



Operating Instructions
Outdoor Protective Housing for
thermoIMAGER TIM

Outdoor Protective Housing for thermoIMAGER TIM cameras

MICRO-EPSILON
MESSTECHNIK
GmbH & Co. KG
Koenigbacher Str. 15

94496 Ortenburg / Germany

Tel. +49 (0) 8542 / 168-0
Fax +49 (0) 8542 / 168-90
e-mail info@micro-epsilon.com
www.micro-epsilon.com

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1 General Information

1.1 Description

Thank you for choosing the **Outdoor protective housing**.

The outdoor protective housing is an ideal complement for the TIM camera, the thermoMETER CSL, the thermoMETER CTL and the USB server for applications with additional influences of different kinds. It protects the devices among things like dirt, dust and moisture. The outdoor protective housing can be used for any TIM camera (lenses up to 90 ° FOV). The integrated heating and the blower result in an extended operating temperature.



- Avoid abrupt changes of the ambient temperature.
- Avoid mechanical violence – this may destroy the system (expiry of warranty).
- If you have any problems or questions, please contact our service department.



Read the manual carefully before the initial start-up. The producer reserves the right to change the herein described specifications in case of technical advance of the product.

1.2 Notes on CE Marking

The following apply to the Outdoor Protective Housing:

- EU Directive 2014/30/EU
- EU Directive 2011/65/EU, "RoHS" category 11

Products which carry the CE mark satisfy the requirements of the EU directives cited and the relevant applicable harmonized European standards (EN). The measuring system is designed for use in industrial environments. Die EU-Konformitätserklärung wird gemäß der EU-Richtlinie, Artikel 10, für die zuständige Behörde zur Verfügung gehalten.

The EU Declaration of Conformity is available to the responsible authorities according to EU Directive, article 10.

1.3 Unpacking, Included in Delivery

- Protection housing with integrated heating incl. protection window or foil window and air purge collar
- Operating Instructions

2 Technical Data

2.1 General Specifications

Temperature range	-40 °C ... +50 °C
Heating	PTC heater (automatically starting at T < 15 °C) / fan for homogeneous temperature distribution ¹⁾
Power supply	24 V DC
Power	70 W
Protective window ²⁾	Germanium (Ge), zinc sulfide (ZnS), Borofloat or foil
Environmental rating	IP66
Air purge collar	Integrated
Air pressure	Absolute pressure 1.1 - 8 bar at 20 -100 l/min
Max. FOV	90 ° (HFOV)
Integrated additional components	USB-Server Gigabit Industrial Process interface (PIF)
Material	Aluminum
Weight	2 kg (with wall mount 2.5 kg)

FOV: Enlargement of the total measuring field at object level

HFOV: Horizontal enlargement of the total measuring field at object level

- 1) The fan is switched parallel to the heater. When the heater starts, the fan will also run. The heating is switched on when the temperature falls below 15 °C (closing temperature) and switched off (opening temperature) at 25 °C ($\pm 5^{\circ}\text{C}$).
- 2) There is no protection window for the thermoMETER TIM 8 and the thermoIMAGER TIM 40.

2.2 Dimensions

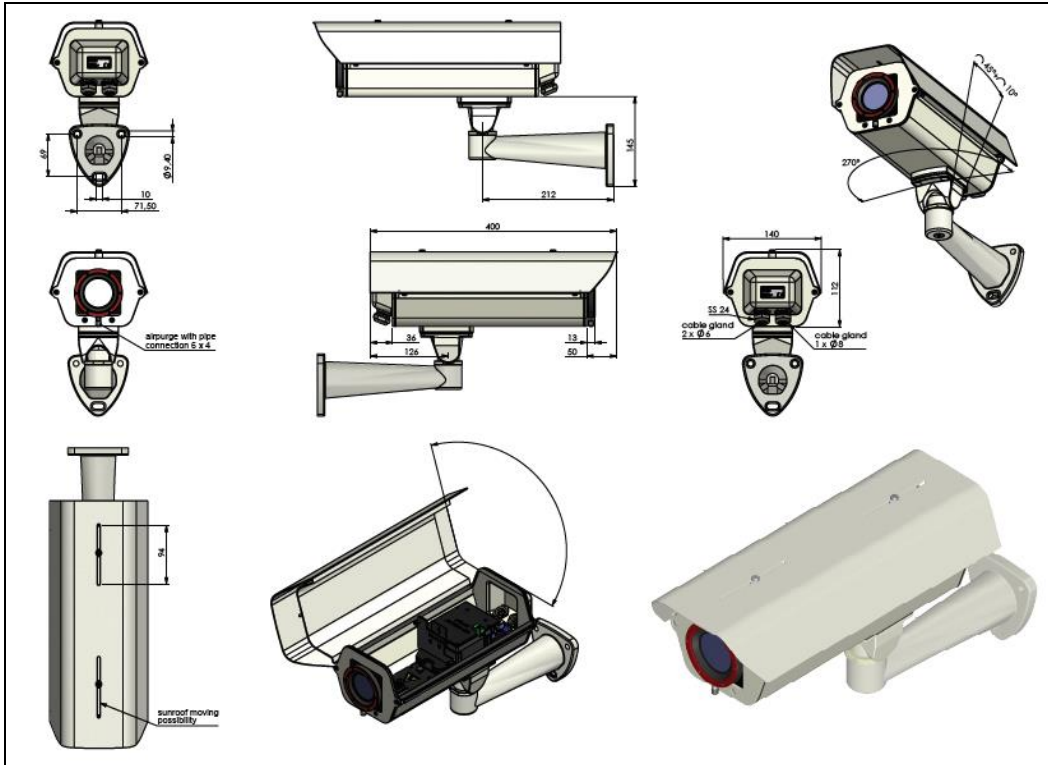


Figure 1: Dimensions with wall mount, dimensions in mm, not to scale

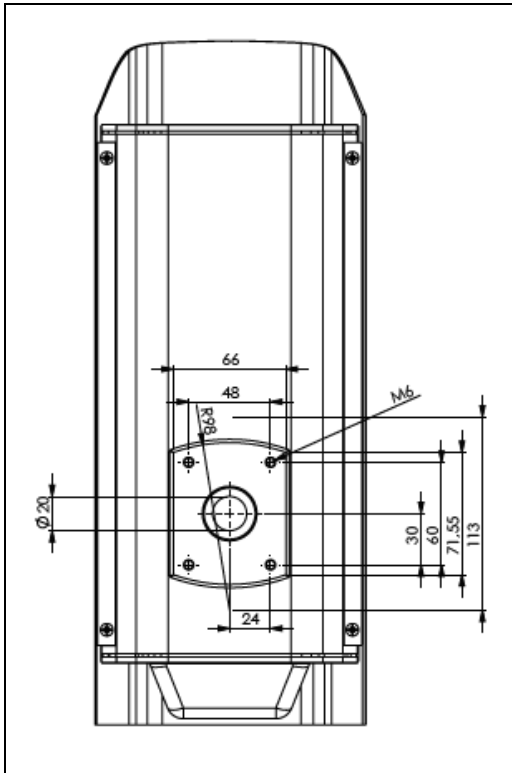


Figure 2: Dimensions for wall mount, dimensions in mm, not to scale

2.3 Electrical Connections

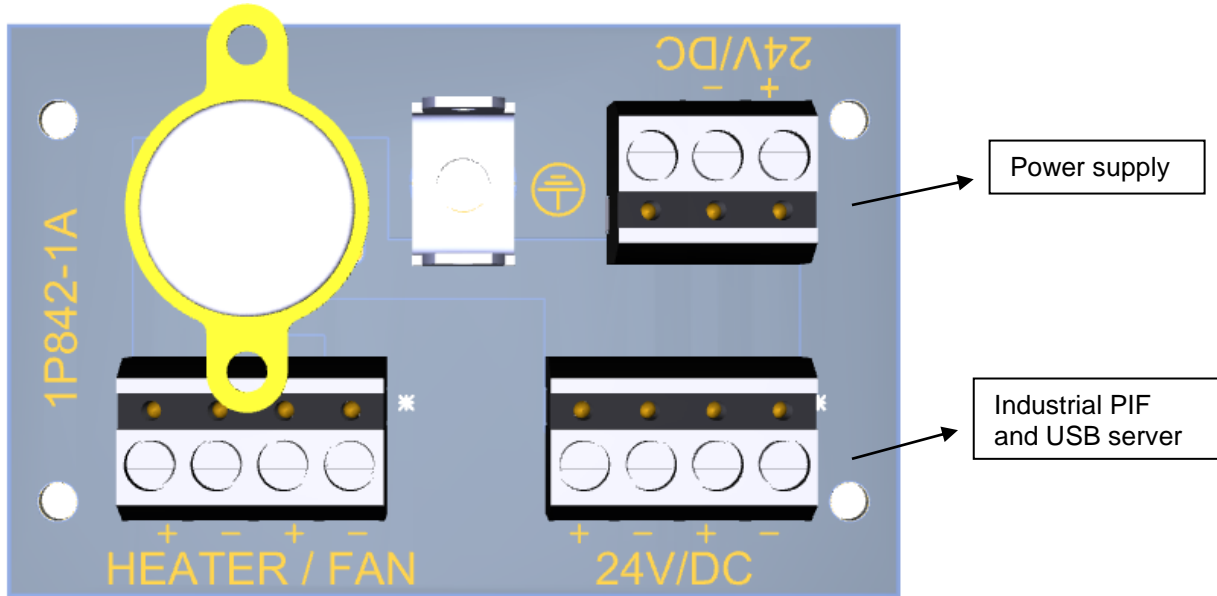


Figure 3: Connection circuit board

2.4 Air Purge Collar

The lens must be kept clean at all times from dust, smoke, fumes and other contaminants in order to avoid reading errors. These effects can be reduced by using an air purge collar. Make sure to use oil-free, technically clean air only.



The needed amount of air (approx. 20 ... 100 l/ min.) depends on the application and the installation conditions on-site.

Protective window	Description	Spectral range	Transmission ¹⁾
Germanium	Protective window (50.8 x 3 mm/ Ge) for TIM QVGA-G7, TIM VGA-G7	7.9 µm	0.96
	Protective window (50.8 x 3 mm/ Ge) for TIM 160, TIM QVGA, TIM QVGA-HD, TIM 640	7.5-13 µm	0.92
Zinc sulfide	Protective window (50.8 x 3 mm/ ZnS) for TIM QVGA-G7, TIM VGA-G7	7.9 µm	0.93
	Protective window (50.8 x 3 mm/ ZnS) for TIM 160, TIM QVGA, TIM QVGA-HD, TIM 640	7.5-13 µm	0.91
	Protective window (50.8 x 3 mm/ ZnS) for TIM 200, TIM 230 (appropriate for VIS + IR)	7.5-13 µm	0.91
	Protective window (50.8 x 3 mm/ ZnS) for LT models of thermoMETER CTL, CSL serie	7.5-13 µm	0.91
Borofloat	Protective window (50.8 x 3 mm/ Borofloat 33) for TIM M-1, TIM M-05	0.85-1.1 µm, 500-540 nm	0.92

1) The displayed values are standard values and can vary between different delivery units.

3 Installation

3.1 Electrical Installation

Loosen the two screws and open the outdoor protective housing, as shown in **Figure 4**.

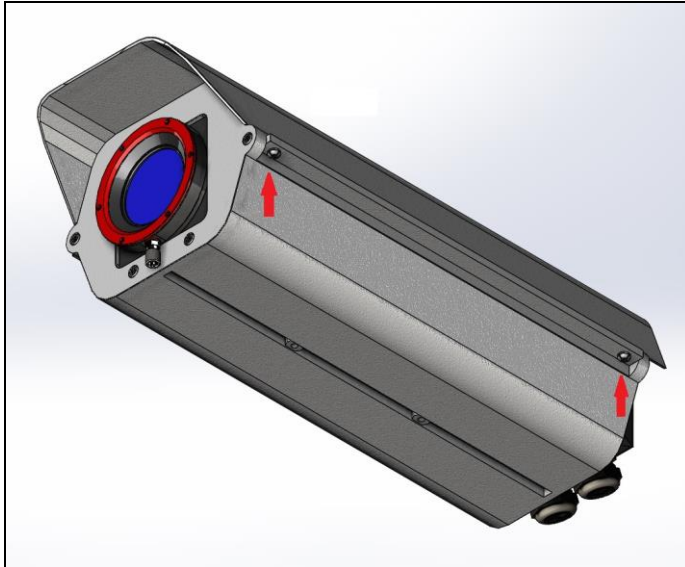


Figure 4: Opening the housing

Inside the protective housing is the electronic circuit board, where all loads are connected (see **Figure 3**). The heating element and the fan are already integrated and connected. To supply the outdoor protective housing with voltage, you must connect a 24 V line. This is connected to the marked side of the board. Observe the correct polarity and ensure that no voltage is present. The USB server and the industrial PIF are connected to the board as shown and are supplied by 24 V.

To get the cables into the housing, you must loosen the two cable glands, as shown in **Figure 6**. On the left side is a cable gland with 8 mm sealing insert and on the right is a cable gland with two 6 mm sealing inserts. It is recommended to pull the Ethernet cable or the USB cable through the 8 mm sealing insert. The PIF cable and the 24 V cable are passed through the two 6 mm sealing inserts.



Figure 5: Cable glands on the backside of the outdoor protective housing

Cable gland 1	Cable gland 2
1 x 8 mm sealing insert	2 x 6 mm sealing insert
For Ethernet or USB cable	For PIF cable and 24 V line



To get the Ethernet cable with a plug through the opening, you have to cut the rubber insert.

3.2 Mounting of the USB Server

Insert the USB server at a slanted angle to the designated disk (**Figure 6**). If necessary, remove the clip from the USB server (**Figure 7**) and turn the USB server (**Figure 6**) until the clip is locked into the bracket (**Figure 8**).

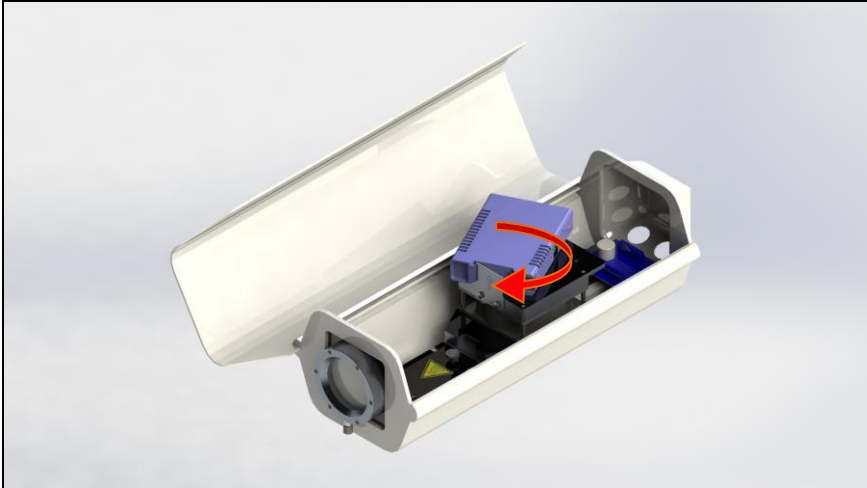


Figure 6: Insertion of the USB server into the provided board



Figure 7: USB server clip

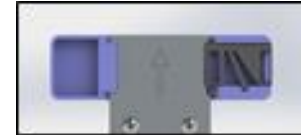


Figure 8: USB server holding plate

The USB server is now ready mounted (**Figure 9**):

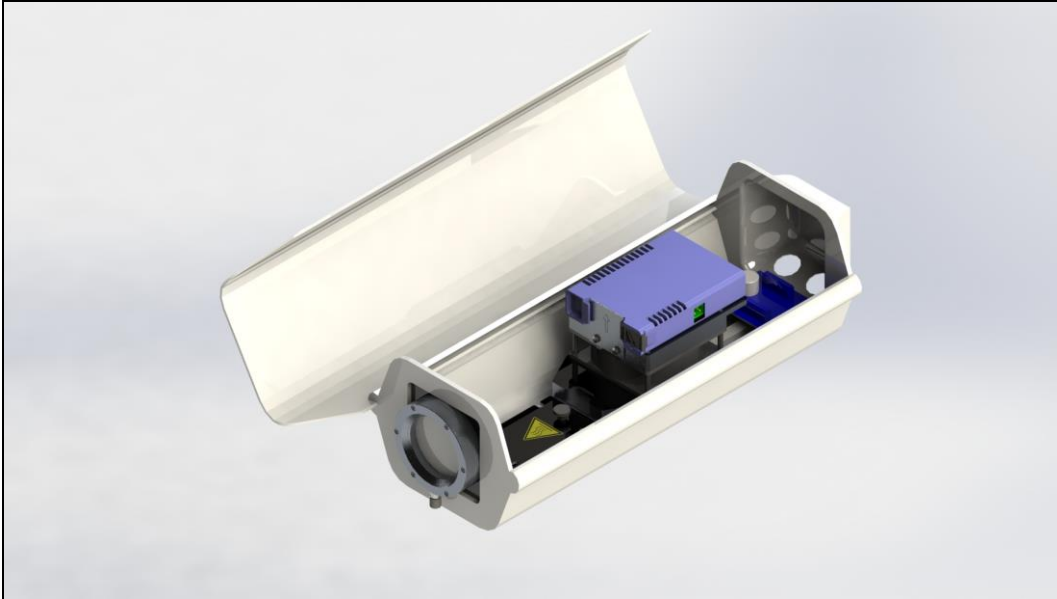


Figure 9: USB server ready mounted

3.3 Mounting of the TIM Camera

Step 1: Loosen the knurled screw from the mounting plate (**Figure 10**).

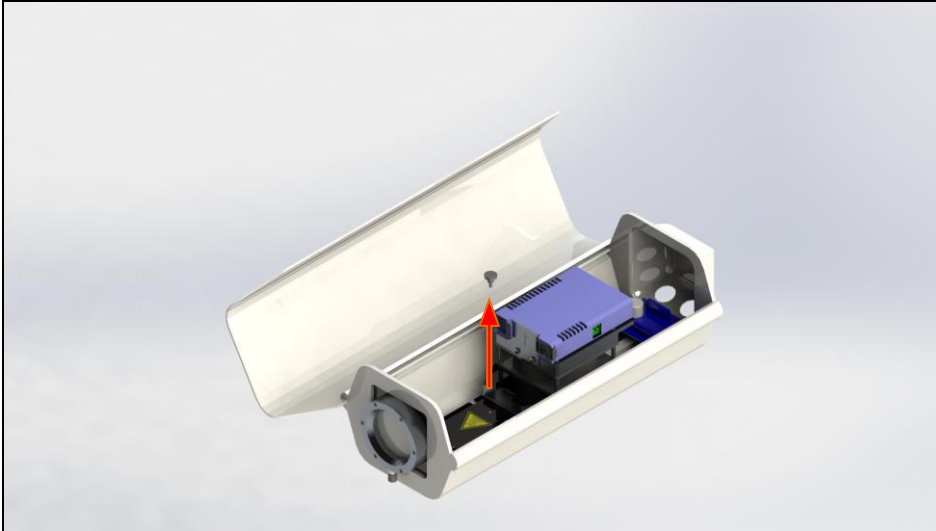


Figure 10: Loosen the knurled screw from mounting plate

Step 2: Carefully remove the mounting plate (**Figure 11**).



Figure 11: Remove the mounting plate

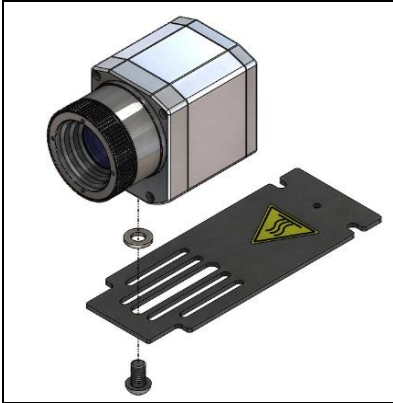
Step 3: Mounting the TIM cameras

Figure 12: TIM 4xx/ 640/ 1M/ 05M attachment

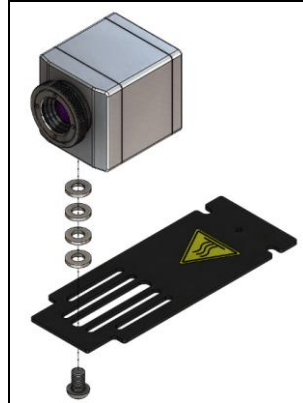


Figure 13: TIM 160 attachment



Figure 14: TIM 2xx attachment

Mount the TIM QVGA/ TIM QVGA-HD/ TIM 640/ TIM M-1/ TIM M-05 to the mounting plate using the supplied 1/4 x 3/8 UNC inch screw and a washer DIN125A-6,4 A2 (**Figure 12**).

Mount the TIM QVGA/ TIM QVGA-HD/ TIM 160 to the mounting plate using the supplied 1/4 x 3/8 UNC inch screw and four washers DIN125A-6,4 A2 (**Figure 13**).

Mount the TIM 2xx to the mounting plate using the supplied 1/4 x 1 1/4 UNC inch screw, the distance sleeve and one washer DIN125A-6,4 A2 (**Figure 14**).

After the camera is fully assembled, the mounting plate can be attached back to the outdoor protective housing with the provided screw.



Figure 15: Fully assembled TIM camera on mounting

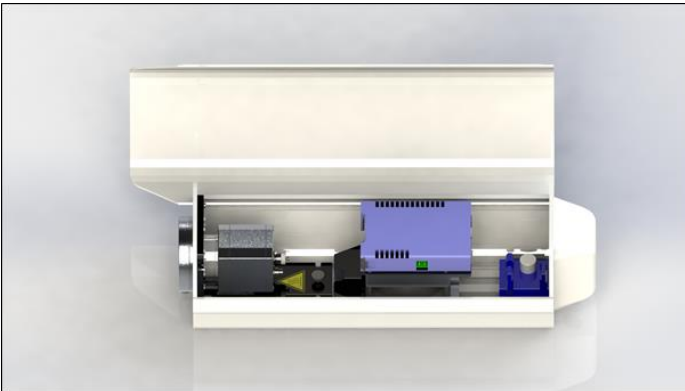


Figure 16: Fully assembled TIM camera in outdoor protective housing

3.4 Mounting of the thermometer TIM 8 and the thermoIMAGER TIM 40 Camera

Loosen the mounting nut and mounting bracket from the thermoMETER TIM 8 and the thermoIMAGER TIM 40 camera. Now screw the camera into the provided adapter plate. For an exact positioning of the camera, the camera can also be attached by turning the clamping ring.



Figure 17: thermoMETER TIM 8 and the thermoIMAGER TIM 40 camera mounted in adapter plate

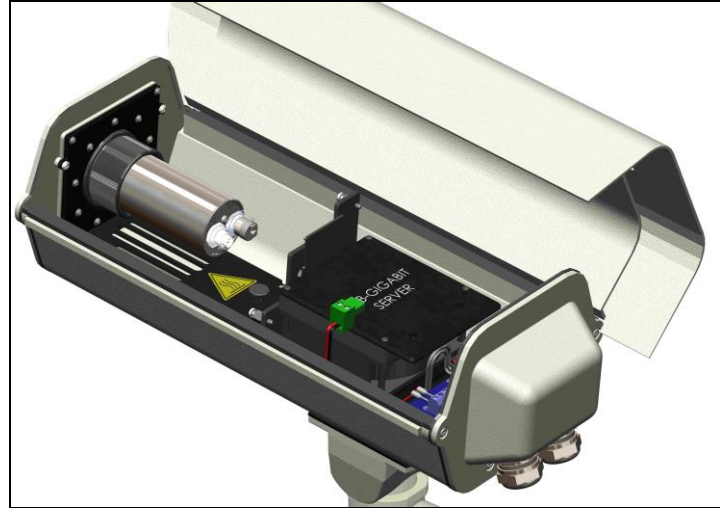


Figure 18: Fully assembled thermoMETER TIM 8 and the thermoIMAGER TIM 40 camera in outdoor protective housing

3.5 Mounting of thermoMETER CSL / thermoMETER CTL

Follow steps 1 and 2 as described in chapter Fehler! Verweisquelle konnte nicht gefunden werden..

Mounting of thermoMETER CSL / thermoMETER CTL

Attach the device with the corresponding bracket. Mount the CSL or CTL to the mounting plate using the supplied 1/4 x 3/8 UNC inch screw and a washer DIN125A-6,4 A2 (**Figure 19**).



- Note that the connector is facing outward to allow you to connect the cable.
- The electronics box of the CTL must be installed outside the protective housing

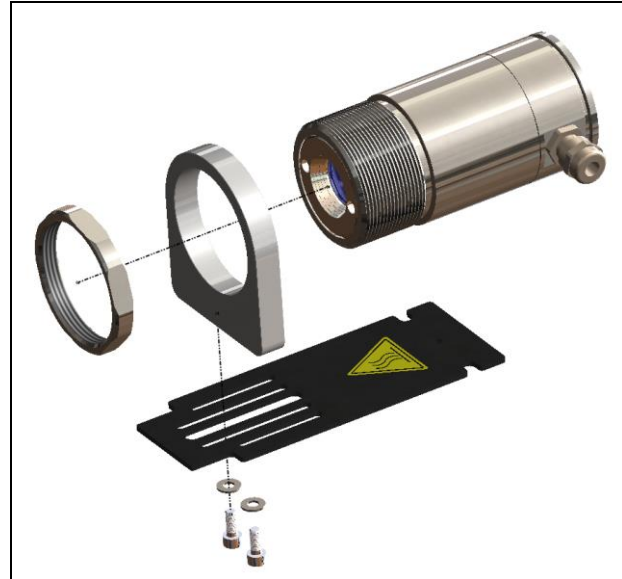


Figure 19: thermoMETER CSL/ CTL attachment

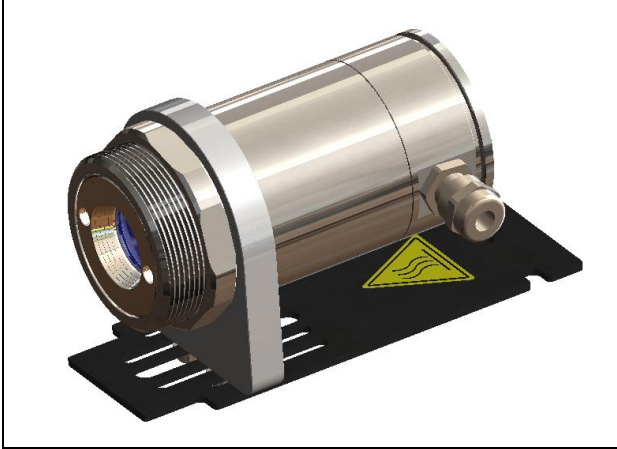


Figure 20: Mounted thermometer CSL or CTL on the mounting plate

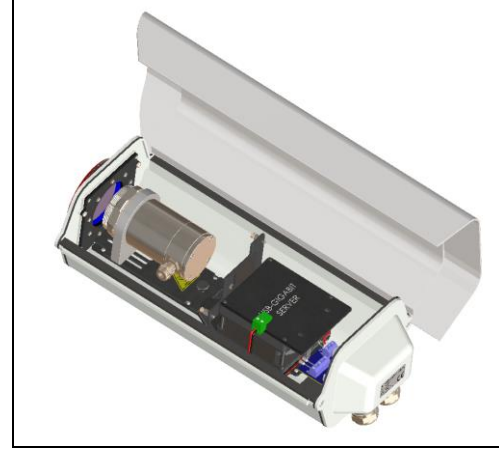


Figure 21: thermometer CSL or CTL in outdoor protective housing

4 Optional Accessoires

4.1 Industrial Process Interface (PIF)

In addition to the installation of the TIM camera and the USB server, the industrial PIF (without housing) can be integrated into the outdoor protective housing as shown in **Figure 22**. The industrial PIF without housing can be purchased under the order number TM-CJAPIF-TIM.

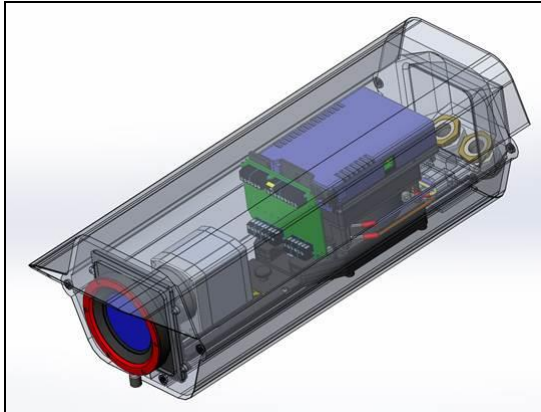


Figure 22: Outdoor protective housing with industrial PIF



Before the industrial PIF is attached, the camera must be installed in the outdoor protective housing, see **Chapter 3.3.** or **Chapter 3.4.**

4.2 Wall Mount

The outdoor protective housing can be attached to a wall using a wall mount. This is available as an option under the part number **TM-OPHWM-TIM**.



Abbildung 23: Outdoor protective housing with wall mount



The wall bracket is mandatory for a mounting of the protective housing!

5 Replacement of Protective Foil

If necessary, the protective foil of the outdoor protective housing can be replaced (only for **Part-Number: TM-OPHF-TIM**). To change the protective foil a screwdriver and a scalpel is needed.

5.1 Disassembling Air Purge Collar

Step 1: Unscrew the 9 screws from the adapter plate using a screwdriver and remove them together with the washers.

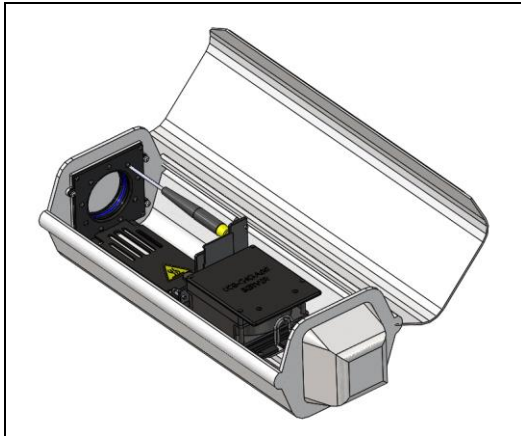


Figure 24: Unscrew the screws

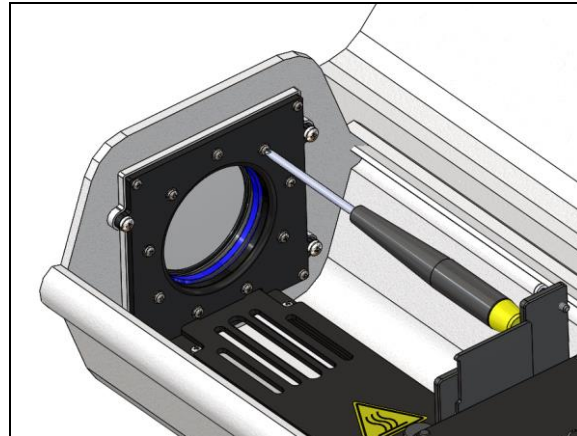


Figure 25: Loosen 9 screws from the adapter plate

Step 2: Gently remove the air purge collar with O-ring 1.

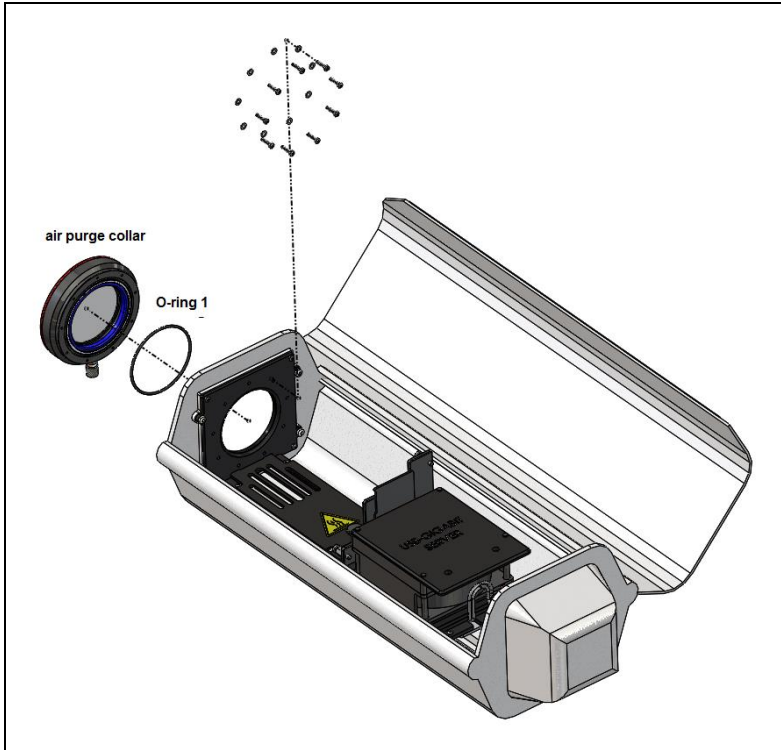


Figure 26: Remove air purge collar

5.2 Removing and Inserting the Protective Foil

Step 1: Remove the old protective foil by removing the tension ring attachment and the tension ring.

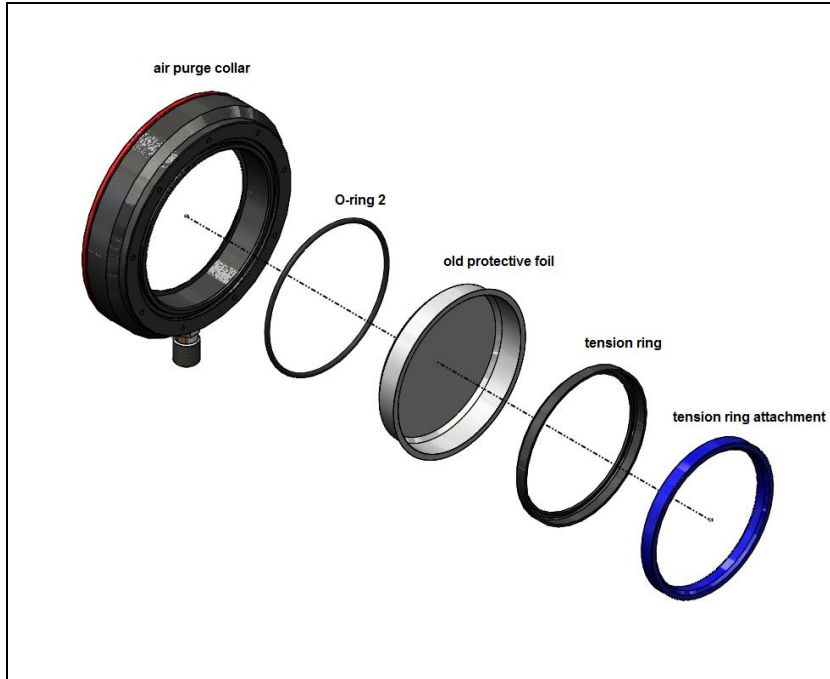


Figure 27: Remove old protective foil

Step 2: Replace the old protective foil with the new protective foil.

Step 3: Insert the O-ring 2 in the air purge collar.

Step 4: Place the protective foil on the center of the air purge collar and press it with the aid of the tension ring and the tension ring attachment until the tension ring attachment is level with the air purge collar.

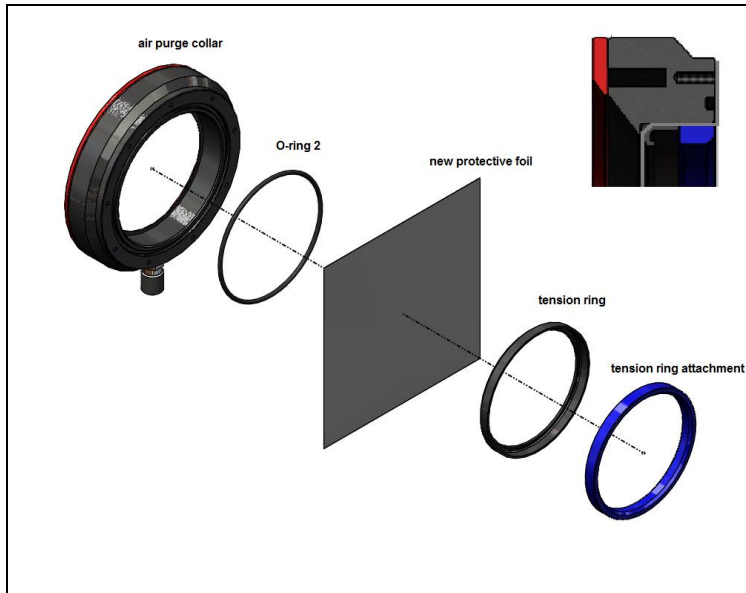


Figure 28: Insert new protective foil

5.3 Cut the Protective Foil

Step 1: Take a scalpel and cut along the inside of the nut.

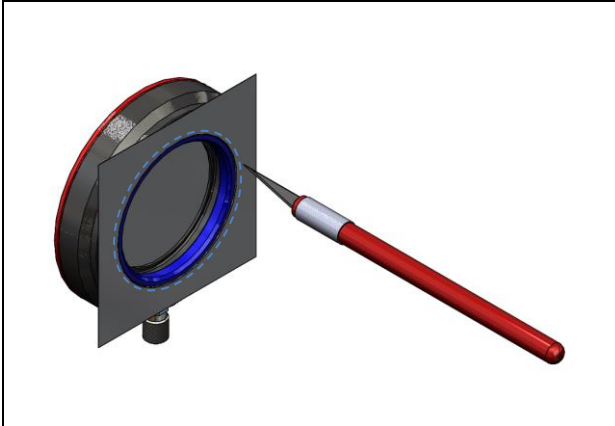


Figure 29: Cut the protective foil with the scalpel

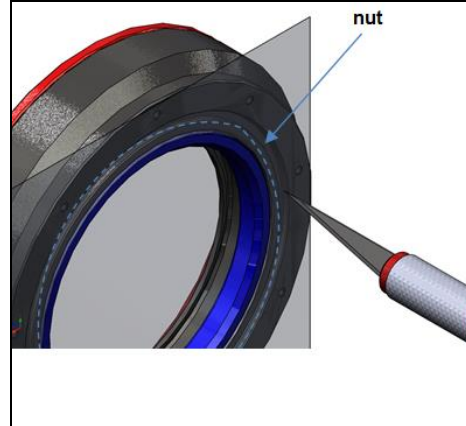


Figure 30: Cut the protective foil along the nut inner surface

Step 2: Insert the O-ring 1 into the nut of the air purge collar and repeat the steps in chapter 5.1 reverse. Make sure that the air purge collar is pressed against the adapter plate, when you tighten the screws again!

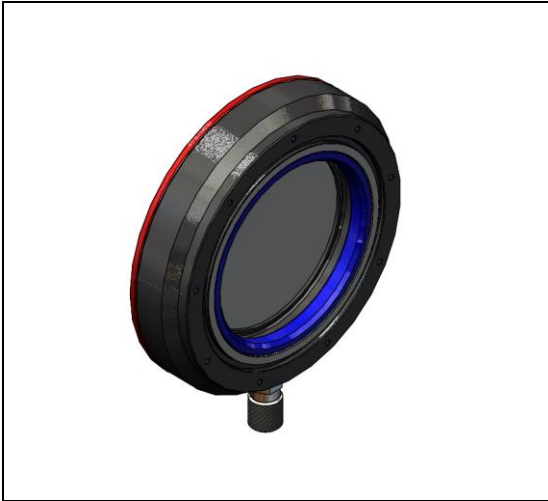


Figure 31: Air purge collar



Figure 32: Insert O-ring 1 in air purge collar

6 Liability for Material Defects

All components of the device have been checked and tested for functionality at the factory. However, if defects occur despite our careful quality control, MICRO-EPSILON or your dealer must be notified immediately.

The liability for material defects is 12 months from delivery. Within this period, defective parts, except for wearing parts, will be repaired or replaced free of charge, if the device is returned to MICRO-EPSILON with shipping costs prepaid. Any damage that is caused by improper handling, the use of force or by repairs or modifications by third parties is not covered by the liability for material defects. Repairs are carried out exclusively by MICRO-EPSILON.

Further claims cannot be made. Claims arising from the purchase contract remain unaffected. In particular, MICRO-EPSILON shall not be liable for any consequential, special, indirect or incidental damage. In the interest of further development, MICRO-EPSILON reserves the right to make design changes without notification.

For translations into other languages, the German version shall prevail.



MICRO-EPSILON MESSTECHNIK GmbH & Co. KG
Koenigbacher Str. 15 · 94496 Ortenburg / Germany
Tel. +49 (0) 8542 / 168-0 · Fax +49 (0) 8542 / 168-90
info@micro-epsilon.com · www.micro-epsilon.com

Your local contact: www.micro-epsilon.com/contact/worldwide/

X9751374-A032070HDR

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