

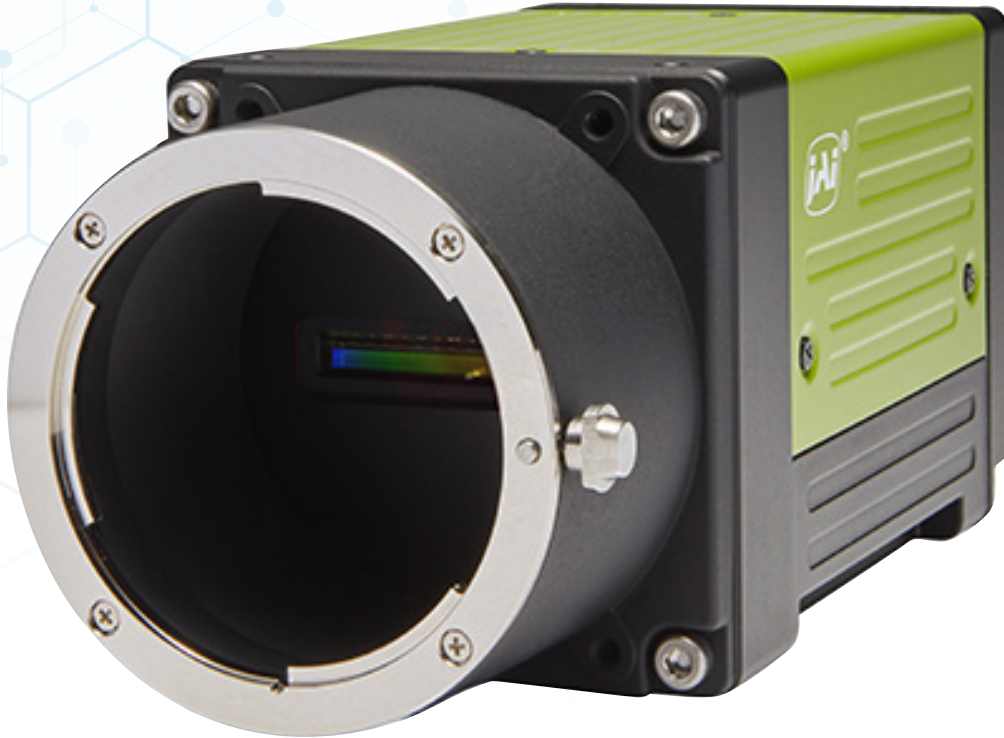
# SW-4000TL-SFP

## Technical Datasheet



See the possibilities

Custom



## 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.

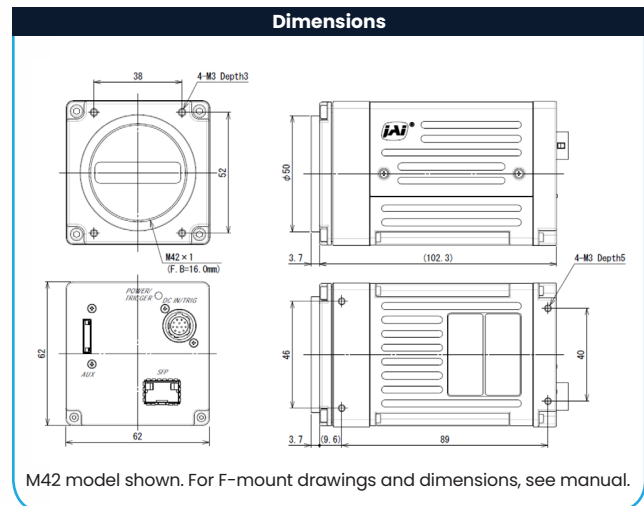
### Specification Highlights

**SENSOR:** Custom  
**FORMAT:** 30.72 mm  
**PIXEL SIZE:** 7.5 x 7.5  $\mu\text{m}$   
**LENS MOUNT:** F-Mount  
**SPECTRUM:** Color (Visible)

**SHUTTER:** Global Shutter  
**FRAME RATE:** 66 kHz  
**INTERFACE:** SFP+ over 10 Gigabit Ethernet  
**RESOLUTION MP:** N/A MP  
**RESOLUTION WxH:** 4096 x 1 px

Specifications		SW-4000TL-PMCL
Scanning system	Trilinear CMOS line scan	
Active pixels	3 x 4096 pixels (R, G, B) in trilinear configuration	
Line rate	Up to 66.6 kHz (variable)	
Sensor width	30.72 mm	
Pixel size	7.5 μm x 7.5 μm	
Ethernet speeds	10GBASE-SR / 10GBASE-LR / 10GBASE-ER	
Video output	RGB8, RGB10VIPacked, RGB10p32, YUV422_8_UVYV, YUV422_8	
Object illuminance (min.)	220 lx @ 7800 K (Gain 18 dB, 525 μs exp., 50% video, RGB8)	
Responsivity	127 DN/nJ/cm <sup>2</sup> (G ch 10-bit @ 550 nm)	
S/N ratio	57 dB on green, dark level, 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: -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, shading, tilted view, spatial compensation, chromatic aberration	
Color space conversion	RGB to HSI, RGB to XYZ (CIE), sRGB, Adobe RGB, or User Custom RGB	
Exposure modes	No shutter, shutter select, and trigger width control	
Electronic shutter	3 μs to 15.015 μs in 1 μs increments at fastest line rate. Exposure time can be longer at slower line rates.	
Pulse width control	3 μs to 2 sec (via Camera Link) 1.8 μs to 2 sec (via 12-pin/10-pin connectors)	
Time synchronization	Support for Precision Time Protocol (IEEE 1588)	
Lens mount	M42 mount or Nikon F-mount	
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	80G	
Regulations	CE (EN61000-6-2, EN61000-6-3) FCC Part 15 Class B, RoHS/WEEE	
Power	12-pin	+10V to +25V DC
Power consumption	8.0 W typical @ +12V	
Dimensions (H x W x L)	(excluding rear connector protrusion)	
	M42 mount	62 mm x 62 mm x 106 mm
	F-mount	62 mm x 62 mm x 136.5 mm
Weight		
	M42 mount	340 g
	F-mount	410 g
Ordering Information		
SW-4000TL-SFP-F	CMOS trilinear RGB camera with F-mount	
SW-4000TL-SFP-M42A	CMOS trilinear RGB camera with M42 mount <sup>1</sup>	

<sup>1</sup>M42 x 1 with 16 mm flange back distance



### Connector pin-out

#### DC In / Trigger

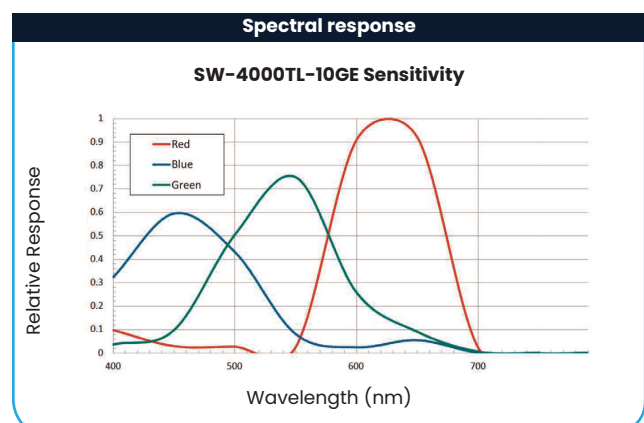
HIROSE HR10A-10R-12PB(71)

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

#### 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)



## Product Highlights

- Newly developed “state of the art” CMOS trilinear sensor
- Provides 10GBASE-R (fiber optic) output over SFP+ interface
- Max. line rate of 66 kHz for 3 x 4096 RGB8 or YUV422 (8-bit) output
- Horizontal and vertical binning functions
- Intelligent sub-pixel spatial compensation and tilted view correction
- HSI and XYZ color space conversion
- Large variety of trigger options
- Supports direct encoder connection to camera
- Excellent shock and vibration resistance
- Compact size and high robustness for industrial environments
- Time stamping of line data and Precision Time Protocol support
- GigE Vision 2.0 interface with selectable YUV, 3 x 8-bit RGB, or 3 x 10-bit RGB

## Additional Product Images



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