PMSMS02C1201

12 MP USB3.0 Color Industrial Area Scan Camera

Compact 29 mm cubic housing | C-mount | USB3 Vision / GenICam

- 4000 x 3000 resolution
- Up to 35.9 fps
- 1/1.7 in color sensor
- Typical power 1.9 W

12 MP	35.9 fps	1.85 um	C-mount
RESOLUTION	MAX. FRAME RATE	PIXEL SIZE	LENS MOUNT

Performance Features & Imaging Specifications

High-resolution color imaging in a compact USB3.0 machine-vision platform

1

Compact mechanics

29 x 29 x 29 mm housing; approximately 40 g; industry-standard mounting holes.

2

Reliable data transfer

USB3.0 high-speed interface with a large onboard frame buffer for stable real-time transmission.

3

Low power design

Typical operating power is 1.9 W, supporting compact systems with limited thermal budget.

4

Open software ecosystem

USB3 Vision and GenICam support; compatible with HALCON, LabVIEW and OpenCV.

IMAGING ITEM	SPECIFICATION
Model	PMSMS02C1201
Resolution	4000 x 3000
Minimum ROI	32 x 32; increment 8
Sensor format	1/1.7 in
Shutter type	Rolling shutter
Pixel size	1.85 um
Maximum frame rate	35.9 fps
Color mode	Color
Active sensor area	7.40 x 5.55 mm
Signal-to-noise ratio	36.7 dB
Sensitivity	0.28 V/lux.s at 1/30 s, F5.6
ADC bit depth	12-bit
Trigger mode	Software trigger / hardware trigger
Dynamic range	72 dB
Spectral response	390 - 650 nm
Exposure time	9 us - 30.602632 s
Gain range	1x - 16x; 0.125x step
Output pixel formats	MONO8, MONO16, BGR24, RAW8, RAW16
Image file formats	RAW, BMP, JPEG, PNG
Power supply	USB 5 V
Typical power	Operating 1.9 W; standby 1.2 W

Interface, Software & I/O

Electrical, mechanical and trigger interface details

Data interface	USB3.0	**Machine-vision standard**	USB3 Vision, GenICam
Dimensions	29 x 29 x 29 mm	**Software compatibility**	HALCON, LabVIEW, OpenCV
Operating temperature	-10 C to +50 C	**Certifications**	CE, FCC, RoHS
Weight	40 g	**Power input**	USB 5 V
Lens mount	C-mount	**Typical operation**	1.9 W
Protection rating	IP30	**Standby power**	1.2 W

6-pin I/O assignment

Pin	Wire	Signal	Line	Function	Electrical level
1	Red	GPO+	Line 3+	General-purpose output +	Isolated output; optocoupler; 20 mA limit
6	Black	GPO-	Line 3-	General-purpose output -	Polarized return
2	Green	TRIG+	Line 1+	Trigger input +	Low 0-1 V; High 5-24 V
3	White	TRIG-	Line 1-	Trigger input -	Polarized return
4	Yellow	Flash_out+	Line 2+	Strobe output +	Isolated output; optocoupler; 20 mA limit
5	Brown	Flash_out-	Line 2-	Strobe output -	Polarized return
-	Transparent	Shield	-	Connect to camera housing	Use transparent heat-shrink sleeve

Trigger connector

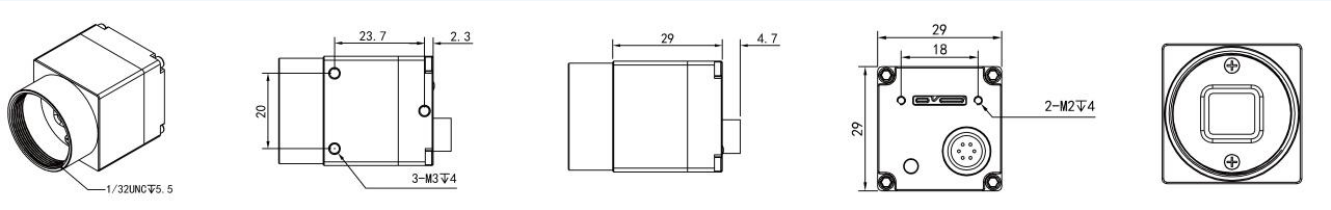
- Use isolated I/O for hardware trigger and strobe synchronization.
- Observe polarity and current limits when wiring external devices.
- For reliable USB3.0 operation, use a suitable host controller and high-quality cable.

Dimensions & Spectral Response

Mechanical drawings and color-channel response curve

Mechanical dimensions

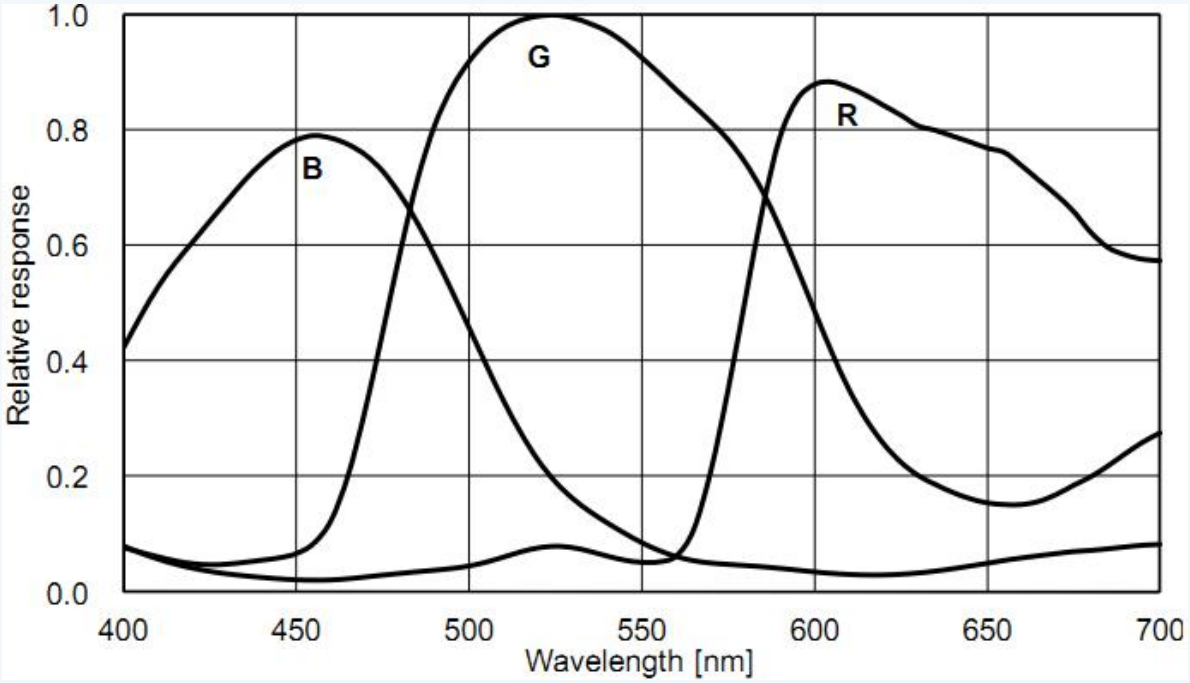
All dimensions in millimetres unless otherwise stated



29 x 29 x 29 mm
Compact cubic body

C-mount
1-32UN thread

40 g
Low-mass integration



Relative response of the color channels. Use appropriate lighting and exposure for the target spectrum.

Applications, System Configuration & FAQ

Practical guidance for machine-vision integration and lens selection

Typical applications

Precision inspection

Surface defects, part presence and assembly verification.

OCR & marking

Code, label and printed-mark inspection.

Electronics

PCB, connector and component inspection.

Dimensional imaging

Measurement tasks with suitable optics, calibration and lighting.

Recommended system configuration

CAMERA	OPTICS	LIGHTING	CONNECTION	SOFTWARE
PMSMS02C1201	12 MP C-mount lens	Matched to surface	USB3 + I/O	GenICam vision app

Selection & integration notes

- Use a C-mount lens that resolves 12 MP across a 1/1.7 in sensor.
- Rolling shutter is best suited to static or controlled-motion targets; use short exposure and strobe lighting for faster motion.
- Sustainable frame rate depends on ROI, pixel format, exposure time, host bandwidth and PC performance.
- For dimensional measurement, complete lens calibration and verify accuracy with a traceable reference.

Frequently asked questions

Does the camera support hardware trigger?

Yes. It supports software and isolated hardware trigger input.

Which software standards are supported?
USB3 Vision and GenICam, with compatibility for HALCON, LabVIEW and OpenCV.

How is the camera powered?

It is powered from USB 5 V; typical operating power is 1.9 W.

Which lens mount is used?

Standard C-mount.

Is it suitable for high-speed motion?
It uses a rolling shutter. Evaluate target speed, exposure and strobe synchronization before final selection.

Need lens, lighting or software matching?

Send the field of view, working distance, target speed and smallest feature size for configuration support.

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