Mounting instructions ProLight

Mounting instructions for ProLight für Universal Robots
Read and observe the mounting instructions.
Keep the document next to the robot.
This mounting instructions are for UR3, UR5 and UR10. For that reason some graphics will may not match with your issue. All descripted operations are valid for every UR Type.
1. SCOPE OF DELIVERY

The ProLight consist of following parts as shown in figure 1:

As shown in figure 1 the ProLight is delivered pre-assembled and can be mounted directly to the robot. A sensor connection cable (SAC-6P-M 8MS/1,5-PUR) is also part of the scope of delivery.
2. PRODUCT DESCRIPTION

The ProLight is a protection ring with integrated lighting to show the operating state of the robot. To reduce the risk of injury the protection ring covers the tool interface at the tool end of the robot. However the ring still allows to connect to the tool interface via a six-pole M8-socket. The operating state of the robot can be shown in blue and red.

3. MOUNTING

The next chapter will show how to mount the FAUDE ProLight to a robot from Universal Robots (UR).

Before starting the mounting process the robot needs to be assembled and ready to use. Figure 2 shows a pose of the robot which allows an easily mounting of the ProLight to the robot.

Figure 2: possible mounting pose
The ProLight is fixed by clamping to the robot. As first step the standard protection cap of the tool interface (see figure 3) needs to be unscrewed. Therefor no tool kit is needed. If an existing assembly station should be upgraded with a ProLight and if it is not possible to put the ProLight over the already mounted endeffector (mechanical or vacuum gripper, etc.), all endeffectors needs to be dismounted.

The protection ring needs to be put over the sixth axis of the UR-robot and fixed by clamping. Before that it needs to be guaranteed that the clamping element is located at the front stop collar as shown in figure 4.

The small gap is necessary for mounting the ring easily.
The ProLight has to be pushed from below over the robot flange (see figure 5) till it affects the tool interface (see figure 6). While doing so it is important to notice if the recess for the tool interface is below the tool interface.

As second step the clamping element has to be pushed radial towards the protection ring as shown in figure 6 till it reaches the end position shown in figure 7. As a result the protection ring is centered and positioned by the cant shape of the clamping element.

After the positioning of the protection ring the third step is the fixation of the ring by four socket screws. The screws has to be tighten crosswise with a socket screwdriver size 2,5.
The ProLight can be programed with the Digital outputs DO8 and DO9. With the Digital output DO8 the blue color or with the Digital output DO9 the red color can be selected.

If both Digital outputs are selected at the same time the ProLight will change the color to purple. For the use of the Digital outputs an initial stress of 24V has to be chosen.

*Figure 8: UR with mounted ProLight*
4. CONNECTION SOCKET

The integrated connection socket of the ProLight has a 6-pin. We recommend to use the sensor cable (SAC-6P-M8MS/1,5-PUR) contained in the scope of delivery. The pin connections of the cable are shown in Figure 9.

![Figure 9: M8 plug pin connections](image)

5. ELECTRICAL DIAGRAM

Figure 10 shows the electrical diagram of the ProLight.

![Figure 10: electrical diagram ProLight](image)
6. ILLUSTRATION DIRECTORY

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7. ADDITIONAL ACCESSORY FOR UR

C-GUIDE

FAUDE offers the possibility to supply the robots endeffector with electrical cables and pneumatic tubes through the attachment of the media feed C-Guide.

Due to the innovative and robust design of the C-Guide the cables are save and flexible guided to the end of the robot. The Design enables long operational lifetime without damage of tubes or cables in every robot position.

Order number:  C-Guide: FAP16103 (UR3), FAP16203 (UR5), FAP16303 (UR10)

SACA- SAFETY- CASE

The requirements of an enabled device according to DIN EN ISO 10218-1 are fulfilled with the retrofit of the UR teach panels with the SaCa safety case, including the 3-level enabling switch.

Single-handed ergonomic operation permits additional actuation of the button for freedrive mode. This means one hand is free for manual guidance of the robot. It is suitable for both left and right handed operation.

With the 3-point set down the operating panel is available at any time for safe and comfortable programming.

Order number:  SACA- SAFETY- CASE: FAP16610
SAFETY- BUNDLE

According to the professional association and the standards for robots, whether it is a lightweight robot or an HRC robot, the current robot standard DIN EN ISO 10218-1 must be fulfilled.

It is stated there that each robot requires a mode selector and an enabling switch. The safety system from FAUDE fulfills this with consideration of the two-channel and adaptation of the user interface.

The FAUDE safety bundle expands the UR robots with additional functions to increase the safety and fulfilment of safety specifications on industrial robots (DIN EN ISO 10218-1).

The specified operating mode selection is ensured by the Electronic Key System (EKS). The EKS is used to manage access and control of the system using an electronic key with different authorization levels. Using a 3-level enabling switch on the FAUDE safety case, the requirement for an enabling device for set up mode is fulfilled.

While the operator (black) can only start and stop the system, the programmer (green) can adjust the teach points in a specific area. The maintenance person (red), on the contrary, has with the access authorization all possibilities to put the robot into operation or to reorient it.

Using the Siemens S7 safety controls other external devices via PROFINET or PROFIsafe can be connected.

Order number: SAFETY- BUNDLE: FAP16610