Operating Instructions

Cooling Jacket Advanced

Cooling Jacket Advanced
Cooling Jacket Advanced Extended
Cooling housing for TIM series, video pyrometer and laser pyrometer at high ambient temperatures
# Table of contents

1  **General Notes** ................................................................. 7
   1.1  Intended Use .......................................................... 7
   1.2  Warranty ................................................................. 8
   1.3  Scope of Supply....................................................... 9
       1.3.1  Versions ....................................................... 9
   1.4  Mounting Accessories............................................... 10
       1.4.1  Accessories for TIM NetBox ................................ 10
       1.4.2  Accessories for USB Server Gigabit ...................... 11
2  **Technical Data** .............................................................. 12
   2.1  General Specifications............................................ 12
       2.1.1  Focusing Unit and Front Part ............................. 13
   2.2  Accessories.................................................................. 15
2.2.1 High Temperature Cable ................................................................. 15
2.2.2 Protection Window ................................................................................. 16
2.2.3 Mounting Flange .................................................................................. 17
2.2.4 Additional Accessories ......................................................................... 17
2.3 Dimensions .............................................................................................. 18
2.4 Fittings ...................................................................................................... 27
   2.4.1 Cooling Water Fitting ........................................................................ 27
   2.4.2 Air Purge Collar .................................................................................. 27
   2.4.3 Cable Glands on the Back ................................................................. 29
2.5 Cooling Properties .................................................................................. 30
   2.5.1 Condensation ...................................................................................... 31
3 Installation ..................................................................................................... 33
   3.1 Installation ............................................................................................ 33
## Table of contents

3.2  Installation of TIM Camera, Infrared Video Thermometer and Infrared Thermometer .......... 34

3.2.1  Assembling of the Focusing Unit .................................................................................. 34

3.2.2  Assembling of the Front Part ....................................................................................... 38

3.2.3  Assembling to the Cooling Jacket Advanced Standard Version ..................................... 41

3.2.4  Assembling to the Cooling Jacket Advanced Extended .................................................. 51

4  Example of Installation ........................................................................................................ 63
1 General Notes

1.1 Intended Use
The cooling housing Cooling Jacket Advanced is intended to use for TIM series, video thermometers CTVideo and CSVideo as well as CTLaser and CSLaser for application at high ambient temperatures.

- 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.

- In case of problems or questions which may arise when you use the infrared camera, please contact our service department.

- All accessories can be ordered according to the referred part numbers in brackets ( ).
1.2 Warranty

All components of the device have been checked and tested for perfect function in the factory. In the unlikely event that errors should occur despite our thorough quality control, this should be reported immediately to MICRO-EPSILON.

The warranty period lasts 12 months following the day of shipment. Defective parts, except wear parts, will be repaired or replaced free of charge within this period if you return the device free of cost to MICRO-EPSILON. This warranty does not apply to damage resulting from abuse of the equipment and devices, from forceful handling or installation of the devices or from repair or modifications performed by third parties.

No other claims, except as warranted, are accepted. The terms of the purchasing contract apply in full. MICRO-EPSILON will specifically not be responsible for eventual consequential damages. MICRO-EPSILON always strives to supply the customers with the finest and most advanced equipment. Development and refinement is therefore performed continuously and the right to design changes without prior notice is accordingly reserved.

For translations in other languages, the data and statements in the German language operation manual are to be taken as authoritative.
1.3 Scope of Supply

1.3.1 Versions

Cooling Jacket Advanced

- Cooling Jacket Advanced for TIM series
  (Part-No.: TM-CJA-TIM), consisting of housing and chassis
  The focusing unit or the front part must be ordered separately.
- Cooling Jacket Advanced for CSLaser, CTLaser as well as CTVideo and CSVideo
  (Part-No.: TM-CJA-CTL)
  The front part must be ordered separately.
- Installation instructions

Cooling Jacket Advanced Extended

- Cooling Jacket Advanced for TIM series
  (Part-No.: TM-CJAExxx-TIM), consisting of housing and chassis
- Cooling Jacket Advanced for CSLaser, CTLaser as well as CTVideo and CSVideo
  (Part-No.: TM-CJAExxx-CTL), consisting of housing and chassis
  The front part must be ordered separately.
- incl. mounting accessories for
  - TIM NetBox or USB server Gigabit
  - Industrial PIF
  - Installation instructions

Operation without focusing or front attachment is not possible.
1.4 Mounting Accessories

1.4.1 Accessories for TIM NetBox

Figure 1: Accessories for TIM NetBox

1 Support rods for Industrial PIF (2x distance bolt SW 5,5x6 - M3x6, 2x cylinder head screw M3x10 and 2x cylinder head screw M3x5)
2 Shaft for fixing the TIM NetBox
3 Holding plate (2x cylinder head screw M3x5)
4 Fastening rail (4x cylinder head screw M4x8)
1.4.2 Accessories for USB Server Gigabit

**Figure 2:** Accessories for USB-Server Gigabit

1. DIN rail plate for fixing the USB server Gigabit
2. Distance rings
3. Screws
4. Support rods for Industrial PIF, with thread and without
# Technical Data

## 2.1 General Specifications

<table>
<thead>
<tr>
<th></th>
<th>Cooling Jacket Advanced</th>
<th>Cooling Jacket Advanced Extended</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental rating</td>
<td>IP 65</td>
<td>IP 65</td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>up to 315 °C(^1)</td>
<td>up to 315 °C(^1)</td>
</tr>
<tr>
<td>Relative humidity</td>
<td>10 ... 95 %, non-condensing</td>
<td>10 ... 95 %, non-condensing</td>
</tr>
<tr>
<td>Material (housing)</td>
<td>V2A</td>
<td>V2A</td>
</tr>
<tr>
<td>Dimensions</td>
<td>271 mm x 166 mm x 182 mm</td>
<td>426 mm x 166 mm x 182 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>5.7 kg</td>
<td>7.8 kg</td>
</tr>
<tr>
<td>Air purge collar</td>
<td>G1/4” Internal thread G3/8” External thread</td>
<td>G1/4” Internal thread G3/8” External thread</td>
</tr>
<tr>
<td>Cooling water fittings</td>
<td>G1/4” Internal thread G3/8” External thread</td>
<td>G1/4” Internal thread G3/8” External thread</td>
</tr>
<tr>
<td>Cooling water pressure</td>
<td>15 bar (217 psi)</td>
<td>15 bar (217 psi)</td>
</tr>
</tbody>
</table>

\(^1\) Cable available up to 250 °C ambient temperature as well as cable cooling up to 315 °C.
2.1.1 Focusing Unit and Front Part

Is needed for mounting a thermoIMAGER TIM or pyrometer.

**Focusing unit**

for 6°, 48° and 72° optics (Part-No.: TM-CJAFU6-TIM)

for 23° optics (Part-No.: TM-CJAFU23-TIM)

**Focusing unit**

for 13° optics (Part-No.: TM-CJAFU13-TIM)

for 15° optics (Part-No.: TM-CJAFU15-TIM)

for 29° optics (TIM 4xx) und 33° optics (TIM 640) (Part-No.: TM-CJAFU38-TIM)

for 53° optics (TIM 4xx) und 60° optics (TIM 640) (Part-No.: TM-CJAFU60-TIM)

for 80° optics (TIM 4xx) (Part-No.: TM-CJAFU80-TIM)

for 90° optics (TIM 640) (Part-No.: TM-CJAFU90-TIM)
Front part
for TIM 2xx (Part-No.: TM-CJAFP2xx-TIM)

Front-part
for all optics (TIM M1/ M05) incl. protection window (Part-No.: TM-CJAFPM1-TIM)

Front part
for CTLaser, CSLaser, CTVideo, CSVideo (Part-No.: TM-CJAFP-CTL)
2.2 Accessories

2.2.1 High Temperature Cable

High temperature Ethernet cable cat.6 (180 °C), 10 m, incl. 2x RJ45 connector (Part-No.: TM-CJAETC10H-TIM)

High temperature Ethernet cable cat.6 (180 °C), 20 m, incl. 2x RJ45 connector (Part-No.: TM-CJAETC20H-TIM)

High temperature Ethernet cable cat.6 (250 °C), 10 m, incl. 2x RJ45 connector (Part-No.: TM-CJAETC10H2-TIM)

High temperature Ethernet cable cat.6 (250 °C), 20 m, incl. 2x RJ45 connector (Part-No.: TM-CJAETC20H2-TIM)

High temperature USB cable (180 °C), 5 m (Part-No.: TM-USB5PC5HCJA-TIM)

High temperature USB cable (180 °C), 10 m (Part-No.: TM-USB5PC10HCJA-TIM)

High temperature USB cable (250 °C), 5 m (Part-No.: TM-USB5PC5H2CJA -TIM)

High temperature USB cable (250 °C), 10 m (Part-No.: TM-USB5PC10H2CJA -TIM)

Pyrometer cable (available separately)
### 2.2.2 Protection Window

Adequate protection windows are available for all versions.

<table>
<thead>
<tr>
<th>Part-No.</th>
<th>Description</th>
<th>Spectral range</th>
<th>Transmission$^1$</th>
</tr>
</thead>
<tbody>
<tr>
<td>TM-CJAPWL-TIM</td>
<td>Protective window (50.8 x 3 mm/ Ge) for TIM 450 G7, 640 G7</td>
<td>7.9 µm</td>
<td>0.96</td>
</tr>
<tr>
<td>TM-CJAPWL-TIM</td>
<td>Protective window (50.8 x 3 mm/ Ge) for TIM 160, 4xx, 640</td>
<td>7.5 - 13 µm</td>
<td>0.92</td>
</tr>
<tr>
<td>TM-CJAPWL2xx-TIM</td>
<td>Protective window (67 x 3 mm/ ZnS) for TIM 2xx (VIS + IR transmittive)</td>
<td>7.5 - 13 µm</td>
<td>0.91</td>
</tr>
<tr>
<td>TM-CJAPWZNS-TIM</td>
<td>Protective window (50.8 x 3 mm/ ZnS) for TIM 640, G7</td>
<td>7.9 µm</td>
<td>0.93</td>
</tr>
<tr>
<td>TM-CJAPWZNS-TIM</td>
<td>Protective window (50.8 x 3 mm/ ZnS) for TIM 160, 4xx</td>
<td>7.5 – 13 µm</td>
<td>0.91</td>
</tr>
<tr>
<td>TM-CJAPWS-CTL</td>
<td>Protective window (67 x 3 mm/ Borofloat 33) for 1M/ 2M/ 3M-models of CTlaser-, CSlaser-, CTvideo-, CSvideo series, TIM M1, TIM M05</td>
<td>1.0/ 1.6/ 2.3 µm, 1 µm, 500-540 nm</td>
<td>0.92</td>
</tr>
</tbody>
</table>

$^1$ The shown values are standard values and may vary between different delivery batches.
2.2.3 Mounting Flange
Mounting flange (Part-No.: TM-CJAMF-TIM) for front mounting of the Cooling Jacket Advanced (Standard and Extended) including mounting screws and washers

2.2.4 Additional Accessories
Industrial PIF without housing (Part-No.: TM-CJAPIF500V2-TIM), 500 VAC$_{RMS}$ isolation voltage between TIM and process, 25 cm connection cable
2.3 Dimensions

Cooling Jacket Advanced

Figure 3: Cooling Jacket Advanced - side view
**Figure 4:** Cooling Jacket Advanced - top view
Figure 5: Cooling Jacket Advanced - front view
Figure 6: Cooling Jacket  Advanced, standard version – complete view
Cooling Jacket Advanced Extended

Figure 7: Cooling Jacket Advanced Extended - side view
Figure 8: Cooling Jacket Advanced, extended version - top view
Figure 9: Cooling Jacket Advanced, extended version - front view
Figure 10: Cooling Jacket Advanced, extended version – complete view
Mounting flange (Accessories) TM-CJAMF-TIM

Figure 11: Mounting flange for Cooling Jacket Advanced (Standard and Extended)
2.4 Fittings

2.4.1 Cooling Water Fitting

- The cooling water input and output has a G1/4\(^{-}\)-internal thread and a G3/8\(^{-}\)-external thread.
- The maximum cooling water pressure is 15 bar (271 psi).
- While connecting the hoses keep inclined the Cooling Jacket at an angle of approx. 45° to avoid air bubbles.

2.4.2 Air Purge Collar

- 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.
- The air purge collar has a G1/4\(^{-}\)-internal thread and a G3/8\(^{-}\)-external thread.
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.

The following classes according to ISO 8573-1 are recommended for the quality of compressed air:

<table>
<thead>
<tr>
<th></th>
<th>Classes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oil content:</td>
<td>class 2 or better</td>
</tr>
<tr>
<td>Water content:</td>
<td>class 4 or better</td>
</tr>
<tr>
<td>Solid content:</td>
<td>class 2 or better</td>
</tr>
</tbody>
</table>
2.4.3 Cable Glands on the Back

Figure 12: Cable glands with seal insert
## 2.5 Cooling Properties

<table>
<thead>
<tr>
<th>Flow</th>
<th>Temperature at 1 l/min</th>
<th>Temperature at 2.5 l/min</th>
<th>Temperature at 5 l/min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambient temperature [255 °C]</td>
<td>Cooling water input [°C]</td>
<td>19</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>Camera/ Thermometer [°C]</td>
<td>36</td>
<td>34</td>
</tr>
</tbody>
</table>

**Table 1:** Cooling properties with a steady cooling water input temperature and various flow

<table>
<thead>
<tr>
<th>Flow</th>
<th>Temperature at 2.5 l/min of flow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambient temperature [255 °C]</td>
<td>Cooling water input [°C]</td>
</tr>
<tr>
<td></td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>35</td>
</tr>
<tr>
<td></td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>Camera/ Thermometer [°C]</td>
</tr>
<tr>
<td></td>
<td>39</td>
</tr>
<tr>
<td></td>
<td>42</td>
</tr>
<tr>
<td></td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>51</td>
</tr>
</tbody>
</table>

**Table 2:** Cooling properties with a steady flow and various cooling water input temperature
2.5.1 Condensation

- For applications at ambient temperatures until 100 °C and a high humidity there is danger of condensation (see Table 3).

- To avoid condensation, the temperature of the cooling media and the flow rate must ensure a minimum device temperature.

- Consider the operation temperature of the applied devices.

Example (see Table 3):

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambient temperature</td>
<td>80 °C</td>
</tr>
<tr>
<td>Relative humidity</td>
<td>25 %</td>
</tr>
<tr>
<td>Minimum device temperature</td>
<td>45 °C</td>
</tr>
</tbody>
</table>

At an ambient temperature of 80 °C and a relative humidity of 25 % the device temperature must not be below 45 °C. Otherwise condensation occurs on the lens or the electronic.
<table>
<thead>
<tr>
<th>Relative humidity [%]</th>
<th>10</th>
<th>15</th>
<th>20</th>
<th>25</th>
<th>30</th>
<th>35</th>
<th>40</th>
<th>45</th>
<th>50</th>
<th>55</th>
<th>60</th>
<th>65</th>
<th>70</th>
<th>75</th>
<th>80</th>
<th>85</th>
<th>90</th>
<th>95</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>5</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>10</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>15</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>20</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>25</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>5</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>30</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>5</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>25</td>
<td>25</td>
<td>25</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>35</td>
<td>0</td>
<td>5</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>15</td>
<td>15</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>25</td>
<td>25</td>
<td>25</td>
<td>25</td>
<td>30</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>40</td>
<td>0</td>
<td>5</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>15</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>25</td>
<td>25</td>
<td>25</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>35</td>
<td>35</td>
<td>35</td>
<td>35</td>
</tr>
<tr>
<td>45</td>
<td>0</td>
<td>5</td>
<td>10</td>
<td>15</td>
<td>15</td>
<td>20</td>
<td>25</td>
<td>25</td>
<td>25</td>
<td>30</td>
<td>30</td>
<td>35</td>
<td>35</td>
<td>35</td>
<td>40</td>
<td>40</td>
<td>40</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>50</td>
<td>5</td>
<td>10</td>
<td>15</td>
<td>15</td>
<td>20</td>
<td>25</td>
<td>25</td>
<td>30</td>
<td>30</td>
<td>35</td>
<td>35</td>
<td>35</td>
<td>40</td>
<td>40</td>
<td>40</td>
<td>45</td>
<td>45</td>
<td>45</td>
<td>45</td>
</tr>
<tr>
<td>60</td>
<td>15</td>
<td>20</td>
<td>25</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>35</td>
<td>40</td>
<td>40</td>
<td>40</td>
<td>40</td>
<td>45</td>
<td>45</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>70</td>
<td>20</td>
<td>25</td>
<td>30</td>
<td>35</td>
<td>35</td>
<td>40</td>
<td>45</td>
<td>45</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>60</td>
<td>60</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>80</td>
<td>25</td>
<td>30</td>
<td>35</td>
<td>40</td>
<td>45</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>60</td>
<td>60</td>
<td>60</td>
<td>70</td>
<td>70</td>
<td>70</td>
<td>80</td>
<td>80</td>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td>90</td>
<td>35</td>
<td>40</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>60</td>
<td>60</td>
<td>60</td>
<td>70</td>
<td>70</td>
<td>70</td>
<td>70</td>
<td>70</td>
<td>80</td>
<td>80</td>
<td>80</td>
<td>80</td>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td>100</td>
<td>40</td>
<td>50</td>
<td>50</td>
<td>60</td>
<td>60</td>
<td>60</td>
<td>70</td>
<td>70</td>
<td>70</td>
<td>80</td>
<td>80</td>
<td>80</td>
<td>80</td>
<td>80</td>
<td>80</td>
<td>80</td>
<td>80</td>
<td>80</td>
<td>80</td>
</tr>
</tbody>
</table>

Table 3: Minimum device temperature in relation to ambient temperature and relative humidity in [°C]

Please respect the maximum ambient temperature of your measuring system!
3 Installation

3.1 Installation

The Cooling Jacket Advanced both versions can be installed in the desired position via the mounting bracket.

Figure 13: Cooling Jacket Advanced with mounting bracket (TM-JAB-TIM)

1 Mounting bracket, adjustable in two axes
3.2 Installation of TIM Camera, Infrared Video Thermometer and Infrared Thermometer

3.2.1 Assembling of the Focusing Unit

The focusing unit consists of two parts, external (1) and internal (2) part. The external part focuses the camera. The internal part fixes the camera.

![Focusing unit](image)

**Figure 14:** Focusing unit (external and internal part)

1. External part of the focusing unit
2. Internal part of the focusing unit
Figure 15: Assembling of the 6°, 23°, 29°, 33°, 48°, 53°, 72° and 80° optics
Figure 16: Assembling of the 13° and 15° optics
Figure 17: Assembling of the 60° and 90° optics
3.2.2 Assembling of the Front Part

Figure 18: Assembling of the TIM 2xx
Figure 19: Assembling of the TIM 2xx
Figure 20: Assembling of the CTLaser, CSLaser, CTVideo, CSVideo
3.2.3 Assembling to the Cooling Jacket Advanced Standard Version

Depending on the chassis either a camera of the TIM series, a laser infrared thermometer or an infrared video thermometer can be installed.

Figure 21: Cooling Jacket Advanced

1 Housing
2 Front part (or focusing unit)
3 Chassis
Installation of TIM camera

1. Mount the camera to the focusing unit or the front part as described in Chapter 3.2.1 respectively Chapter 3.2.2. (exception for the camera TIM M1/ M05).

2. Seat the focusing unit or front part in the chassis (Figure 22). Position it as shown in Figure 23, by pushing it to the bottom. The TIM M1/ M05 camera is first placed into the chassis without the front part. After that the front part is attached to the optic. Make sure that the front part is placed at a height of approx. 5 mm above the optic in order to be able to slide it over the chassis front plate (Figure 23).

Figure 22: Inserting of the focusing unit
Figure 23: Focusing unit with camera

3. Fix the camera with the provided screw on the bottom of the chassis.
Figure 24: Mounting of the camera to the chassis

4. Then connect the TIM camera with the provided USB cable and lead it out of the cable gland.

5. Slide the chassis with the camera in the housing. Put the pins of the hinges to the slits of the chassis and lock the hinge by pushing it forward (Figure 25).
6. Move the locking lever to the left (symbol: 

![Figure 25: Locking of the hinge](image)

so that the chassis is fitted close to the inner surface of the housing (Figure 26).
The alternate contact of the cooling jaws with the camera/ infrared thermometer and inner housing generates an optimal cooling effect.

1  Contact of the cooling jaws and inner housing
2  Contact of the cooling jaws and camera/ infrared thermometer
Figure 26: Back side of the Cooling Jacket with locking lever

1 Locking lever
7. Dismount in reverse order.

**Figure 27**: Unlocking of the hinge
Installation of video thermometer or infrared thermometer

1. Screw the infrared thermometer in the thread (M48x1.5) of the front part (see Figure 20) and seat the front part in the chassis (Figure 28).

![Figure 28: Front part with infrared thermometer](image)

2. Lead the sensor cable out of the cable gland.
3. Slide the chassis with the camera in the housing. Put the pins of the hinges to the slits of the chassis and lock the hinge by pushing in forward (Figure 25).

4. Move the locking lever to the left (symbol: ⬅️), so that the chassis is fitted close to the inner surface of the housing (Figure 26).

5. Dismount in reverse order (Figure 27).
3.2.4 Assembling to the Cooling Jacket Advanced Extended

The extended version of the Cooling Jacket Advanced provides an installation of the TIM series together with the TIM NetBox and an Industrial PIF or with the USB server Gigabit and an Industrial PIF.

Figure 30: Cooling Jacket Advanced, extended version

1 Housing
2 Focusing unit
3 Chassis
Installation of TIM camera

Steps 1-3, see page 42.

Figure 31: Camera implemented (extended version)

Assembling of TIM NetBox and Industrial PIF

4. Mount the holding plate (screws M3x5). Then attach the two support rods complete with the distance bolts (SW 5,5x6 - M3x6) with the provided screws (M3x10) to the bottom of the chassis. At last mount the shaft to fix the TIM NetBox (Figure 32).
Figure 32 (a-c): Mounting of the accessories for TIM NetBox: a) Holding plate for TIM NetBox (top view), b) Support rods for Industrial PIF (view from the bottom), c) Shaft to fix the TIM NetBox (view from the bottom)
5. Fix the Industrial PIF with the screws (M3x5) as shown in Figure 33.

6. To mount the TIM NetBox to the chassis screw it to the fastening rail (screws M4x8).

**Figure 33**: Mounting of the Industrial PIF (top view)
Figure 34: TIM NetBox with fastening rail

At first push the fastening rail with the TIM NetBox into the left notch (1) of the shaft. Afterwards into the right notch (1) (Figure 35) until it is engaged (Figure 36).

By locking the chassis the shaft pushes the TIM NetBox to the inner surface of the housing. This guarantees an optimal cooling of the TIM NetBox.
Figure 35: Notch to fix the TIM NetBox (top view)

1 Notch
7. Then connect the TIM camera and the TIM NetBox with the provided USB cable and the Industrial PIF with the camera. Combine the network connector and the TIM NetBox (Figure 37).
Figure 37: Chassis with TIM camera, Industrial PIF and TIM NetBox

Follow as step 5, page 44.
**Assembling of USB server Gigabit and Industrial PIF**

4. Mount the DIN rail plate with the screws (M3x5) to fix the USB server Gigabit. Then attach the support rods with the provided screws (M3x10) to one side of the chassis; use the distance ring on the left (Figure 38).

*Figure 38 (a + b): Mounting of the accessories for USB server Gigabit: a) DIN rail plate for USB server Gigabit (view from the bottom), b) Support rods for Industrial PIF (right hand view)*
5. Fix the Industrial PIF with the screws (M3x5) as shown in Figure 39.

![Figure 39: Mounting of the Industrial PIF (top view)](image)

6. Engage the USB server Gigabit to the DIN rail plate (Figure 40).
Figure 40 (a + b): Fitting the USB server Gigabit into the chassis (top view and right hand view)

7. Then connect the TIM camera and the USB server Gigabit with the provided USB cable and the Industrial PIF with the camera. Combine the network connector and the USB server Gigabit (Figure 41).
**Figure 41**: Chassis with TIM camera, Industrial PIF and USB server Gigabit

Follow as step 5, page 44.
4 Example of Installation
Example of installation

CTVideo

Cooling Jacket Advanced

CT Box

HT cable video signal

HT cable
sensor signals + laser

CSLaser

Cooling Jacket Advanced

HT cable (analog [4-20 mA]/ digital)
*All high temperature cables are available for temperatures up to 180 °C/ 250 °C:

- IR video thermometer and IR thermometer: 3 m, 8 m, 15 m
- HT-Ethernet cable Cat.6: 10 m und 20 m
- HT-USB cable: 5 m, 10 m
Example of installation

Figure 42: Cooling Jacket (Standard) with CSvideo

Figure 43: Cooling Jacket Advanced (Extended) with TIM Netbox and industrial PIF

Figure 44: Cooling Jacket Advanced (Extended-Version) with USB Server and industrial PIF