024 128	ELSE 1024 256	ELSE 2048 512
Enhanced UV sensitivity		OE UV BI UV2, BI UV3	FI UV BI UV2, BI UV3
Enhanced VIS sensitivity	BI MID	FI BI MID	FI BI MID
Enhanced NIR sensitivity	DD NIR	FI DD DD NIR	
Nominal pixel format	1024 × 128	1024 × 256	2048 × 512
Image area	26.6 mm × 3.3 mm	26.6 mm × 6.7 mm	27.6 mm × 6.9 mm
Pixel size	26 µm × 26 µm		13.5 µm × 13.5 µm
Full well capacity	500 ke$^-$ / 700 ke$^-$ (DD)		100 ke$^-$
Register well capacity	1 000 ke$^-$ / 1 400 ke$^-$ (DD)		400 ke$^-$
Dark current @ -100°C	0.0004 e$^-$/pixel/s 0.005 e$^-$/pixel/s (DD)		0.00025 e$^-$/pixel/s

Typ. read noise (e$^-$)	BI / DD	FI	BI	DD	FI / BI
@ 50 kHz	5.5	4.2	6.0	5.7	3.5
@ 1 MHz	13.1	12.0	13.1	12.3	7.2
@ 3 MHz	23.0	22.0	23.0	22.5	11.3

User selectable gain	0.3 counts/e$^-$ (low noise mode)		0.4 counts/e$^-$ (high capacity) 1.2 counts/e$^-$ (low noise)
CCD sensor type	Front-illuminated (FI), back-illuminated (BI), deep depletion fringe suppression (DD), open-electrode (OE)		
Antireflective coating	UV (UV2, UV3), midband (MID), multiband (MU2), near-infrared (NIR)		
Blemish specifications	Grade 0 or grade 1 (standard) as specified by sensor manufacturer. For more information, please see: https://www.greateyes.de/en/glossar.html		

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Step 2: Choose your accessories and software

| Order code	Description
A) Accessories for imaging purposes	
GE-M42	M42 lens adapter (integrated filter holder optional)
GE-FM01	F-mount lens adapter (integrated filter holder optional)
GE-SR35	35mm shutter, including shutter driver module
B) Accessories for enhanced cooling performance	
GE-CR01	Compact recirculator operating at room temperature for deep camera cooling
GE-CR02	Recirculating water chiller, temperature range -5°C to 30°C for ultra-deep camera cooling
C) Software development kit (SDK) and drivers	
GE-LAB01	LabVIEW driver
GE-EP	EPICS driver
GE-LX01	Linux driver

Step 3: Flexible customisation service

With direct and fast response, we provide various customisations and OEM services. For example, the alteration of sensor position/tilt, the modification of camera housing or cooling system, etc. Let us know what ELSE you require.

TECHNICAL DRAWINGS
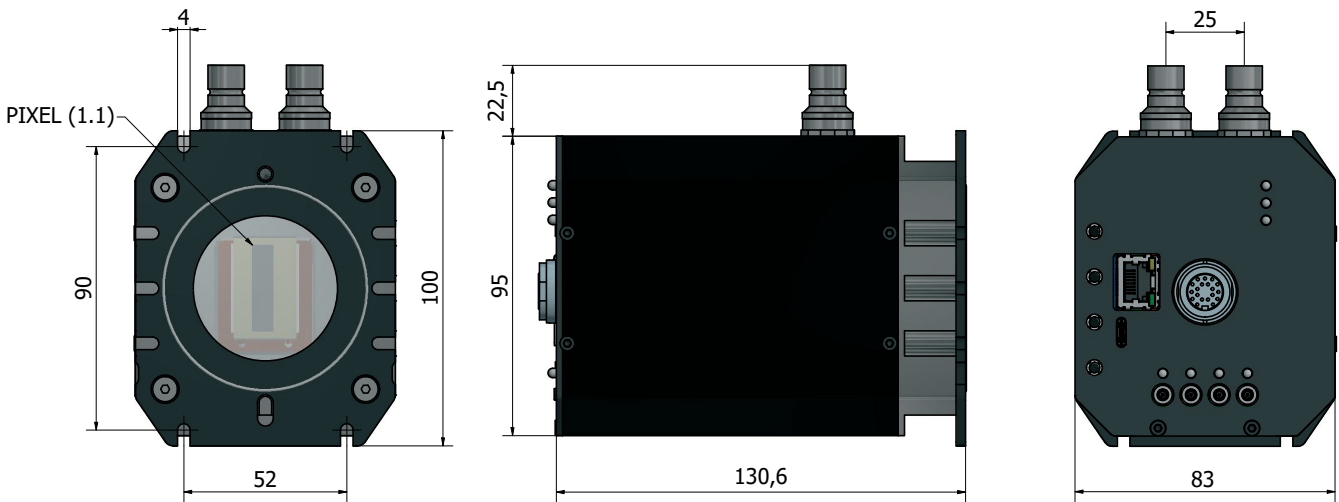
Items included with your camera

GE-VI01	greateyes Vision software suite for Windows
GE-SDK01	SDK for Windows (based on C/C++)
GE-USB5m3	5m USB 3.0 cable type A to type C
GE-GigE5m	5m Ethernet cable
GE-StoB2m	2m SMB to BNC connection cable
GE-POW01	Camera power supply with cabling
GE-ManCam	Camera instruction manual

请联系我们

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