

SW-4000T-MCL

3-CMOS prism line scan camera



- 3 x 4096 pixel prism-based line scan camera
- Max. line rate of 67.7 kHz
- Prism technology for superior color quality and better color differentiation
- Dichroic RGB beam splitter with 3 sensors
- Optimized for applications with fixed and varying object speeds
- Selectable pixel size - 7.5 x 7.5 μm or 7.5 x 10.5 μm
- Supports vertical dual-line binning, 2x horizontal binning, or both
- Flat shading correction and color shading correction
- HSI and XYZ color space conversion
- Large variety of trigger options
- Camera Link interface with 3 x 8 or 3 x 10-bit output
- Excellent shock and vibration resistance

Specifications for SW-4000T-MCL

Sweep+ Series

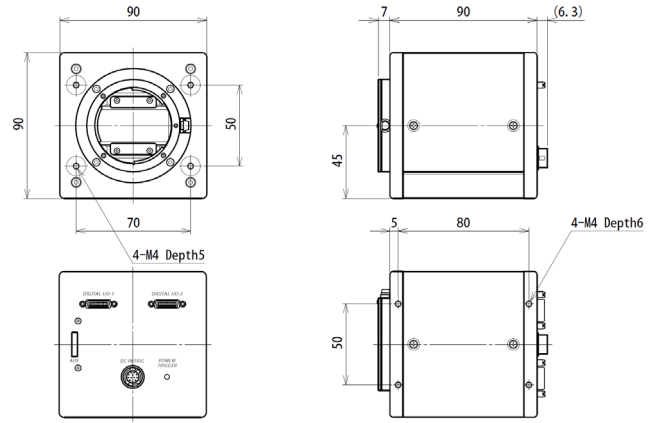
Specifications	SW-4000T-MCL
Scanning system	3 high-speed CMOS line sensors, prism-mounted
Active pixels	3 x 4096 pixels (R, G, B)
Line rate	Up to 67.7 kHz (variable)
Sensor width	30.72 mm
Pixel size	Type A: 7.5 µm x 7.5 µm Type B: 7.5 µm x 10.5 µm
Pixel clock (CL)	31.875 / 42.5 / 63.75 / 85 MHz
Video output	Camera Link Base (8 bit - RGB8) Camera Link Medium (8/10 bit - RGB8, RGB10) Camera Link Full (8 bit - RGB8) Camera Link Deca (8 bit - RGB8)
Object illuminance (min.)	220 lx @ 7800 K, Mode A (Gain 18 dB, 525 µs exp., 50% video, RGB8)
Responsivity	123 DN/nJ/cm ² (G channel, Mode A, 10-bit @ 550 nm, 0 dB gain)
S/N ratio	>55 dB on green, 10-bit with 0 dB gain
Inputs	Camera Link: LVDS (CC1); 12-Pin: Opto Coupled, TTL (1); AUX: TTL (2)
Outputs	12-Pin: TTL (2) AUX: TTL (2)
Gain	Analog Base Gain: 0 dB / 6 dB / 12 dB Digital Master: 0 to +18 dB, R/B: -7.96 to +12 dB Digital Individual: 0 to +24 dB
Gamma	0.45 to 1.0 (9 steps) or 257-point LUT
Image processing	PRNU/DSNU, black level, flat shading and color shading correction
Color space conversion	RGB to HSI, RGB to XYZ (CIE), sRGB, Adobe RGB, or User Custom RGB
Exposure modes	Off (free-running), timed, trigger width control
Exposure time	3 µs to 14.77 µs in 10 ns increments at fastest line rate. Exposure time can be longer at slower line rates.
Trigger width control	3 µs to 2 sec (via Camera Link) 50 ns to 2 sec (via TTL, 12-pin/10-pin connectors)
Control interface	Camera Link RS-232C
Lens mount	M52 mount or Nikon F-mount (46.5 mm flange back for both mounts)
Operating temp. (ambient)	-5°C to +45°C (20 to 80% non-condensing)
Storage temp. (ambient)	-25°C to +60°C (20 to 80% non condensing)
Vibration	10G (20 Hz to 200 Hz, XYZ directions)
Shock	50G
Regulations	CE (EN61000-6-2, EN61000-6-3) FCC Part 15 Class B or Class A*, RoHS/WEEE
Power	12-pin +12V to +24V DC ± 10%
Power consumption	9.3 W typical @ +12V
Dimensions (H x W x L)	(without connector and lens mount protrusions) 90 mm x 90 mm x 90 mm
Weight	765 g

The FCC classification varies depending on the hardware revision. For more information, refer to the SW-4000T-MCL user manual, ver. 2.3 or later.

Ordering Information

SW-4000T-MCL-F	3-CMOS prism line scan camera with F-mount
SW-4000T-MCL-M52	3-CMOS prism line scan camera with M52 mount

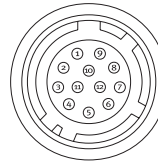
Dimensions (F-mount)



F-mount model shown. For M52 drawings and dimensions, see manual.

Connector pin-out

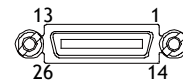
DC In / Trigger



Equivalent to
Hirose HR10A-10R-12PB(71)
(gold-plated pins)

Pin	Signal
1	Ground
2	DC in +12V to +24V
3	Ground
4	Reserved
5	Opto in 1-
6	Opto in 1+
7	TTL out 4
8	NC
9	TTL out 1
10	TTL in 1
11	DC in +12V to +24V
12	Ground

Mini-CL Interface



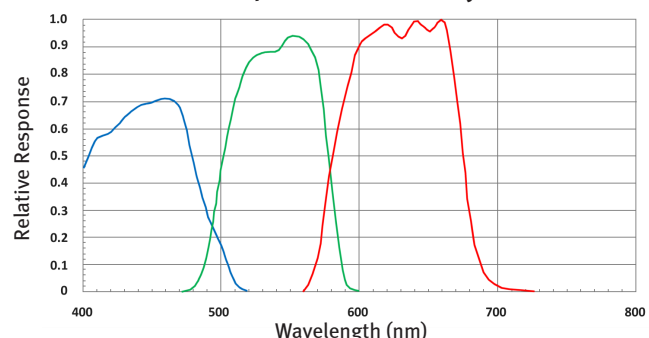
Pin	Signal	Function
1	26 Power	
2	15 X0-/X0+	CL Data
3	16 X1-/X1+	CL Data
4	17 X2-/X2+	CL Data
5	18 Xclk-/Xclk+	CL Clk
6	19 X3-/X3+	CL Data
7	20 SerTC+/SerTC-	Serial in
8	21 SerTFG-/SerTFG+	Serial out
9	22 CC1-/CC1+	Trigger*
10	23 CC2+/CC2-	Reserved
11	24 CC3-/CC3+	Not used
12	25 CC4+/CC4-	Not used
13	14 GND	

*Via Camera Link or 12-pin/10-pin connectors

Note:
Camera Link Base configuration shown. For other configurations, refer to Camera Link specifications or operation manual.

Spectral response

SW-4000T-MCL Sensitivity



Scan for contact information
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See the possibilities