

■ 3 x 4096 pixels

■ 97 kHz

Sweep+ Series 

## ❖ SW-4000T-10GE

3-CMOS prism line scan camera

**GIG**  
VISION



- **World's first 3 x 4096 pixel prism-based 10GBASE-T line scan camera**
- **Max. line rate of 97 kHz for RGB8 output**
- **Prism technology for superior color quality and better color differentiation**
- **Backwards compatible to NBASE-T (5GBASE-T/2.5GBASE-T) and standard GigE (1000BASE-T)**
- **Optimized for applications with fixed and varying object speeds**
- **Newly developed "state of the art" CMOS sensors**
- **Selectable pixel size - 7.5 x 7.5  $\mu\text{m}$  or 7.5 x 10.5  $\mu\text{m}$**
- **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 selectable YUV, 3 x 8-bit RGB, or 3 x 10-bit RGB output**
- **Excellent shock and vibration resistance**

# Specifications for SW-4000T-10GE

# Sweep+ Series

Specifications	SW-4000T-10GE
Scanning system	3 high-speed CMOS line sensors, prism-mounted
Active pixels	3 x 4096 pixels (R, G, B)
Line rate	Up to 97 kHz (variable) Faster line rates 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	RGB8, RGB10V1Packed, RGB10p32, YUV422_8_UVYV, YUV422_8
Object illuminance (min.)	220 lx @ 7800 K, Mode A (Gain 18 dB, 525 μs exp., 50% video, RGB8)
Responsivity	123 DN/nj/cm <sup>2</sup> (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	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 +30 dB, R/B: -7.96 to +12 dB Digital Individual: 0 to +36 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 to HSI, RGB to XYZ (CIE), sRGB, Adobe RGB, or User Custom RGB
Exposure modes	No shutter, timed, and trigger width control
Electronic shutter	3 μs to 10.3 μs in 10 ns increments at fastest line rate. 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+ +10V to +25V DC. 13.7 W typical @ 12V 42V to 57V DC. 15.3 W typical @ 48V
Dimensions (H x W x L)	(without connector and lens mount protrusions) 90 mm x 90 mm x 90 mm
Weight	830 g

## Ordering Information

SW-4000T-10GE-F	3-CMOS prism line scan camera with F-mount
SW-4000T-10GE-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

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+ (0)
2	TRD- (0)
3	TRD+ (1)
4	TRD+ (2)
5	TRD- (2)
6	TRD- (1)
7	TRD+ (3)
8	TRD- (3)

### Spectral response

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