1. Terms used in this document

<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protection foil</td>
<td>Adhesive film to protect the sensor from dirt</td>
</tr>
<tr>
<td>Cover glass (CG)</td>
<td>Glass layer on top of the sensor surface, removed for RCG and TCG cameras</td>
</tr>
<tr>
<td>PCB</td>
<td>Printed circuit board</td>
</tr>
<tr>
<td>PCBA</td>
<td>Printed circuit board assembly as a set of multiple PCBs</td>
</tr>
<tr>
<td>Protection glass</td>
<td>Clear “filter” in the camera mount assembly</td>
</tr>
<tr>
<td>RCG</td>
<td>Removed Cover Glass sensor option</td>
</tr>
<tr>
<td>TCG</td>
<td>Taped Cover Glass sensor option</td>
</tr>
</tbody>
</table>

Table 1: Terms used in this document

2. Scope

Cameras without sensor cover glass must be handled with utmost care to avoid damage to the image sensor. Follow the instructions in this document to properly prepare these cameras for operation.

3. Safety notes

3.1. Electrostatic discharge (ESD)

Electrostatic charge builds up in the body when walking on carpeted floor. This can discharge when touching metal objects like a door handle. Such ESD can damage electronic devices, especially when tools or hands get in contact with connectors. We recommend measures to avoid damage by ESD:

- Unpacking: Remove the camera from its anti-static packaging only when your body is grounded.
- Workplace: Use a static-safe workplace with static-dissipative mat and air ionization.
- Wrist strap: Wear a static-dissipative wrist strap to ground your body.
- Clothing: Wear ESD-protective clothing. Keep components away from your body and clothing. Even if you are wearing a wrist strap, your body is grounded but your clothes are not.

3.2. Sensor damage

Follow the instructions thoroughly to avoid damage to sensor and camera. Work in a dust-free environment (class 100 or better) with humidity according to ESD requirements.
4. Warranty conditions

Allied Vision warranty does not cover any damage to the sensor as soon as the cover glass or the circular protection foil is removed. Cameras without sensor cover glass have the standard **warranty on the electronics, but excluding the sensor**:

<table>
<thead>
<tr>
<th>Camera series</th>
<th>Alvium housed</th>
<th>Alvium bare board</th>
<th>Bonito PRO</th>
<th>Goldeye</th>
<th>Manta</th>
<th>Prosilica</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Electronics warranty</strong></td>
<td>3 years</td>
<td>2 years</td>
<td>3 years</td>
<td>3 years</td>
<td>3 years</td>
<td>3 years</td>
</tr>
</tbody>
</table>

*Table 2: Warranty duration by camera series*

5. Common instructions

**NOTICE**

**Damage to the camera electronics and sensor**

- Work in a dust-free environment (class 100 or better) with humidity according to ESD requirements.
- Observe notes for **3.1. Electrostatic discharge (ESD)** on page 1.
- Follow the instructions thoroughly.

5.1. Unpacking cameras

**Keep camera packaging**

- To store the camera
- To ship the camera back in case of damage.

1. Open the shipping box.
2. Take out the ESD bag with the camera.
3. Take the camera out of the ESD bag.
5.2. Checking the camera function

With this simple test, you can check that the sensor of your new Allied Vision camera is working properly. No lens is required.

1. Connect the camera to a PC.

2. Start Vimba X Viewer or another viewer application to acquire an image.

3. Wave your hand in front of the sensor.

   The viewer shows a camera image of a moving shadow. This proves proper camera function.

5.3. Instructions overview

Continue with the corresponding instructions:

• Preparing housed Alvium cameras — RCG on page 4

• Preparing Alvium bare board cameras — TCG on page 5

• Preparing Alvium IMX487/IMX99x bare board cameras — TCG on page 8

• Preparing Bonito PRO cameras — RCG on page 10

• Preparing Goldeye cameras — RCG on page 11

• Preparing Manta cameras — RCG on page 12

• Preparing Prosilica GT cameras — RCG on page 13.
6. Preparing housed Alvium cameras – RCG

At delivery, sensors of housed Alvium RCG models are protected by the circular protection foil placed on the lens mount. This section instructs on removing the circular protection foil and mounting the lens.

**NOTICE**

Damage to the camera electronics and sensor
- Work in a dust-free environment (class 100 or better) with humidity according to ESD requirements.
- Observe notes for 3.1. Electrostatic discharge (ESD) on page 1.
- Follow the instructions thoroughly.

1. With your finger tips, starting from the edge, slowly pull the circular protection foil off the lens mount until removed completely.

![Figure 1: Removing the circular protection foil from the lens mount](image)

**NOTICE**

Damage to the sensor
If you want to use your camera without lens, observe 3. Safety notes on page 1.

**NOTICE**

Damage to sensor and lens
If the lens exceeds maximum protrusion, camera or lens may be damaged.
- To avoid damaging the sensor or the back lens, use lenses with a maximum protrusion within camera specifications. For details, see your camera’s user guide.

2. Mount your optics according to the manual of the lens manufacturer and your camera’s user guide.

Without compensation, cameras could not be focused to infinity after the sensor cover glass has been removed. Therefore, Alvium RCG cameras are calibrated for proper focus before shipping.
7. Preparing Alvium bare board cameras – TCG

At delivery, sensors of Alvium bare board TCG models are protected by the cover glass fixed by adhesive tapes. This section instructs on removing these tapes and the cover glass. Note that you must mount bare board cameras into housings immediately after the TCG has been removed. For exceptions see 8. Preparing Alvium IMX487/IMX99x bare board cameras – TCG on page 8.

**NOTICE**

**Damage to the camera electronics and sensor**
- Work in a dust-free environment (class 100 or better) with humidity according to ESD requirements.
- Observe notes for 3.1. Electrostatic discharge (ESD) on page 1.
- To protect the sensor from dirt, mount the camera into a housing immediately.
- Follow the instructions thoroughly.

**NOTICE**

**Damage to sensor and lens**
If the lens exceeds maximum protrusion, camera or lens may be damaged.
- To avoid damaging the sensor or the back lens, use lenses with a maximum protrusion within camera specifications. For details, see your camera’s user guide.

**About the following instructions**
The instructions consist of multiple steps. We recommend you to read the instructions first to get an orientation on camera preparation.

**Ease handling**
- Use a magnifying glass for better view.
- Read the instructions thoroughly and keep tools at hand for camera preparation.

**Required tools**
Before you can remove the TCG, please obtain the required tools shown below.

<table>
<thead>
<tr>
<th>Required tools</th>
<th>Tools short names</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base magnifier or microscope</td>
<td>Magnifying glass</td>
<td>For better view</td>
</tr>
<tr>
<td>Wooden spatula</td>
<td>Spatula</td>
<td>To keep the cover glass in position until removed</td>
</tr>
<tr>
<td>Precision screwdriver</td>
<td>Screwdriver</td>
<td>To lift up the adhesive tapes</td>
</tr>
<tr>
<td>Pinch nose pliers</td>
<td>Pliers</td>
<td>To remove the adhesive tapes</td>
</tr>
<tr>
<td>Circular protection foil</td>
<td>Circular protection foil (optional)</td>
<td>To protect the sensor during camera storage before final hardware installation</td>
</tr>
</tbody>
</table>

*Table 3: Required tools to remove a TCG*
Preparing Cameras without Sensor Cover Glass

1. Place the camera on your work bench, with the sensor side facing up.
2. Place the magnifying glass above the camera, with sufficient space to access the TCG and the adhesive tapes with tools.
3. Take the spatula with one hand.
4. With the spatula, push the cover glass down to keep the sensor protected. Keep pushing down with the spatula until step 15.
5. Take the screwdriver with the other hand.
6. On the left side of the sensor, carefully push the tool tip of the screwdriver against the corner of the adhesive tape until it starts to come off. Continue lifting up the corner, until pliers can get a grip.
7. Put the screwdriver aside and take the pliers.
8. Keep pushing down with the spatula until step 15.
9. With the pliers, grip the detached corner of tape and slowly pull it off the cover glass and off the sensor baseplate.

![Figure 5: Pliers pulling the adhesive tape off the sensor (schematic view)](image)

10. Strip off the tape from the pliers.
11. Put the pliers aside.
12. Repeat steps 5. to 11., until all adhesive tapes have been removed from the sensor.
13. With one hand pushing the spatula against the cover glass, take the camera into the other hand.
14. Rotate the camera with the sensor facing down.
15. Slowly release the spatula from the cover glass until it disengages from the camera.

![Figure 6: Rotating the camera to drop the cover glass (schematic view)](image)

**NOTICE**

**Damage to the sensor**
If dirt penetrates the sensor surface, the sensor can be damaged.
- To protect the sensor from dirt, mount the camera into a housing immediately.
8. Preparing Alvium IMX487/IMX99x bare board cameras – TCG

At delivery, the sensors of Alvium bare board TCG models (using Sony IMX487 and Sony IMX99x) are protected by the cover glass attached with a point of glue. This section instructs on removing the cover glass. Note that the glue remains must not be removed and that you must mount bare board cameras into housings immediately after the TCG has been removed.

**NOTICE**

Damage to the camera electronics and sensor

- Work in a dust-free environment (class 100 or better) with humidity according to ESD requirements.
- Observe notes for 3.1. Electrostatic discharge (ESD) on page 1.
- To protect the sensor from dirt, mount the camera into a housing immediately.
- Follow the instructions thoroughly.

**NOTICE**

Damage to sensor and lens

If the lens exceeds maximum protrusion, camera or lens may be damaged.

- To avoid damaging the sensor or the back lens, use lenses with a maximum protrusion within camera specifications. For details, see your camera’s user guide.

About the following instructions

The instructions consist of multiple steps. We recommend you to read the instructions first to get an orientation on camera preparation.

Ease handling

- Use a magnifying glass for better view.
- Read the instructions thoroughly and keep tools at hand for camera preparation.

Required tools

Before you can remove the TCG, please obtain the required tools shown below.

<table>
<thead>
<tr>
<th>Required tools</th>
<th>Tools short names</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base magnifier or microscope</td>
<td>Magnifying glass</td>
<td>For better view</td>
</tr>
<tr>
<td>Block of plastic</td>
<td>Handle</td>
<td>To flip up and remove the cover glass</td>
</tr>
<tr>
<td>Double sided tape</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Table 4: Required tools to remove a TCG*
1. Collect a plastic block matching the area of the TCG. Stick a piece of double sided tape to the plastic block. You are going to use this assembly as Handle tool.

2. Place the camera on your work bench, with the sensor side facing up.

3. Place the magnifying glass above the camera, with sufficient space to access the TCG with the Handle.

4. Take the Handle with one hand.

5. With the other hand, hold down the camera board at the edges.

6. **Holding down the camera board**, move the Handle down towards the TCG until you feel full contact. Slowly flip up the Handle until the point of glue breaks as shown below in Table 8:

   ![Figure 8: “Handle” flipping up the TCG (schematic view)](image)

7. Put the Handle with the TCG aside.

---

**NOTICE**

**Damage to the camera electronics and sensor**

The glue material has hardened in manufacturing. Trying to remove the remains with a tool can result in dirt penetrating the sensor surface or damage to electronic parts.

- Keep the remains of glue untouched.
- Include a gap in your mechanical design to avoid contact to the glue remains.

---

**NOTICE**

**Damage to the sensor**

If dirt penetrates the sensor surface, the sensor can be damaged.

- To protect the sensor from dirt, mount the camera into a housing immediately.
9. Preparing Bonito PRO cameras – RCG

At delivery, sensors of Bonito PRO RCG models are protected by the protection foil placed in the lens mount. This section instructs on removing the protection foil and mounting the lens.

### NOTICE

**Damage to the camera electronics and sensor**

- Work in a dust-free environment (class 100 or better) with humidity according to ESD requirements.
- Observe notes for 3.1. Electrostatic discharge (ESD) on page 1.
- Follow the instructions thoroughly.

1. With your finger tips, starting from the edge, slowly pull the protection foil off the sensor until removed completely.

![Figure 9: Removing the protection foil from the sensor](image)

2. Mount your optics according to the manual of the lens manufacturer and the Bonito PRO User Guide.

Without compensation, cameras could not be focused to infinity after the sensor cover glass has been removed. Therefore, Bonito PRO cameras are calibrated for proper focus before shipping.

### Focus recalibration


### NOTICE

**Damage to the sensor**

If you want to use your camera without lens, observe 3. Safety notes on page 1.

**Damage to sensor and lens**

If the lens exceeds maximum protrusion, camera or lens may be damaged.

- To avoid damaging the sensor or the back lens, use lenses with a maximum protrusion within camera specifications. For details, see the Bonito PRO User Guide.
10. Preparing Goldeye cameras – RCG
At delivery, sensors of Goldeye RCG models are protected by the circular protection foil placed on the lens mount. This section instructs on removing the circular protection foil and mounting the lens.

![Diagram of Goldeye camera with lens mount and protection foil](image)

**Figure 10: Removing the circular protection foil from the lens mount**

**NOTICE**

**Damage to the camera electronics and sensor**
- Work in a dust-free environment (class 100 or better) with humidity according to ESD requirements.
- Observe notes for 3.1. Electrostatic discharge (ESD) on page 1.
- Follow the instructions thoroughly.

1. With your finger tips, starting from the edge, slowly pull the circular protection foil off the lens mount until removed completely.

2. Mount your optics according to the manual of the lens manufacturer and the Goldeye G/CL User Guide.

Without compensation, cameras could not be focused to infinity after the sensor cover glass has been removed. Therefore, Goldeye G/CL cameras are calibrated for proper focus before shipping.
11. Preparing Manta cameras – RCG

At delivery, sensors of Manta RCG models are protected by the circular protection foil placed on the lens mount. This section instructs on removing the circular protection foil and mounting the lens.

1. With your finger tips, starting from the edge, slowly pull the circular protection foil off the lens mount until removed completely.

2. Mount your optics according to the manual of the lens manufacturer and the Manta User Guide.

Without compensation, cameras could not be focused to infinity after the sensor cover glass has been removed. Therefore, Manta RCG cameras are calibrated for proper focus before shipping.
12. Preparing Prosilica GT cameras – RCG
At delivery, sensors of Prosilica GT RCG models are protected by the protection foil placed in the lens mount. This section instructs on removing the protection foil and mounting the lens.

1. With your finger tips, starting from the edge, slowly pull the protection foil off the sensor until removed completely.

![Figure 12: Removing the protection foil from the sensor](image)

### NOTICE

**Damage to the camera electronics and sensor**
- Work in a dust-free environment (class 100 or better) with humidity according to ESD requirements.
- Observe notes for 3.1. Electrostatic discharge (ESD) on page 1.
- Follow the instructions thoroughly.

2. Mount your optics according to the manual of the lens manufacturer and the Prosilica GT User Guide.

Without compensation, cameras could not be focused to infinity after the sensor cover glass has been removed. Therefore, Prosilica GT RCG cameras are calibrated for proper focus before shipping.

### Focus recalibration
Should you still want to optimize focus settings, see Bonito PRO User Guide at [www.alliedvision.com/en/support/technical-documentation/bonito-pro-documentation](http://www.alliedvision.com/en/support/technical-documentation/bonito-pro-documentation)
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