

■ 4096 x 3000

■ 23 fps

Go-X Series 

**USB**<sup>™</sup>  
VISION

## ➤ **GOX-12401-USB** 12.3-megapixel CMOS global shutter



- *Go-X Series delivers exceptional combination of price and performance*
- *12.3-megapixel, 1.1" CMOS imager (global shutter)*
- *Up to 23 fps at full resolution (4096 x 3000)*
- *3.45  $\mu\text{m}$  square pixels*
- *8/10/12-bit\* output in choice of monochrome or raw Bayer color models*
- *ROI settings for added flexibility*
- *Horizontal/vertical image flip function, plus blemish correction and shading compensation*
- *Includes Sequencer function and Automatic Level Control (ALC) for dynamic lighting conditions*
- *Compact size with excellent shock and vibration resistance*
- *Accepts power over USB3 Vision interface or via separate 6-pin connector*
- *C-mount lens mount*

\* Not all processing functions supported with 12-bit output



# Specifications for GOX-12401-USB

## Go-X Series

### Specifications

### GOX-12401-USB

|                           |                                                                                                                                                             |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Sensor                    | 1.1" CMOS global shutter (IMX304)                                                                                                                           |
| Active pixels             | 4096 (h) x 3000 (v)                                                                                                                                         |
| Frame rate, full frame    | 23 frames/sec. @ 8-bit mono/Bayer                                                                                                                           |
| Active area               | 14.13 mm (h) x 10.35 mm (v) - 17.52 mm diagonal                                                                                                             |
| Pixel size                | 3.45 µm x 3.45 µm                                                                                                                                           |
| System clock              | 74.25 MHz (for pulse generator)                                                                                                                             |
| Read-out modes            | Full ROI (single) 4096 (h) x 3000 (v) up to 23 fps<br>H: 96 to 4080 pixels in 16 pixel steps<br>V: 8 to 2998 lines in 2 line steps<br>Binning 1X2, 2X1, 2X2 |
| EMVA 1288 Parameters      | 10-bit output format                                                                                                                                        |
| Absolute sensitivity      | Mono: 3.62 p Color: 3.86 p (λ = 527 nm)                                                                                                                     |
| Maximum SNR               | Mono: 39.7 dB Color: 39.7 dB                                                                                                                                |
| Traditional SNR*          | >60 dB mono, >60 dB color (0 dB gain, 10-bit)                                                                                                               |
| Video signal output       | Monochrome: 8/10/12-bits†<br>Color: 8/10/12-bit Bayer†                                                                                                      |
| Gain                      | Manual/auto 0 dB to +24 dB                                                                                                                                  |
| White balance             | Off, presets, or one-push/continuous AWB                                                                                                                    |
| Gamma/LUT                 | 0.45 to 1.0 (9 steps) or 257-point programmable LUT                                                                                                         |
| Synchronization           | Internal                                                                                                                                                    |
| Video modes               | Normal/Single ROI, Sequencer (Trigger & Command)                                                                                                            |
| Trigger input             | Opto In, Pulse Generators (4), Software, NAND Out (2), User Output (4)                                                                                      |
| Exposure modes            | Timed/EPS, RCT, Trigger Width, Auto                                                                                                                         |
| Electronic shutter        | Timed: 15.26 µs to 8 sec. in 1 µs steps<br>Auto: 100 µs to 43.4 ms at full resolution                                                                       |
| Auto Level Control (ALC)  | Shutter range from 100 µs to 43.4 ms, gain range from 0 dB to +24 dB. Tracking speeds and max. values adjustable.                                           |
| Shading correction        | Flat shading, color shading (color model)                                                                                                                   |
| Pre-processing functions  | H & V flip (mirroring), blemish compensation, H & V decimation                                                                                              |
| 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(EN 55032:2015(CISPR32:2015), EN 55035:2017(CISPR35:2016)), FCC Part 15 Class A, RoHS/WEEE, KC                                                            |
| Power                     | 6-pin USB 3.0 +10V to +25V DC. 4.3 W typical @ +12 V<br>+5V DC. 4.2 W typical @ +5 V                                                                        |
| Lens mount                | C-mount                                                                                                                                                     |
| Dimensions (H x W x L)    | 29 mm x 29 mm x 51.5 mm                                                                                                                                     |
| Weight                    | 62 g                                                                                                                                                        |

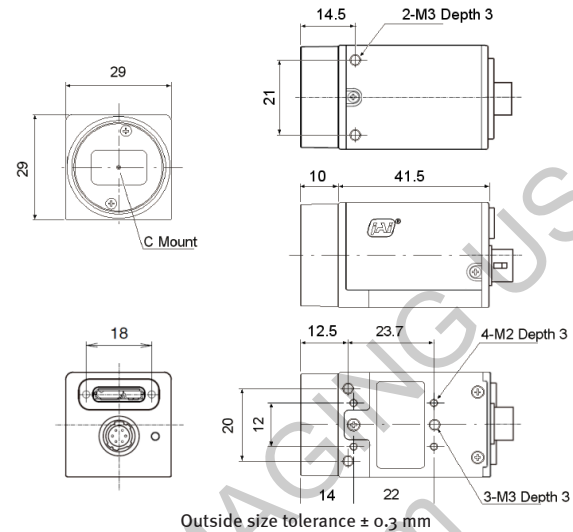
### Ordering Information

|                |                                              |
|----------------|----------------------------------------------|
| GOX-12401M-USB | Monochrome camera with USB3 Vision interface |
| GOX-12401C-USB | Color camera with USB3 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.

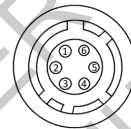
†12-bit output available in video processing bypass mode. See manual for details.

### Dimensions



### Connector pin-out

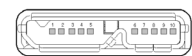
#### DC In / Trigger



HIROSE HR10A-7R-6PB(73)

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

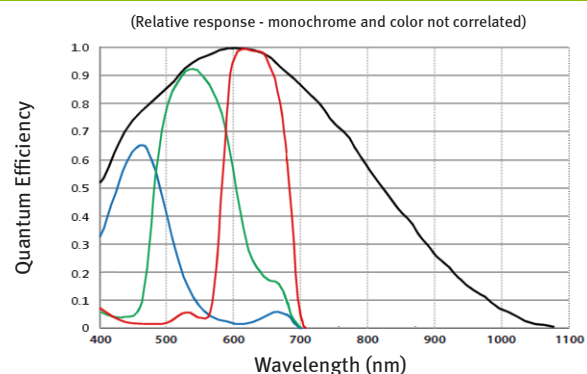
#### USB 3.0 Interface



Micro B type - ZX3600-B-10P or equiv.

| No. | I/O | Name      | Note                                |
|-----|-----|-----------|-------------------------------------|
| 1   | I   | VBUS IN   | Power (VBUS)                        |
| 2   | I/O | DM        | USB2.0 Differential pair (-)        |
| 3   | I/O | DP        | USB2.0 Differential pair (+)        |
| 4   |     | OTG ID    | USB OTG ID for identifying lines    |
| 5   |     | GND       | GND                                 |
| 6   | O   | FX3 SSTXM | USB3.0 Signal Transmission line (-) |
| 7   | O   | FX3 SSTXP | USB3.0 Signal Transmission line (+) |
| 8   |     | GND       | GND                                 |
| 9   | I   | FX3 SSRXP | USB3.0 Signal Receiving line (-)    |
| 10  | I   | FX3 SSRXM | USB3.0 Signal Receiving line (+)    |

### Spectral Response



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