Guided Terminal Insertion
The EMDEP Guided Terminal Insertion system (GTI) provides a complete solution for guiding the operator in the process of assembly the wires into the connector. The system guides the operator step by step, indicating the next operation to realize. It includes pick by light guiding for wires, cavity indication by led and full electrical continuity check: Completely guided assembly process free of errors!

Producing Quality instead of Testing Quality

No missing wires
No wires in excess
No crossed wires
No delayed terminals problems

Main features

- Part number selection by button or scanner
- Wire picking guided by LED
- Wire insertion to connector guided by LED
- Wire Pull operation (simple or double)
- Continuity checking or wire presence option
- 2 Input and 2 output for general purpose
- Printer supported
- Unlimited part numbers can be created

Errors processing

The system is capable to detect the following errors during the assembly process:
- Electrical test of wire
  - Non continuity (missing wire)
  - Short circuit (wire in wrong cavity)
- Pull wire operation
  - Excessive pull
  - Unexpected pull
The corresponding error will be displayed on the screen and the LED of the related cavities will be switched on. Critical error (excessive pull) block the test, requiring the presence of the supervisor.
Test mode

Random
- Insert connector with wires
- Select random wire
- Touch metal
- Insert other end
- Pull
- Check continuity
- Next Wire

Random selection
Used when the wires are already inserted in one connector and the other end needs to be guided to a main connector. Operator selects randomly the next wire by touching a metal probe, the equipment will indicate the cavity where to insert the wire.

Sequential
- Take wire
- Insert in cavity
- Pull
- Insert other end
- Pull
- Check continuity
- Next Wire

Predefined sequential insertion of wires
Operator follows the process indicated by the equipment. Each wire is requested in a predefined sequence according to the data programmed.

Test modules
The test modules accept different options depending on the guiding and test necessities. The following options can be selected independently and combined in the same station:

- **Led guiding**
  - **External**: Most common option. Led located as near as possible to the connector.
  - **Internal**: Located inside the connector shape, the light passes through the cavity of the connector. Fiber optic could be used when there is small cavity or reduced space between them no possibility to use with continuity pins or presence detections.

- **Lock system**
  - **Pneumatic**: Pneumatic clamps locks the connector normally locked until the test is finished or supervisor cancels the test.
  - **Mechanical**: Mechanic clamp is used to hold the connector amplifying the holder concept. The connector can be removed at any time by operator used normally in combination with auto release option: the lock is automatically released when excessive pull force is applied.

- **Wire detection**
  - **Continuity**: Continuity pins for each cavity add the possibility to check electrically the wire assuring also the position.
  - **Detection switch**: Detects the presence of the wire in the cavity. Normally used when only one connector is assembled and it is not required to check the continuity.
  - **None**: Used in simple equipment which only guides operator without performing any test.

- **Wire pull**
  - **Pull OK**: Give a signal.
  - **Excessive pull**: Additional detection activated when excessive pull force has been applied. Used normally for pneumatic locked modules.

- **Additional detection**
  - Test modules supports additional standard detections. Normally used for detection of spacer open or components.

Think in technology
The use of the optional load cell sensor resolves definitively the problematic with pull operation for big and heavy connectors in front of the standard mechanical solutions.

- Load cell sensor integrated in the module for pull force detection
- Suitable to avoid tilt effect when pulling from big connectors
- Avoid connector weight problem for big connectors
- Pull force (standard and excessive) configured by software from 0N to 300N
- It will allow to specify different pull force per wire

**Load cell module**

**Display**

- TFT display (optional from 7” to 10”)
- Touch screen
- Displays detailed information about test, visual aid of connector, color of the wires, etc.
- Suitable to be integrated in the table when assembling big connectors
- It will replace the current display (next version)
- Increase connectivity and processing capabilities
- For the complete product

**Software**

The µEditor is a free software developed by Emdep. It gives an easy and intuitive interface to program the part numbers and test options. Download the data to the station connecting to the Ethernet port.

**Definition for:**

<table>
<thead>
<tr>
<th>Connector</th>
<th>Wires Part</th>
<th>Numbers</th>
<th>Test Options</th>
</tr>
</thead>
</table>

**KS K**

EMDEP KSK software implements all the necessary features in order to allow your line and complete production process to work under ksk system from any car manufacturer:

- Import final customer data directly (KBL, D9, Excel etc...)
- Sequential test is assured along your production line
- Production traceability available
- Complete Harness traceability
- Possibility to be integrated in your ERP/SAP system

Think in technology