greateyes
EXPAND YOUR VISION

HIGH PERFORMANCE
SPECTROSCOPY CAMERAS



ELSEs

KEY SPECIFICATIONS

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

Full-Frame Deep Cooling Scientific CCD Camera for Spectroscopy Applications

HIGH RESOLUTION
UP TO
16.8
MEGAPIXEL
HIGH RESOLUTION

UV
VIS
NIR

Straight out of Berlin comes **ELSE**, greateyes' new platform for your spectroscopy applications in the UV - VIS - NIR range.

ELSE integrates cutting-edge low-noise electronics and ultra-deep cooling technology whilst 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 users 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.

TYPICAL APPLICATIONS

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

www.greateyes.de

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ELSEs





The golden child of low noise CCD cameras

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

FEATURES & BENEFITS

Ultra deep TE cooling down 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, 250 kHz, 1 MHz, 3 MHz (5 MHz for visualisation mode)
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 11
SDK and drivers	DLL for Windows; LabVIEW, EPICS, Linux, Python, Tango driver (optional)
TTL interface signals	Exposure out, shutter out, 2 external trigger in
Operating conditions	Temperature: 0°C to 35°C ambient, relative humidity <80% (non-condensing)
Power supply	80-264 VAC (115/230 typical), 47-63 Hz (50/60 typical), max. 1.1 A (230 VAC), 1.9 A (115 VAC)
Certification	CE
Dimensions (W x H x L)	8.3 cm x 10.0 cm x 13.1 cm (3.27" x 3.94" x 5.16")
Weight	2.2 kg

Included with your camera

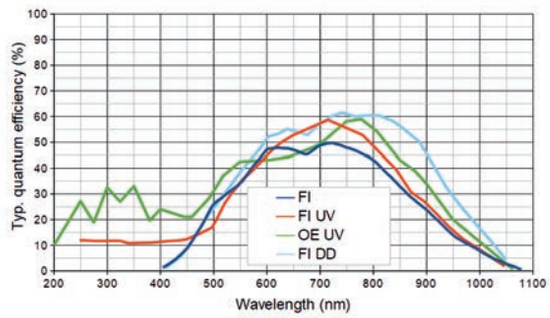
GE-VI01	greateyes Vision software suite for Windows
GE-SDK01	SDK for Windows (C/C++ based)
GE-USB3m3	3m USB 3.0 cable type A to type C
GE-GigE10m	10m Ethernet cable
GE-StoB2m	2m SMB to BNC connection cable x2
GE-POW01	Camera power supply with cabling
GE-ManCam	Camera instruction manual

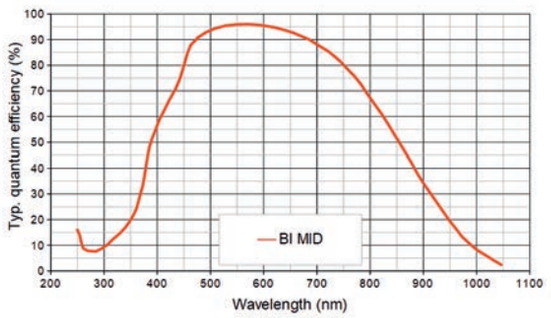
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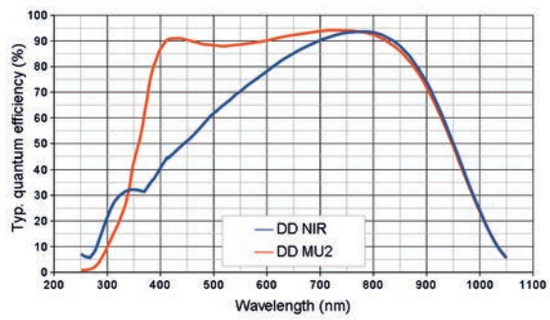
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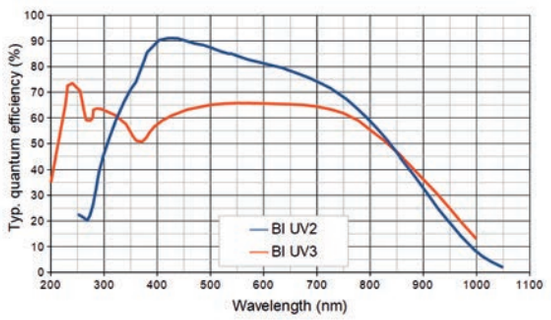
ELSEs

HIGH PERFORMANCE SPECTROSCOPY CAMERAS









STEP 1: Choose your camera model

ELSEs Series	ELSEs 1k128	ELSEs 1k256			ELSEs 2k256	ELSEs 2k512
Enhanced UV sensitivity		**OE UV BI UV2 BI UV3**				**FI UV BI UV2 BI UV3**
Enhanced VIS sensitivity	**FI BI MID**	**FI BI MID**			**FI**	**FI BI MID**
Enhanced NIR sensitivity	**DD NIR**	**FI DD DD NIR DD MU2**			**DD NIR**	
Usable pixels (columns x rows)	1024 x 127	1024 x 255			2048 x 264	2048 x 515
Active image area	26.6 mm x 3.3 mm	26.6 mm x 6.7 mm			30.7 mm x 3.9 mm	27.6 mm x 6.9 mm
Pixel size	26 µm x 26 µm				15 µm x 15 µm	13.5 µm x 13.5 µm
Full well capacity	300 ke$^-$ (OE UV) / 500 ke$^-$ / 700 ke$^-$ (DD)				75 ke$^-$	100 ke$^-$
Register well capacity	1 000 ke$^-$ / 1 400 ke$^-$ (DD)				650 ke$^-$	400 ke$^-$
Dark Current @ -100°C	0.0004 e$^-$/pixels/s 0.005 e$^-$/pixels/s (DD)				0.0006 e$^-$/pixels/s	0.00025 e$^-$/pixels/s
Typical read noise (e$^-$)		**FI**	**BI**	**DD**		
@ 50 kHz	5.5	4.2	6.0	5.4	3.7	3.5
@ 1 MHz	12.5	12.0	13.1	12.3	7.0	6.8
@ 3 MHz	26.0	25.0	26.0	25.0	12.1	10.7
Gain:						
Standard Mode	0.4 counts/e$^-$	0.4 counts/e$^-$			1.5 counts/e$^-$	1 counts/e$^-$
High Capacity Mode	-	-			-	0.34 counts/e$^-$
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: www.greateyes.de/en/glossar.html					

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USB 3.0 Gigabit Ethernet spec EPICS Linux python powered

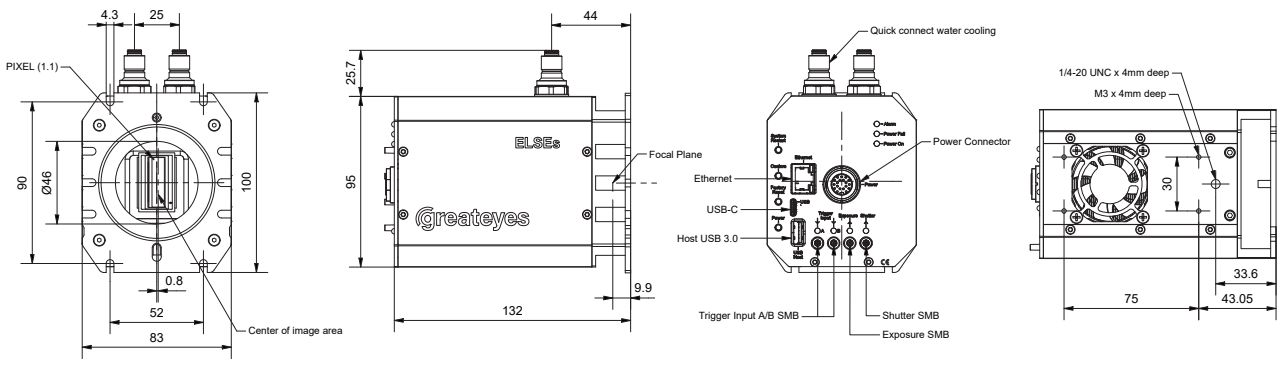
STEP 2: Choose your accessories and software

Order Code	Description
Accessories for Imaging Purposes	
GE-FM02	F-mount lens adaptor (integrated filter holder optional)
EL-SR45	45mm shutter, including shutter driver module
Accessories for Enhanced Cooling Performance	
GE-CR01	Compact liquid cooling, circulating the coolant at room temperature for deep camera cooling
GE-CR02	Recirculating water chiller, PID control with temp. from -5°C to 30°C for ultra-deep camera cooling
Software Development Kit (SDK) and Drivers	
GE-LX01	SDK for Linux (C/C++ based)
GE-PYT01	Python driver
GE-LAB01	LabVIEW driver
GE-EP	EPICS driver
GE-TAN	Tango 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



FRONT VIEW | SIDE VIEW | REAR VIEW | BOTTOM VIEW

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DS-ELSEs / Rev07 / Sep2026

PRECISOMETER
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Product selection, configuration & integration support

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Explore products & discuss your experiment