CCD-1020

Progressive High Resolution CCD Camera with 12-bit Digital Output

Features

- 1024 (H) x 1024 (V) square pixels (14 µm x 14 µm)
- Up to 15 frames/sec.
- 30 frames/sec. at 512 (H) x 512 (V) pixels (2 x 2 binning)
- High sensitivity in near infrared (NIR)
- Progressive scan
- Frame-transfer sensor
- Full-well capacity > 100,000 e
- Effective camera dynamics ≥ 1:2000 (≥ 66 dB)
- Digital RS-644 output with 12-bit (LVDS) or CameraLink

VDS Vosskühler

With a resolution of 1024 x 1024 effective pixels, the **CCD-1020** is a further member of the high resolution CCD camera family of VDS Vosskühler.

By means of the frame-transfer sensor with a pixel size of 14 x 14 µm the **CCD-1020** offers a high light sensitivity, especially in the near infrared. Furthermore the camera distinguishes from others due to its high sensor saturation, enabling to achieve high dynamics.

The effective dynamics of the complete camera

$$D = \frac{Sat_{(count)} - Dark_{(count)}}{RMS\,Noise_{(count)}}$$

is more than 2000 and therefore offers reserves even for difficult lighting conditions or very short exposure times.

The exposure time can be adjusted from 1 ms in steps of 58 µs. In the asynchronous mode of the camera (Image on Demand) the exposure starts 15 µs after an external trigger pulse. By means of the progressive sensor all pixels are illuminated simultaneously.

The RS-644 digital output supplies image data with 12-bit precision of which also less can be used depending on the application.

A pixel clock of only 21 MHz avoids difficulties with long lines and allows to almost use all digital frame grabbers.

Technical Data

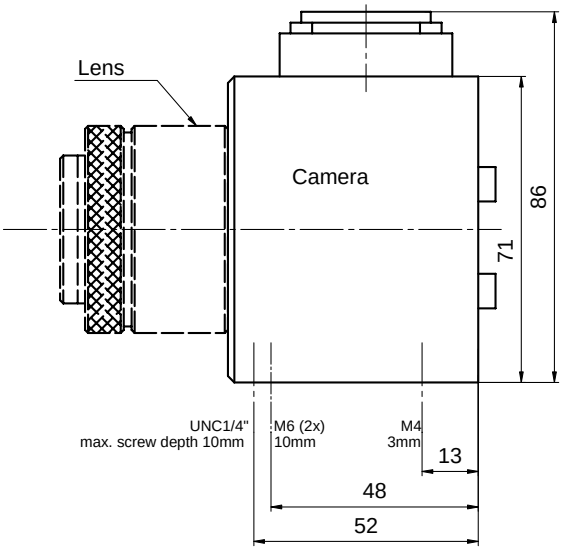
- Resolution: 1024 (H) x 1024 (V) pixels
- Switchable to 512 (H) x 512 (V) pixels (2x2 binning)
- Frame rate: up to 15/30 frames/sec.
- Progressive scan
- Pixel size: 14 µm x 14 µm
- Active sensor size:
  14.34 (H) mm x 14.34 (V) mm
- Frame-transfer sensor
- Electronic shutter up to 1/1000 sec.;
  adjustable in 58 µs steps
- Image on demand
- Effective dynamics: ≥ 1:2000 (≥ 66 dB)
- Sensor saturation: ≥ 100000 e
- Anti-Blooming
- Exposure time up to approx. 1 sec.
- Digital output: 12-bit, RS-644
- Frame system: 1150/575 lines
- Pixel clock: 21 MHz
- Video gain: 1 or 2 (+ 6 dB)
- Power supply: + 12 V, approx. 0.7 A
- Environmental temperature: 0° to 40° C
- Lens mount: C-mount
- CE standard
- Made in Germany

RS-644 Digital Output (37-pin D-SUB Jack)

Pin	Function	Pin	Function
1	PCLK+	20	PCLK-
2	LEN+	21	LEN-
3	FEN+	22	FEN-
4	D0+ (LSB)	23	D0-
5	D1+	24	D1-
6	D2+	25	D2-
7	D3+	26	D3-
8	D4+	27	D4-
9	D5+	28	D5-
10	D6+	29	D6-
11	D7+	30	D7-
12	D8+	31	D8-
13	D9+	32	D9-
14	D10+	33	D10-
15	D11+ (MSB)	34	D11-
16	GND	35	GND
17	TREX-	36	TREX+
18	/SV2	37	Mode
19	/Binning Mode		

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

Pin	Function
1, 2	} + 12 V DC
3, 4	} GND
5	
6	
7	
8	
9	Mode: (Open) ⇒ Continuous Mode (GND) ⇒ Image on Demand
10 (-), 11 (+)	} Trigger Input (Opto-Coupler)
12 (-), 13 (+)	} Exposure Output (Opto-Coupler)
14	Line Sync Output (active low)
15	Frame Sync Output (active low)



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