

**New**

# CCD-4000F

**4 MPixel High Resolution High Speed  
Progressive-Scan CCD Camera**



## Features

- 2048 (H) x 2048 (V) square pixels
- 15 frames/sec. at 2048 (H) x 2048 (V) pixels or 25 frames/sec. at 2048 (H) x 1024 (V) pixels
- Progressive scan
- Interline-transfer sensor (IT)
- Asynchronous shutter up to 1/10000 sec. (image on demand)
- Digital output with 8-bit (Camera Link or Gigabit Ethernet)
- Single output (80 Mpixels/sec.)
- Very compact design

**VDS Vosskuhler**

With a resolution of 2048 x 2048 effective pixels, the **CCD-4000** is a further member of the VDS high resolution high fidelity CCD camera family.

The **CCD-4000** gives out the full resolution with 15 fps. In the binning mode 2048 (H) x 1024 (V) even 25 fps are achieved.

Due to the fast read-out mode with only a single sensor output offered by this camera, no mirror images or disturbing stripes at the channel borders occur, normally being a typical problem at two channel cameras.

By means of the progressive interline transfer sensor very short exposure times up to 1/10000 seconds can be achieved at a full resolution. The exposure time can be regulated in steps of approx. 32  $\mu$ s. Due to the asynchronous operation (image on demand), the exposure starts 15  $\mu$ s after an external trigger pulse. Therefore the camera is especially useful for recording moving objects.

The digital output supplies image data with 8-bit precision. There are two options available: Camera Link (BASE) or Gigabit Ethernet.

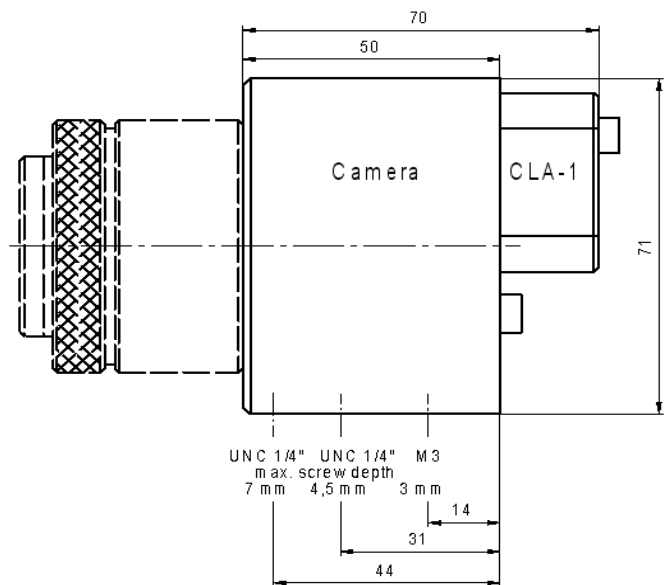
Because of the C-mount connector different C-mount objectives and adaptors for F-mount can be used.

#### Technical Data

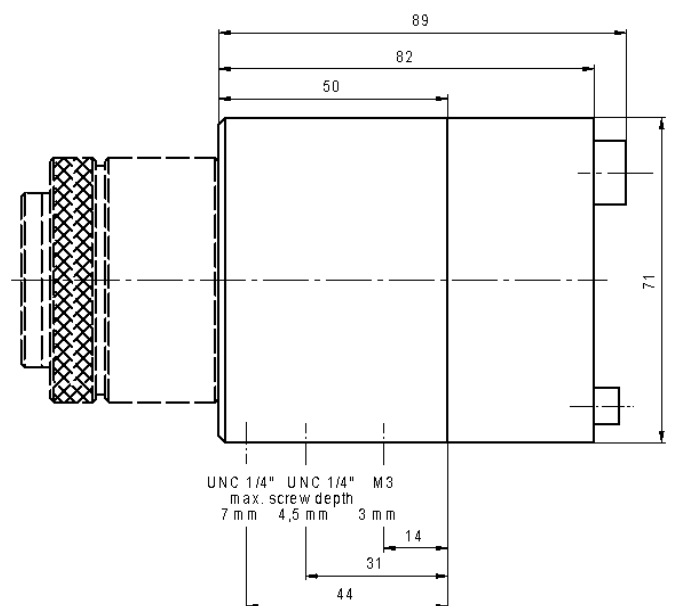
- Resolution: 2048 (H) x 2048 (V) pixels
- Image rate: up to 15 frames/sec. (2048 x 2048) or up to 25 frames (2048 x 1024)
- Progressive scan
- Pixel size: 7.4  $\mu$ m x 7.4  $\mu$ m
- Active sensor size: 15.15 mm x 15.15 mm
- Interline transfer sensor (no mech. shutter required)
- Electronic shutter up to 1/10000 sec.; adjustable in approx. 32  $\mu$ s steps
- Image on demand
- Sensor saturation:  $\geq$  40000 e
- Anti-Blooming
- Exposure time up to approx. 1 sec.
- Digital output: 8-bit, Camera Link or Gigabit Ethernet
- Frame system: 2082 lines
- Pixel clock: 80 MHz
- Video gain: 1 or 2 (+ 6 dB)
- Power supply: + 12 V, max. 0.75 A
- Ambient air temperature: 0° to 40° C
- Lens mount: C-mount or F-mount with adaptor
- CE standard
- Made in Germany

#### Power and Control Input (15-pin D-SUB Jack)

Pin	Function
1	] + 12 V DC
2	
3	] GND
4	
5	(reserved)
6	-
7	-
8	(reserved)
9	Mode: (Open) $\Rightarrow$ Continuous Mode (GND) $\Rightarrow$ Image on Demand
10	-
11	+ ] Trigger Input (Optocoupler)
12	-
13	+ ] Exposure Output (Optocoupler)
14	Line Sync Output (active low)
15	Frame Sync Output (active low)



Camera Link version



Gigabit Ethernet version