

## Micro Working Distance Camera

Model Name: INS-CHVS-1350-10GM Series

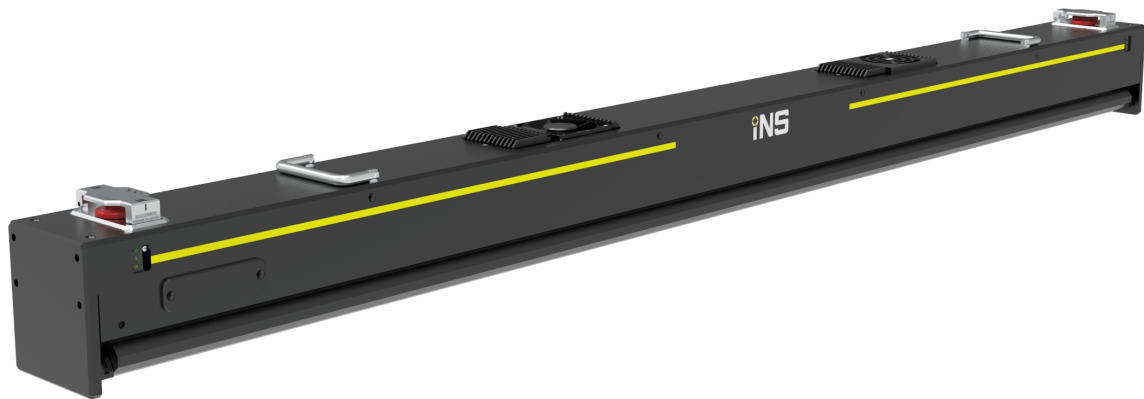
| Change History |           |        |                        |
|----------------|-----------|--------|------------------------|
| Rev.           | Date      | Author | Specification          |
| V1.0           | Feb. 2023 | INSNEX | Original               |
| V2.0           | Jan. 2024 | INSNEX | Increase BA,AA1 models |
|                |           |        |                        |

| Contact Us                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>If you have any doubts or suggestions during the use of the software, please contact us promptly:</p> <p>Ins nex Technologies Co.,Ltd</p> <p>Address: Building R, No. 218 Xingming Street, Suzhou Industrial Park, Suzhou Area, China (Jiangsu) Pilot Free Trade Zone</p> <p>Postal Code: 215000</p> <p>Website: <a href="http://www.insnex.com/">http://www.insnex.com/</a></p> <p>Telephone: (86) 0512-67159489</p> <p>E-mail: Services@Ins nex.com</p> |

## 1. Product Outline

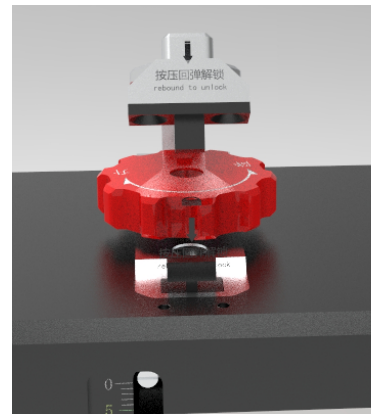
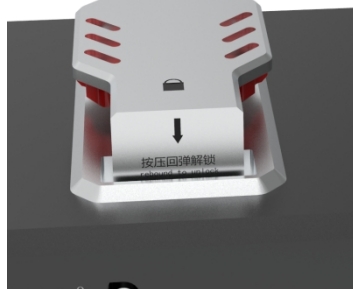
| Item                               | INS-CHVS-1350<br>-10GM-BB | INS-CHVS-1350<br>-10GM-AA | INS-CHVS-1350<br>-10GM-BA | INS-CHVS-1350<br>-10GM-AA1 | Note                  |
|------------------------------------|---------------------------|---------------------------|---------------------------|----------------------------|-----------------------|
| Control board                      | CIS-MAIN*3                | CIS-MAIN*3                | CIS-MAIN*4                | CIS-MAIN*4                 |                       |
| Digital data output interface      | 10GigE*3                  | 10GigE*3                  | 10GigE*4                  | 10GigE*4                   |                       |
| Command transmission interface     | Serial interface          | Serial interface          | Serial interface          | Serial interface           |                       |
| Scanning width                     | 1349                      | 1349                      | 1349                      | 1349                       | mm                    |
| Resolution                         | 600                       | 300                       | 600                       | 300                        | DPI                   |
| Effective pixel point              | 31902                     | 15990                     | 31902                     | 15990                      | Pixels                |
| Line frequency                     | 66                        | 110                       | 95                        | 150                        | kHz                   |
| Scanning speed                     | 2.8                       | 9.3                       | 4                         | 12.6                       | m/s                   |
| Data transfer rate                 | 30                        | 30                        | 40                        | 40                         | Gbps                  |
| Power supply                       | +24V×3A                   | +24V×3A                   | +24V×3A                   | +24V×3A                    | To control boards/fan |
|                                    | +24V×6A                   | +24V×6A                   | +24V×6A                   | +24V×6A                    | To LED boards         |
| External dimension                 | Figure 1                  | Figure 1                  | Figure 1                  | Figure 1                   |                       |
| Focus position(from glass surface) | 15                        | 15                        | 15                        | 15                         | mm                    |
| Image format                       | Mono8                     | Mono8                     | Mono8                     | Mono8                      |                       |
| Appearance colour                  | Black                     | Black                     | Black                     | Black                      |                       |

## 2. Operating Instructions



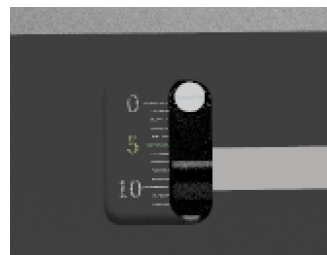
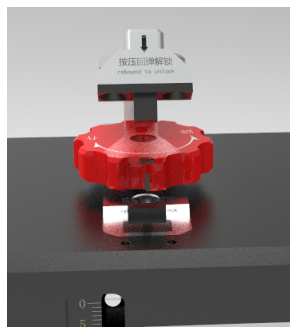
### 2.1 Locking mechanism

- (1) Press the silver cover flap until the popper catch pops out to unlock.
- (2) Press the silver cover flap until the ejector catch locks back into place.



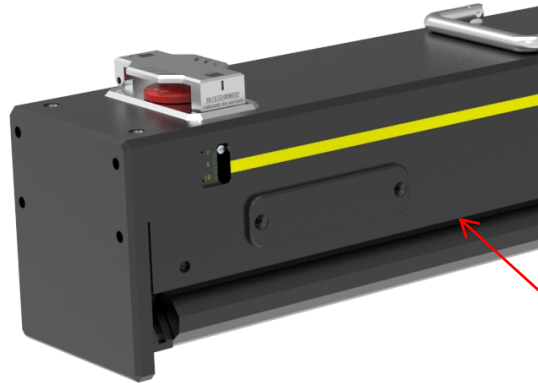
### 2.2 Focus Adjustment

- (1) Rotate the knob counterclockwise, the lens moves downward to adjust the focus, rotate the knob clockwise, the lens moves upward to adjust the focus, both sides are symmetrical.
- (2) Both sides of the scale reference to keep parallel.



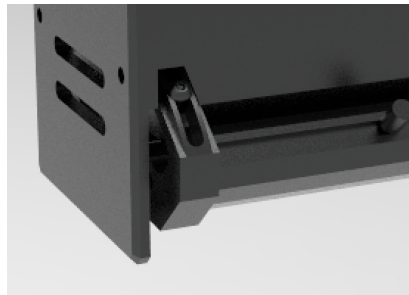
### 2.3 Light source line cover

After plugging in the front and rear light source power supply cable sockets, cover the light source cover plate and tighten the corresponding screws to prevent loosening (front and rear symmetry).

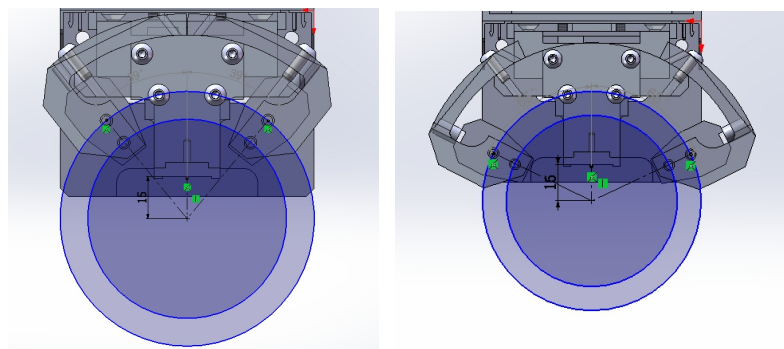


Light source cover

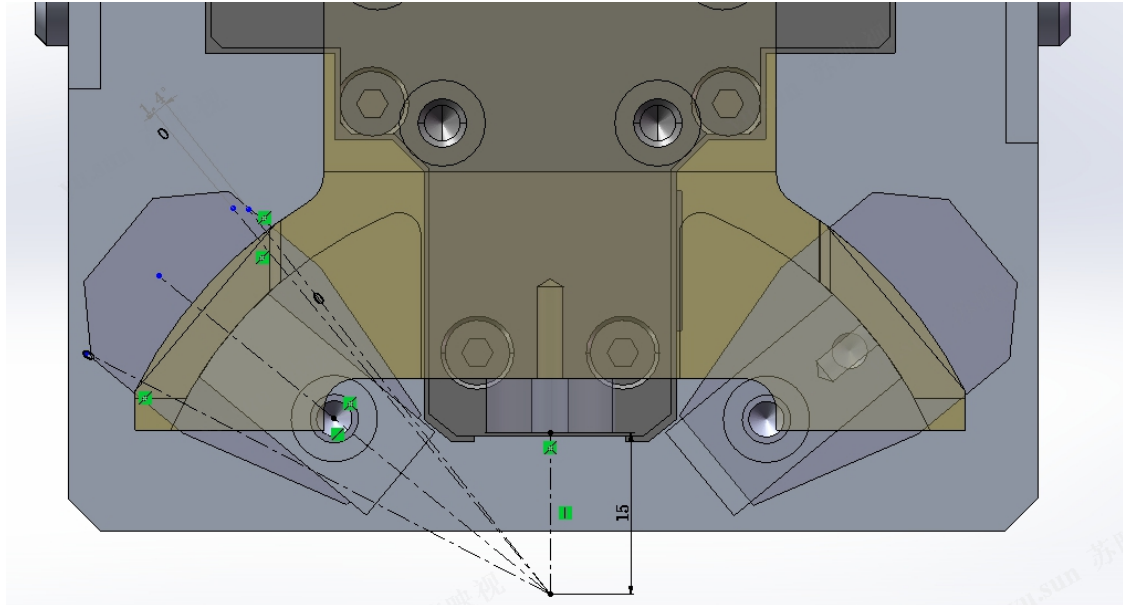
### 2.4 Adjustable light source units



Light source adjustable angle reference

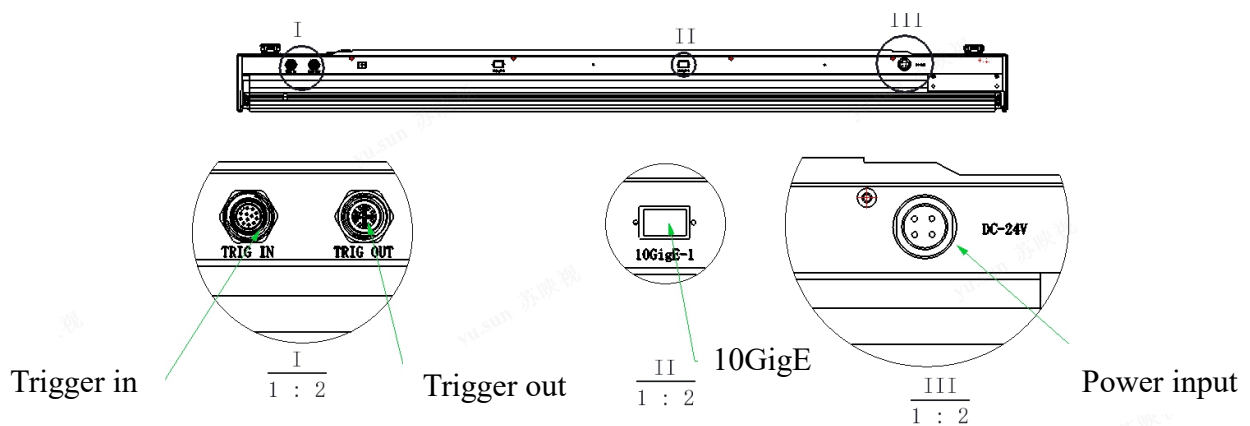


Focal length 15mm;  
light source adjustable 38° on one side



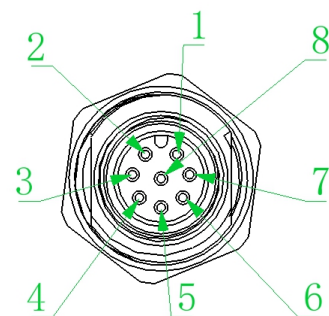
Light source adjustment scale line with a scale spacing of 1mm (1.4 °)

### 3. Description of Interface



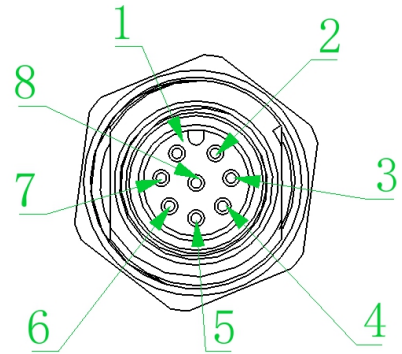
#### 3.1 Trigger In

| Pin | Name | I/O | Color  | Description                |
|-----|------|-----|--------|----------------------------|
| 1   | A+   | I   | White  | Shaft encoder phase A+     |
| 2   | A-   | I   | Brown  | Shaft encoder phase A-     |
| 3   | B+   | I   | Green  | Shaft encoder phase B+     |
| 4   | B-   | I   | Yellow | Shaft encoder phase B-     |
| 5   | I1+  | I   | Grey   | External trigger input 1 + |
| 6   | I1-  | I   | Pink   | External trigger input 1 - |
| 7   | I2+  | I   | Blue   | External trigger input 2 + |
| 8   | I2-  | I   | Red    | External trigger input 2 - |



### 3.2 Trigger Out

| Pin | Name | I/O | Color  | Description                 |
|-----|------|-----|--------|-----------------------------|
| 1   | O1+  | O   | White  | External trigger output 1 + |
| 2   | O1-  | O   | Brown  | External trigger output 1 - |
| 3   | O2+  | O   | Green  | External trigger output 2 + |
| 4   | O2-  | O   | Yellow | External trigger output 2 - |
| 5   | O3+  | O   | Grey   | External trigger output 3 + |
| 6   | O3-  | O   | Pink   | External trigger output 3 - |
| 7   | O4+  | O   | Blue   | External trigger output 4 + |
| 8   | O4-  | O   | Red    | External trigger output 4 - |



### 3.3 10GigE

Use 10GigE network to transmit commands and data. Please use Category 7 network cable.

### 3.4 Power Input

| Pin | Signal | I/O | Color | Description            |
|-----|--------|-----|-------|------------------------|
| 1   | +24V_C | I   | Brown | Control board DC 24V + |
| 2   | GND_C  | I   | Blue  | Control board DC 24V-  |
| 3   | +24V_L | I   | Brown | Light source DC 24V +  |
| 4   | GND_L  | I   | Blue  | Light source DC 24V -  |



## 4. Serial Interface

This serial interface uses hex code.

| Item         | Value  |
|--------------|--------|
| Baud rate    | 115200 |
| Start bit    | 1      |
| Data bit     | 8      |
| Parity bit   | None   |
| Stop bit     | 1      |
| Flow control | None   |

## 5. Maximum Rating

| Item                | Symbol         | Specification | Note      |
|---------------------|----------------|---------------|-----------|
| DC supply voltage   | Control boards | +24V±1V       |           |
|                     | LED boards     | +24V±1V       |           |
| Ambient temperature | Ta             | 0~+40°C       | Operating |
|                     |                | -20~60°C      | Storage   |
| Ambient humidity    |                | 10%~90%RH     |           |

## 6. Connector Plug/Unplug

Unplug & plug the cable number should be less than 50. The connector will be ineffective if it is extracted and inserted over that number.

## 7. Stable Operation

(1) The connector pins should not be touched by bare hands or electrostatic charge materials.

(2) Latch-up

When the supply voltage exceeds the absolute maximum, Latch-up will occur. Latch-up will cause the sensor to be broken, even if the voltage is caused by a surge. If the current varies rapidly in the external circuit, or when the power is switched on and off very frequently, ensure that the voltage of each terminal does not exceed the values indicated in below.

(3) Absolute maximum rating

| Item                            | Specification |       | Unit |
|---------------------------------|---------------|-------|------|
|                                 | Min.          | Max.  |      |
| Control boards supply voltage   | -0.3          | +25.0 | V    |
| LED boards supply voltage       | -0.3          | +25.0 |      |
| Shaft encoder input voltage     | -0.3          | 5.5   |      |
| External trigger input voltage  | -0.3          | 25    |      |
| External trigger output voltage | -0.3          | 25    |      |

## 8. Reliability

Please operate Micro Working Distance Camera under INS operating conditions, which is specified in section 5.

**Figure 1. Dimensions**

