pcoultraviolet
digital 14 bit CCD camera

- Resolution: 1.4 megapixel
- Housing: Ultra compact design
- Scientific application: Superior flat field
- UV quantum efficiency: 40%
- Low noise: 8 electrons
### Technical Data

#### Image Sensor
- **Image Sensor**: Interline CCD
- **Resolution (h x v)**: 1392 x 1040 pixel (normal)
  - 800 x 600 (center ROI)
- **Pixel Size (h x v)**: 4.65 µm x 4.65 µm
- **Sensor Format / Diagonal**: 1/2” / 8 mm
- **Shutter Mode**: Global (snapshot)
- **MTF**: 107 lp/mm (theoretical)
- **Fullwell Capacity**: 14 000 e- 
  - 24 000 e- (binning)
- **Readout Noise**: 7 .. 9 e- rms 1
- **Dynamic Range**: 1 750 : 1 (65 dB)
  - 3 000 : 1 (69.5 dB) binning
- **Quantum Efficiency**: 40 % @ 193 nm
- **Spectral Range**: 190 nm .. 1100 nm
- **Dark Current**: 2 e-/pixel/s @ 25 °C
- **DSNU**: 2 e- rms
- **PRNU**: < 1 %

#### Camera
- **Max. Frame Rate**: 7.3 fps (12 MHz, normal)
  - 11.7 fps (12 MHz, center)
- **Exposure/Shutter Time**: 1 µs .. 60 s
- **Dynamic Range A/D**: 14 bit
  - 0.8 e- /count
  - 1.4 e- /count (binning)
- **Pixel Scan Rate**: 12 MHz
- **Binning (Hor x Ver)**: 1 x 1 .. 4 x 4
- **Non Linearity**: < 1 %
- **Smear**: < 0.005 %
- **Anti-Blooming Factor**: > 200 (standard 100 ms exposure)
- **Interframing Time**: < 1 µs
- **Trigger Input Signals**: Software / TTL level
- **Trigger Output Signals**: 3.3 V LV TTL level
- **Data Interface**: USB 2.0

#### General
- **Power Supply**: 9 .. 28 VDC (12 VDC typ.)
- **Power Consumption**: < 3 W
- **Weight**: 0.35 kg
- **Operating Temperature**: +10 °C .. +35 °C
- **Operating Humidity Range**: 10 % .. 80 % (non-condensing)
- **Storage Temperature Range**: -20 °C .. +70 °C
- **Optical Interface**: C-mount
- **CE Certified**: Yes

#### Frame Rate Table

<table>
<thead>
<tr>
<th>Resolution</th>
<th>Normal</th>
<th>Center</th>
</tr>
</thead>
<tbody>
<tr>
<td>1392 x 1040</td>
<td>7.3 fps</td>
<td></td>
</tr>
<tr>
<td>800 x 600</td>
<td>11.7 fps</td>
<td>11.7 fps</td>
</tr>
<tr>
<td>v2 Binning</td>
<td>14.7 fps</td>
<td>21.8 fps</td>
</tr>
<tr>
<td>v4 Binning</td>
<td>27.0 fps</td>
<td>35.7 fps</td>
</tr>
</tbody>
</table>

#### Quantum Efficiency

**Monochrome**

![Quantum Efficiency Graph](image)

1. for operating environment up to 27°C
2. temperature of CCD sensor element
3. dark signal non-uniformity measured in a 90% center zone of the image sensor
4. photo response non-uniformity
5. time between two consecutive images for particle image velocimetry (PIV) applications
technical data

software
For camera control, image acquisition and archiving of images in various file formats PCO provides the software application Camware (Windows XP, 7 and 8).

A camera SDK (software development kit) including a 32 / 64 bit dynamic link library for user customization and integration on PC platforms is available for free.

For a list of third party software supported, please visit www.pco.de

dimensions

All dimensions are given in millimeter.

camera views

Further information can be found on www.pco.de
applications

high voltage technology

Life science

High voltage discharge between gas insulated (SF6 gas) conduits. With friendly permission of: Laboratory of High Voltage Engineering and Switchgear Technology, Technische Universität München, Munich, Germany www.hsa.ei.tum.de

UV light excited fluorescent symbionts zooxanthellae in Stylophera corals

Corona discharge in air at the terminal of a transformer at 163 kV. With friendly permission of: Laboratory of High Voltage Engineering and Switchgear Technology, Technische Universität München, Munich, Germany www.hsa.ei.tum.de

application areas

- UV detection
- Hyper spectral imaging
- Wafer inspection
- Mask inspection
- Scientific imaging
- Low light level imaging
- Combustion imaging
- High resolution microscopy
- Machine vision
- Industrial applications
- Spectroscopy
- Industrial OEM applications
- Material testing
- Luminescence spectroscopy

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