

# II/O-Lightbus Industrial Input/Output System

Optical fiber installation instructions

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# Laying instructions for optical-fiber cable

## Polymer fiber

Distances of 0.5 to 45 m      Use Beckhoff optical-fiber cable Z1101 with a 1000µm APF polymer fiber.

The bending radius of the laid cable must not be tighter than 30mm.

The laid optical-fiber cable must not be shorter than 0.5 meters and not longer than 45 meters.

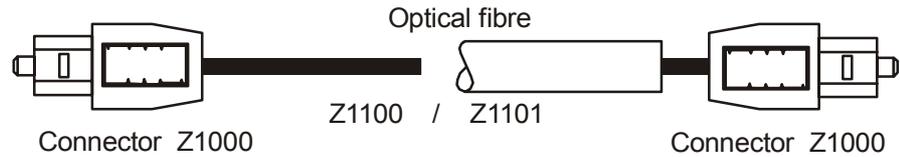
## Glass fiber

Distances up to 1000 m      For greater distances glass fiber cables can be used with a length of up to 1000 meters.

Glass fiber cables can be supplied in various lengths with assembled connectors.

# Assembly instructions for the connector Z1000

## Assembled view



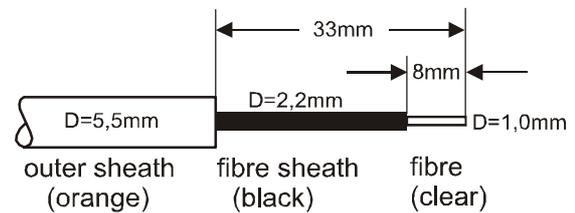
Do not kink light guide!  
(bending radius min. 30mm)

### 1. Prepare cable ends

In the case of the Z1101 first remove approx. 33 mm of the orange outer sheath.

Remove approx. 8 mm of the black fiber sheath.  
The fiber must not be damaged during this process.

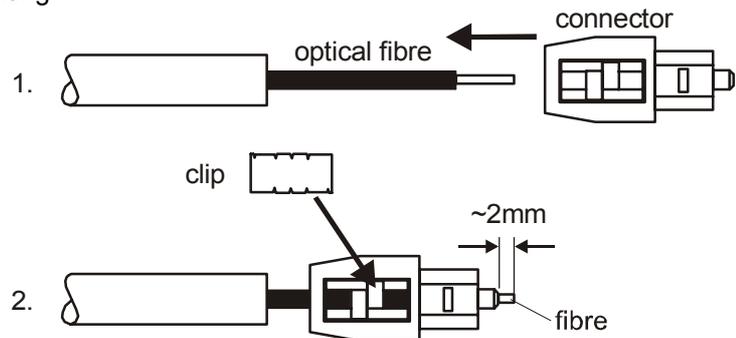
Do not damage the fiber!  
(increased cable attenuation)



### 2. Assemble connectors

Position the connector body onto the optical fiber up to the stop. The fiber must project from the connector guide by approx. 2 mm, so that any cracks present in the fiber end face are located outside the connector (these are subsequently removed by abrasion).

To secure the connector insert the clip into the connector body and press it in without canting.

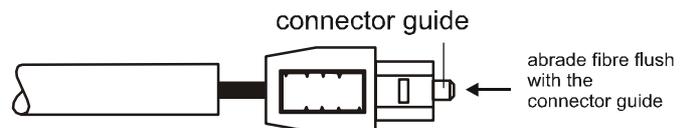


The fiber must initially project by approx. 2 mm!

### 3. Abrade fiber to final dimension

Do not cut off the projecting fiber end (this could lead to crack formation) but abrade flush with the connector guide using abrasive paper (600 grain size). The connector guide must not be abraded during this process.

Abrade back the fiber flush with the connector!



Visual inspection

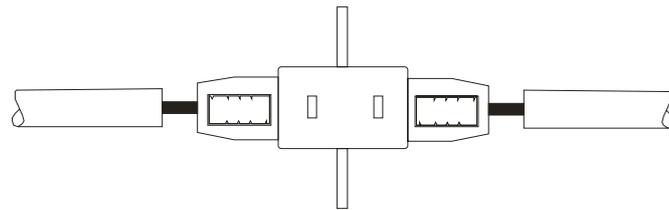
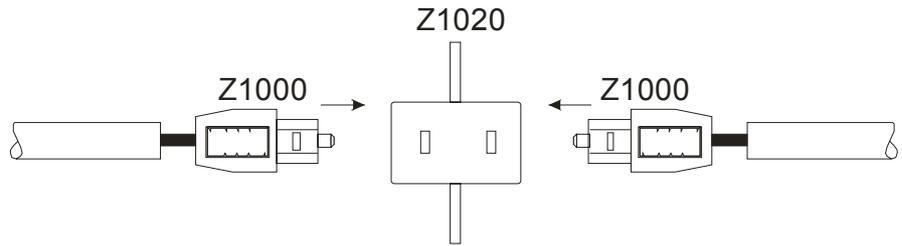
### 4. Check fiber ends

Simple visual inspection of the abraded fiber ends:  
If one cable end is presented to a light source, then a clean, plane face without cracks must be observed at the other end.

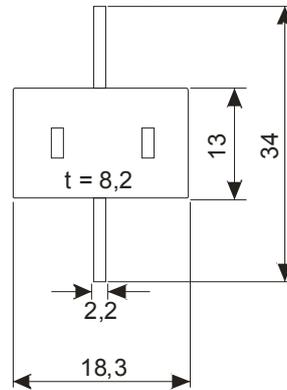
**5. Z1020 coupling connector for Z1000**

The Z1020 is a coupling connector for the Z1000 connector.

Z1020 for Z1000



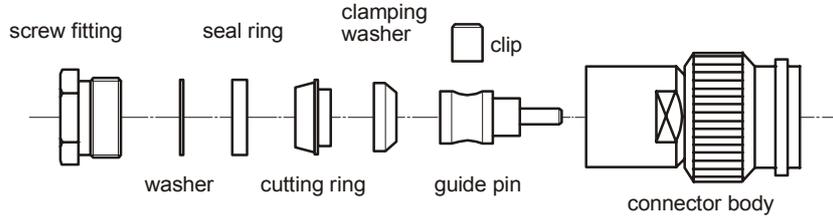
Dimensions



# Assembly instructions for the IP65 circular connector Z1002

## Exploded view of connector parts

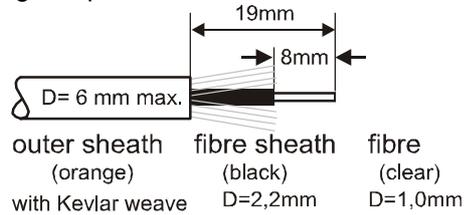
Individual parts



Do not kink light guide!  
(bending radius min. 30mm)

### 1. Prepare cable ends

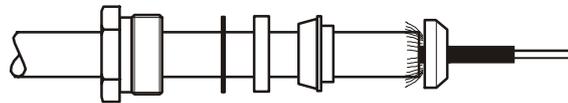
First remove the orange outer sheath to approx. 19 mm. Remove the Kevlar weave and the black fiber sheath to approx. 8 mm. The fiber must not be damaged during this process.



Do not damage the fiber!  
(increased cable attenuation)

### 2. Pre-assemble cable grip

Push screw fitting, washer, seal ring and cutting ring over the outer sheath. Push clamping washer over the fiber sheath.

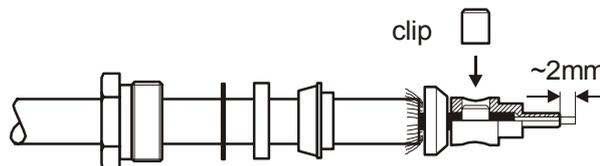


### 3. Assemble guide pin

Position the guide pin on the optical fiber up to the stop. The fiber must project from the connector guide by approx. 2 mm, so that any cracks present in the fiber end face are located outside the connector (these are subsequently removed by abrasion).

To secure the connector guide insert the clip into the connector body and press in without canting. Note clip – groove alignment!

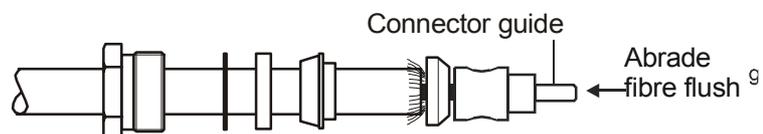
The fiber must initially project by approx. 2 mm!



### 4. Abrade fiber to final dimension

Do not cut off the projecting fiber end (this could lead to crack formation) but abrade flush with the connector guide using abrasive paper (600 grain size). The connector guide must not be abraded during this process.

Abrade the fiber flush with the guide pin!



Visual inspection

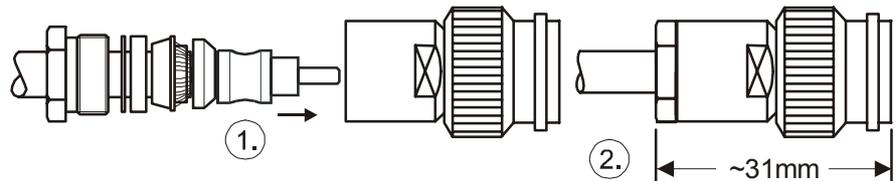
### 5. Check fiber ends

Simple visual inspection of the abraded fiber ends:

If one cable end is presented to a light source, then a clean, plane face without cracks must be observed at the other end.

### 6. Assemble connector body

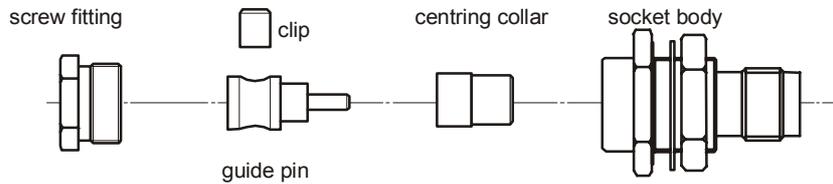
Clamp the Kevlar weave between clamping washer and cutting ring and insert the cable into the connector body. Follow on with the remaining rings and secure the connector with the screw fitting.



# Assembly instructions for IP65 fitted socket Z1022

## Exploded view of socket parts

Individual parts



### 1. Prepare cable ends

Do not kink light guide!  
(bending radius min. 30mm)

Remove approx. 8 mm of the black fiber sheath.  
The fiber must not be damaged during this process.



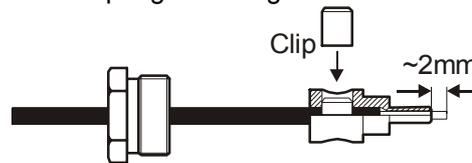
Do not damage the fiber!  
(increased cable attenuation)

### 2. Assemble screw fitting and guide pin

Push screw fitting over the cable. Position the guide pin on the optical fiber up to the stop. The fiber must project from the connector guide by approx. 2 mm, so that any cracks present in the fiber end face are located outside the connector (these are subsequently removed by abrasion).

To secure the connector guide insert the clip into the connector body and press in without canting. Note clip – groove alignment!

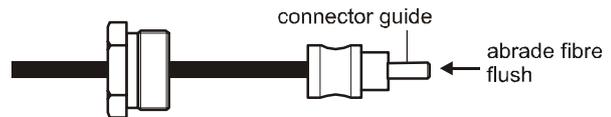
The fiber must initially project by approx. 2 mm!



### 3. Abrade fiber to final dimension

Do not cut off the projecting fiber end (this could lead to crack formation) but abrade flush with the connector guide using abrasive paper (600 grain size). The connector guide must not be abraded during this process.

Abrade the fiber flush with the guide pin!



### 4. Check fiber ends

Visual inspection

Simple visual inspection of the abraded fiber ends:  
If one cable end is presented to a light source, then a clean, plane face without cracks must be observed at the other end.

### 5. Assemble centering collar and socket body

Position centering collar with the thick end on to the guide pin, insert cable into the socket body and secure with the screw fitting.

