

# SW-2001Q-CL

## Technical Datasheet



See the possibilities

N/A



## Apex Series

JAI's Sweep Series includes both monochrome and trilinear color line scan cameras with line rates that are among the fastest available for their type and resolution.

The Sweep SW-4000TL trilinear models deliver outstanding color line scan images for applications that don't require the ultimate image precision provided by the Sweep+ Series.


### Specification Highlights

<b>SENSOR:</b>	N/A	<b>SHUTTER:</b>	Global Shutter
<b>FORMAT:</b>	28.67 mm	<b>FRAME RATE:</b>	19 kHz
<b>PIXEL SIZE:</b>	14.0 x 14.0 $\mu$ m	<b>INTERFACE:</b>	Camera Link
<b>LENS MOUNT:</b>	F-Mount	<b>RESOLUTION MP:</b>	N/A MP
<b>SPECTRUM:</b>	Multispectral (4-Bands R-G-B + NIR)	<b>RESOLUTION WxH:</b>	2048 x 1 px

Specifications	SW-2001Q-CL
Scanning system	CCD line sensors with internal clock
Pixel clock	40.00 MHz
Line rate	No shutter mode: 19 kHz - 18.6 Hz Shutter select mode: 18.6 kHz - 18.6 Hz PWC mode: 18.6 kHz - 2 sec
Sensor scanning width	28.672 mm
Cell size	14 μm x 14 μm
Active pixels	4 sensors: 4 x 2048 (h) mounted on RGB/NIR beam splitter prism
Object illuminance (std.)	RGB: 2800 lx (7800K white LED light) (Gain 0 dB, 600 μs line rate, f2, 100% video on G) NIR: 20 μW/cm² @ 800 nm
Responsivity	56 V/μJ/cm² (@ 600 nm)
S/N ratio	58 dB on green with gain = 0 dB
Video output	4 x 8-bit or 4 x 10-bit through Camera Link medium configuration
Gain Master mode	G: -3 dB to +12 dB R/B/NIR: -6 dB to +6 dB
Individual mode	R/G/B/NIR: -9 dB to +18 dB
White balance	Manual, preset, or one-push Adjustable range: 4000 K to 9000 K Preset: 4000 K, 4600 K, 5600K
Image correction	Flat-field (PRNU/DSNU), flat shading, color shading, LUT/gamma correction, noise reduction
Input signal	Trigger (Camera Link, TTL/75Ω)
Output signal(s)	LVAL, FVAL, DVAL, EEN, XEEN (TTL)
Synchronization	Internal clock
Trigger modes	No-shutter, shutter select, and pulse width control
Programmable exposure	2.0 μs to 53.76 ms in 25 ns increments
Pulse width control	2 μs - 2 sec (via Camera Link) 50 μs - 2 sec (via 12-pin connector)
Control interface	Camera Link RS-232C
Lens mount	M52-mount or Nikon F-mount
Operating temperature	-5°C to +45°C/20 - 80% non-condensing
Storage temp./humidity	-25°C to +60°C/20 - 80% non-condensing
Vibration	3G (20Hz to 200Hz, XYZ direction)
Shock	50G
Regulations	CE (EN61000-6-2, EN61000-6-3) IEC61000-4-2 Conforming level 4 FCC Part 15 Class B, RoHS/WEEE
Power	12V to 24V DC ± 10%. 1300 mA typical at +1 2V
Power consumption	15.6 W typical at +12V
Dimensions (H x W x L)	90 mm x 90 mm x 120 mm (without connector and lens mount protrusion)
Weight	1050 g
Ordering Information	
SW-2001Q-CL-M52	4 CCD RGB/NIR Line Scan Camera. M52 mount.
SW-2001Q-CL-F	4 CCD RGB/NIR Line Scan Camera. F-mount.

### Connection Pin-out

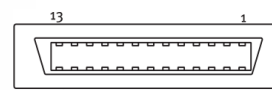
#### DC In / Trigger



HIROSE HR10A-10R-12PB-71

Pin	Signal
1	Ground
2	+12V to +24V DC
3	Ground
4	Reserved
5	Ground
6	RXD RS 232C*
7	TXD RS 232C*
8	Ground
9	XEEN out
10	Trigger IN (TTL)*
11	DC in +12V to +24V
12	Ground

#### Camera Link Interface



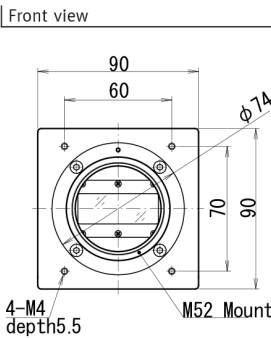
Pin	Signal	Function	
1	14	GND	
2	15	Xo-/Xo+	CL Data
3	16	X1-/X1+	CL Data
4	17	X2-/X2+	CL Data
5	18	Xclk-/Xclk+	CL Clk
6	19	X3-/X3+	CL Data
7	20	SerTC+/SerTC-	Serial in*
8	21	SerTFG-/SerTFG+	Serial out*
9	22	CC1-/CC1+	Trigger*
10	23	CC2-/CC2+	Reserved
11	24	CC3-/CC3+	Not used
12	25	CC4+/CC4-	Not used
13	26	GND	-

\* In Camera Link or 12 pin Hirose

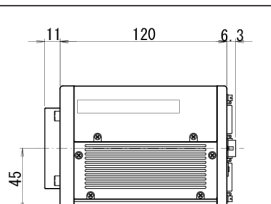
Note:  
 Camera Link base configuration shown. For medium configuration refer to Camera Link specifications or operation manual.

### Dimensions

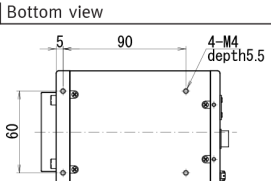
#### Front view



#### Side view

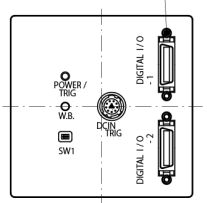
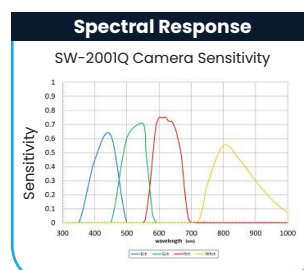


#### Bottom view



#### Rear view

#### U4-40: Fixed screw

## Product Highlights

- 4 CCD line scan camera with Camera Link output
- Dichroic RGB/NIR beam splitter prism with 4 sensors
- 4 sensors with 2048 pixels, 14  $\mu\text{m}$  x 14  $\mu\text{m}$  pixel size
- 28.7 mm sensor scanning width
- Scan rate up to 19048 lines per second at 40 MHz pixel clock
- Supports 4 x 8-bit or 4 x 10-bit output over Camera Link interface
- No-shutter, shutter select, and pulse width (PWC) trigger modes
- One-push auto white balance
- Flat field correction (pixel gain) and shading correction
- LUT/gamma correction
- Available with M52 mount or Nikon F-mount

## Additional Product Images



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