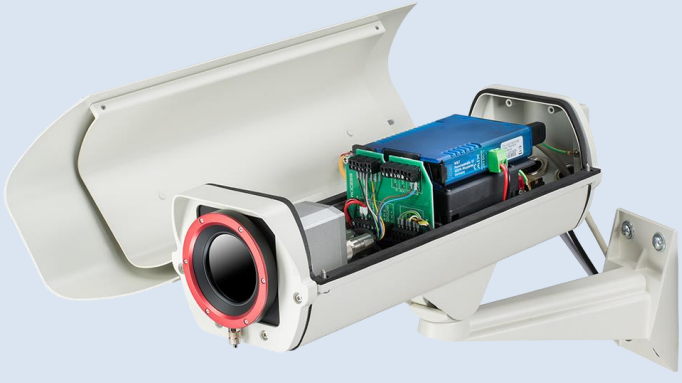
optris
infrared thermometers

Operator's Manual

optris® Outdoor protective housing

for PI camera, CSlaser LT, CTlaser LT, USB server and industrial PIF



Optris GmbH
Ferdinand-Buisson-Str. 14
13127 Berlin
Germany

Tel.: +49 30 500 197-0
Fax: +49 30 500 197-10

E-mail: info@optris.global
Internet: www.optris.global

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1 General Information

1.1 Description

Thank you for choosing the **optris® Outdoor protective housing**.
The outdoor protective housing is an ideal complement for the PI camera, CSlaser, CTlaser 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 PI camera (lenses up to 90° FOV) and for CSlaser LT and CTlaser LT. 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 Warranty

Each single product passes through a quality process. Nevertheless, if failures occur please contact the customer service at once. The warranty period covers 24 months starting on the delivery date. After the warranty is expired the manufacturer guarantees additional 6 months warranty for all repaired or substituted product components. Warranty does not apply to damages, which result from misuse or neglect. The manufacturer is not liable for consequential damage or in case of a non-intended use of the product.
If a failure occurs during the warranty period the product will be replaced, calibrated or repaired without further charges. The freight costs will be paid by the sender. The manufacturer reserves the right to exchange components of the product instead of repairing it. If the failure results from misuse or neglect the user has to pay for the repair. In that case you may ask for a cost estimate beforehand.

1.3 Scope of Supply

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

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
Power supply	24 V DC
Power	70 W
Protective window	Germanium (Ge), zinc sulfide (ZnS), Borofloat or foil
Environmental rating	IP66
Air purge collar	Integrated
Max. FOV	90 ° (HFOV)
Integrated additional components	USB-Server Gigabit Industrial Process interface (PIF)

2.2 Dimensions

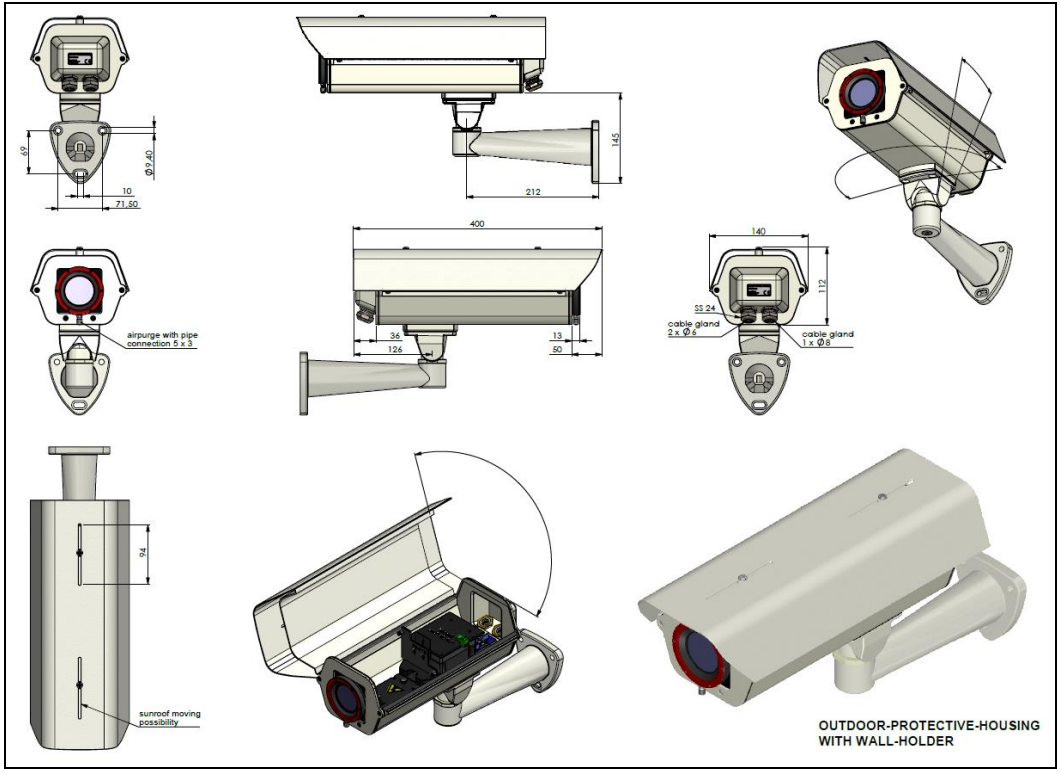

Figure 1: Dimensions

2.3 Electrical Connections

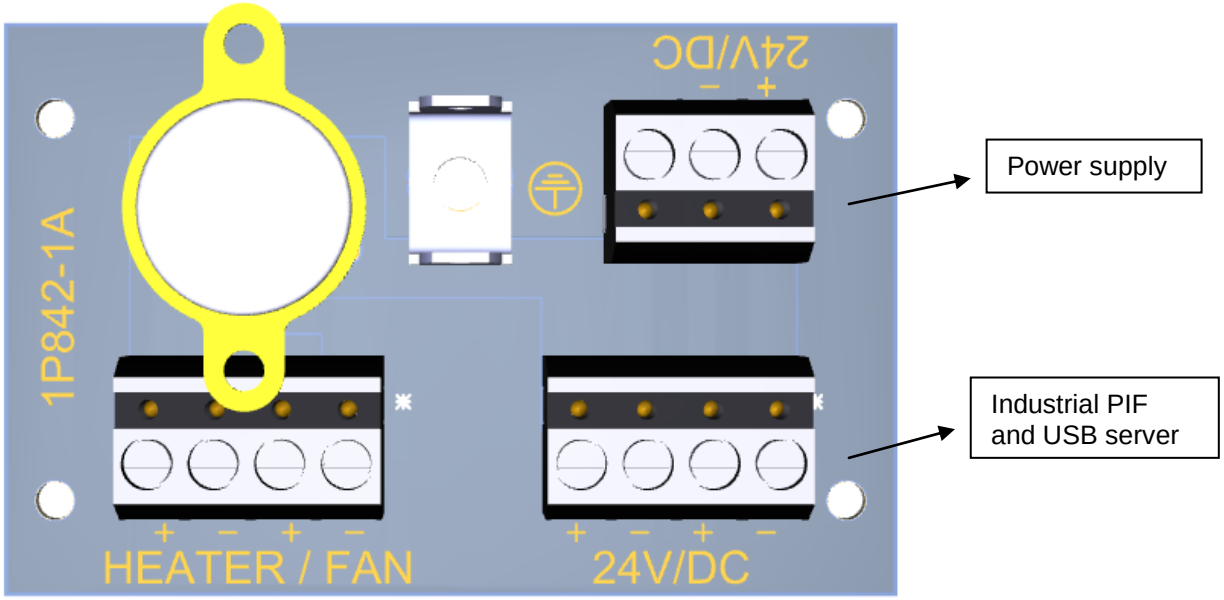

Figure 2: Connection circuit board

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. 2...10 l/ min.) depends on the application and the installation conditions on-site.

2.5 Protective window

Protective window	Description	Spectral range	Transmission [1]
Germanium	Protective window (50,8 x 3 mm/ Ge) for PI450 G7, 640 G7	7,9 µm	0.96
	Protective window (50,8 x 3 mm/ Ge) for PI160, 4xx, 640	7,5-13 µm	0.92
Zinc sulfide	Protective window (50,8 x 3 mm/ ZnS) for PI450 G7, 640 G7	7,9 µm	0.93
	Protective window (50,8 x 3 mm/ ZnS) for PI160, 4xx, 640	7,5-13 µm	0.91
	Protective window (50,8 x 3 mm/ ZnS) for PI2xx (appropriate for VIS + IR)	7,5-13 µm	0.91
	Protective window (50,8 x 3 mm/ ZnS) for LT models of CTlaser-, CSlaser serie	7,5-13 µm	0,91
Borofloat	Protective window (50,8 x 3 mm/ Borofloat 33) for PI1M, PI05M	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 3**.

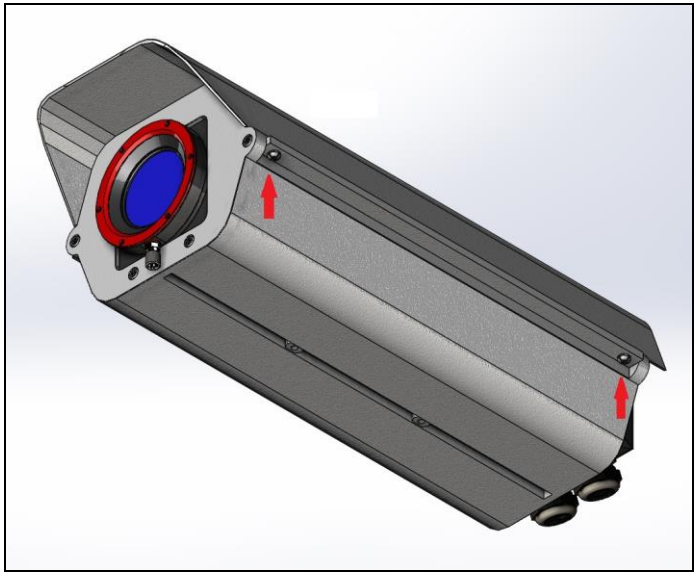

Figure 3: Opening the housing

Inside the protective housing is the electronic circuit board, where all loads are connected (see **Figure 2**). 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 5**. 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 4: 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 5**). If necessary, remove the clip from the USB server (**Figure 6**) and turn the USB server (**Figure 5**) until the clip is locked into the bracket (**Figure 7**).

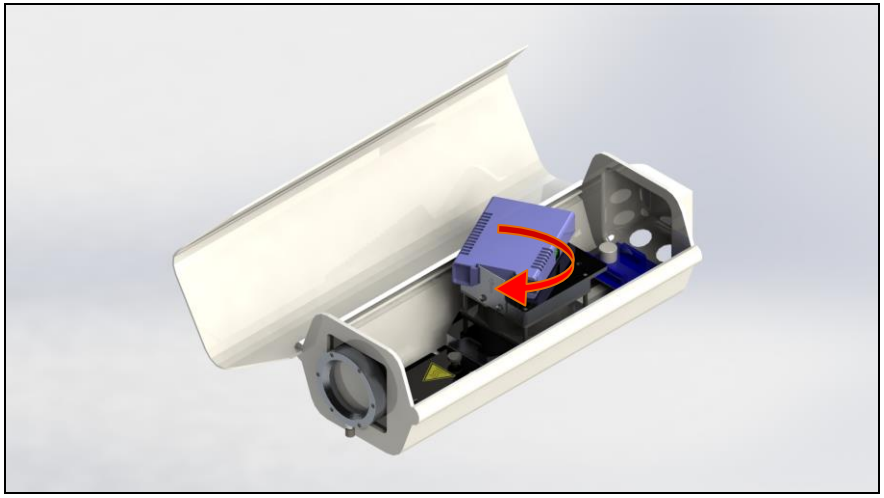

Figure 5: Insertion of the USB server into the provided board

Figure 6: USB server clip

Figure 7: USB server holding plate

The USB server is now ready mounted (**Figure 8**):

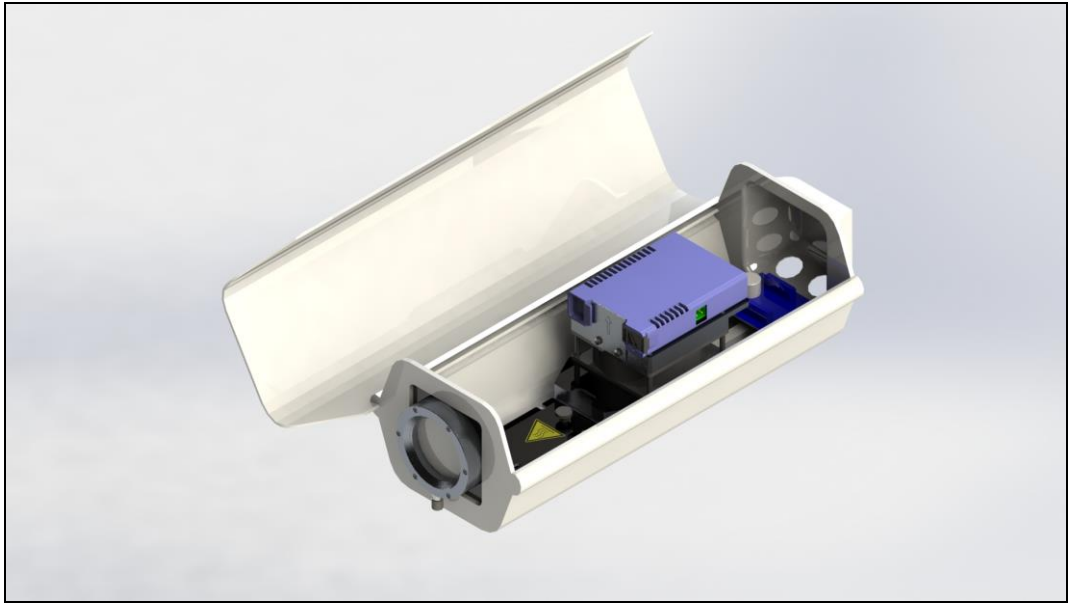

Figure 8: USB server ready mounted

3.3 Mounting of the PI camera

Step 1: Loosen the knurled screw from the mounting plate (**Figure 9**).

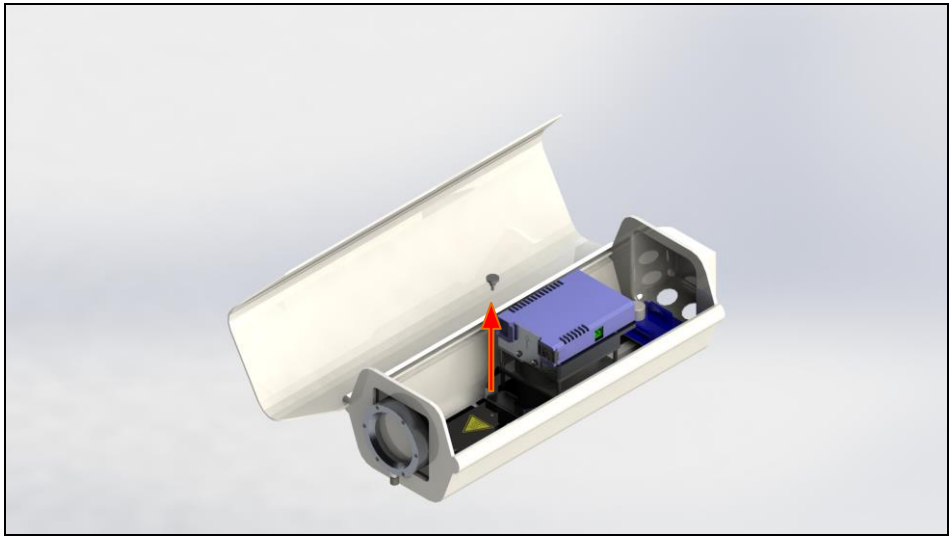

Figure 9: Loosen the knurled screw from mounting plate

Step 2: Carefully remove the mounting plate (**Figure 10**).

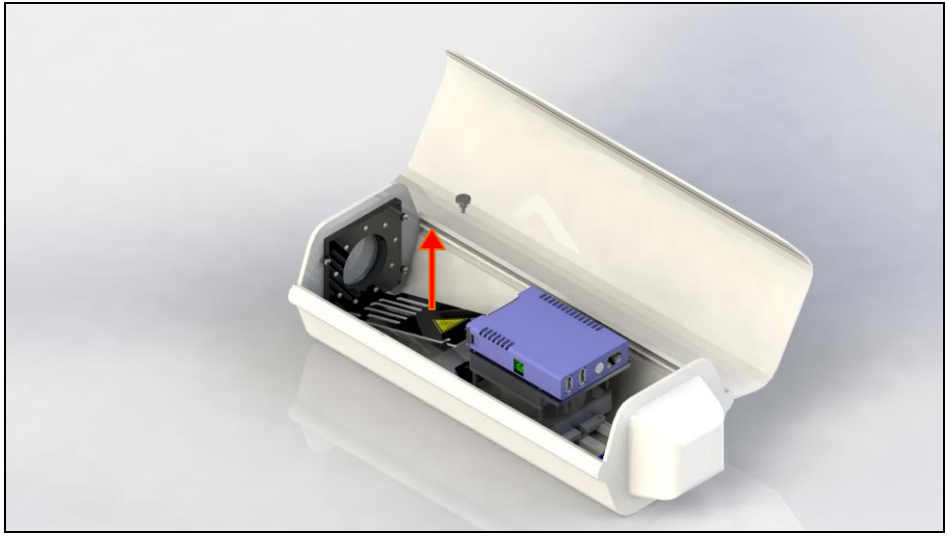

Figure 10: Remove the mounting plate

Step 3: Mounting the PI cameras

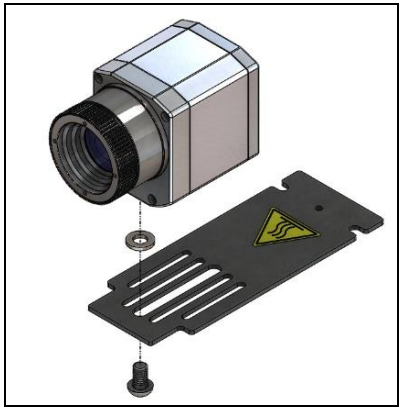

Figure 11: PI 4xx/ 640/ 1M/ 05M attachment

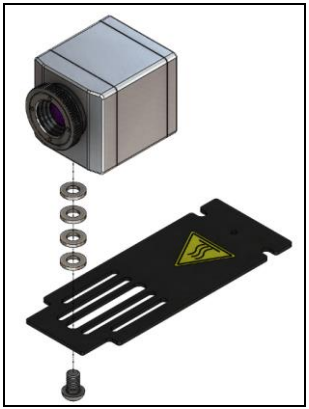

Figure 12: PI 160 attachment

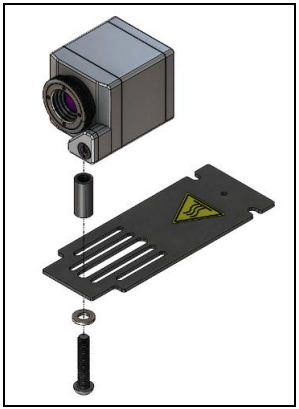

Figure 13: PI 2xx attachment

Mount the PI4xx/ 640/ 1M/ 05M to the mounting plate using the supplied 1/4 x 3/8 UNC inch screw and a washer DIN125A-6,4 A2 (**Figure 11**).

Mount the PI160 to the mounting plate using the supplied 1/4 x 3/8 UNC inch screw and four washers DIN125A-6,4 A2 (**Figure 12**).

Mount the PI2xx 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 13**).

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

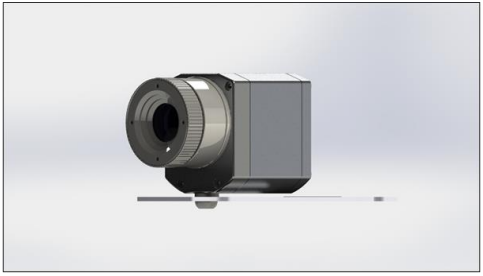

Figure 14: Fully assembled PI camera on mounting plate

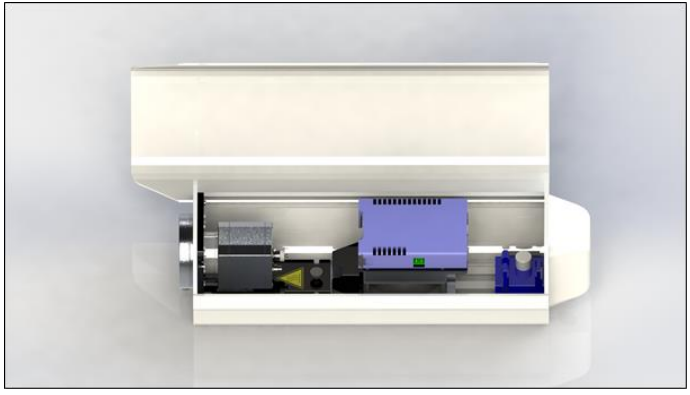

Figure 15: Fully assembled PI camera in outdoor protective housing

3.4 Mounting of CSlaser/CTlaser

Follow steps 1 and 2 as described in chapter **3.3**.

Mounting of CSlaser/CTlaser

Attach the device with the corresponding bracket. Mount the CSlaser or CTlaser to the mounting plate using the supplied 1/4 x 3/8 UNC inch screw and a washer DIN125A-6,4 A2 (**Figure 16**).

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

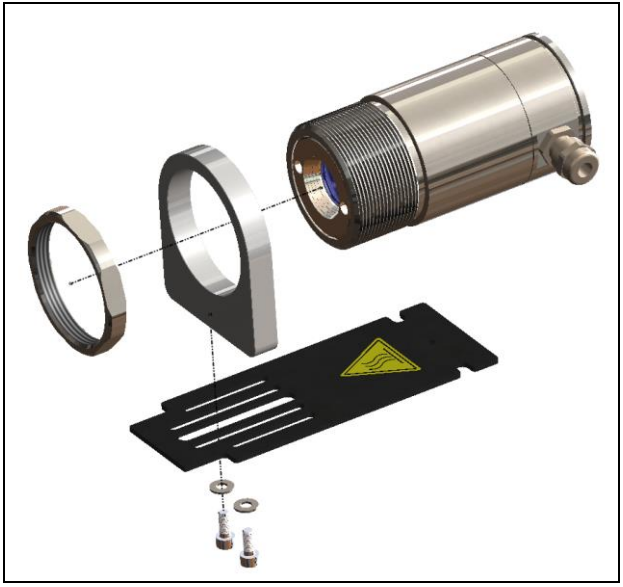

Figure 16: CSlaser/CTlaser attachment

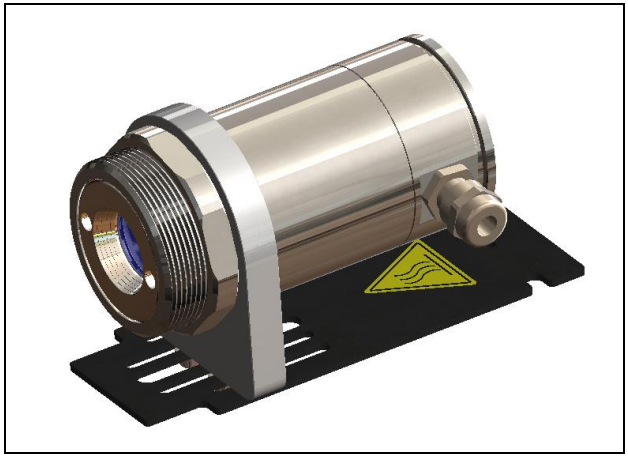

Figure 17: Mounted CSlaser or CTlaser on the mounting plate

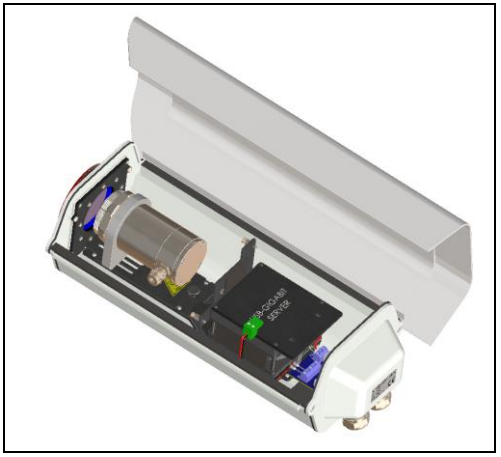

Figure 18: CSlaser or CTlaser in outdoor protective housing

4 Accessoires

4.1 Industrial Process Interface (PIF)

In addition to the installation of the PI camera and the USB server, the industrial PIF (without housing) can be integrated into the outdoor protective housing as shown in **Figure 19**. The industrial PIF without housing can be purchased under the order number **ACCJAPIPIF500V2**.

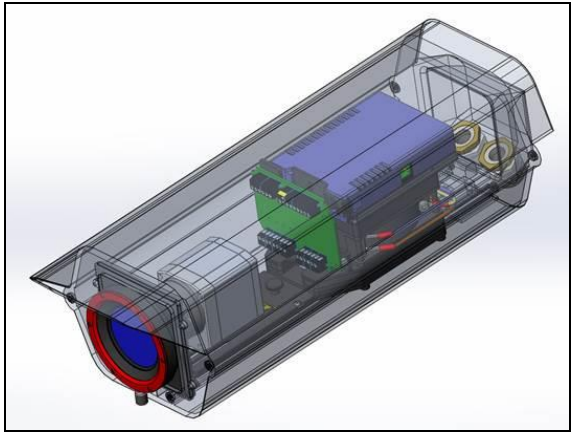

Figure 19: Outdoor protective housing with industrial PIF

Before the industrial PIF is attached, the camera must be installed in the outdoor protective housing (see chapter **3.3 Mounting of the PI camera**).

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 **ACOPHWM**.

Figure 20: Outdoor protective housing with wall mount

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

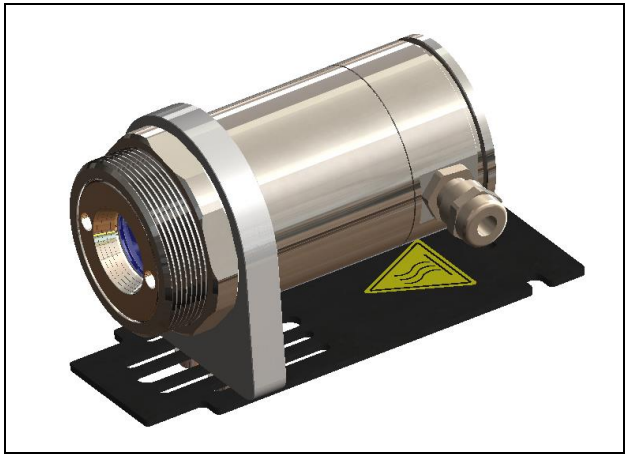

Figure 21: Fully assembled CSlaser or CTlaser on mounting plate

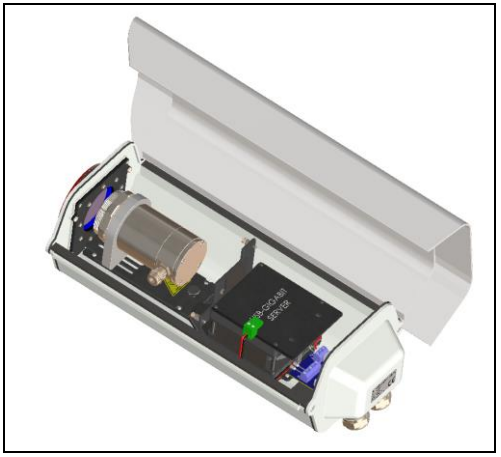

Figure 22: Fully assembled CSlaser or CTlaser in outdoor protective housing

5 Replacement of protective foil

If necessary, the protective foil of the outdoor protective housing can be replaced (only for **Part-Number: ACPIOPHF**). 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.

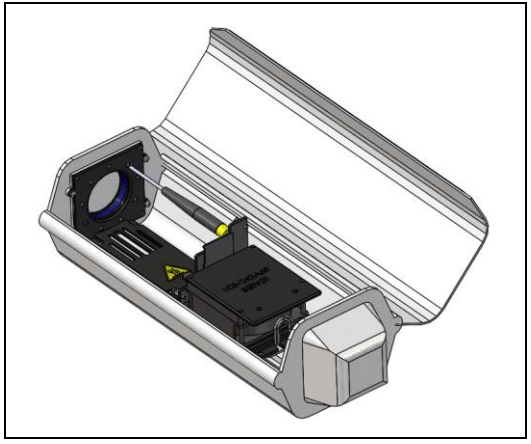

Figure 23: Unscrew the screws

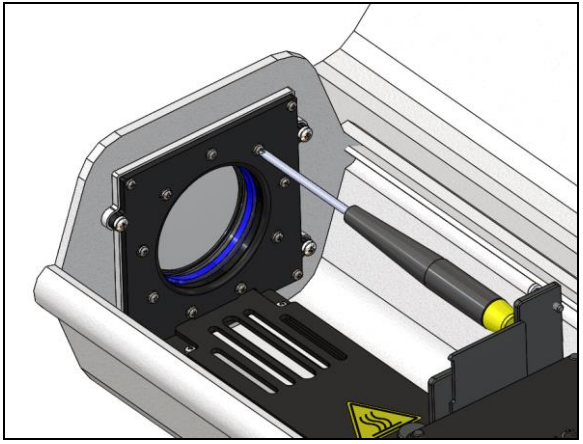

Figure 24: Loosen 9 screws from the adapter plate

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

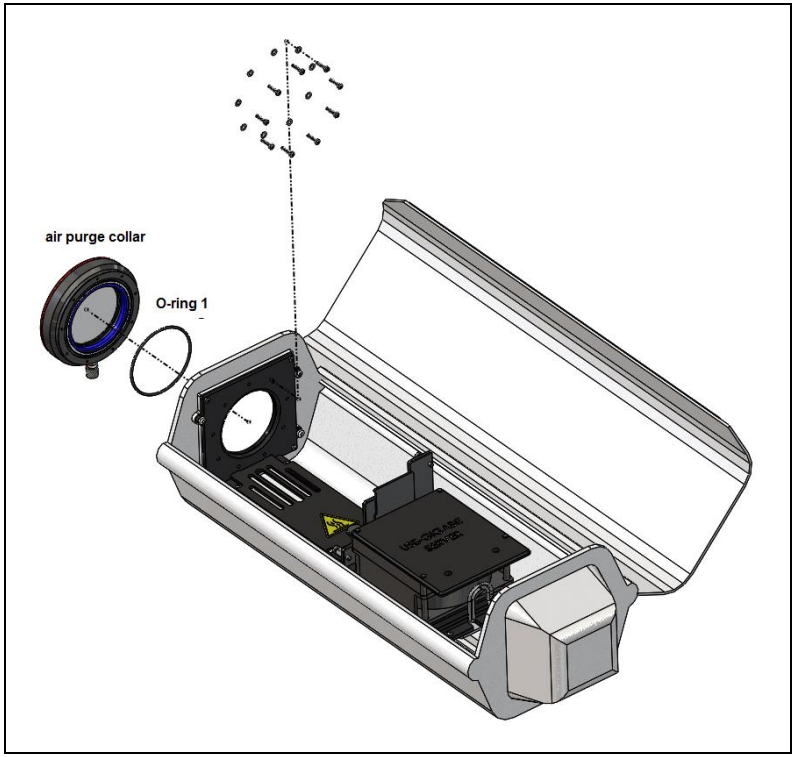

Figure 25: Remove air purge collar

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.

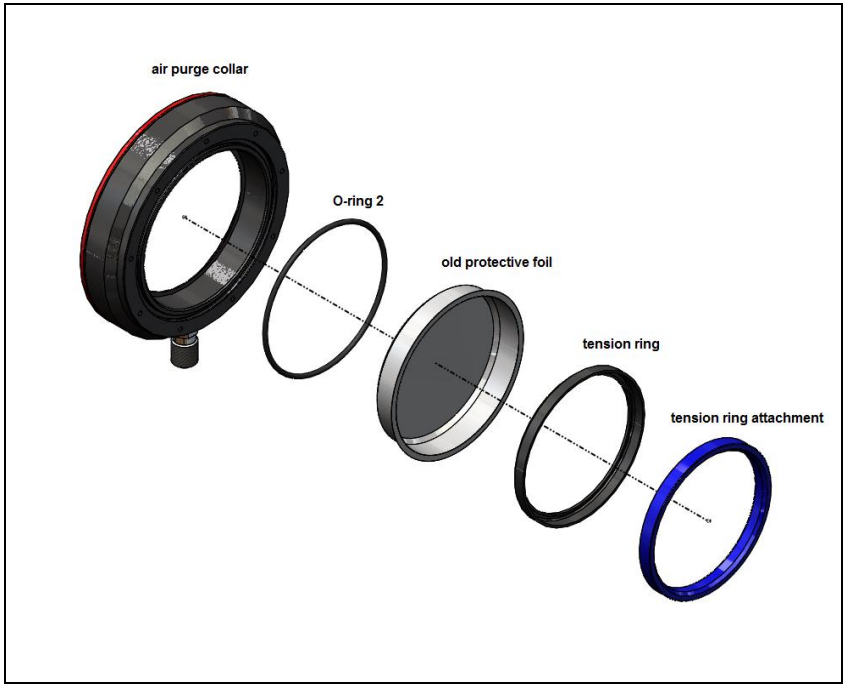

Figure 26: Remove old protective foil

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.

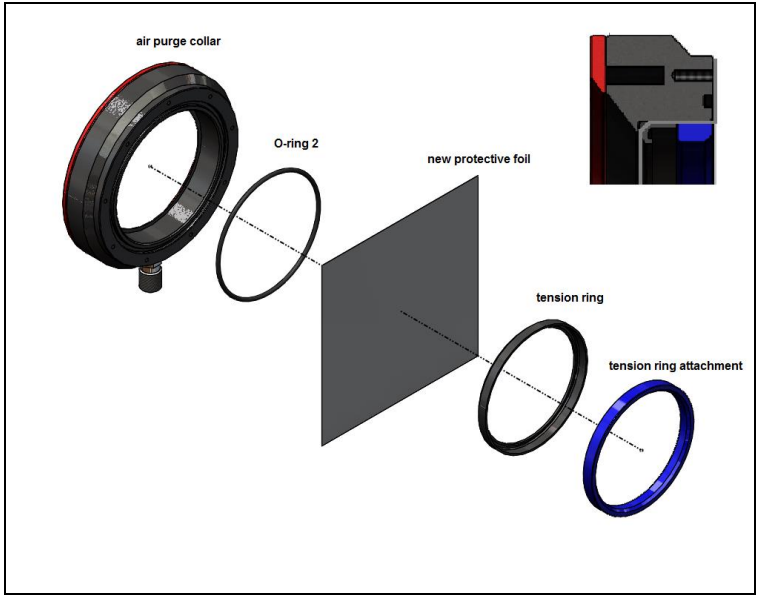

Figure 27: Insert new protective foil

5.3 Cut the protective foil

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

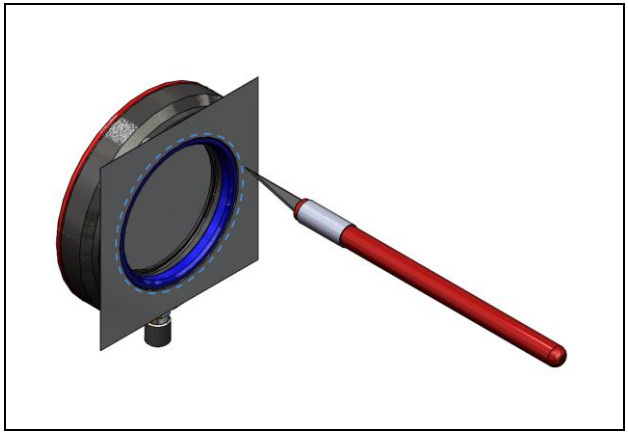

Figure 28: Cut the protective foil with the scalpel

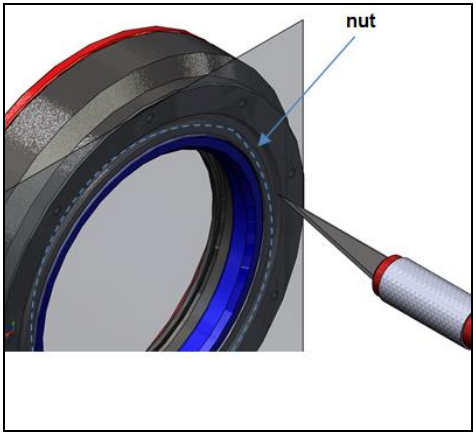

Figure 29: Cut the protective foil along the nut inner surface

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!

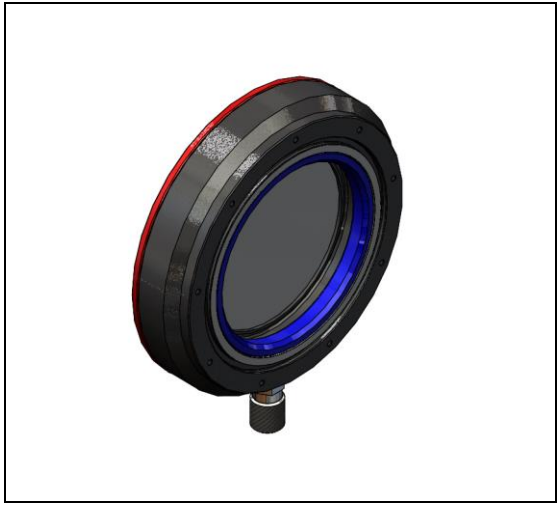

Figure 30: Air purge collar

Figure 31: Insert O-ring 1 in air purge collar

Appendix A - Declaration of Conformity

EG-Konformitätserklärung
EU Declaration of Conformity

optris infrared thermometers

Wir / We

Optris GmbH
Ferdinand Buisson Str. 14
D-13127 Berlin

erklären in alleiniger Verantwortung, dass
declare on our own responsibility that

die Produktserie optris Outdoor-Schutzgehäuse
the product group optris Outdoor protective housing

den Anforderungen der EMV-Richtlinie **2014/30/EU** und der Niederspannungsrichtlinie **2014/35/EU** entspricht.
meets the provisions of the EMC Directive **2014/30/EU** and the Low Voltage Directive **2014/35/EU**.

Angewandte harmonisierte Normen:
Applied harmonized standards:

EMV Anforderungen / EMC General Requirements:

EN 61326-1:2013 (Grundlegende Prüfanforderungen / Basic requirements)
EN 61326-2-3:2013

Gerätesicherheit von Messgeräten / Safety of measurement devices:

EN 61010-1:2010
EN 60825-1:2015 (Lasersicherheit / Laser safety)

Dieses Produkt erfüllt die Vorschriften der Richtlinie **2011/65/EU** (RoHS) des Europäischen Parlaments und des Rates vom 8. Juni 2011 zur Beschränkung der Verwendung bestimmter gefährlicher Stoffe in Elektro- und Elektronikgeräten.
This product is in conformity with Directive **2011/65/EU** (RoHS) of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

Berlin, 26.06.2017

Ort, Datum / place, date

Dr. Ulrich Kienitz
Geschäftsführer / General Manager

optris Outdoor protective housing-MA-E2018-03-A