

## USB3.0 Industrial Camera

The transmission speed of USB3.0 is significantly higher than USB2.0 and GigE cameras. With 5Gbps transmission and bandwidth and high-speed sensor, The camera of 0.3MP and 800 fps can achieve a minimum transmission time of 1.2 ms, and a 20MP pixel camera can also reach 18fps; Due to the abundant transmission bandwidth, a computer can guarantee high frame rate compatible with multiple cameras; The USB3.0 series has a low CPU utilization. DMA transmission is adopted. The 5Gbps data transmission part hardly occupies CPU resources. It is widely used in electronic 3C, automatic semiconductor, logistics code scanning, intelligent transportation, biomedicine, packaging and printing, etc.



SUA series



SUF series

### Product features

- The camera has its own programmable IO, which supports external trigger flash synchronous photography
- Support 16bit gray and 48bit color lossless format output
- 0.3MP to 20MP CMOS, multiple global shutter cameras are optional
- One computer can be connected to multiple cameras, and it can work stably for a long time without dropping frames

### Product features

Applicable to electronic 3C, automated semiconductors, logistics code scanning, intelligent transportation, biomedical, packaging and printing, etc.

## Product Selection Table

| Product number | Pixels | Sensor type | Shutter method | Maximum resolution | Pixel size | Frame rate (FPS) | Target size | Minimum exposure | Sensor model | Colour     |
|----------------|--------|-------------|----------------|--------------------|------------|------------------|-------------|------------------|--------------|------------|
| MV-SUA33GC/M   | 0.3MP  | CMOS        | Global         | 640X480            | 4.0µm      | 790              | 1/5.6"      | 0.00124ms        | SmartSens    | Color/Mono |
| MV-SUA34GC/M   | 0.3MP  | CMOS        | Global         | 640X480            | 4.8µm      | 431              | 1/4"        | 0.0045ms         | PYTHON       | Color/Mono |
| MV-SUA50GC/M   | 0.48MP | CMOS        | Global         | 800X600            | 4.8µm      | 118              | 1/3.6"      | 0.0098ms         | PYTHON480    | Color/Mono |
| MV-SUA133GC/M  | 1.3MP  | CMOS        | Global         | 1280X1024          | 4.0µm      | 245              | 1/2.7"      | 0.0039ms         | SC130GS      | Color/Mono |
| MV-SUA134GC/M  | 1.3MP  | CMOS        | Global         | 1280X1024          | 4.8µm      | 211              | 1/2"        | 0.0045ms         | PYTHON       | Color/Mono |
| MV-SUA40GC/M   | 0.4MP  | CMOS        | Global         | 720X540            | 6.9µm      | 523.5            | 1/2.9"      | 0.0032ms         | IMX287       | Color/Mono |
| MV-SUA300GC/M  | 3MP    | CMOS        | Global         | 2048X1536          | 3.45µm     | 55.6             | 1/1.8"      | 0.0114ms         | IMX265       | Color/Mono |
| MV-SUA505GC/M  | 5MP    | CMOS        | Global         | 2592X2048          | 3.2µm      | 42.72            | 2/3"        | 0.0113ms         | XGS5000      | Color/Mono |
| MV-SUA200GC/M  | 2MP    | CMOS        | Global         | 1600X1200          | 4.5µm      | 60               | 1/1.8"      | 0.0157ms         | EV76C570     | Color/Mono |
| MV-SUA202GC/M  | 2.3MP  | CMOS        | Global         | 1920X1200          | 4.8µm      | 165              | 2/3"        | 0.0039ms         | PYTHON2000   | Color/Mono |
| MV-SUA230GC/M  | 2.3MP  | CMOS        | Global         | 1920X1200          | 5.86µm     | 165              | 1/1.2"      | 0.0049ms         | IMX174       | Color/Mono |
| MV-SUA231GC/M  | 2.3MP  | CMOS        | Global         | 1920X1200          | 5.86µm     | 40               | 1/1.2"      | 0.0201ms         | IMX249       | Color/Mono |
| MV-SUA501GC/M  | 5MP    | CMOS        | Global         | 2448X2048          | 3.45µm     | 40               | 2/3"        | 0.0133ms         | IMX264       | Color/Mono |
| MV-SUA502C/M   | 5MP    | CMOS        | Rolling        | 2592X1944          | 2.2µm      | 59               | 1/2.5"      | 0.0084ms         | AR0521       | Color/Mono |
| MV-SUA630C/M   | 6.3MP  | CMOS        | Rolling        | 3088X2064          | 2.4µm      | 60               | 1/1.8"      | 0.008ms          | IMX178       | Color/Mono |
| MV-SUA1000C/M  | 10MP   | CMOS        | Rolling        | 3664X2748          | 1.67µm     | 8                | 1/2.3"      | 0.054ms          | MT9J003      | Color/Mono |
| MV-SUA1201C/M  | 12MP   | CMOS        | Rolling        | 4000X3000          | 1.85µm     | 32               | 1/1.7"      | 0.0102ms         | IMX226       | Color/Mono |
| MV-SUA1600C/M  | 16MP   | CMOS        | Rolling        | 4608X3456          | 1.34µm     | 12               | 1/2.3"      | 0.0233ms         | IMX206       | Color/Mono |
| MV-SUA2000C/M  | 20MP   | CMOS        | Rolling        | 5488X3672          | 2.4µm      | 19.5             | 1"          | 0.0138ms         | IMX183       | Color/Mono |
| MV-SUF401GC/M  | 4MP    | CMOS        | Global         | 2048X2048          | 5.5µm      | 88               | 1"          | 0.0054ms         | OEM          | Color/Mono |
| MV-SUF890GC/M  | 8.9MP  | CMOS        | Global         | 4096X2160          | 3.45µm     | 32               | 1"          | 0.034ms          | IMX267       | Color/Mono |
| MV-SUF1200C/M  | 12MP   | CMOS        | Rolling        | 4080X3072          | 3.1µm      | 30.5             | 1"          | 0.0201ms         | RJ5DY1BA0LT  | Color/Mono |
| MV-SUF1200GC/M | 12MP   | CMOS        | Global         | 4096X3000          | 3.45µm     | 23               | 1.1"        | 0.034ms          | IMX304       | Color/Mono |
| MV-SUF1205GC/M | 12MP   | CMOS        | Global         | 4096X3072          | 3.2µm      | 28               | 1"          | 0.0113ms         | XGS12000     | Color/Mono |

## Technical Parameters

| Model<br>Parameter       | MV-SUA33GC/M   | MV-SUA34GC/M                   | MV-SUA50GC/M                                  | MV-SUA133GC/M                  | MV-SUA134GC/M                  |
|--------------------------|--|--------------------------------|---|--------------------------------|--------------------------------|
| Resolution@ frame rate   | 640X480@790  | 640X480@431                    | 800X600@118                                   | 1280X1024@245                  | 1280X1024@211                  |
| Pixel size               | 4.0μmX4.0μm  | 4.8μmX4.8μm                    | 4.8μmX4.8μm                                   | 4.0μmX4.0μm                    | 4.8μmX4.8μm                    |
| Pixel bit depth          | 8bit   | 8bit                           | 10bit   | 8bit                           | 8bit                           |
| Sensitivity              | 8 V/lux-s 540nm  | 7.3 V/lux.s 540nm              | 7.7 V/lux.s 550nm                             | 8 V/Lux.s                      | 7.3 V/lux-s 540nm              |
| Acquisition mode         | Continuous/soft trigger/hard trigger                       |                                |   |                                |                                |
| Maximum gain (multiple)  | 8  | 16.5                           | 8   | 6                              | 16.5                           |
| Exposure time range (ms) | 0.00124~20.7   | 0.0045~584                     | 0.0098~640.9                                  | 0.0039~31                      | 0.0045~584                     |
| Frame buffer             | 128M Bytes   |                                |   |                                |                                |
| User-defined data area   | 2K Bytes   |                                |   |                                |                                |
| Video output format      | Color : Bayer8<br>Mono : Mono8                             | Color : Bayer8<br>Mono : Mono8 | Color : Bayer8/Bayer10<br>Mono : Mono8/Mono10 | Color : Bayer8<br>Mono : Mono8 | Color : Bayer8<br>Mono : Mono8 |
| GPIO                     | 1 trigger input, 1 flash control output; 1 GPO output      |                                |   |                                |                                |
| Lens Mount               | C-Mount  |                                |   |                                |                                |
| Power supply             | 5V, USB bus power supply                                   |                                |   |                                |                                |
| Power                    | < 3W   |                                |   |                                |                                |
| Dimensions               | 29X29X32.7mm (Without lens mount and rear shell interface) |                                |   |                                |                                |
| Weight                   | < 75g  |                                |   |                                |                                |

| Model<br>Parameter       | MV-SUA40GC/M   | MV-SUA300GC/M  | MV-SUA505GC/M   |
|--------------------------|--|----------------|-----------------|
| Resolution@ frame rate   | 720X540@523.5  | 2048X1536@55.6 | 2592X2048@42.75 |
| Pixel size               | 6.9μmX6.9μm  | 3.45μmX3.45μm  | 3.2μmX3.2μm     |
| Pixel bit depth          | 12bit  | 12bit          | 12bit           |
| Sensitivity              | 3660mv 1/30s   | 915mv 1/30s    | /               |
| Acquisition mode         | Continuous/soft trigger/hard trigger                       |                |                 |
| Maximum gain (multiple)  | 32   | 64             | 8               |
| Exposure time range (ms) | 0.0032~1955.4  | 0.0114~11966.6 | 0.0113~740.3    |
| Frame buffer             | 128M Bytes   |                |                 |
| User-defined data area   | 2K Bytes   |                |                 |
| Video output format      | Color : Bayer8/Bayer12 Mono : Mono8/Mono12                 |                |                 |
| GPIO                     | 1 trigger input, 1 flash control output; 1 GPO output      |                |                 |
| Lens Mount               | C-Mount  |                |                 |
| Power supply             | 5V, USB  |                |                 |
| Power                    | < 3W   |                |                 |
| Dimensions               | 29X29X32.7mm (Without lens mount and rear shell interface) |                |                 |
| Weight                   | < 75g  |                |                 |

## Technical Parameters

| Parameter                | Model | MV-SUA200GC/M  | MV-SUA202GC/M                                     | MV-SUA230GC/M                              | MV-SUA231GC/M                                 |
|--------------------------|-------|--|---|--|---|
| Resolution@ frame rate   |       | 1600X1200@60   | 1920X1200@165                                     | 1920X1200@165                              | 1920X1200@40                                  |
| Pixel size               |       | 4.5μmX4.5μm  | 4.8μmX4.8μm                                       | 5.86μmX5.86μm                              | 5.86μmX5.86μm                                 |
| Pixel bit depth          |       | 10bit  | 10bit   | 8bit                                       | 12bit   |
| Sensitivity              |       | 7.4V/lux-s 3200K   | 7.5 V/lux.s 550nm                                 | Color : 1016mV 1/30s<br>Mono : 825mV 1/30s | Color : 1016mV 1/30s<br>Mono : 825mV 1/30s    |
| Acquisition mode         |       | Continuous/soft trigger/hard triggerh                      |   |  |   |
| Maximum gain (multiple)  |       | 8  | 8   | 249.9                                      | 249.9   |
| Exposure time range (ms) |       | 0.0157~95  | Low speed : 0.0039~256.1<br>High speed : 0.0039~5 | 0.0049~10188                               | 0.0201~42112                                  |
| Frame buffer             |       | 128M Bytes   |   |  |   |
| User-defined data area   |       | 2K Bytes   |   |  |   |
| Video output format      |       | Color : Bayer8/Bayer12 Mono : Mono8/Mono12                 |   | Color : Bayer8<br>Mono : Mono8             | Color : Bayer8/Bayer12<br>Mono : Mono8/Mono12 |
| GPIO                     |       | 1 trigger input, 1 flash control output; 1 GPO output      |   |  |   |
| Lens Mount               |       | C-Mount  |   |  |   |
| Power supply             |       | 5V, USB bus power supply                                   |   |  |   |
| Power                    |       | < 3W   |   |  |   |
| Dimensions               |       | 29X29X32.7mm (Without lens mount and rear shell interface) |   |  |   |
| Weight                   |       | < 75g  |   |  |   |

| Parameter                | Model | MV-SUA501GC/M  | MV-SUA502C/M                                      | MV-SUA630C/M                            | MV-SUA1000C/M                                 |
|--------------------------|-------|--|---|---|---|
| Resolution@ frame rate   |       | 2448X2048@40   | 2592x1944@59                                      | 3088X2064@60                            | 3664X2748@8                                   |
| Pixel size               |       | 3.45μmX3.45μm  | 2.2μmX2.2μm                                       | 2.4μmX2.4μm                             | 1.67μmX1.67μm                                 |
| Pixel bit depth          |       | 12bit  | 10bit   | 8bit                                    | 12bit   |
| Sensitivity              |       | Color : 1146mV 1/30s<br>Mono : 915mV 1/30s                 | Color : 18.8 ke-/lux*sec<br>Mono : 36 ke-/lux*sec | 425mV 1/30s                             | 0.31V/lux-s 550nm                             |
| Acquisition mode         |       | Continuous/soft trigger/hard trigger                       |   |   |   |
| Maximum gain (multiple)  |       | 249.5  | 15  | 32                                      | 8   |
| Exposure time range (ms) |       | 0.0133~13924   | 0.0084~553.4                                      | Color : 0.008~2642<br>Mono : 0.008~2571 | 0.054~951                                     |
| Frame buffer             |       | 128M Bytes   |   |   |   |
| User-defined data area   |       | 2K Bytes   |   |   |   |
| Video output format      |       | Color : Bayer8/Bayer12<br>Mono : Mono8/Mono12              | Color : Bayer8 Mono : Mono8                       |   | Color : Bayer8/Bayer12<br>Mono : Mono8/Mono12 |
| GPIO                     |       | 1 trigger input, 1 flash ontrol output; 1 GPO output       |   |   |   |
| Lens Mount               |       | C-Mount  |   |   |   |
| Power supply             |       | 5V, USB bus power supply                                   |   |   |   |
| Power                    |       | < 3W   |   |   |   |
| Dimensions               |       | 29X29X32.7mm (Without lens mount and rear shell interface) |   |   |   |
| Weight                   |       | < 75g  |   |   |   |

## Technical Parameters

| Parameter                | Model | MV-SUA1201C/M  | MV-SUA1600C/M                                 | MV-SUA2000C/M                             | MV-SUF401GC/M     |
|--------------------------|-------|--|---|---|-------------------|
| Resolution@ frame rate   |       | 4000X3000@32   | 4608X3456@12                                  | 5488X3672@19.5                            | 2048X2048@88      |
| Pixel size               |       | 1.85μmX1.85μm  | 1.34μmX1.34μm                                 | 2.4μmX2.4μm                               | 5.5μmX5.5μm       |
| Pixel bit depth          |       | 8bit   | 12bit   | 8bit                                      | 8bit              |
| Sensitivity              |       | 250mV 1/30s  | 142mV 1/30s                                   | Color : 462mV 1/30s<br>Mono : 388mV 1/30s | 7.5 V/lux-s 540nm |
| Acquisition mode         |       | Continuous/soft trigger/hard trigger                       |   |   |                   |
| Maximum gain (multiple)  |       | 22   | 16  | 22  | 16.5              |
| Exposure time range (ms) |       | 0.0102~2665.1  | 0.0233~7741                                   | 0.0138~3608                               | 0.0054~704        |
| Frame buffer             |       | 128M Bytes   |   |   |                   |
| User-defined data area   |       | 2K Bytes   |   |   |                   |
| Video output format      |       | Color : Bayer8<br>Mono : Mono8                             | Color : Bayer8/Bayer12<br>Mono : Mono8/Mono12 | Color : Bayer8 Mono : Mono8               |                   |
| GPIO                     |       | 1 trigger input, 1 flash control output; 1 GPO output      |   |   |                   |
| Lens Mount               |       | C-Mount  |   |   |                   |
| Power supply             |       | 5V, USB bus power supply                                   |   |   |                   |
| Power                    |       | < 3W   |   |   |                   |
| Dimensions               |       | 29X29X32.7mm (Without lens mount and rear shell interface) |   |   | 29X39.5X32.7mm    |
| Weight                   |       | < 75g  |   |   | < 100g            |

| Parameter                | Model | MV-SUF890GC/M  | MV-SUF1200C/M   | MV-SUF1200GC/M                   | MV-SUF1205GC/M |
|--------------------------|-------|--|---|----------------------------------|----------------|
| Resolution@ frame rate   |       | 4096X2160@32   | 4080X3072@30.5  | 4096X3000@23                     | 4096X3072@28   |
| Pixel size               |       | 3.45μmX3.45μm  | 3.1μmX3.1μm   | 3.45μmX3.45μm                    | 3.2μmX3.2μm    |
| Pixel bit depth          |       | 12bit  | 8bit  | 12bit                            | 8bit           |
| Sensitivity              |       | Color : 1146mV<br>Mono : 915mV                               | Color : 1420 mV/lxs@3200k<br>Mono : 2340 mV/lxs@3200k | Color : 1146 mV<br>Mono : 915 mV | /              |
| Acquisition mode         |       | Continuous/soft trigger/hard trigger                         |   |                                  |                |
| Maximum gain (multiple)  |       | 249.9  | 64  | 249.9                            | 8              |
| Exposure time range (ms) |       | 0.034~29546.9  | 0.0201~2635   | 0.034~71303                      | 0.0113~740.3   |
| Frame buffer             |       | 128M Bytes   |   |                                  |                |
| User-defined data area   |       | 2K Bytes   |   |                                  |                |
| Video output format      |       | Color : Bayer8<br>Mono : Mono8                               |   |                                  |                |
| GPIO                     |       | 1 trigger input, 1 flash control output; 1 GPO output        |   |                                  |                |
| Lens Mount               |       | C-Mount  |   |                                  |                |
| Power supply             |       | 5V, USB bus power supply                                     |   |                                  |                |
| Power                    |       | < 4.2W   | < 3W  | < 4.15W                          | < 3W           |
| Dimensions               |       | 29X39.5X32.7mm (Without lens mount and rear shell interface) |   |                                  |                |
| Weight                   |       | < 100g   |   |                                  |                |

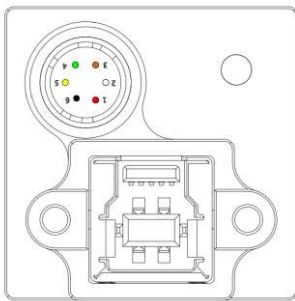
## General Parameters

|                               |  |
|-------------------------------|--|
| Vision Standard Agreement     | USB3Vision 1.0, GenICam  |
| Data interface                | USB3.0 TYPE B  |
| Operating system              | WIINXP, WIN7/8/10 32@64-bit system, Linux and ARM Linux driver (customizable), Android platform driver (customizable)Linux and ARM Linux driver (customizable), Android platform driver (customizable)   |
| Driver                        | Directshow component Halcon special component Labview special driver OCX component TWAIN component   |
| Programming language pack     | C/C++/C#/VB6/VB.NET/Delphi/BCB/Python/Java   |
| Working temperature @humidity | 0~50°C @ 20%~80%(No condensation)  |
| Storage temperature @humidity | -30~60°C @ 20%~95%(No condensation)  |
| Other functions               | Support any size ROI custom resolution, contrast and gamma adjustment, saturation adjustment, white balance correction, black level correction, custom dead point coordinate correction,ISP image processing acceleration, 3D noise reduction, custom LUT table, frame rate adjustment, custom camera name, etc. |

## SUA/SUF Model selection table of camera tail patch

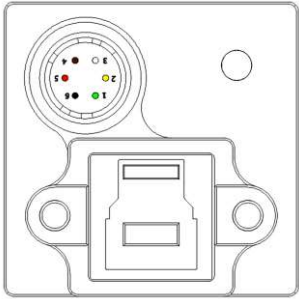
| Function<br>Suffix | Aircraft head line sequenceDefinition n diagram | 12V Power supply | Power supply shrapnel typeAircraft head | Lens interface C-mount | Lens interface CS-mount | State            |
|--------------------|---|------------------|---|------------------------|-------------------------|------------------|
| -T1V-C             | 1   | ●                | ●                                       | ●                      |                         | Recommend        |
| -T                 | 2   |                  | ●                                       |                        | ●                       | Planned shutdown |
| -T-C               | 2   |                  | ●                                       | ●                      |                         | Planned shutdown |
| -TV-C              | 3   | ●                | ●                                       | ●                      |                         | Planned shutdown |

### Line sequence definition1



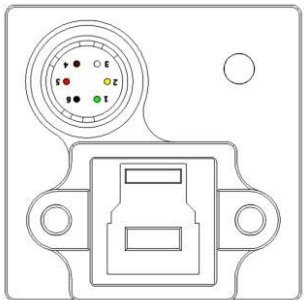
| Port   | Pin number | Line color | Signal name              | Signal description   | Remarks                       |
|--------|------------|------------|--------------------------|--|-------------------------------|
| Port A | 1          | Red        | PWR12V                   | Camera power input positive terminal   |                               |
|        | 2          | White      | GPI1+/TRIG_IN+           | GPI1 Positive end / trigger input positive end                                   | Default to trigger input      |
|        | 3          | Brown      | GPI2/GPO2                | GPIO2 Input / output   | Non isolated bidirectional IO |
|        | 4          | Green      | GPO1+/STRB_OUT+          | GPO1Positive end / flash output positive end                                     | Default to flashoutput        |
|        | 5          | Yellow     | GPO1-/STRB-OUT-/TRIG_IN- | GPO1 Negative terminal / flash output negative terminal / trigger input negative | GPIO Common negative terminal |
|        | 6          | Black      | PWRGND                   | Camera power input negative terminal   |                               |

## Line sequence definition 2



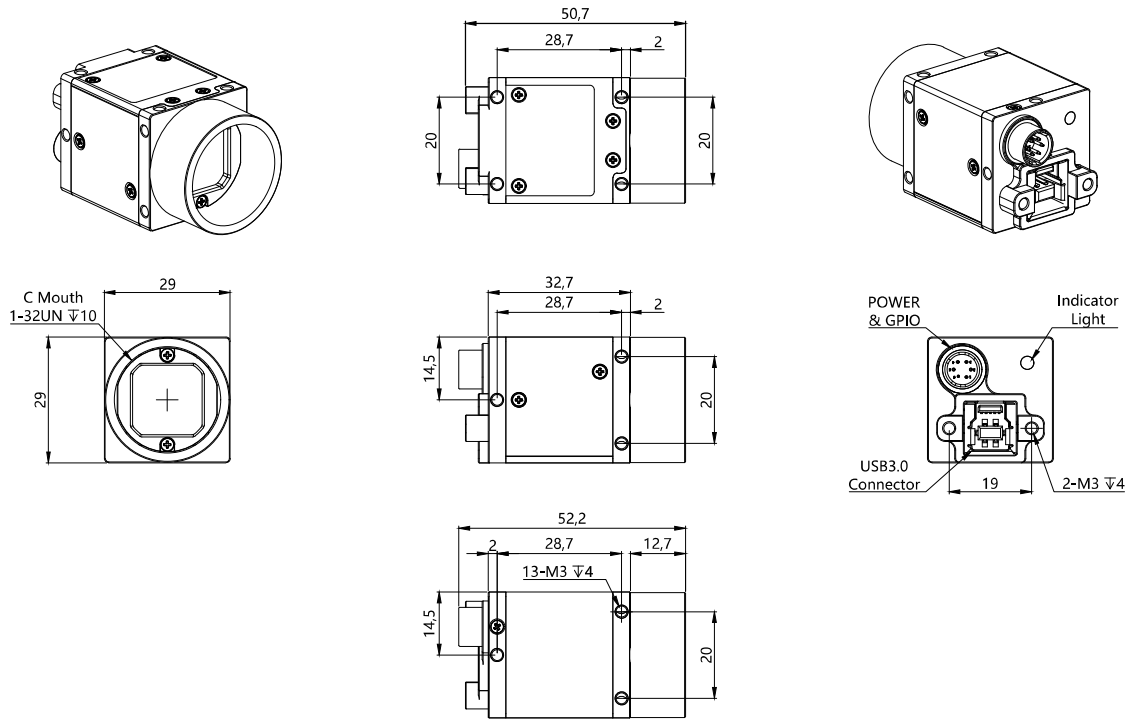
| Pin number | Line color | Signal name     | Signal description                                     | Remarks                  |
|------------|------------|-----------------|--|--------------------------|
| 1          | Green      | GPO1+/STRB_OUT+ | GPO1Positive end / flash output positive end           | Default to flash output  |
| 2          | Yellow     | GPO1-/STRB_OUT- | GPO1Negative terminal / flash output negative terminal | Default to flash output  |
| 3          | White      | GPI1+/TRIG_IN+  | GPI1Positive end / trigger input positive end          | Default to trigger input |
| 4          | Brown      | GPI1-/TRIG_IN-  | GPI1Negative end / trigger input negative end          | Default to trigger input |
| 5          | Red        | GPO2+           | GPO2Positive end output                                |                          |
| 6          | Black      | GPO2-           | GPO2Negative end output                                |                          |

## Line sequence definition 3



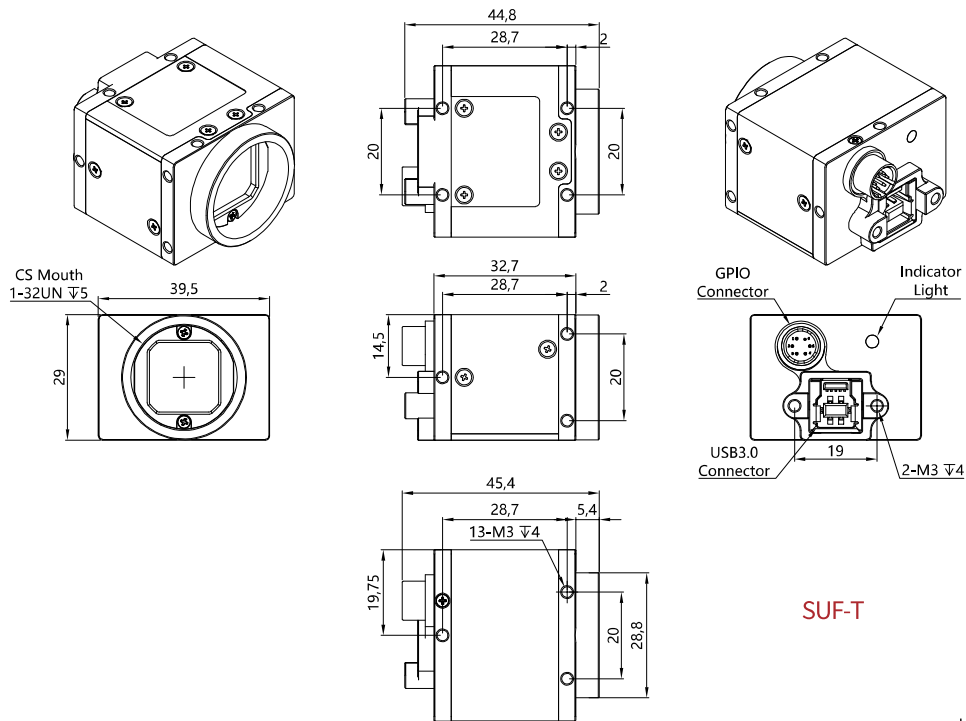
| Port   | Pin number | Line color | Signal name     | Signal description                                     | Remarks                  |
|--------|------------|------------|-----------------|--|--------------------------|
| Port A | 1          | Green      | GPO1+/STRB_OUT+ | GPO1Positive end / flash output positive end           | Default to flash output  |
|        | 2          | Yellow     | GPO1-/STRB_OUT- | GPO1Negative terminal / flash output negative terminal | Default to flash output  |
|        | 3          | White      | GPI1+/TRIG_IN+  | GPI1Positive end / trigger input positive end          | Default to trigger input |
|        | 4          | Brown      | GPI1-/TRIG_IN-  | GPI1Negative end / trigger input negative end          | Default to trigger input |
|        | 5          | Red        | PWR12V          | Camera power input positive terminal                   |                          |
|        | 6          | Black      | PWRGND          | Camera power input negative terminal                   |                          |

## SUA Series Dimension Drawing



Unit mm

## SUF Series Dimension Drawing

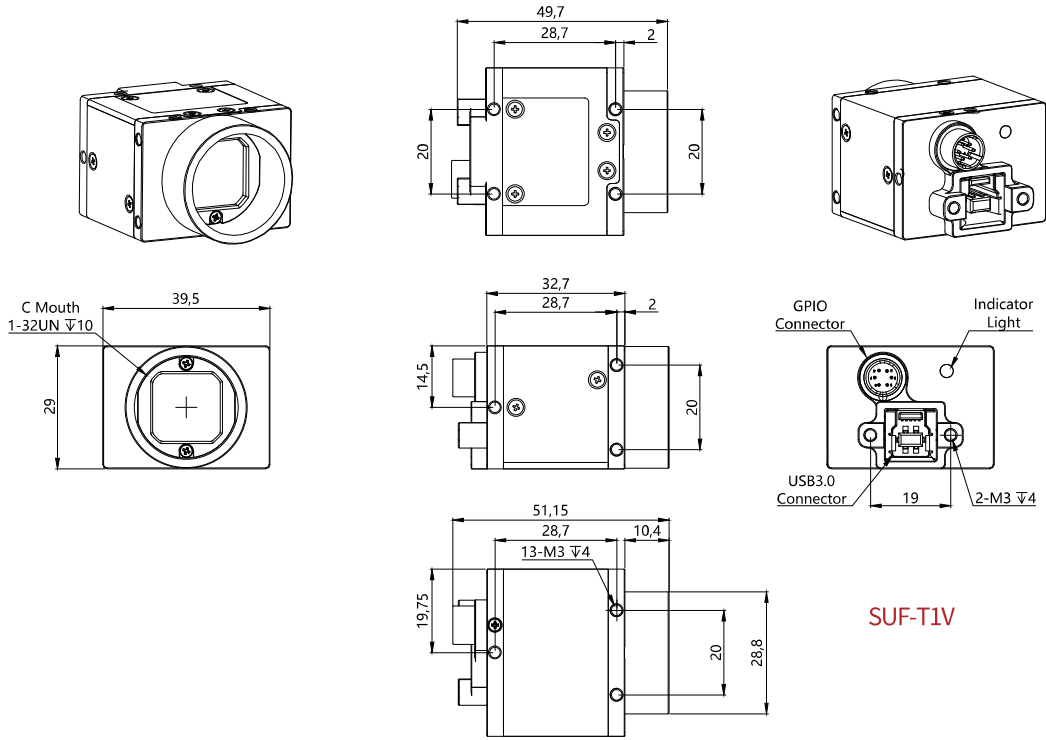


SUF-T

Unit mm



## SUF Series Dimension Drawing



SUF-T1V

Unit: mm