

**COGNEX**

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# In-Sight<sup>®</sup> 7000 Series Vision System

Optional Configurations

**IN-SIGHT**  
Vision Systems



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5481712, 5742037, 5751853, 5845007, 5909504, 5943441, 5949905, 5960125, 5978080, 5978081, 6005978, 6137893, 6141033, 6154567, 6215915, 6301396, 6327393, 6381375, 6408109, 6457032, 6490600, 6563324, 6658145, 6690842, 6771808, 6804416, 6836567, 6850646, 6856698, 6859907, 6920241, 6941026, 6959112, 6963338, 6975764, 6985625, 6993192, 7006712, 7016539, 7043081, 7058225, 7065262, 7069499, 7088862, 7107519, 7164796, 7175090, 7181066, 7251366, 7720315, JP 3927239

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# Uninstall and Install the M12 Lens

If you purchased a vision system with the pre-installed M12 lens, the lens can be replaced with other M12 lenses. The Cognex Lens Tool accessory (LNS-M12-TOOLKIT) must be used to replace the M12 lens. Please contact your Cognex sales representative for more information.

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**CAUTION:** Using a non-Cognex lens or replacing the M12 lens without the Cognex Lens Tool accessory (LNS-M12-TOOLKIT) may cause damage to the vision system.

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## Uninstall the M12 Lens

1. Verify that the 24VDC power supply being used is unplugged and not receiving power.
2. Remove the lens cover, if present.
3. Determine the correct lens tool to use, based on the focal length of the lens.

**Table 1-1: Cognex Lens Tool**

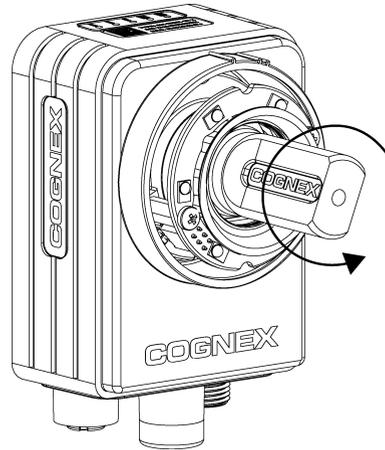
Lens Focal Length	Cognex Lens Tool
6MM (P/N 114-1346R) 8MM (P/N 114-1347R) 12MM (P/N 114-1348R)	Clear Anodized (P/N 820-0233-xR)
16MM (P/N 114-1309R) 25MM (P/N 114-1112R)	Black Anodized (P/N 820-0234-xR)

4. Place the lens tool directly on the lens, with the padded end of the tool pressed against the lens. The pad will “grab” onto the lens.



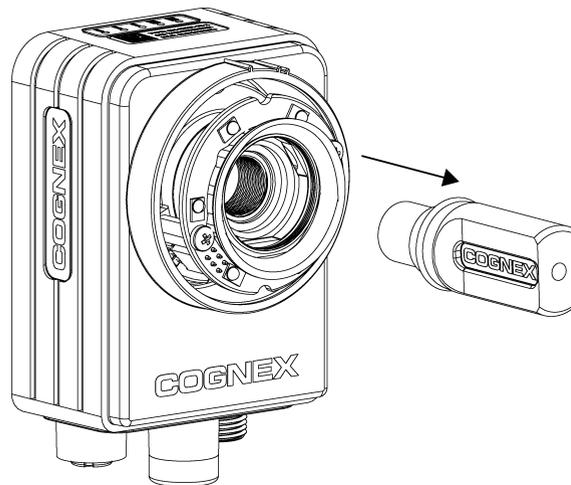
**Figure 1-1: Place Lens Tool on Lens**

5. To loosen the lens, turn the lens tool counter-clockwise.



**Figure 1-2: Turn Counter-Clockwise**

6. Remove the lens.



**Figure 1-3: Remove the Lens**

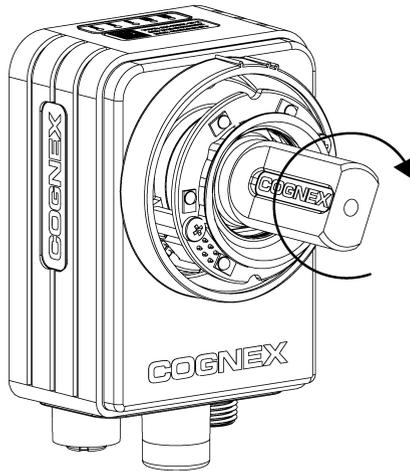
## Install the M12 Lens

1. Verify that the 24VDC power supply being used is unplugged and not receiving power.
2. Determine the correct lens tool to use, based on the focal length of the lens.

**Table 1-2: Cognex Lens Tool**

Lens Focal Length	Cognex Lens Tool
6MM (P/N 114-1346R) 8MM (P/N 114-1347R) 12MM (P/N 114-1348R)	Clear Anodized (P/N 820-0233-xR)
16MM (P/N 114-1309R) 25MM (P/N 114-1112R)	Black Anodized (P/N 820-0234-xR)

3. To install the lens, insert the lens and using your fingers, turn it clockwise. If needed, attach the lens tool and finish tightening the lens; the maximum torque is 0.34 Nm (3 in-lb).



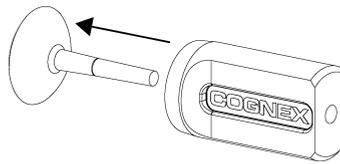
**Figure 1-4: Turn Clockwise**

4. Reattach the lens cover.
5. Restore power to the 24VDC power supply and turn it on if necessary.

## Replace the Cognex Lens Tool Pad

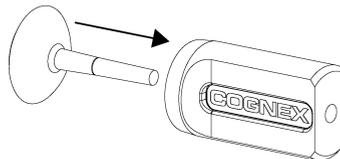
If the Cognex Lens Tool's Pad tears, it can be replaced using one of the pads included with the lens tool.

1. Grab the edge of the existing pad and pull it out of the lens tool.



**Figure 1-5: Remove Pad**

2. Using one of the replacement pads included with the lens tool, feed the stem through the lens tool until the pad is resting firmly on the end of the lens tool.



**Figure 1-6: Replace Pad**

# Install the Lens Filter

If you purchased a vision system with the M12 lens configuration, a filter kit is available for purchase. The filter kit can be used to increase the contrast of images and improve the ability of the vision system to distinguish desired characteristics. Please contact your Cognex sales representative for more information.

**Table 2-1: Cognex Filter Kit**

Lens Filter Color	Lens Filter Part Number
Blue	IMBF-BP470-IS7
Green	IMGF-BP525-IS7
Orange	IMOF-BP590-IS7
Red	IMRF-BP635-IS7
Dark Red	IMRF-BP660-IS7
Infrared	IMIF-BP850-IS7

The steps for installing the lens filter vary, depending on whether the vision system you purchased has a shroud. Refer to the table below to determine the installation steps required for your application.

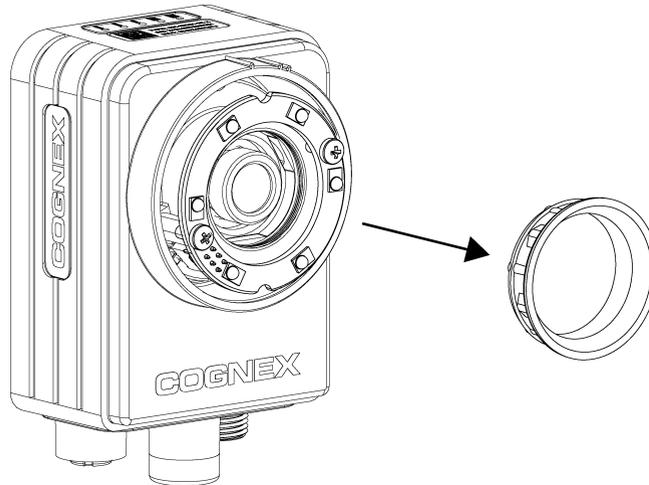
**Table 2-2: Vision System Configurations**

Configuration	Vision System	Installation Instructions
Configuration 1	 <p>Vision System with Shroud</p>	Refer to <a href="#">Install a Lens Filter with a Shroud on page 6</a> .
Configuration 2	 <p>Vision System without Shroud</p>	Refer to <a href="#">Install a Lens Filter without a Shroud on page 8</a> .

## Install a Lens Filter with a Shroud

If the vision system you purchased has a shroud, complete the following steps to install the lens filter.

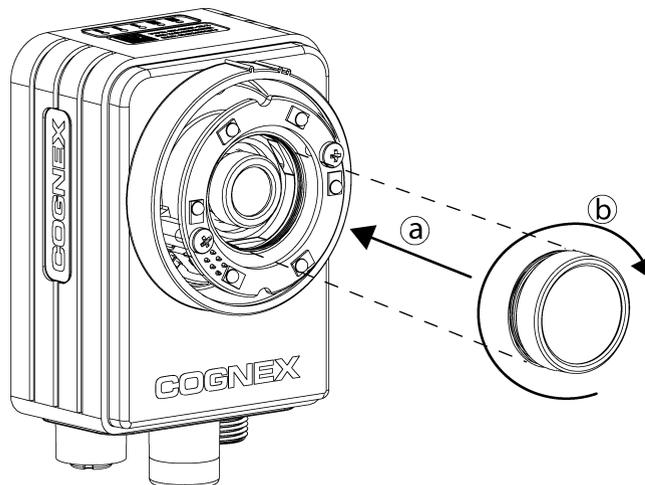
1. Verify that the 24VDC power supply being used is unplugged and not receiving power.
2. Remove the lens cover, if present.
3. Using your fingers, remove the shroud.



**Figure 2-1: Remove Shroud**

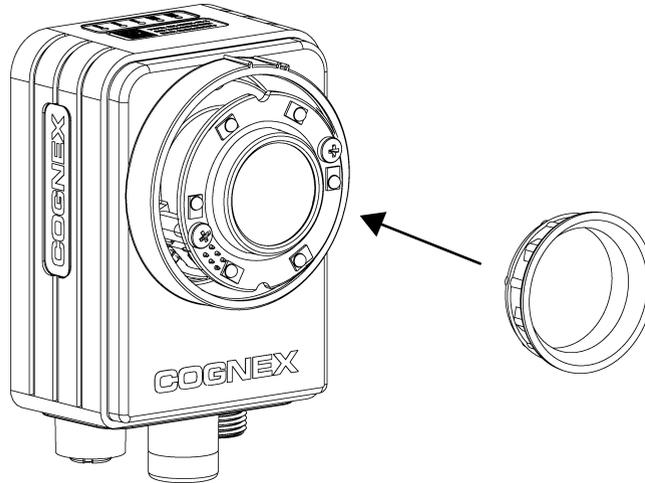
4. Install the lens filter.
  - a. Hold the lens filter by the sides, with the threaded end towards the lens. Align the filter with the filter thread on the vision system.
  - b. Screw the lens filter onto the vision system by twisting it clockwise until it stops turning.

**Note:** Make sure to only touch the sides of the filter to avoid leaving fingerprints on the filter.



**Figure 2-2: Install the Lens Filter**

5. Reinstall the shroud to the vision system. Gently press the shroud down into the vision system.



**Figure 2-3: Reinstall Shroud**

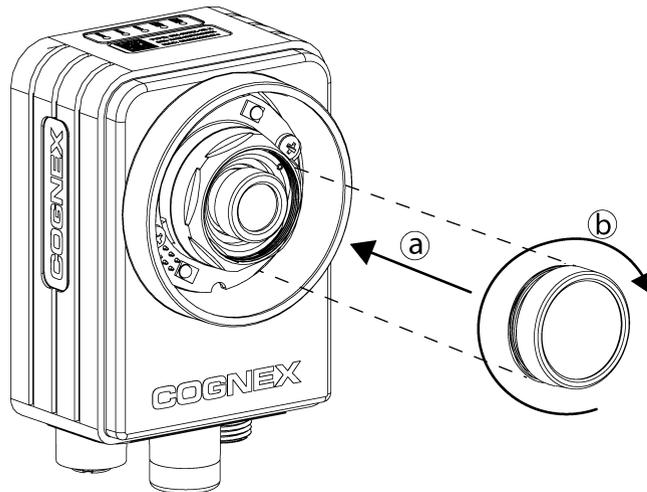
6. Reattach the lens cover.
7. Restore power to the 24VDC power supply and turn it on if necessary.

## Install a Lens Filter without a Shroud

If the vision system you purchased does not have a shroud, complete the following steps to install the lens filter.

1. Verify that the 24VDC power supply being used is unplugged and not receiving power.
2. Remove the lens cover, if present.
3. Install the lens filter.
  - a. Hold the lens filter by the sides, with the threaded end towards the lens. Align the filter with the filter thread on the vision system.
  - b. Screw the lens filter onto the vision system by twisting it clockwise until it stops turning.

**Note:** Make sure to only touch the sides of the filter to avoid leaving fingerprints on the filter.



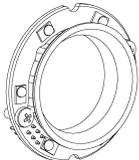
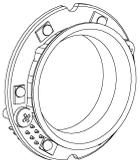
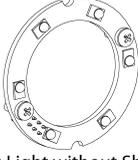
**Figure 2-4: Install the Lens Filter**

4. Reattach the lens cover.
5. Restore power to the 24VDC power supply and turn it on if necessary.

# Replace the Ring Light

If you purchased a vision system with the M12 lens configuration, the vision system is shipped with an internal LED ring light pre-installed. The steps for replacing the ring light vary, depending on whether the pre-installed ring light and the ring light you purchased have a shroud. Refer to the table below to determine the installation steps required for your application.

**Table 3-1: Ring Light Configurations**

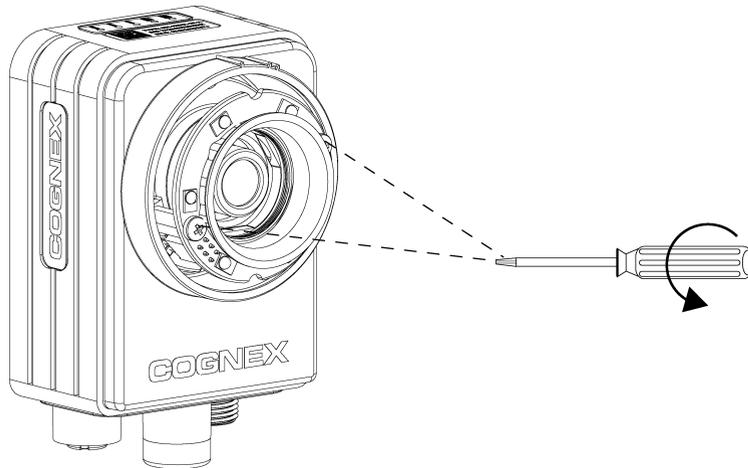
Configuration	Existing Ring Light	Replacement Ring Light	Installation Instructions
<b>Configuration 1</b>	 <p>Ring Light with Shroud</p>	 <p>Ring Light with Shroud</p>	Refer to <a href="#">Install a Ring Light with a Shroud on page 10</a> .
<b>Configuration 2</b>	 <p>Ring Light without Shroud</p>	 <p>Ring Light with Shroud</p>	Refer to <a href="#">Convert to a Ring Light with a Shroud on page 13</a> .
<b>Configuration 3</b>	 <p>Ring Light without Shroud</p>	 <p>Ring Light without Shroud</p>	Refer to <a href="#">Install a Ring Light without a Shroud on page 17</a> .

## Install a Ring Light with a Shroud

If the pre-installed ring light on your vision system has a shroud, please complete the following steps to replace the ring light.

1. Verify that the 24VDC power supply being used is unplugged and not receiving power.
2. Remove the lens cover, if present.
3. Loosen the ring light.
  - a. Using a screwdriver, loosen the two screws on the ring light.

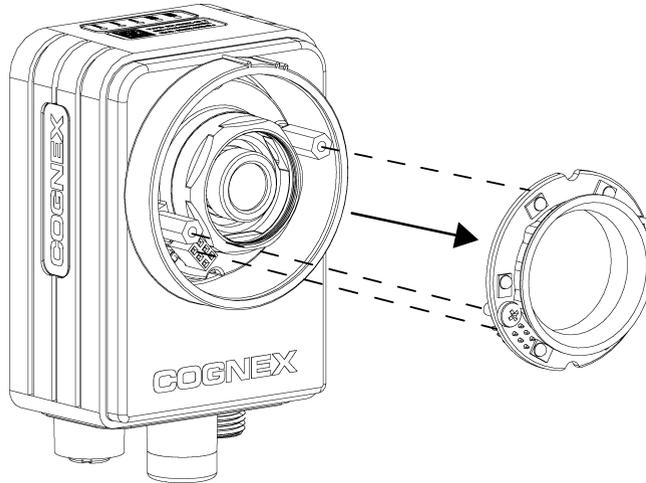
**Note:** Do not attempt to remove the screws from the ring light; the screws are held in place with washers on the back of the ring light.



**Figure 3-1: Loosen Ring Light**

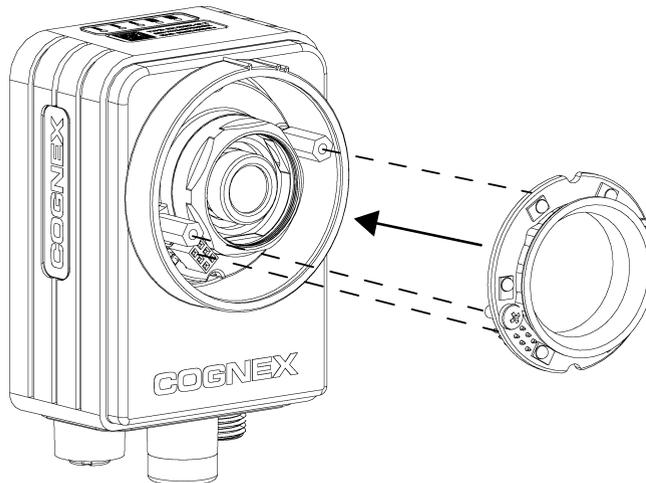
- b. Pins on the back of the ring light are connected to the vision system. Grab the notch on the ring light that is closest to the pins, and gently pull up to disengage the pins from the vision system.

- Remove the ring light and shroud from the vision system.



**Figure 3-2: Remove Ring Light and Shroud**

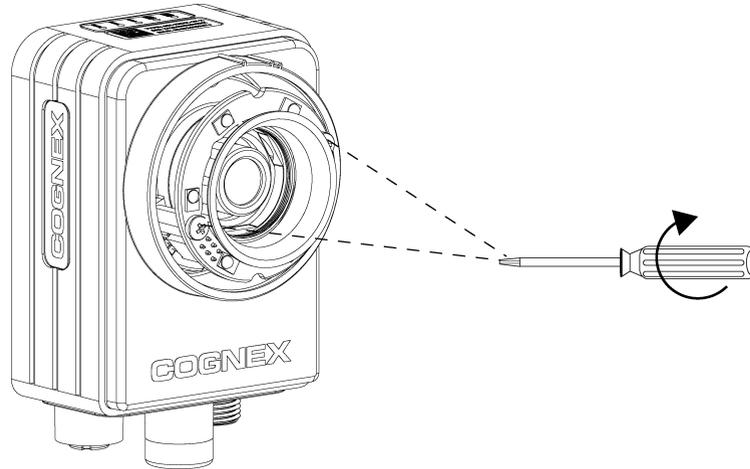
- To install the new ring light, align the screws with the threaded screw posts on the vision system. Also align the pins on the back of the ring light with the connector on the vision system, but do not attempt to connect the pins.



**Figure 3-3: Align the Screws and Pins**

- Gently press down on the ring light to connect the pins on the back of the ring light to the vision system.

7. Using a screwdriver, tighten the screws until they stop turning; the maximum torque is 0.56 Nm (5 in-lb).



**Figure 3-4: Partially Tighten the Screws**

8. Reattach the lens cover.
9. Restore power to the 24VDC power supply and turn it on if necessary.

## Convert to a Ring Light with a Shroud

If the pre-installed ring light does not have a shroud, and you need to convert to a ring light with a shroud, please complete the following steps. To install a ring light with a shroud, you must first install the Cognex Standoff and Connector Kit (LM12-UPDATE). Please contact your Cognex sales representative for more information.

1. Verify that the 24VDC power supply being used is unplugged and not receiving power.
2. Remove the lens cover, if present.
3. Loosen the ring light.
  - a. Using a screwdriver, loosen the two screws on the ring light.

**Note:** Do not attempt to remove the screws from the ring light; the screws are held in place with washers on the back of the ring light.

- b. Pins on the back of the ring light are connected to the vision system. Using small tweezers, grab the notch on the ring light that is closest to the pins, and gently pull up to disengage the pins from the vision system.

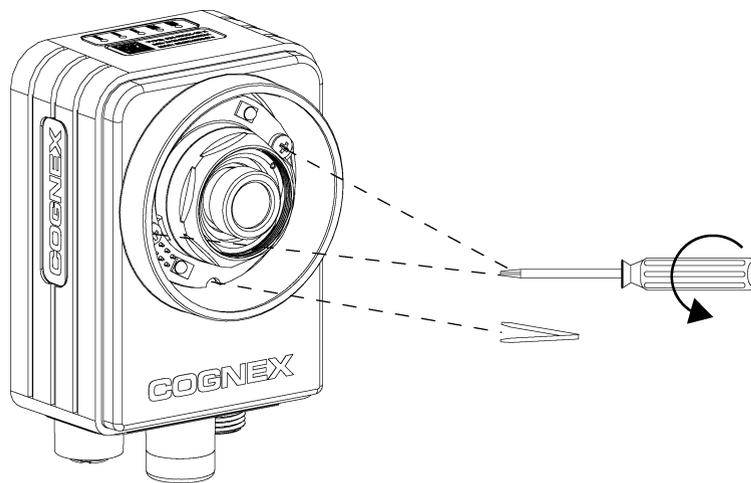
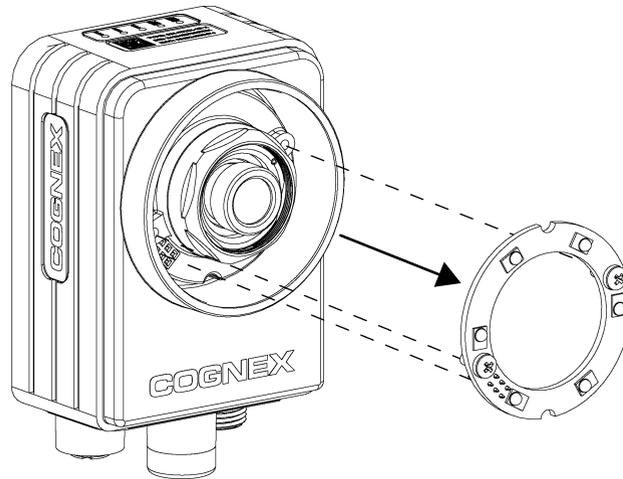


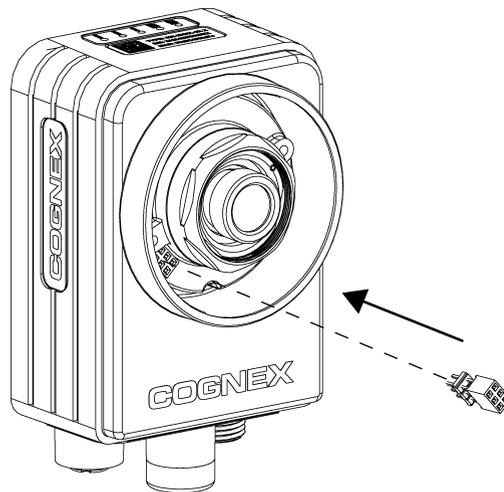
Figure 3-5: Loosen Ring Light

4. Remove the ring light from the vision system.



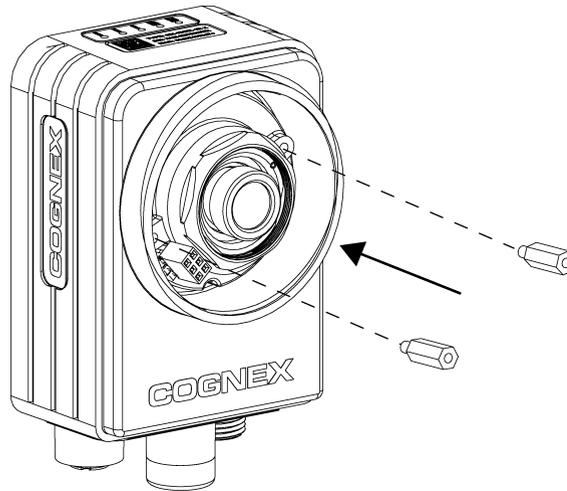
**Figure 3-6: Remove Ring Light**

5. Install the Cognex Standoff and Connector Kit (LM12-UPDATE).
  - a. Insert the light connector into the connector on the vision system.



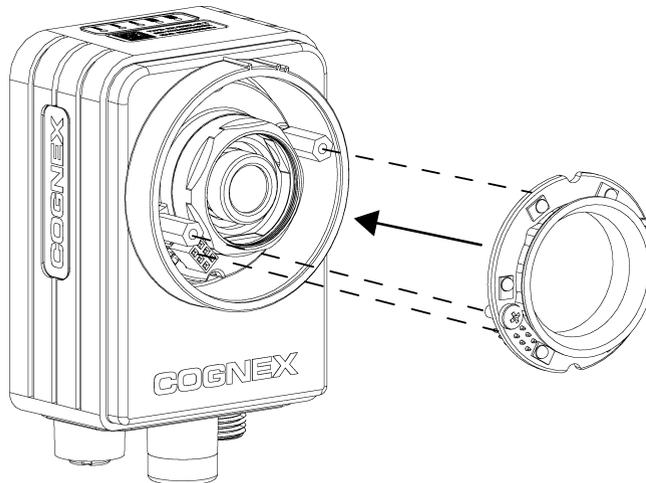
**Figure 3-7: Install the Light Connector**

- b. Align the posts with the threaded screw holes on the vision system. Using a post wrench, tighten the posts until they stop turning; the maximum torque is 0.56 Nm (5 in-lb).



**Figure 3-8: Install the Posts**

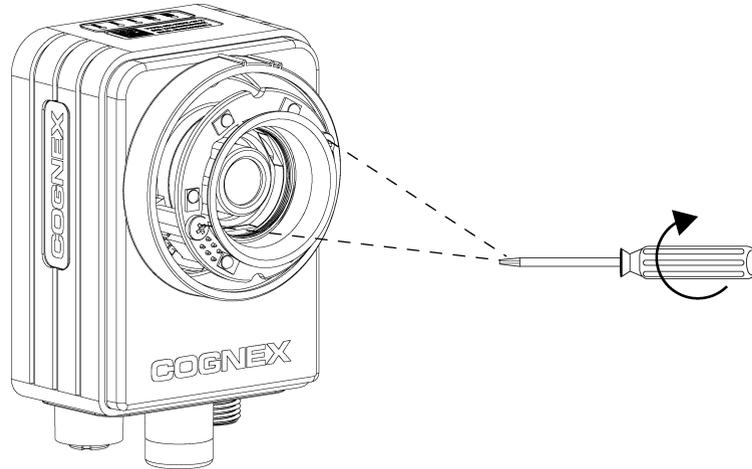
6. To install the new ring light, align the screws with the threaded screw posts on the vision system. Also align the pins on the back of the ring light with the connector on the vision system, but do not attempt to connect the pins.



**Figure 3-9: Align the Screws and Pins**

7. Gently press down on the ring light to connect the pins on the back of the ring light to the vision system.

- Using a screwdriver, tighten the screws until they stop turning; the maximum torque is 0.56 Nm (5 in-lb).



**Figure 3-10: Partially Tighten the Screws**

- Reattach the lens cover.
- Restore power to the 24VDC power supply and turn it on if necessary.

## Install a Ring Light without a Shroud

If the pre-installed ring light on your vision system does not have a shroud, and you need to replace it with another ring light that also does not have a shroud, please complete the following steps.

1. Verify that the 24VDC power supply being used is unplugged and not receiving power.
2. Remove the lens cover, if present.
3. Loosen the ring light.
  - a. Using a screwdriver, loosen the two screws on the ring light.

**Note:** Do not attempt to remove the screws from the ring light; the screws are held in place with washers on the back of the ring light.

- b. Pins on the back of the ring light are connected to the vision system. Using small tweezers, grab the notch on the ring light that is closest to the pins, and gently pull up to disengage the pins from the vision system.

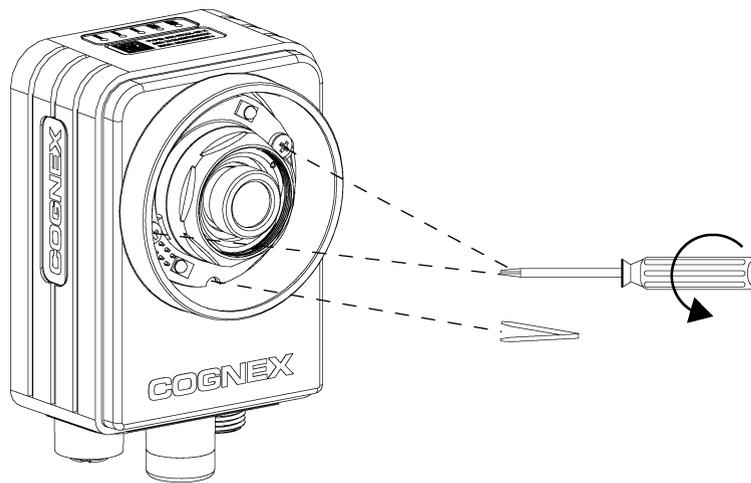
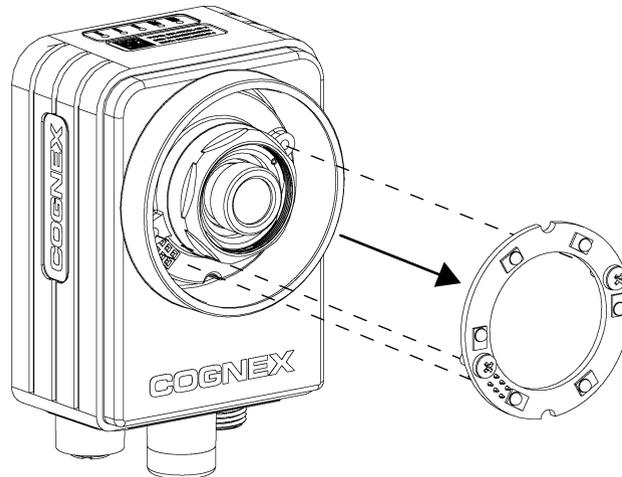


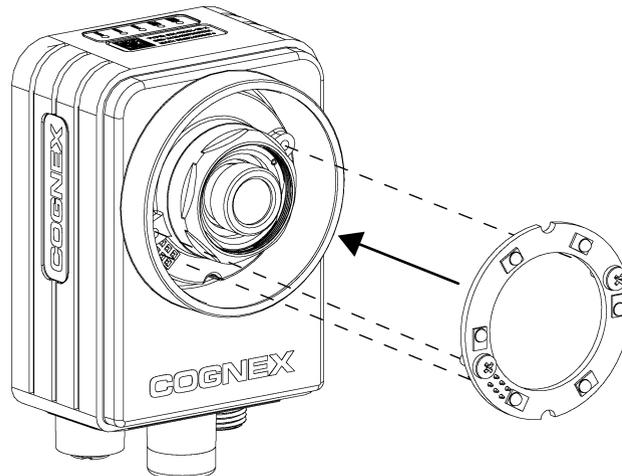
Figure 3-11: Loosen Ring Light

4. Remove the ring light from the vision system.



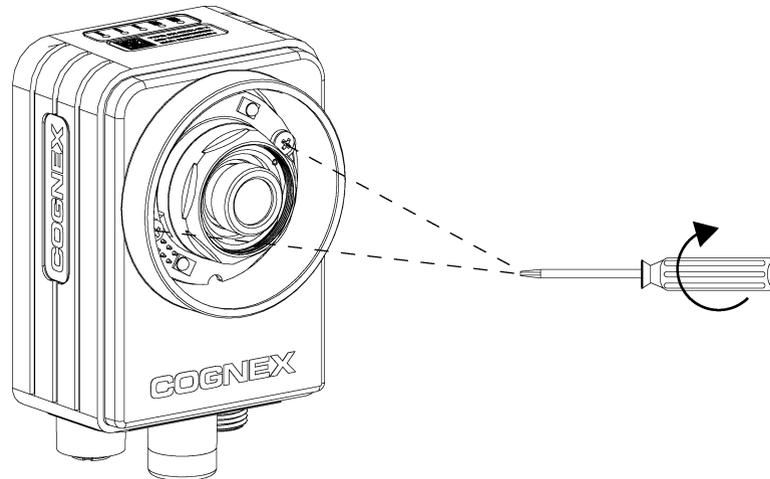
**Figure 3-12: Remove Ring Light**

5. To install the new ring light, align the screws with the threaded screw holes on the vision system. Also align the pins on the back of the ring light with the connector on the vision system, but do not attempt to connect the pins.



**Figure 3-13: Align the Screws and Pins**

- Using a screwdriver, tighten the screws until they are partially threaded.



**Figure 3-14: Partially Tighten the Screws**

- Gently press down on the ring light to connect the pins on the back of the ring light to the vision system.

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**CAUTION:** If the screws are not partially threaded prior to connecting the pins, the pins may bend or break.

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- Using a screwdriver, finish tightening the screws.
  - If installing a ring light that uses nylon screws, gently tighten the screws until a slight change in resistance is detected.

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**CAUTION:** Use caution when tightening the nylon screws, to ensure the screws do not become stripped.

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- If installing a ring light that uses stainless steel screws, the maximum torque is 0.56 Nm (5 in-lb).

- Reattach the lens cover.
- Restore power to the 24VDC power supply and turn it on if necessary.





