

▪ 4 x 4096 pixels

▪ 72 kHz

Sweep+ Series 

❖ SW-4000Q-10GE

4-CMOS prism line scan camera

GIG
VISION



PRELIMINARY

- **World's first 4 x 4096 pixel prism-based 10GBASE-T line scan camera**
- **Max. line rate of 72 kHz for RGB8 + NIR dual-stream output**
- **Prism technology for superior color quality and alignment of visible + NIR channels**
- **Backwards compatible to NBASE-T (5GBASE-T/2.5GBASE-T) and standard GigE (1000BASE-T)**
- **Optimized for applications with fixed and varying object speeds**
- **New "State of the art" CMOS sensors with 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 field correction and color shading correction**
- **HSI and XYZ color space conversion**
- **Supports direct connection to rotary encoders plus large variety of trigger options**
- **GigE Vision 2.0 interface with choice of single-stream or dual-stream output**
- **Output formats include 3 x 8-bit or 3 x 10-bit RGB, 8-bit YUV, and 8-bit/10-bit NIR**
- **Excellent shock and vibration resistance**



Specifications for SW-4000Q-10GE

Specifications	SW-4000Q-10GE
Scanning system	4 high-speed CMOS line sensors, prism-mounted
Active pixels	4 x 4096 pixels (R, G, B, NIR)
Line rate (full width)	Up to 72 kHz (variable) for 8-bit RGB + NIR 74 kHz possible with YUV compression
Sensor width	30.72 mm
Pixel size	Mode A: 7.5 μm x 7.5 μm Mode B: 7.5 μm x 10.5 μm
Ethernet speeds	10GBASE-T, 5GBASE-T, 2.5GBASE-T, 1000BASE-T Full backwards compatibility
Video output	Single stream: RGBa8 Two streams: RGB8, RGB10V1Packed, RGB10p32, YUV422_8_UVYV, YUV422_8 (visible) Mono8, Mono10Packed (NIR)
Object illuminance (min.)	RGB: 220 lx @ 7800 K, Mode A (Gain 18 dB, 525 μs exp., 50% video, RGB8) NIR: TBD
Responsivity	RGB: 123 DN/nj/cm ² (G channel, Mode A, 10-bit @ 550 nm, 0 dB gain) NIR: TBD
S/N ratio	>55 dB on green, 10-bit with 0 dB gain
Inputs	Trigger (1 Opto In + 1 TTL via 12-pin, 2 TTL via 10-pin), Pulse Generator (4), NAND Out (2), Action (4)
Outputs	2 TTL via 12-pin, 2 TTL via 10-pin
Gain	Analog Base Gain: 0 dB / 6 dB / 12 dB Digital Master: 0 to +18 dB, R/B/NIR: -7.96 to +12 dB Digital Individual: 0 to +24 dB
White balance	Manual/one-push auto by gain or exposure
Gamma	0.45 to 1.0 (9 steps) or 257-point LUT
Image processing	PRNU/DSNU, black level, flat shading and color shading correction, chromatic aberration adjustment, horizontal mirroring
Color space conversion	RGB or RGBa8 to HSI, XYZ (CIE), sRGB, Adobe RGB, or User Custom RGB
Exposure modes	No shutter, timed, and trigger width control
Electronic shutter	3 μs to 14.3 μs in 10 ns increments at 70 kHz. Exposure time can be longer at slower line rates.
Pulse width control	1.8 μs to ~1 sec
Time synchronization	Support for Precision Time Protocol (IEEE 1588)
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	3G (20 Hz to 200 Hz, XYZ directions)
Shock	50G
Regulations	CE (EN61000-6-2, EN61000-6-3) FCC Part 15 Class B, RoHS/WEEE
Power	12-pin PoE +12V to +24V DC ± 10%. 27.8 W typical @ 12V Not supported.
Dimensions (H x W x L)	(without connector and lens mount protrusions) 90 mm x 90 mm x 120 mm
Weight	1000 g

Ordering Information

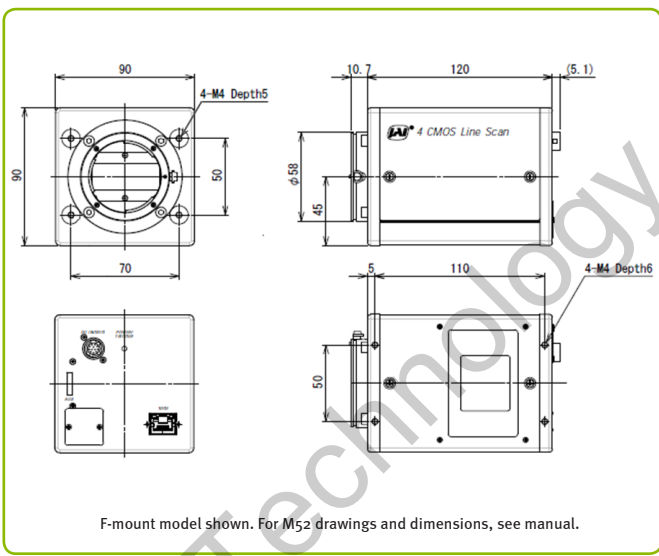
SW-4000Q-10GE-F	4-CMOS prism line scan camera with F-mount
SW-4000Q-10GE-M52	4-CMOS prism line scan camera with M52 mount

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Dimensions (F-mount)



Connector pin-out

DC In / Trigger

HIROSE HR10A-10R-12PB(71)

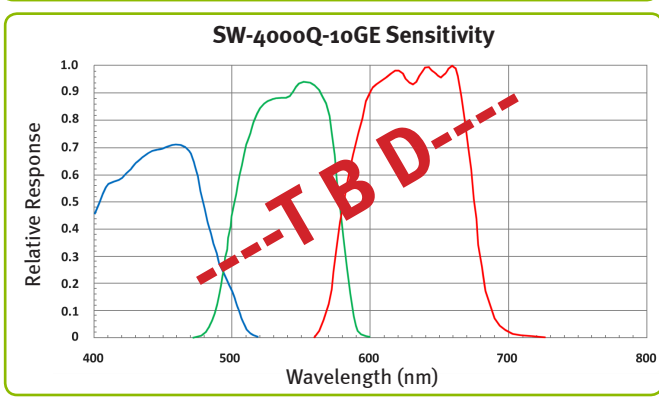
Pin	Signal
1	Ground
2	DC in +12V to +24V
3	Ground
4	Reserved
5	Opto in 1-
6	Opto in 1+
7	TTL out 4
8	NC
9	TTL out 1
10	TTL in 1
11	DC in +12V to +24V
12	Ground

GigE Vision Interface

RJ-45 with locking screws

Pin	Signal
1	TRD+ (o)
2	TRD- (o)
3	TRD+ (t)
4	TRD+ (z)
5	TRD- (z)
6	TRD- (t)
7	TRD+ (s)
8	TRD- (s)

Spectral response



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