

**DATA SHEET:**

GE 1024 1024 series

GE 1024 256 series

GE 2048 512 series

**SPECTRAL RANGES:**

Ultraviolet (UV)

Visible (VIS)

Near-infrared (NIR)

**GE 1024 1024 series**

1056 × 1027 pixels

13.3 mm × 13.3 mm image area

13 μm × 13 μm pixel size

**GE 1024 256 series**

1024 × 256 pixels

26.6 mm × 6.7 mm image area

26 μm × 26 μm pixel size

**GE 2048 512 series**

2048 × 515 pixels

27.6 mm × 6.9 mm image area

13.5 μm × 13.5 μm pixel size

Based on a unique platform concept, greateyes offers a portfolio of about 20 scientific cameras for imaging and spectroscopy in the UV, VIS and NIR range. The deep cooled, high performance CCD detectors have the most compact design available. They combine highly sensitive sensors with ultra low noise electronics for optimal detection of weak signals. Select among different pixel formats, several sensor technologies and various coatings to find the best solution for your imaging or spectroscopic application.

The full-frame CCD sensors are integrated in hermetically sealed vacuum chambers with single optical windows. Deep cooling of the sensor is achieved by means of multi-stage thermoelectric peltier elements. The cameras are equipped with a rich set of functionalities including flexible binning operation, various trigger and synchronisation modes, software adjustable gain settings as well as temperature monitoring of the sensor and the heat radiation system.

**Key features**

Compact size	Flexible binning modes	Quantum efficiency up to 98%
Full well capacity up to 700 ke <sup>-</sup>	Software adjustable gain setting	Deep cooling down to -60°C
Read noise: min. 2.4 e <sup>-</sup>	Temperature monitoring	max. 18 bit dynamic range
Portfolio of about 20 different models	Patented single window design	greateyes Vision software included
SDK & LabVIEW and EPICS drivers	Ext. trigger, shutter, sync signals	Water and forced air cooling

## SPECIFICATIONS

### Model specifications

	GE 1024 1024 series	GE 1024 256 series	GE 2048 512 series
Pixel format	1056 × 1027	1024 × 256	2048 × 515
Image area	13.3 mm × 13.3 mm	26.6 mm × 6.7 mm	27.6 mm × 6.9 mm
Pixel size	13 μm × 13 μm	26 μm × 26 μm	13.5 μm × 13.5 μm
Full well capacity	100 ke <sup>-</sup> 120 ke <sup>-</sup> (for DD models)	500 ke <sup>-</sup> 700 ke <sup>-</sup> (for DD models)	100 ke <sup>-</sup>
Register well capacity	150 ke <sup>-</sup>	1 000 ke <sup>-</sup>	150 ke <sup>-</sup>
Dark current @ -80°C	0.0003 e <sup>-</sup> /pixel/s 0.017 e <sup>-</sup> /pixel/s (for DD)	0.0005 e <sup>-</sup> /pixel/s 0.08 e <sup>-</sup> /pixel/s (for DD)	0.0003 e <sup>-</sup> /pixel/s
Gain	1 counts/e <sup>-</sup> (high) 0.4 counts/e <sup>-</sup> (low)	1 counts/e <sup>-</sup> (high) 0.2 counts/e <sup>-</sup> (low)	1 counts/e <sup>-</sup> (high) 0.4 counts/e <sup>-</sup> (low)
Max. dynamic range	50 000:1	125 000:1	33 333:1
CCD sensor type	Front-illuminated (FI), back-illuminated (BI), deep depletion fringe suppression (DD), open-electrode (OE)		
Sensor coating	Antireflective UV (UV1, UV2, UV3), broadband (BR), midband (MID), multiband (MU2) or near-infrared (NIR) coating		
Blemish specifications	Grade 0 or grade 1 (standard) as specified by sensor manufacturer		

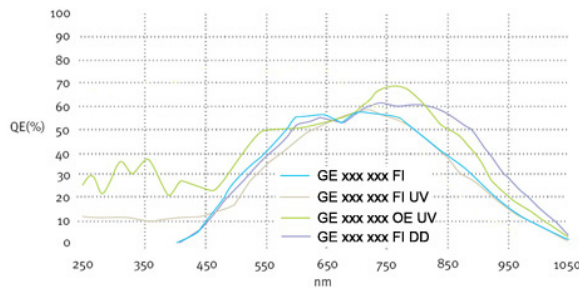
### Common specifications

Pixel readout frequency	500 kHz - 3 MHz
AD converter resolution	16 bit, 18 bit optional
Read noise at 500kHz	min: 2.4 e <sup>-</sup> rms, typical: 4 e <sup>-</sup> rms
Linearity	better than 99%
Vertical shift speed	software selectable max. 100 μs/row
Window material	MgF <sub>2</sub> or UVFS for UV sensitive models, otherwise BK7
Distance flange - focal plane	10.0 mm
CCD sensor cooling	min. -60°C to 20°C, forced air or water cooling
Temperature monitoring	CCD sensor and thermoelectric cooler (hot side)
Data link	USB, Gigabit-Ethernet
Software	greateyes Vision software for Windows XP / Vista / 7 / 10
SDK and drivers	DLL for Windows XP / Vista / 7 / 10; LabVIEW, EPICS, Linux driver
TTL interface signals	Sync out, shutter out, external trigger in
Operating conditions	temperature: 0°C to 30°C ambient, relative humidity <70% (non condensing)
Power supply	110-240 VAC, 50 Hz - 60 Hz, max. 1 A
Certification	CE
Dimensions	6.2 cm (2.44") × 10.0 cm (3.94") × 13.0 cm (5.12") (W × H × L)
Weight	1 300 g

### STEP 1: Choose camera model by order code

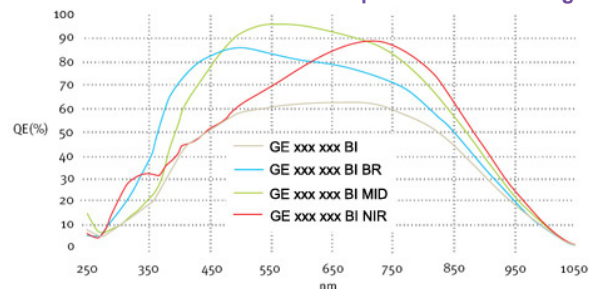
	GE 1024 1024 series	GE 1024 256 series	GE 2048 512 series
Enhanced UV sensitivity	GE 1024 1024 BI UV3	GE 1024 256 OE UV GE 1024 256 BI UV2 GE 1024 256 BI UV3	GE 2048 512 FI UV GE 2048 512 BI UV2 GE 2048 512 BI UV3
Enhanced VIS sensitivity	GE 1024 1024 FI GE 1024 1024 BI BR GE 1024 1024 BI MID	GE 1024 256 FI GE 1024 256 BI MID	GE 2048 512 FI GE 2048 512 BI MID
Enhanced NIR sensitivity	GE 1024 1024 DD NIR GE 1024 1024 DD MU2	GE 1024 256 DD NIR GE 1024 256 DD MU2 GE 1024 256 FI DD	

Basic front-illuminated CCD sensors



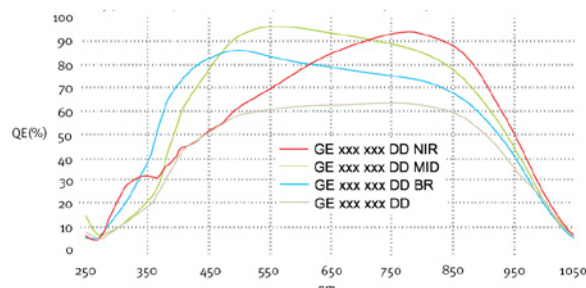
The QE Curves are taken from the e2V data sheets.

Back-illuminated CCD sensors optimized for VIS range



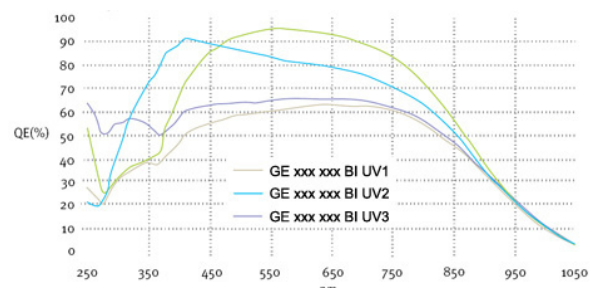
The QE Curves are taken from the e2V data sheets.

Deep-depletion, NIMO CCD sensors for NIR range



The QE Curves are taken from the e2V data sheets.

Enhanced back-illuminated CCD sensors for UV range



The QE Curves are taken from the e2V data sheets.

### STEP 2: Select accessories and software by order code

Order code	Description
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A) Subpixel resolution enhancement

<b>New</b> GE-S xxx xxx series	Increased spatial resolution (See scientific superresolution camera data sheet for details)
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B) Accessories for imaging purposes

GE-CM01	C-Mount lens adapter
GE-M42	M42 lens adapter with integrated filter and electronic shutter holder (optional)
GE-FA	F-mount lens adapter with integrated filter and electronic shutter holder (optional)
GE-DR01	Electronic shutter driver
	Please ask for specific objectives based on your requirements.

C) 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

D) Software development kit (SDK) and drivers

GE-SDK01	SDK for Windows compatible with C/C++, Delphi, LabVIEW
GE-LAB01	LabVIEW driver
GE-EP	EPICS driver
GE-LX01	Linux driver

### STEP 3: For customisation of the camera please tell us about your requirements.

