SW-4010Q-MCL

RGB/SWIR prism line scan camera

- *4-channel R-G-B (CMOS) + SWIR (InGaAs) prism line scan camera*
- *Max. R-G-B line rate of 20.5 kHz for 4096 pixels, 40.8 kHz for 2048 pixels*
- *Max. SWIR line rate of 39.2 kHz for 1024 pixels*
- *Base pixel size of 7.5 x 7.5 µm for R-G-B channels, 25 x 25 µm for SWIR channel*
- *Beam-splitter prism with dichroic coatings enables all channels to be captured simultaneously with precise pixel-level alignment*
- *Flexible image rescaling function lets users easily adjust pixel size and line width of R-G-B channels to match FOV and pixel size of SWIR channel*
- *Traditional 400-700 nm spectral sensitivity for R-G-B (visible) channels*
- *SWIR channel provides spectral sensitivity from 800 to 1700 nm*
- *R-G-B functions include H/V binning, auto white balance, color space conversion, chromatic aberration correction, and more*
- *Supports direct encoder connection to camera*
- *Dual-base, Mini Camera Link output with independent RGB & SWIR line rates*
- *Custom, high performance 28 mm VIS-SWIR lens available as option*

Specifications for SW-4010Q-MCL

Sweep+ Series

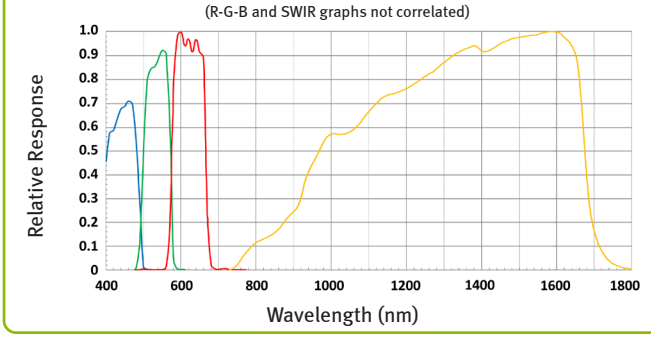
Specifications

Specifications	SW-4010Q-MCL
Scanning system	3 CMOS + 1 InGaAs line sensors, prism-mounted
Active pixels	3 x 4096 pixels (R, G, B), 1 x 1024 (SWIR)
Line rate	Up to 39.2 kHz (for 2048 RGB + 1024 SWIR)
Sensor width	30.72 mm (R, G, B) / 25.6 mm (SWIR)
Pixel size	R, G, B sensors: 7.5 µm x 7.5 µm SWIR sensor: 25 µm x 25 µm
Pixel clock (Camera Link)	42.5 / 63.75 / 85 MHz
Video output	Dual Camera Link Base Output 1. RGB8-bit (RGB10/12-bit with custom pixel format) 2. SWIR8/10/12-bit
Image scaling	Rescales RGB pixel size and line width. 25 µm @ 1024 px, 12.5 µm @ 2048 px, or user-defined.
Inputs (Trigger)	Camera Link, Opto in, TTL via 12-pin, 2 TTL via 10-pin
Outputs	2 TTL via 12-pin, 2 TTL via 10-pin
Gain	Analog Base: 0 ~ 12 dB (RGB), -6 ~ +3 dB (SWIR) Dig. Master: 0 to +30 dB, R/B: -7.96 to +12 dB Dig. Individual: 0 to +36 dB (RGB)
Gamma	0.45 to 1.0 (9 steps RGB, 1 step SWIR) or 257/256-point LUT
Image processing	PRNU/DSNU, black level, flat shading. Color shading & chromatic aberration correction (RGB channels).
Color space conversion (RGB channels)	RGB to HSI, RGB to XYZ (CIE), sRGB, Adobe RGB, or User Custom RGB
Exposure modes	No shutter, timed exposure (common/individ. RGB)
Electronic shutter	3 µs at fastest line rate (RGB), 20.38 µs at fastest line rate (SWIR). Exposure time can be longer at slower line rates.
Control interface	Camera Link, RS-232C
Lens mount	M52 mount (46.5 mm flange back)
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	3G (20 Hz to 200 Hz, XYZ directions)
Shock	50G
Regulations	CE (EN55032:2015, EN55035:2017 FCC Part 15 Class A, RoHS/WEEE, KC
Power 12-pin	+12V to +24V DC ± 10%
Power consumption	12 W typical @ +12V
Dimensions (H x W x L)	90 mm x 90 mm x 120 mm (without connector and lens mount protrusions)
Weight	910 g

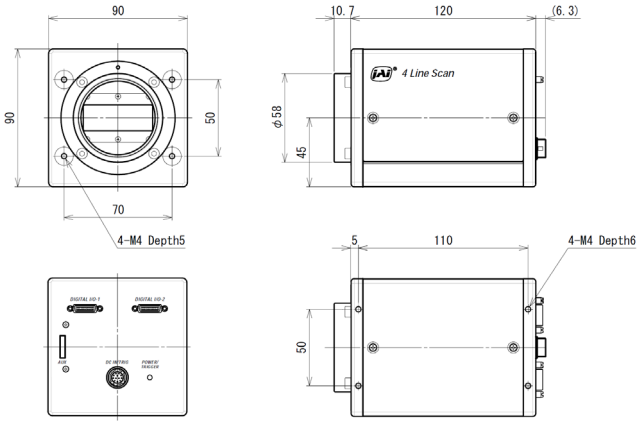
Spectral response

SW-4010Q-MCL Sensitivity

(R-G-B and SWIR graphs not correlated)



Dimensions

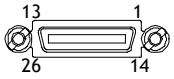


Outside tolerance ±0.3 mm

Connector pin-out

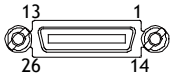
Mini-CL Interface

Digital I/O - 1



Pin		Signal	Function
1	26	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	14	GND	

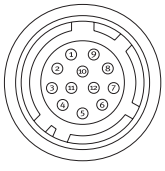
Digital I/O - 2



Pin		Signal	Function
1	26	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		Reserved
8	21		Not used
9	22		Not used
10	23		Not used
11	24		Not used
12	25		Not used
13	14	GND	

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

DC In / Trigger



HIROSE HR10A-10R-12PB(71)

Pin		
	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

For pin-out of 10-pin Hirose Aux connector, refer to manual

Ordering Information

SW-4010Q-MCL-M52	RGB/SWIR prism line scan camera with M52 mount
JMO-M5231-2828-C4	28 mm custom VIS-SWIR optimized lens (optional)

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See the possibilities

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