Operator’s Manual

optris® Outdoor protective housing

for PI/Xi camera, CSlaser LT, CTlaser LT, USB server and industrial PIF
Optra 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
Table of Contents

1 General Information .............................................................................................................................................. 5
   1.1 Description .................................................................................................................................................. 5
   1.2 Warranty .................................................................................................................................................... 6
   1.3 Scope of Supply .......................................................................................................................................... 6

2 Technical Data ......................................................................................................................................................... 7
   2.1 General Specifications ................................................................................................................................. 7
   2.2 Dimensions .................................................................................................................................................. 8
   2.3 Electrical Connections ................................................................................................................................. 10
   2.4 Air Purge Collar ......................................................................................................................................... 11
   2.5 Protective window .................................................................................................................................... 11

3 Installation ............................................................................................................................................................... 12
   3.1 Electrical installation ................................................................................................................................. 12
3.2 Mounting of the USB server ................................................................. 14
3.3 Mounting of the PI camera .................................................................. 16
3.4 Mounting of the Xi camera .................................................................. 20
3.5 Mounting of CS/CT Laser ................................................................... 21

4 Accessoires .......................................................................................... 23
4.1 Industrial Process Interface (PIF) ...................................................... 23
4.2 Wall mount ......................................................................................... 24

5 Replacement of protective foil ............................................................... 25
5.1 Disassembling air purge collar .......................................................... 25
5.2 Removing and inserting the protective foil ........................................ 27
5.3 Cut the protective foil ....................................................................... 29

Appendix A - Declaration of Conformity .................................................. 31
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/Xi camera, CS laser LT, CT laser LT 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 CS laser LT and CT laser 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

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature range</td>
<td>-40 °C … +50 °C</td>
</tr>
<tr>
<td>Heating</td>
<td>PTC heater (automatically starting at T &lt; 15 °C) / fan for homogeneous temperature distribution ¹)</td>
</tr>
<tr>
<td>Power supply</td>
<td>24 V DC</td>
</tr>
<tr>
<td>Power</td>
<td>70 W</td>
</tr>
<tr>
<td>Protective window ²)</td>
<td>Germanium (Ge), zinc sulfide (ZnS), Borofloat or foil</td>
</tr>
<tr>
<td>Environmental rating</td>
<td>IP66</td>
</tr>
<tr>
<td>Air purge collar</td>
<td>Integrated</td>
</tr>
<tr>
<td>Air pressure</td>
<td>Absolute pressure 1,1 - 8 bar at 20 -100 l/min</td>
</tr>
<tr>
<td>Max. FOV</td>
<td>90 ° (HFOV)</td>
</tr>
<tr>
<td>Integrated additional components</td>
<td>USB-Server Gigabit</td>
</tr>
<tr>
<td></td>
<td>Industrial Process interface (PIF)</td>
</tr>
<tr>
<td>Material</td>
<td>Aluminum</td>
</tr>
<tr>
<td>Weight</td>
<td>2 kg (with wall mount 2,5 kg)</td>
</tr>
</tbody>
</table>

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 (±5 °C).

²) There is no protection window for the Xi version
2.2 Dimensions

Figure 1: Dimensions with wall mount
Figure 2: Dimensions for wall mount
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.

2.5 Protective window

<table>
<thead>
<tr>
<th>Protective window</th>
<th>Description</th>
<th>Spectral range</th>
<th>Transmission ¹)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germanium</td>
<td>Protective window (50,8 x 3 mm/ Ge) for PI 450i G7, 640 G7</td>
<td>7,9 µm</td>
<td>0.96</td>
</tr>
<tr>
<td></td>
<td>Protective window (50,8 x 3 mm/ Ge) for PI 160, 400i, 450i, 640</td>
<td>7,5-13 µm</td>
<td>0.92</td>
</tr>
<tr>
<td>Zinc sulfide</td>
<td>Protective window (50,8 x 3 mm/ ZnS) for PI 450i G7, 640 G7</td>
<td>7,9 µm</td>
<td>0.93</td>
</tr>
<tr>
<td></td>
<td>Protective window (50,8 x 3 mm/ ZnS) for PI 160, 400i, 450i, 640</td>
<td>7,5-13 µm</td>
<td>0.91</td>
</tr>
<tr>
<td></td>
<td>Protective window (50,8 x 3 mm/ ZnS) for PI 200, 230 (appropriate for VIS + IR)</td>
<td>7,5-13 µm</td>
<td>0.91</td>
</tr>
<tr>
<td></td>
<td>Protective window (50,8 x 3 mm/ ZnS) for LT models of CTlaser-, CSi laser series</td>
<td>7,5-13 µm</td>
<td>0.91</td>
</tr>
<tr>
<td>Borofloat</td>
<td>Protective window (50,8 x 3 mm/ Borofloat 33) for PI 1M, 05M</td>
<td>0,85-1,1 µm, 500-540 nm</td>
<td>0.92</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Cable gland 1</th>
<th>Cable gland 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 x 8 mm sealing insert</td>
<td>2 x 6 mm sealing insert</td>
</tr>
<tr>
<td>For Ethernet or USB cable</td>
<td>For PIF cable and 24 V line</td>
</tr>
</tbody>
</table>

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 PI 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 PI cameras

Mount the PI 400/ 450/ 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 12).

Mount the PI 160/ 400i/ 450i 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 PI 200/ 230 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 PI camera on mounting plate

**Figure 16:** Fully assembled PI camera in outdoor protective housing
3.4 Mounting of the Xi camera

Loosen the mounting nut and mounting bracket from the Xi 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: Xi camera mounted in adapter plate

Figure 18: Fully assembled Xi camera in outdoor protective housing
3.5 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 19).

- 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 19: CSlaser/CTLaser attachment
Figure 20: Mounted CS laser or CT laser on the mounting plate

Figure 21: CS laser or CT laser 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 22. The industrial PIF without housing can be purchased under the order number ACCJAPIPIFMA (for PI series and Xi 400) or under ACOPHXIPIF (Xi 80).

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 Mounting of the PI camera or 3.4 Mounting of the Xi 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 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: 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 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
Wir / Wir

dürfen in aller größten Verantwortung, dass
declared in our own responsibility that

wir die Produktreihe optis Outdoor-Schutzgehäuse
die Produkte des optis Outdoor protective housing

der EMV-Richtlinie 2014/30/EU und der Niederspannungsrichtlinie 2014/35/EU
modell the provisions of the EMC Directive 2014/30/EU and the Low Voltage Directive 2014/35/EU

entwickelt.
entwickelt.

Angewandte harmonisierte Normen:

Applied harmonized standards:

EN 61326-1:2013 (Geräte der Maschinen / Basic requirements for measurement devices):

EN 60065:2016 (Geräte der Maschinen / Safety of measurement devices):

EN 60335-1:2012 (geräte der Maschinen / Haushaltsgeräte / 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
governments, in the use of certain hazardous substances in
electrical and electronic equipment.

Dr. Ulrich Keritz
Geschäftsführer / General Manager

Berlin, 20.02.2017
Ort, Datum / place, date