

# GOX-20405M-PGE

## Technical Datasheet

IMX541 Pregius S



See the possibilities



## Apex Series



The Go-X Series offers compact, attractively-priced area scan cameras with a blend of features, image quality and industrial grade reliability that is in high demand for the next generation of machine vision systems.

The Go-X Series incorporates the most popular Sony Pregius and Pregius S global shutter CMOS sensors, and several Starvis CMOS sensors with rolling shutter technology. Resolutions range from 2.3 to 24.5 megapixels with a choice of USB3 Vision, GigE Vision (1000BASE-T or 5GBASE-T), or CoaXPress interfaces.

### Specification Highlights

**SENSOR:** IMX541 Pregius S

**FORMAT:** 1.1"

**PIXEL SIZE:** 2.74 x 2.74  $\mu\text{m}$

**LENS MOUNT:** C-Mount

**SPECTRUM:** Monochrome (Visible + NIR)

**SHUTTER:** Global Shutter

**FRAME RATE:** 5 fps

**INTERFACE:** GigE Vision 1-Cable (PoE)

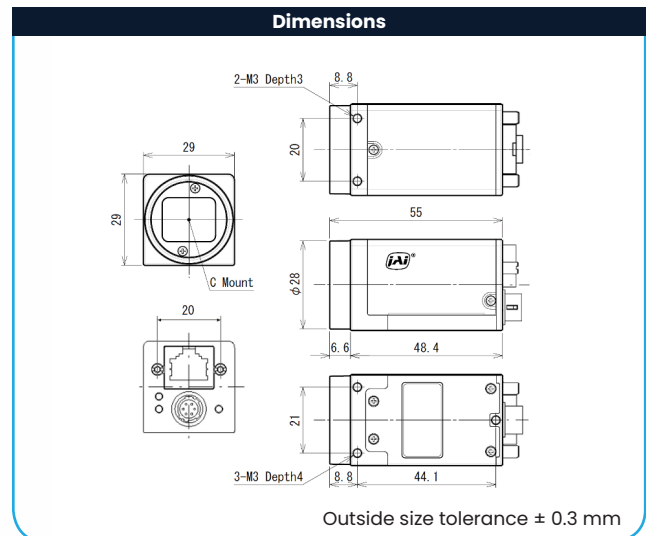
**RESOLUTION MP:** 20.3 MP

**RESOLUTION WxH:** 4512 x 4512 px

Specifications		GOX-20405-PGE
Sensor		1.1" CMOS global shutter (IMX541)
Active pixels		4512 (h) x 4512 (v)
Frame rate, full frame		5 frames/sec. @ 8-bit mono/Bayer Supports higher fps via lossless compression (Xpress mode) <sup>i</sup>
Active area		12.4 mm (h) x 12.4 mm (v) - 17.48 mm diagonal
Pixel size		2.74 μm x 2.74 μm
Read-out modes		
Full ROI (single)		4512 (h) x 4512 (v) up to 5 fps H: 96 to 4512 pixels in 8 pixel steps V: 8 to 4512 lines in 2 line steps
ROI (multi)		Up to 64 scanning areas - no overlap
Binning		1x2, 2x1, 2x2 (mono only)
Image scaling (Xscale)		Supports independent, sub-pixel rescaling of H and/or V resolution (1/16 max.)
EMVA 1288 Parameters		10-bit output format
Absolute sensitivity		Mono: TBD p Color: TBD p(λ = 527 nm)
Maximum SNR		Mono: TBD dB Color: TBD dB
Traditional SNR (Dark)*		>60 dB mono, >60 dB color (0 dB gain, 10-bit)
Video signal output		Monochrome: 8/10/12-bits Color: 8/10/12-bit Bayer or 24/32-bit RGB
Gain		Manual/auto 0 dB to +42 dB
White balance		Off, presets, or one-push/continuous AWB
Gamma/LUT		0.45 to 1.0 (9 steps) or 257-point programmable LUT
Time synchronization		Support for Precision Time Protocol (IEEE 1588)
Trigger input		Opto In, Pulse Generators (4), Software, NAND Out (2), User Output (4), Actions (ToE)
Exposure modes		Timed/EPS, RCT, Trigger Width, Auto
Electronic shutter		Timed: 3.5 μs to 8 sec. in 1 μs steps Auto: 100 μs to 200 ms at full resolution
Auto Level Control (ALC)		Shutter range from 100 μs to 200 ms, gain range from 0 dB to +42 dB. Tracking speeds and min/max values adjustable.
Shading correction		Flat shading, color shading (color model)
Video processing functions		H & V flip (mirroring), blemish compensation, gradation compression, color enhancement & color conversion <sup>i</sup> (color model)
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		80 G
Regulations		CE(EN 55032:2015(CISPR32:2015), EN 55035:2017(CISPR35:2016)), FCC Part 15 Class A, RoHS/WEEE, KC
Power	6-pin PoE	+10V to +25V DC. 5.1 W typical @ +12 V +36V to +57 V DC. 6.7 W typical @ +48 V
Lens mount		C-mount
Dimensions (H x W x L)		29 mm x 29 mm x 55 mm
Weight		65 g
Ordering Information		
GOX-20405M-PGE		Monochrome camera with GigE Vision interface
GOX-20405C-PGE		Color camera with GigE Vision interface

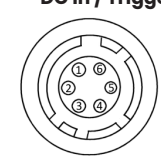
\*Traditional SNR is based on random noise in a single frame, where EMVA SNR measurements consider more comprehensive noise sources and variance over time.

<sup>†</sup>Part of free firmware upgrade scheduled for April 2023.



### Connector pin-out

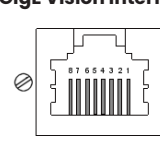
#### DC In / Trigger



HIROSE HR10A-7R-6PB(73)

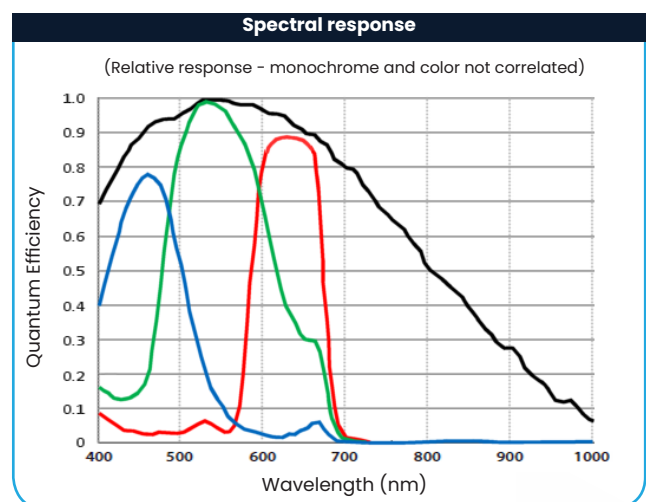
Pin	Signal
1	DC in +10V to +25V
2	Opto In+
3	Opto In-
4	Opto Out+
5	Opto Out-
6	Ground

#### 5GigE Vision Interface



RJ45 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

- High performance camera with 20.3-megapixel resolution
- 1.1" CMOS imager (global shutter) features backside illuminated pixel technology
- 2.74  $\mu\text{m}$  square pixels
- Up to 5 fps standard output at full resolution (4512 x 4512). Burst mode also available.
- Lossless compression function (Xpress) compresses image data to support higher frame rates\*
- 8/10/12-bit output in choice of monochrome or raw Bayer color models
- Color model includes a 5 x 5 debayering capability for RGB output\*
- Flexible ROI & rescaling function (Xscale) for sub-pixel color/mono binning and resolution matching
- Traditional 1x2, 2x1, or 2x2 binning also included on monochrome model
- Horizontal/vertical image flip function, plus blemish compensation and shading correction
- Includes Sequencer function and Automatic Level Control (ALC) for dynamic lighting conditions
- Compact size with excellent shock and vibration resistance
- Accepts power over GigE Vision interface or via separate 6-pin connector
- C-mount lens mount

\* Part of free firmware upgrade scheduled for April 2023

## Additional Product Images



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