



Handling Manual

FEP Sealed Female Connector

1.5 mm, 1...14-ways

2.8 mm, 1...10-ways

4.8 mm, 1...5-ways

-neutral version-

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This documentation is prepared to the best knowledge. For correct manufacturing of the parts not supplied from FEP, the prescriptions of the supplier are to observe.

Comments and hints for improvements are welcome. The publication of this document in any kind, also in parts, requires our explicit approval. This document will not be automatically updated. In any doubt please ask for an actual version.

1 Handling of Terminals

Terminals are constructed symmetrically and have two locking lances for primary locking, as well as a modified shoulder and throat to make the secondary locking possible. The terminal has two crimp grips, one for the electrical connection and the second for the mechanical fixation of the single wire seal. Attention has to be paid that only suitable tools are used to crimp the terminals. The basic construction of a crimped terminal is illustrated in figure 1.

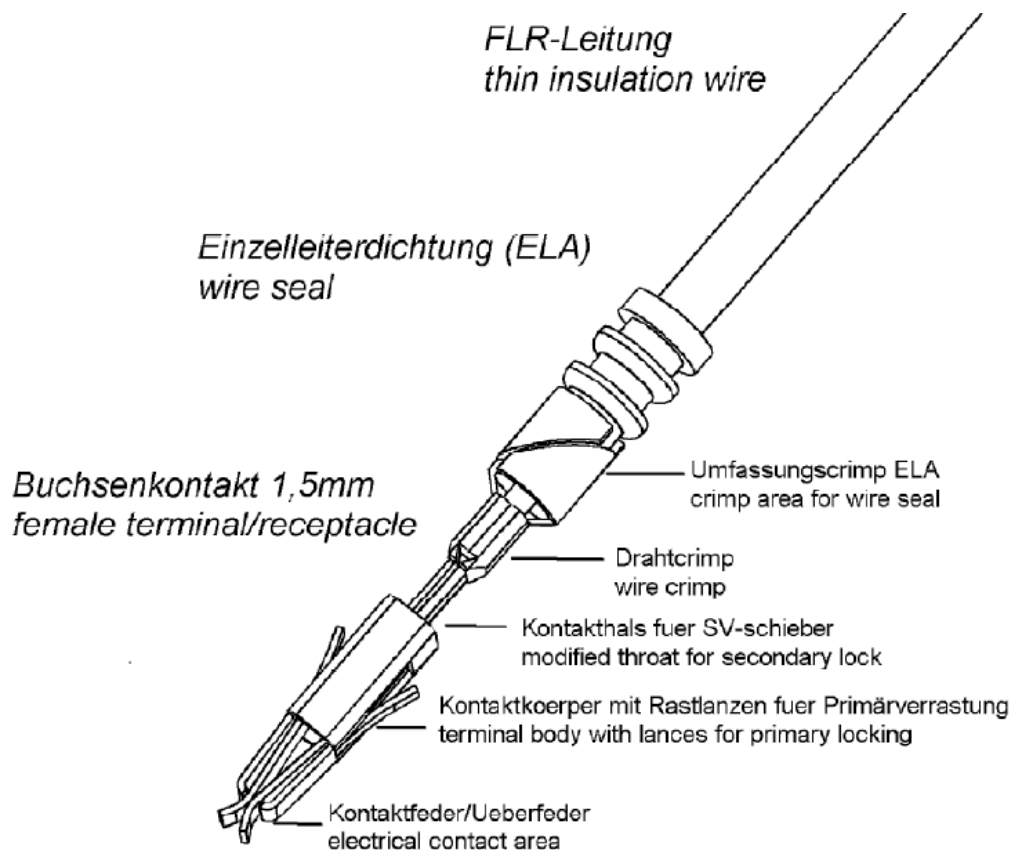


Figure 1: Basic construction of a crimped terminal

The terminal system is approved for use of wires with thin insulation according to DIN 72551 T6. Concerning this, all tests were carried out with such wires.

An exchange with other wire types (e.g. according to SAE or JASO spec.) is only possible for a few wire sizes. In every case the releases of the terminal manufacturer are to obtain. The floating of the terminals in their cavities is necessary and must not be restricted.

2 How to install the Terminals

2.1 Mounting the Terminals

The retainer is a u-shaped purple colored component as shown in figure 2. In delivery condition the retainer is in the pre-locked position. If that should not be true, the retainer has to be moved to the pre-locked position with the help of a screwdriver.

Before inserting the terminals, these are to examine for soiling and to clean if necessary. Only flawless parts may be mounted. The use of assembling tools for thin wire diameters is admissible.

Now the terminals can be inserted in the housing as shown in figures 2 and 3, until you hear a “click” that signals the locking lances snapped in the designate opening of the terminal chamber. That requires the right orientation of the terminals, like figure 2 makes clear.

Due to the symmetrical design of the locking lances the terminals can be mounted even halfway rotated.

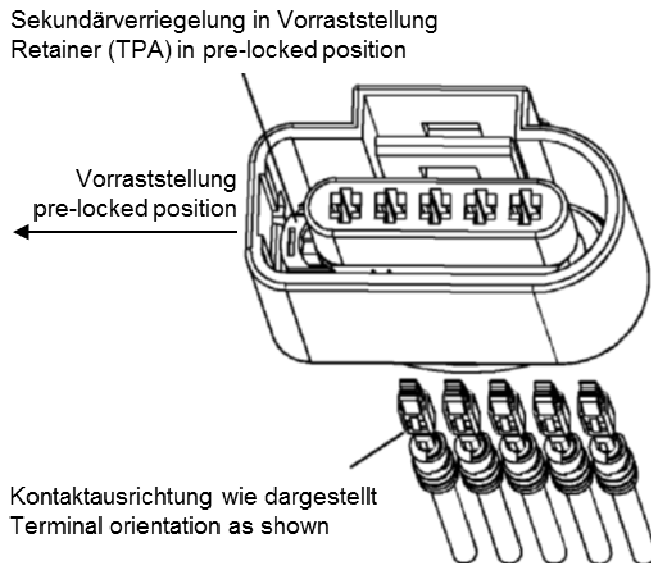


Figure 2: Orientation of the terminals for mounting into the housing

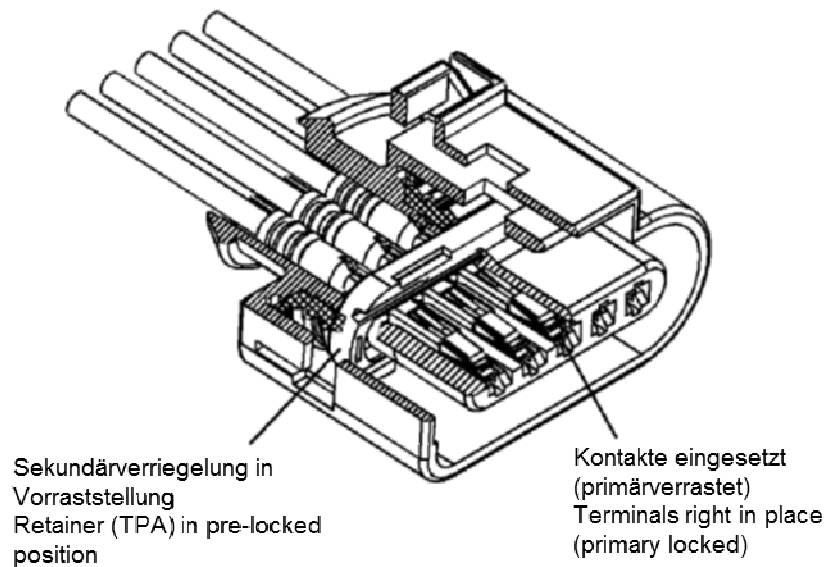


Figure 3: Mounted terminals

To check the proper mounting of a terminal you can either pull the wire slightly (pull back test) or pushing against the front end of the inserted terminal with a suitable formed pin (push back test).

2.2 Locking the Terminals by the Retainer

After all terminals are mounted correctly, the retainer has to be moved from the pre-locked position to the locked position as shown in figure 4. If you assemble by hand you can use a screwdriver to push the retainer. Pushing the retainer in the locked position should be executed carefully and smooth, without too much force.

If the position of the retainer is not or only hard to move, there possibly are some terminals not inserted in the proper way. In this case double check the correct position of the terminals. The correct locked position of the Retainer can be checked visually or with the help of a test device.

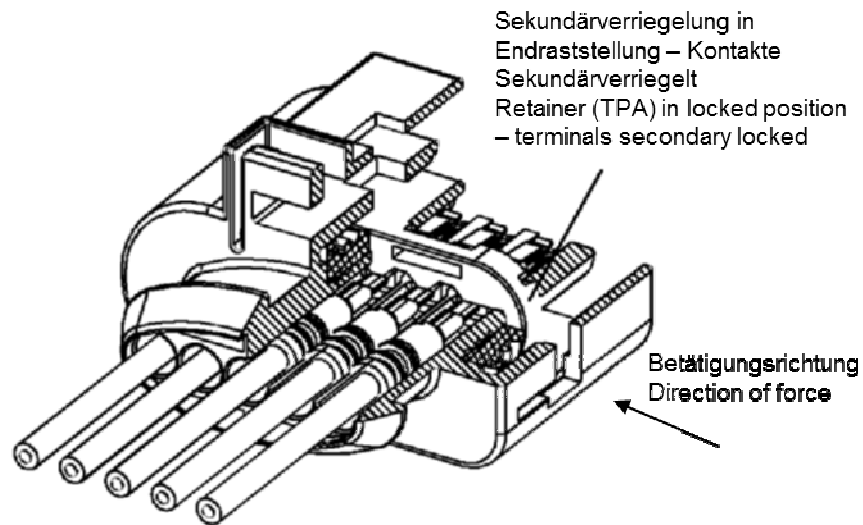


Figure 4: Locking the terminals by the retainer

3 How to remove the Terminals

To remove the locked terminals the retainer has to be moved from the locked position to the pre-locked position. As already described, a screwdriver can be used for displacement.

Take care to move the retainer completely back to the pre-locked position. Otherwise problems can appear during the removal of the terminals.

For removing the terminals a special Extraction Tool has to be applied to the housing as shown in figure 5. The Extraction tool unlocks the locking lances. The terminals now can be removed out of the housing by carefully pulling the wire.

If some of the wires are not removable, the pre-locked position of the retainer should be checked once again.

If the housing is damaged it has to be replaced by a new one.

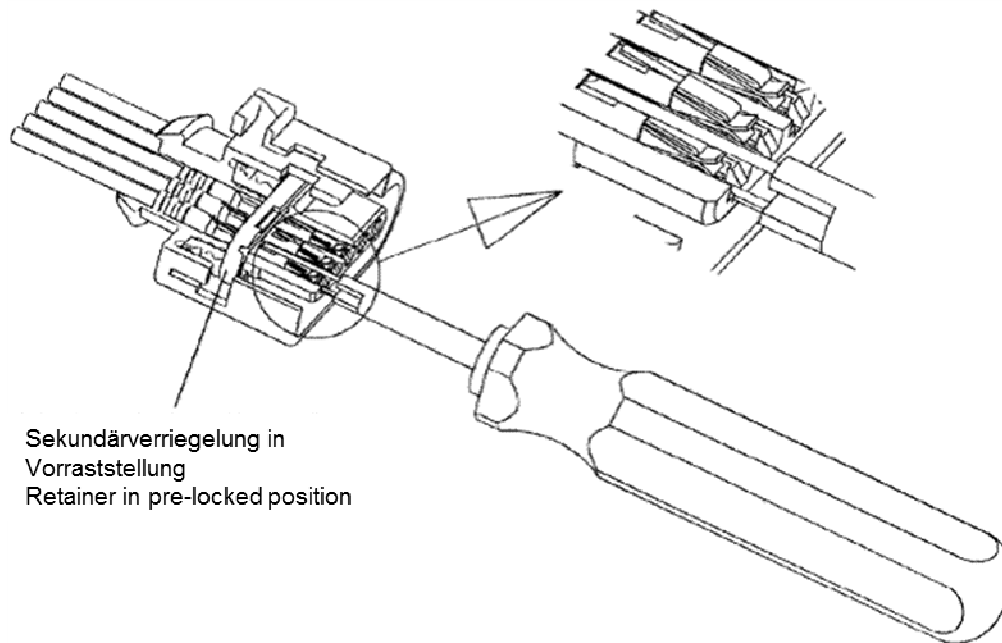


Figure 5: Removing the terminals

4 How to insert and remove Cavity Plugs

Cavity plugs are employed to close unused cavities and to protect and seal them.

The insertion of the cavity plug can be done manually. Attention has to be paid to press the plug entirely into the empty cavity. The top edge of the cavity plug should be about 2 mm deep inside the cavity.

For removal the plug can be pushed out backwards with a narrow screwdriver, which fits through the contact cavity. Possibly, the retainer has to be moved to the pre-locked position previously.

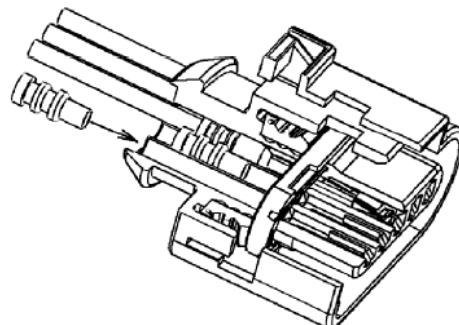


Figure 6: Insertion of a cavity plug

5 How to use Solder Sleeves

Solder sleeves provide electrical termination in a wide variety of interconnect applications. A precisely engineered, fluxed solder preform within the heat-shrinkable thermoplastic sleeve provides a completely soldered, strain-relieved, encapsulated termination. The one-piece design of one-step terminators simplifies installation, while their transparent insulation sleeves make inspection easy.

5.1 Wire preparation for in-line splices (wire-to-wire)

1. Remove insulation: Wires from up to 1.5 mm² (18 AWG): Remove 9.5 mm [0.375“] of insulation from all wires to be spliced. Wires more than 1.5 mm²: Remove 12.5 mm [0.500“] of insulation and pre-tin the exposed conductors with solder.
2. Align strands: For a small gauge wires, (up to 1 mm²), and when a mechanical attachment is required, secure the 2 wire ends, by twisting them together. Align carefully the strands in order to avoid any poke through of the sleeve. In other cases, align wires in such a manner that all strands are parallel.
3. Positioning the solder sleeve: Slide the sleeve over the splice area and center the solder preform of the sleeve at the center of the splice length.
4. Heating: Heat solder preform using a hot air gun until it melts and forms a fillet between the conductors.

5.2 Quality Inspection

- Positioning: Wires stripped 9.5 mm [0.375”] should overlap each other at least 6 mm [0.250”]. On wires stripped 12.5 mm [0.500”] the overlap should be 9.5 mm [0.375”].
- Heating: The solder ring shape should not be visible and a solder fillet, at least 4.5 mm [0.180“] long, should be visible on one side of the leads. Fillet length should be 8 mm [0.315“] for 12.5 mm [0.500“] stripped wires. Lack of solder fillet may indicate overheating.
- Damage: The sleeve should not be split or cut and no wire strands should poke through the sleeve. Fillet length should be 8 mm [0.315“] for 12.5 mm [0.500“] stripped wires.

6 How to plug-in and unplug the Connector

The female connector housing can either be plugged to an interface housing (device) or to a male connector housing (wire-to-wire).

To plug-in the connector the retainer has to be in locked position (see figure 4). Furthermore the connector has to be aligned correctly, corresponding to the outer shape of the counterpart including eventual available coding (1). Wrong mating is thus excluded. Straight-in engagement is requested (2). When the female connector snaps-in audible into counterpart, the connection is in working condition (3).

By pulling at the back of the housing the correct connection can be checked. Please avoid pulling the wires.

To unplug the connection slightly push the connector housing (A). Then actuate the locking arm (B). When the clicking is detached, the housing can be taken off (C).

