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GO-5101C-PMCL

Technical Datasheet

See the possibilities

IMX264

Apex Series

JAI's Go Series delivers an exceptional blend of small size, high versatility, and excellent performance, all at an entry-level price, making the cameras a perfect starting point for a wide range of machine vision applications.

CMOS technology, low-noise pixels, global shutters, sequencer functions, and other advanced features help ensure image quality and operational flexibility beyond entry-level expectations.

Specification Highlights

SENSOR:	IMX264	**SHUTTER:**	Global Shutter
FORMAT:	2/3"	**FRAME RATE:**	35 fps
PIXEL SIZE:	3.45 x 3.45 µm	**INTERFACE:**	Mini Camera Link (PoCL)
LENS MOUNT:	C-Mount	**RESOLUTION MP:**	5.1 MP
SPECTRUM:	Color (Visible)	**RESOLUTION WxH:**	2464 x 2056 px

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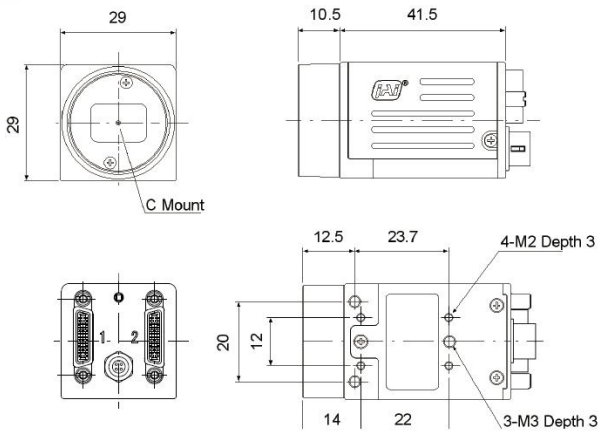
Specifications		GO-5101-PMCL
Sensor		2/3" CMOS global shutter (IMX264)
System clock		74.25 MHz (for pulse generator)
Frame rate (Full frame)		35.6 frames/sec. @ 8-bit (continuous)
Active area		8.5 mm (h) x 7.09 mm (v), 11.1 mm diagonal
Cell size		3.45 µm (h) x 3.45 µm (v)
Active pixels		2464 (h) x 2056 (v)
Read-out modes		
Full ROI		2464 (h) x 2056 (v) up to 35.6 fps 2 lines to 2056 lines in 2 -lin e step s, 96 to 2464 pixels wide in 16-pixel steps
Binning		1x2, 2x2, 2x1 (monochrome only)
EMVA 1288 Parameters Absolute sensitivity (mono) Absolute sensitivity (color) Maximum SNR (mono) Maximum SNR (color)		12-bit output format 3.54 p (λ = 525 nm) 3.94 p (λ = 525 nm) 40.26 dB 40.26 dB
Traditional SNR*	mono color	> 60 dB @ 10-bit (0 dB gain, non-linear) > 60 dB @ 10-bit (0 dB gain, green, non-linear
Video signal output	mono color	8/10-bit monochrome 8/10-bit raw Bayer (12-bit available in Video Process Bypass mode)
Gain control		Manual/auto 0 dB to +24 dB
White balance (GO-5101C)		Manual, one-push auto, or continuous (3000K to 9000K)
Gamma		0.45, 0.6, 1.0 or 256-point LUT
Synchronization		Internal
Video modes		Normal ROI Trigger Sequencer, Command Sequencer
Trigger input		TTL, Camera Link (CC1), NAND (2), Software, Pulse Generator, User Output (2)
Trigger modes		Timed (EPS), Trigger Width, Sequencer
Electronic shutter		Timed: 14 µs to 8 sec (1 µs/step) Auto: 100 µs to 8 sec
Auto level control (ALC)		Shutter range from 100 µs to 8 sec. gain range from 0 dB to +24 dB Tracking speeds and max values adjustable
Pre-processing functions		Flat shading/color shading correction, blemish compensation (512 pixels)
Operating temperature		-5°C to +45°C
Storage temperature		-25°C to +60°C
Humidity		20 - 80% non-condensing
Vibration		10G (20 Hz to 200 Hz XYZ)
Shock		80 G
Regulations		CE (EN61000-6-2, EN61000-6-3), FCC Part 15 class B, RoHS/WEEE
Power		12V to 24V DC ± 10%. 2.88W typical @ 12V (12V ± 1V DC via PoCL)
Lens mount		C-mount
Dimensions (H x W x L)		29 mm x 29 mm x 41.5 mm (excl. lens mount)
Weight		46 g
Ordering Information		
GO-5101M-PMCL GO-5101C-PMCL		Monochrome camera with Mini Camera Link Color camera with Mini Camera Link

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

Dimensions



Outside size tolerance ± 0.3 mm

Connector pin-out

Mini-CL Interface
Interface 1

Pin		Signal	Function
1	26	Power	+10V to +13V DC in
13	14	GND	Power return
2	15	−/+ TxOUT 0	
3	16	−/+ TxOUT 1	
4	17	−/+ TxOUT 2	CL Video Channel 1
5	18	−/+ TxClk	
6	19	−/+ TxOUT 3	
7	20	+/− RXD	Serial in
8	21	−/+ TXD	Serial out
9	22	CC1−/CC1+	Ext. trigger
10	23	CC2+/CC2−	Reserved
11	24	CC3−/CC3+	Not used
12	25	CC4+/CC4−	Not used

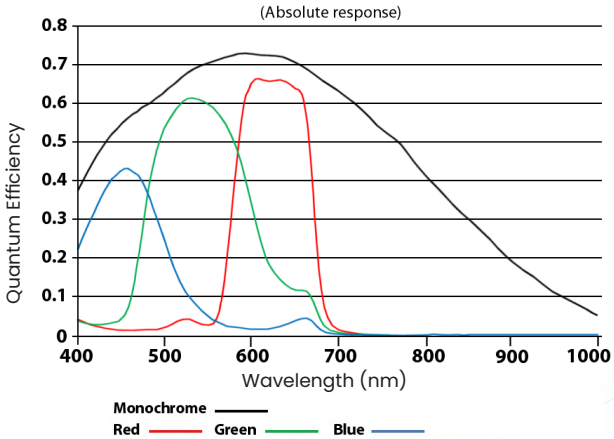
DC In / Trigger

09-3111-81-04 (Binder)

Pin	Signal
1	+12V to +24V DC Input
2	TTL In (Line 4)
3	TTL Out (Line 1)
4	GND

For Medium and Full implementations a second Mini-CL interface is provided. Video Channel 2 is on pin pairs (2,15), (3,16), (4,17), (5,18), and (6,19). Video Channel 3 is on pin pairs (8,21), (9,22), (10,23), (11,24), and (12,25). Consult manual for Specific bit depths and pin assignments.

Spectral response



Note: color response includes IR-cut filter (half value 670 nm)

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Product Highlights

- 5.1-megapixel 2/3″ CMOS imager (global shutter)
- Up to 35.6 fps at full resolution
- 3.45 µm square pixels
- Small size (29 x 29 x 41.5 mm, excluding lens mount)
- 8/10-bit output in choice of monochrome or raw Bayer models
- Exposure control from 14 µs to 8 seconds in 1 µs steps
- 2X binning for increased sensitivity (monochrome only)
- ROI mode for increasing frame rate and use of smaller optics
- Automatic Level Control (ALC) for dynamic lighting conditions
- Accepts power over Camera Link interface or separate 4-pin connector
- C-mount lens mount

Additional Product Images