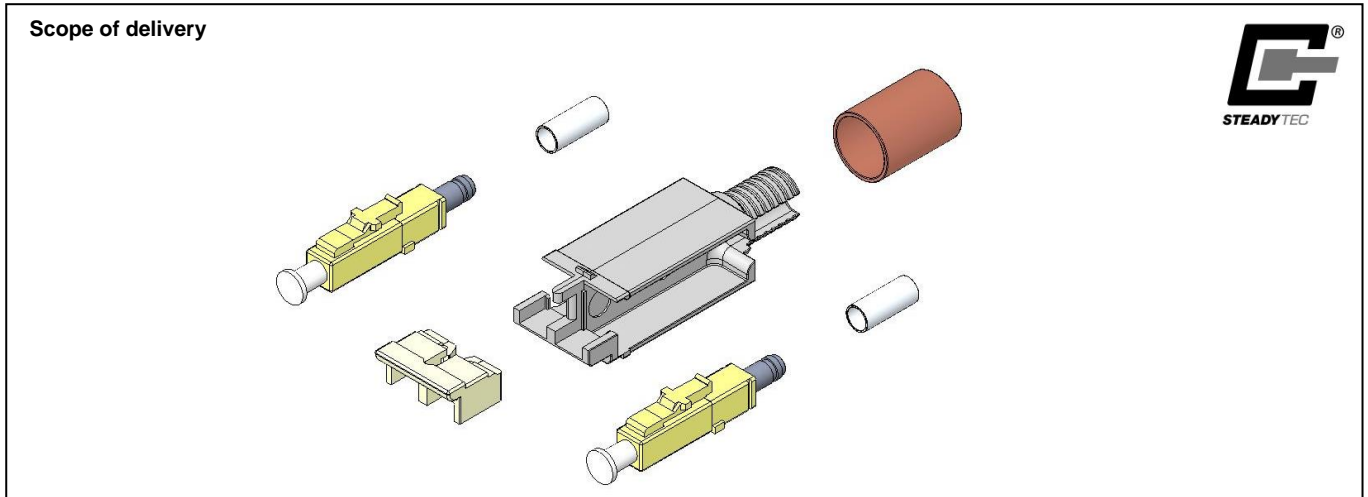


# OpDAT Industry 2LC plug insert (MM/SM)

## Assembly Instruction

For single cords Ø1.8...3.2mm (with Kevlar® strain relief) and fibres with secondary coating Ø0.9mm



### Tools

Description	Order no.
Termination Tool-Set for FO connectors	140306-E
Fiber optic supplementary Set LC	140307-E

### 1. Preparation works

Shake the bottles with glue and activator well before usage

#### Glue:

Remove the cap of the glue bottle. When using the glue for the first time cut off the top of the bottle. Put the green needle on a syringe for dosing. Fill the syringe with glue through the opening of the bottle top. Incline the bottle until the content encloses the needle (figure 1).

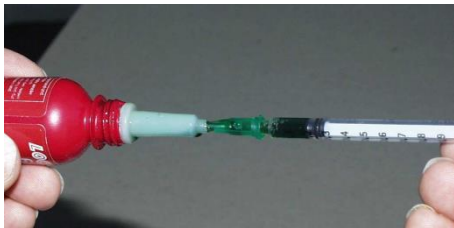


Figure 1

#### Activator:

Find a brush inside the cap of the activator bottle. Use the brush to apply the activator.

As an option, put the purple needle on a syringe. Fill the syringe with a small amount (approx. 0.5ml) of activator (figure 2).



Figure 2

#### Important:

*After assembling the connector you may put back the unconsumed activator into the activator bottle. However in each case it is to be avoided that activator and adhesive of the syringes accumulate and mix themselves!*

### 2. Cable preparation

2.1. Slide the connector housing and the crimp ring over the cable jacket (figure 3). For better handling temporarily fix the housing by screwing the cable gland.



Figure 3

Mark and remove the cable jackets as shown in figure 4. For the work procedures look at clause 2.2. up to 2.5.

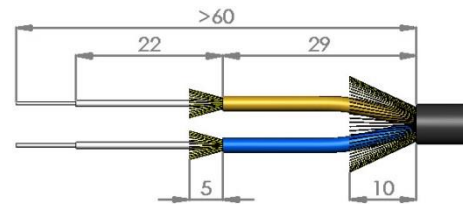


Figure 4

2.2. Slit and remove the outer jacket for 60mm. Separate the sub cables. Optionally cut the strength member with the Kevlar scissors down to approx. 10mm (figure 5).



Figure 5

2.3. Slide the crimp sleeves onto the sub cables (figure 6).

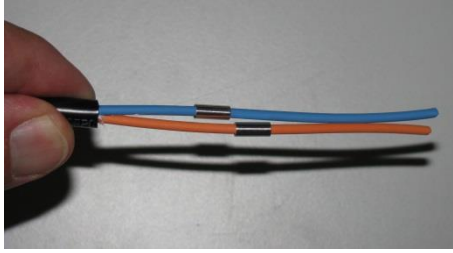


Figure 6

2.4. Remove the jacket of the sub cable with the stripping tool down to 29mm (figure 7).

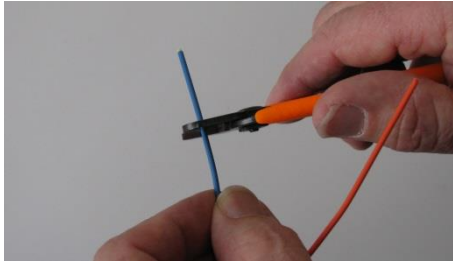


Figure 7

2.5. Cut the strength member down to approximately up to 5mm (figure 8).

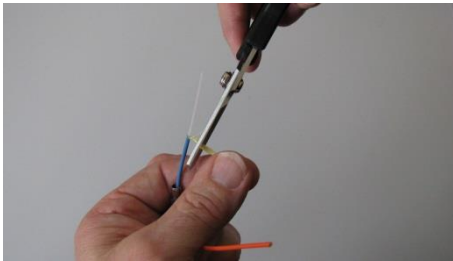


Figure 8

### 3. Fibre preparation

3.1. Remove the secondary coating with the stripping tool for secondary coating down to 22mm. Remove the primary coating with the stripping tool down to min. 23mm (figure 9).

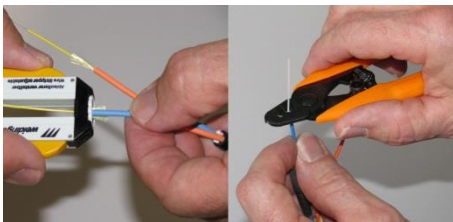


Figure 9

Clean the bare end of the fibre by using a cleaning cloth or a cleaning tissue soaked with cleaning fluid.  
**Attention:** The primary coating must protrude by 1...2mm from the secondary coating!  
**Important:** To make sure that the connector works properly see to identical stripping lengths of the sub cables!

3.2. Apply activator on the stripped fibre as well as on the secondary coating over a length of approx. 5mm completely. Therefore brush the fibre with the activator brush or apply with the activator syringe a dose until it forms a drop sticking at the needle. Move the fibre through this drop (figure 10). Let the activator dry for approx. 30 seconds.

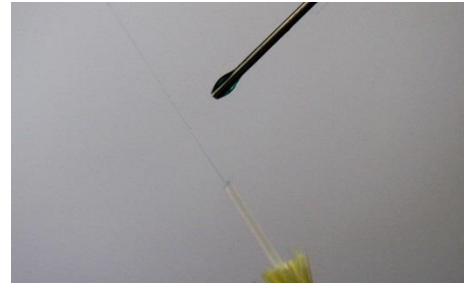


Figure 10

### 4. Connector preparation

4.1. Spread a tissue on the workplace. Apply a drop of activator on the tip of the ferrule with the brush or the needle. Afterwards dap it on the tissue.

4.2. Attach the rear side of the connector on the syringe filled with adhesive and press slightly to apply the adhesive into the connector until a bead of adhesive appears on the tip of the ferrule (figure 11).



Figure 11

The glue bead should cover 2/3 of the ferrule end face. Pull back the needle for approx. 1mm; hold for approx. one second and then pull it out fast.

**Attention:** No glue may appear at the end of the most inner tube of the connector nor may adhere on it! This tube together with the ferrule must still be movable after curing of the glue.

4.3. Insert the fibre into the connector until it appears on the ferrule end face (figure 12).

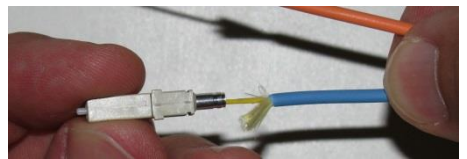


Figure 12

Then move back and forth the fibre 2 or 3 times in the connector stop when in the most forward position. The glue on the ferrule end face must now surround the fibre.

**No glue may appear at the end of the most inner metal tube.** Put down the connector (curing time approx. 30 sec).

- 4.4. When assembling the cable take care that the complete Kevlar strain relief members cover the crimp connection (figure 13).

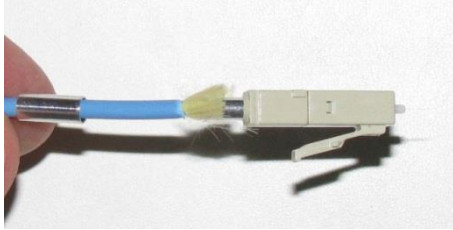


Figure 13

- 4.5. Install the LC-crimping dies into the crimping tool. Push the crimp sleeve on as far as possible and crimp using the crimp tool with SW 3.05/3.24 hex size. Hold the end side of the crimp sleeve in to direction of cable flush with the labelled edge of the crimping pliers (figure 14). Cut back protruding Kevlar members with the Kevlar scissors.

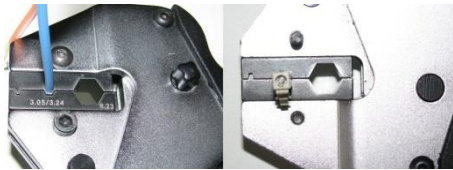


Figure 14

- 4.6. Remove any glue that is not yet hardened at the fibre with a cleaning cloth; preferable by using the edge of it (figure 15). **Important:** Work carefully in order to prevent the protruding fibre from breaking! When done properly there will be a solid green dome of glue that covers the fibre entirely.

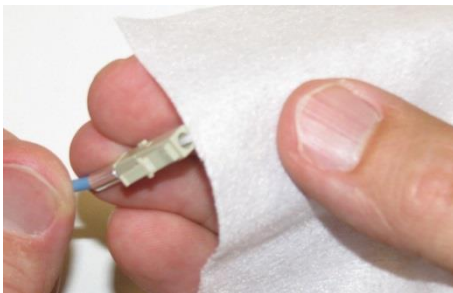


Figure 15

## 5. Fibre surface handling

**Important:** Work separately on both connector bodies!

- 5.1. Cleave the fibre slightly with the sapphire cleaving tool and break the fibre (figure 16).



Figure 16

- 5.2. Firstly take the 30µm (green) abrasive foil into your hand and grind the overlaying fibre down to a small rest. Use slight pressure and go in circles to grind (figure 17).



Figure 17

Clean the end face with a cleaning cloth.

- 5.3. Put the 30µm (green) polishing foil on rubber pad; take care that no bubbles are between foil and pad. Apply polishing liquid evenly (figure 18).



Figure 18

- 5.4. Put both connectors into the polishing disc. Place the polishing disc planar on the foil (figure 19).

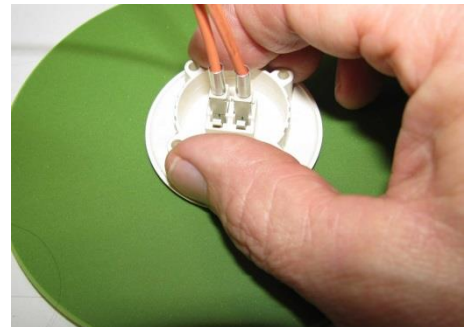


Figure 19

Pre-polish the connector end face with slight pressure with figure eight movements (approx. 10 cycles). Then raise the pressure and keep on polishing until there is no glue left on the connector end face.

Remove the polishing foil. Clean the end face and the polishing disc with a cleaning cloth.

- 5.5. Put the 3µm (light green) polishing foil on rubber pad; take care that no bubbles are between foil and pad. Apply polishing liquid evenly. Place the polishing disc with the inserted connectors planar on the foil.

For final polishing repeat the polishing procedure described as before.

Clean the end face and the polishing disc with a cleaning cloth.

### 5.6. For Singlemode only

Put the 0.02µm polishing foil (white) on the rubber pad; take care that no bubbles are between foil and pad. Apply polishing liquid evenly. Place the polishing disc planar on the foil. Finish the polishing procedure of connector end face without additional pressure with figure eight movements (approx. 3 cycles).

Clean the end face and the polishing disc with a cleaning cloth.

- 5.7. Remove the connectors from the polishing disc.

## 6. Inspection

**Warning: Before each inspection of fibre end face separate the connector from the optical power source! Never inspect or look into the end of a fibre when optical power is applied to the fibre! The infrared light used, although it cannot be seen, can cause injury to the eyes.**

- 6.1. Insert the connector into the microscope with the adapter for 1.25mm ferrules (figure 20).  
Switch the illumination on by pressing the PUSH Button. Adjust the image by using the eyepiece.



Figure 20

- 6.2. Inspect the fibre end face (figure 21).

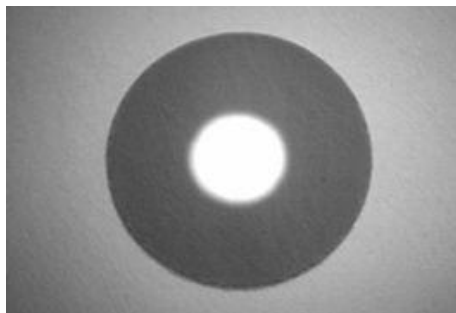


Figure 21

In case of insufficient surface quality (scratches) polish again.  
In case of fibre cracks replace the connector.

- 6.3. For security check the light transmission with the light stick (figure 22).



Figure 22

- 6.4. Place the dust protection cap over the ferrule (figure 23).

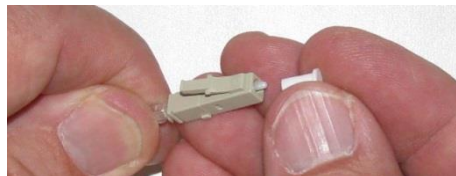


Figure 23

## 7. Final assembling

- 7.1. Place the assembled connectors into the frame. Press with the clamping insert on the latches of the connectors and fix the insert into the frame by pushing with an audible click (figure 24).

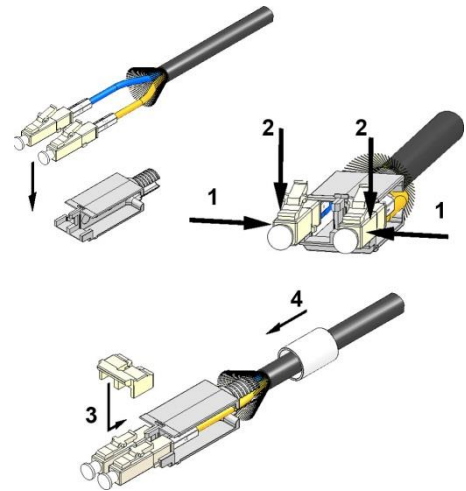


Figure 24

Be sure to observe the right polarity of the fibres according to the relevant requirements (crossed wires = Standard or 1:1). Push on the crimp sleeve. Optionally remaining strain relief members spread evenly above and below the single wire ducts at the crimping connection and crimp in two parallel crimps by using the crimping pliers with 8.23 hex. It is to be made certain that the sub cables are not damage by torsion.

**Important:** The spanner flats of the crimp sleeve have to be arranged parallel to the narrow side of the connector holder (figure 25).

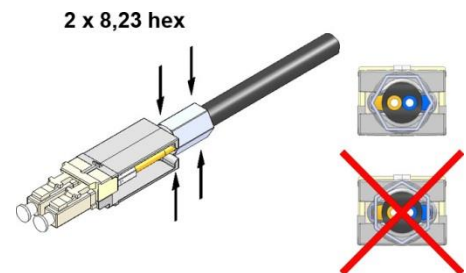


Figure 25

7.2. Mount the connector assembly into the connector housing by pushing up the housing. Thus you will hear a noticeable click (figure 26)

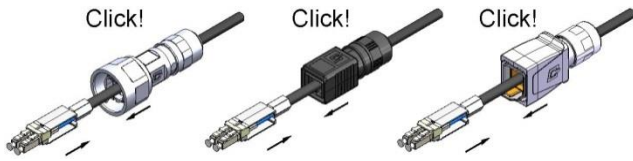


Figure 26

7.3. Using 20mm wrench, tighten the cable gland (figure 27).



Figure 27

7.4. Put the optional protective cover on (figure 28).



Figure 28