In-Sight Micro Light
Integration Note

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Summary

The In-Sight Micro light provides a compact and direct lighting solution for the In-Sight Micro vision system. The In-Sight Micro Light receives the strobe signal directly from the I/O connection on the In-Sight Micro without additional wiring. This application note details how to connect to the light and how to setup the In-Sight Micro vision system to correctly use the light.

Hardware Connections

The In-Sight Micro Light has a short, integrated signal cable which connects directly to the M8 I/O connection on the back of the In-Sight Micro vision system. The signal cable provides access to the HSOUT1 signal to strobe the light. All other I/O signals are passed through the signal cable to the M8 connector on the light housing.

The yellow In-Sight Micro I/O cable (P/N: CCB-M8IO-xx or CCB-M8DSIO-xx) then connects to the M8 connector on the light housing and is used to supply power to the light and provide access to the remaining high speed output and trigger for the In-Sight Micro. The pin assignments for the M8 connector on the light are:

<table>
<thead>
<tr>
<th>M8 Connector on Light</th>
<th>Pin #</th>
<th>Signal Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>HS Out 0</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Power</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Trigger +</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Trigger -</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Ground</td>
<td></td>
</tr>
</tbody>
</table>

*NOTE: The power and ground signals for the light are interchangeable, however for this application note, the example of power on pin 2 and ground on pin 5 is used.*
The following examples detail how to use the In-Sight Micro Light with either the flying lead I/O cable or when using the In-Sight Micro I/O module. These configurations are used only when connected to the In-Sight Micro Light:

- **Flying Lead Cable** (P/N: CCB-M8IO-xx): When the In-Sight Micro Light is used with the In-Sight Micro I/O cable with flying leads, supply +24V on pin 2 (white wire) and a ground reference on pin 5 (gray wire). This will supply power to the light. The remaining high speed I/O are accessed on the remaining wires.

- **In-Sight Micro I/O Module**: When the In-Sight Micro Light is used with the I/O module (part numbers CIO-MICRO or CIO-MICRO-CC), the In-Sight Micro I/O cable with the D-Sub connector is used (P/N: CCB-M8DSIO-xx). In this case, supply 24 volts DC to the HSOUT1 terminal and ground to the HS common terminal on the I/O module. This will supply power to the light. The remaining high speed I/O (trigger input and high speed output 0) are accessed on the remaining labeled terminals on the I/O module.

When power is supplied to the In-Sight Micro Light, the red power indicator LED on the light will illuminate. When the strobe trigger is received from the In-Sight Micro HSOUT1 signal, the light will flash and the green trigger LED on the light will illuminate.

**Software Settings**

The In-Sight Micro Light relies on the high speed output 1 signal on the In-Sight Micro Vision System to be set to strobe. Therefore the light:

- Will only illuminate when the strobe signal is active in the In-Sight Micro.
- Must have the Discrete Output signal HSOUT1 (also listed as Line 1) set to Strobe or to Acquisition Start.
  - For Strobe setting, set the Details to Falling Edge.
  - For Acquisition Start setting, set the pulse duration to be set to half of the exposure time.

For example: An exposure time of 8 milliseconds should have the HSOUT1 pulse width set to 4ms.
The light will overheat if left on for longer than 1 second or longer than ½ of the exposure time of the vision system. The Power LED will blink if this error occurs. The light will automatically recover once the correct settings have been set on the vision system.

**In-Sight Micro Light Accessories**

The In-Sight Micro Light offers accessories which attach to the light to provide different filtering techniques or easy mounting to the In-Sight Micro Vision system.

**Filter Accessories**

A diffuser plate and a polarizer plate are two filters offered as accessories for the In-Sight Micro Light. The diffuser accessory provides soft and even illumination from the light. This effect is also referred to as cloudy day illumination. The Polarizer accessory will decrease glare off of an object by allowing only half of the light to pass through.

For example, the images below are of a highly reflective aluminum part taken using the In-Sight Micro Light. Image A is over saturated and the glare has hidden the pattern on the part. Image B has the same light intensity and exposure as Image A except the polarizer accessory is attached to the light, and the pattern is now able to be seen.

![Image A](image_a.png) ![Image B](image_b.png)

Each filter accessory is attached to the front of the light by 4 screws. The light, by default, has a clear plate over the light. In order to attach the polarizer or diffuser accessory, remove the 4 screws and replace the clear plate with the polarizer or diffuser plate as shown in the image below.
Bracket Accessory

The In-Sight Micro Light Bracket allows the light and the In-Sight Micro Vision System to be easily attached and aligned correctly on the same focal plane. The bracket first connects to the light by 4 screws (2 sets on each side). The In-Sight Micro Vision system is attached to the bracket via the mounting foot (which is included with the system). The bracket has the same through holes as the In-Sight Micro mounting foot. The mounting foot is attached to the vision system, through the bracket, using the longer screws included with the bracket.

The complete assembly will look like the following picture:
References:

For additional information, please reference the setup instructions included with the In-Sight Micro Light.

The part numbers for the In-Sight Micro Light and accessories are listed below:

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICWS-56-ISM</td>
<td>In-Sight Micro White Ring Light</td>
</tr>
<tr>
<td>ICRS-56-ISM</td>
<td>In-Sight Micro Red Ring Light</td>
</tr>
<tr>
<td>IC00-PL-SQR56-ISM</td>
<td>Polarizer plate for In-Sight Micro Light</td>
</tr>
<tr>
<td>IC00-DF-SQR56-ISM</td>
<td>Diffuser plate for In-Sight Micro Light</td>
</tr>
<tr>
<td>IC00-BK-SQR56-ISM</td>
<td>Bracket for In-Sight Micro Light</td>
</tr>
</tbody>
</table>