

SP-12400C-PMCL

Technical Datasheet



See the possibilities

IMX253



Apex Series

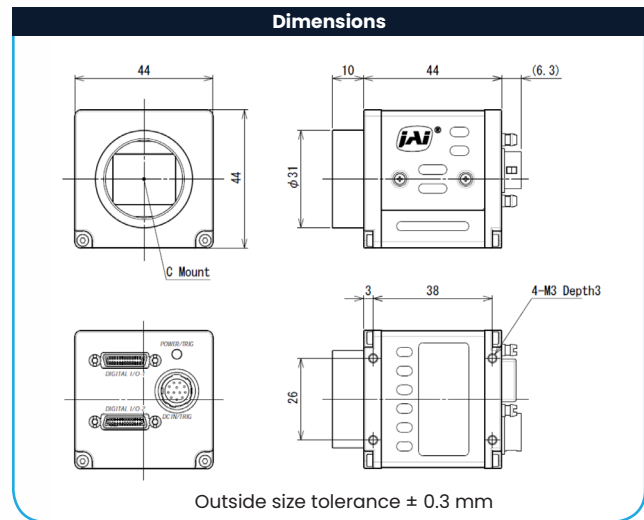
Spark Series area scan cameras are the perfect choice for machine vision applications demanding high quality images with the highest possible throughput. They feature the latest CMOS imagers delivering high resolution images at speeds as much as 10 times faster than traditional CCD cameras.

For example, 45-megapixel (MP) models can deliver over 50 fps output while some 5-MP models run at 250 fps or more. Using the region-of-interest (ROI) feature, even higher frame rates can be achieved.

Specification Highlights

SENSOR:	IMX253	SHUTTER:	Global Shutter
FORMAT:	1.1"	FRAME RATE:	64 fps
PIXEL SIZE:	3.45 x 3.45 μm	INTERFACE:	Mini Camera Link (PoCL)
LENS MOUNT:	C-Mount	RESOLUTION MP:	12.4 MP
SPECTRUM:	Color (Visible)	RESOLUTION WxH:	4112 x 3008 px

Specifications		SP-12400-PMCL
Sensor	1.1" CMOS global shutter (IMX253)	
Active pixels	4112 x 3008 or 4080 x 3008, depending on top geometry	
Frame rate, full frame	64.6 frames/sec. @ 8-bit (1x10_1V)	
Active area	14.2 mm (h) x 10.4 mm (v) - 17.6 mm diagonal	
Pixel size	3.45 μm x 3.45 μm	
Camera Link clock	37.1 / 74.3 / 84.9 MHz	
System clock	74.25 MHz (for pulse generator)	
Read-out modes		
Full ROI (single))	4112 (h) x 3008 (v) up to 64.6 fps H: 96 to 4112 pixels in 16 pixel steps V: 8 to 3008 lines in 4 line steps	
ROI (multi))	Up to 64 areas can be defined (non-overlapping).	
Binning	1x2, 2x1, 2x2 (monochrome only)	
EMVA 1288 Parameters	10-bit output format	
Absolute sensitivity	Mono: 3.50 p Color: 4.00 p (λ = 525 nm)	
Maximum SNR	Mono: 40.03 dB Color: 40.10 dB	
Traditional SNR*	>60 dB (0 dB gain, 10-bit)	
Video signal output	Monochrome: 8/10/12-bits [†] Color: 8/10/12-bit Bayer [†]	
Video modes	Normal/ROI, Multi ROI, Sequencer (2)	
Gain	Manual/auto 0 dB to +24 dB	
White balance	Off, 4 presets (3200K, 5000K, 6500K, 7500K), or one-push/continuous AWB (3000K to 9000K)	
Gamma/LUT	0.45 to 1.0 (9 steps) or 257-point programmable LUT	
Shading correction	Flat shading, color shading	
Trigger input	TTL, Camera Link (CC1), Opto In (2), Pulse Generators (4), Software, NAND Out (2), User Output (4)	
Exposure modes	Timed/EPS, RCT, Trigger Width, Auto	
Electronic shutter	Electronic shutter	
Auto Level Control (ALC)	Shutter range from 100 μs to 1/frame rate, gain range from 0 dB to +24 dB. Tracking speeds and max. values adjustable.	
Pre-processing functions	Edge enhancer, blemish compensation (800 pixels)	
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 PoCL	+12V to +24V DC ± 10%. 5.1 W typical @ +12 V +10V to +13 V DC. 5.2 W typical @ +12 V
Lens mount	C-mount	
Dimensions (H x W x L)	44 mm x 44 mm x 44 mm (excl. connectors)	
Weight	135 g	
Ordering Information		
SP-12400M-PMCL	Monochrome camera with Camera Link	
SP-12400C-PMCL	Color camera with Camera Link	



Connector pin-out

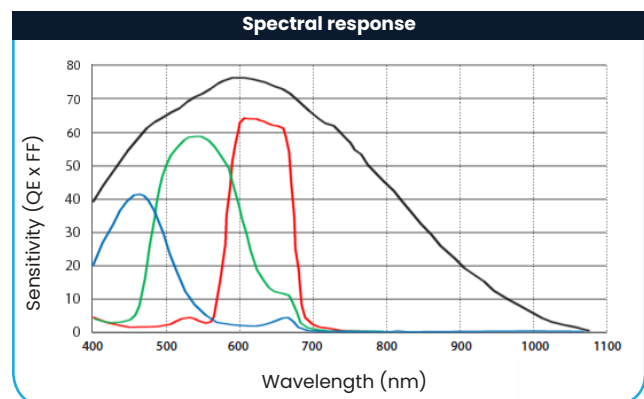
DC In / Trigger

Min-CL Interface

HIROSE HR10A-10R-12PB(71)

Pin	Signal	Function
1	26	Power
2	15	X0-/X0+
3	16	X1-/X1+
4	17	X2-/X2+
5	18	Xclk-/Xclk+
6	19	X3-/X3+
7	20	SerTC+/SerTC-
8	21	SerTFG-/SerTFG+
9	22	CC1-/CC1+
10	23	CC2-/CC2+
11	24	CC3-/CC3+
12	25	CC4-/CC4+
13	14	GND
10	-	-
11	DC in +12V to +24 V	-
12	Ground	-

**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.*



*Traditional SNR is based on random noise in a single frame, where EMVA SNR measurements consider more comprehensive noise sources and variance over time.

[†]12-bit output available in video processing bypass mode. See manual for details.

Product Highlights

- High resolution 12-megapixel CMOS imager (global shutter)
- 64.6 fps at full resolution
- 3.45 μm square pixels
- User selectable ROI and multi-ROI functions
- Horizontal and vertical binning (monochrome model) for increased sensitivity
- Edge enhancement function
- Shading/blemish compensation, gamma correction, lookup table and more
- Excellent shock and vibration resistance
- 8/10/12-bit* output over GenICam-compliant Camera Link 2.0 interface
- Supports power over Camera Link or via separate 12-pin connector
- C-mount lens mount

* Some video processing functions not available with 12-bit output

Additional Product Images



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