WindSensor Cable Termination

Introduction

These instructions illustrate how to terminate a male LEMO Push-Pull connector to 2 conductor cable for use with a WindSensor P2546-OPR anemometer (either 'A' or 'C' model). Termination of this connector requires precise cable stripping and soldering equipment. When properly terminated, the resulting connection should provide reliable, weatherproof performance for the duration of the measurement campaign.

Please Note: For guaranteed performance, we strongly recommend using Renewable NRG Systems-provided sensor cables, which are assembled by professional electronics technicians and backed by the Renewable NRG Systems warranty.

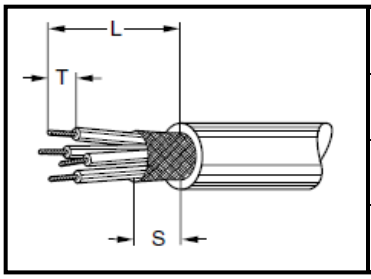
Parts & Tools Needed

- Cable: Ø4.75 ±.25 mm, 2 conductor twisted pair, 0.25 mm² tinned stranded copper, braided shield, polyurethane jacket, UV resistant, color black.
    - Note: 23 AWG is an acceptable substitute for 0.25 mm²
    - Note: Maximum cable length should be no more than 150 m.
- LEMO FFA.1E.650.CTAC45
- LEMO FFA.1S.152.LN
- LEMO FFA.1S.153.LN

} NRG P/N 5949 - LEMO Parts are described in detail on page 2.

- Soldering iron
- Torque wrench
- Shrink tubing
- Heat gun

Cable Prep

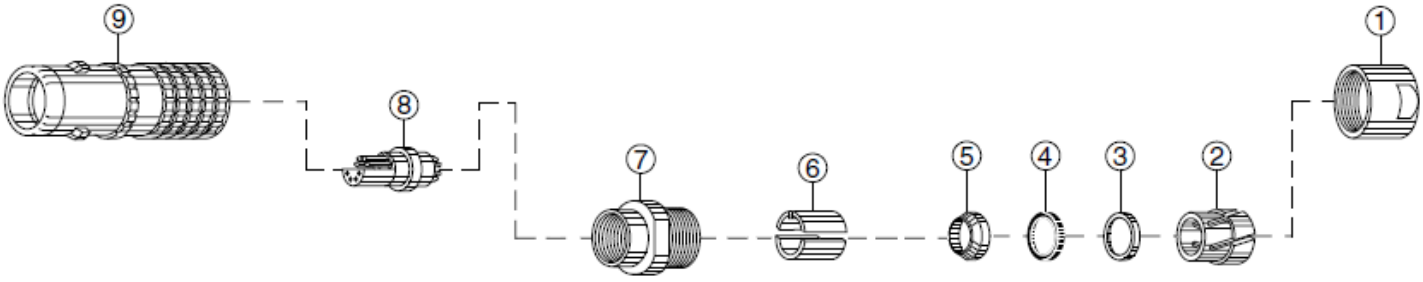


L	S	T	Units
11	8	3.5	mm
0.43	0.31	0.14	Inch
Tolerance is ± 0.5 mm			

1. Strip cable back 11 mm (L).
2. Trim wrapper back to 8 mm (S).
3. Strip the conductors to 3.5 mm (T).
4. Cut back the fillers as required to get them out of the way.
5. Tin the conductors in preparation for soldering to inner/outer conductors #10 (see part descriptions below).

Part Descriptions:

Renewable NRG Systems Part #5949: LEMO FFA.1E.650.CTAC45 & LEMO FFA.1S.152.LN & LEMO FFA.1S.153.LN	
1. Collet Nut	2. Collet
3. Metal Washer	4. Flexible Gasket
5. Earthing Cone	6. Insert Carrier – 2 halves
7. Oversized Collet	8. Insulator
9. Housing	10. Inner/Outer Conductor



Connector Assembly

1. Renewable NRG Systems ships the connector put together as Item #5949. Unscrew the Collet Nut (#1) and disassemble the components.

2. Lay out all parts (#1 thru #10) to ensure that they are all there.

3. Place #1 thru #5 on the cable in order (see Figure 1 below).
   - Make sure the Earthing Cone (#5) has the cone side facing the Housing (#9), and the Metal Washer (#3) has the bead facing the Flexible Gasket (#4) for proper water seal.

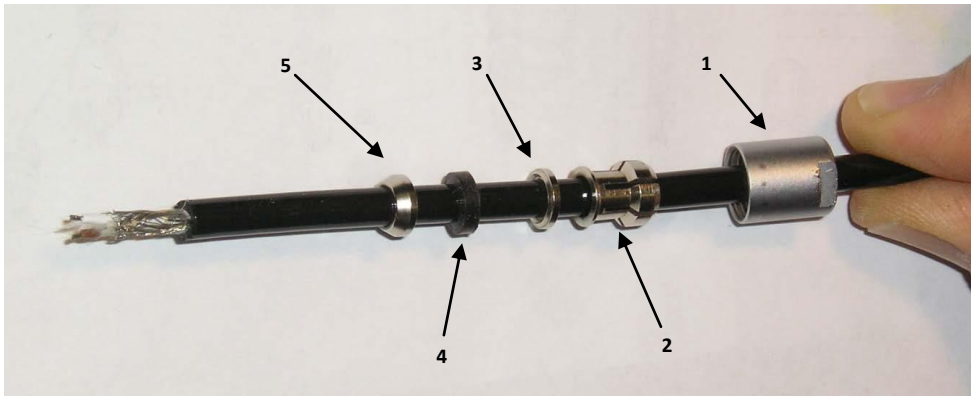


Figure 1

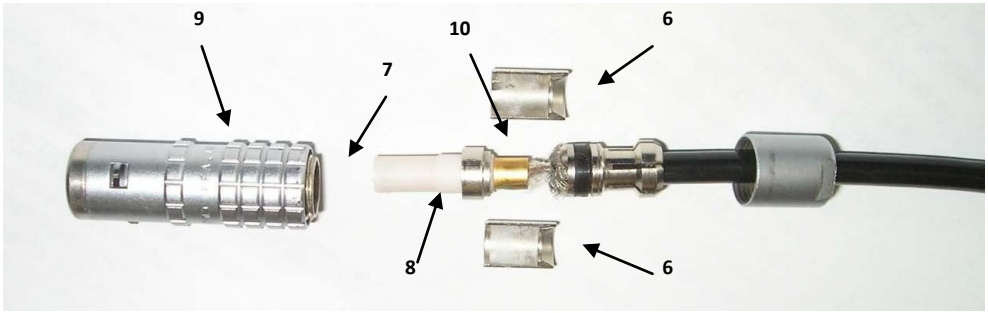


Figure 2

4. Fold shield around the whole circumference of the Earthing Cone (#5).
   - Trim off extra shield so that it is about the same diameter as the cone.

5. Slide a short piece of small diameter heat shrink tubing over both the brown wire and white wire.

6. Cut off the two small tabs at the base of the outer conductor (see Figure 3).

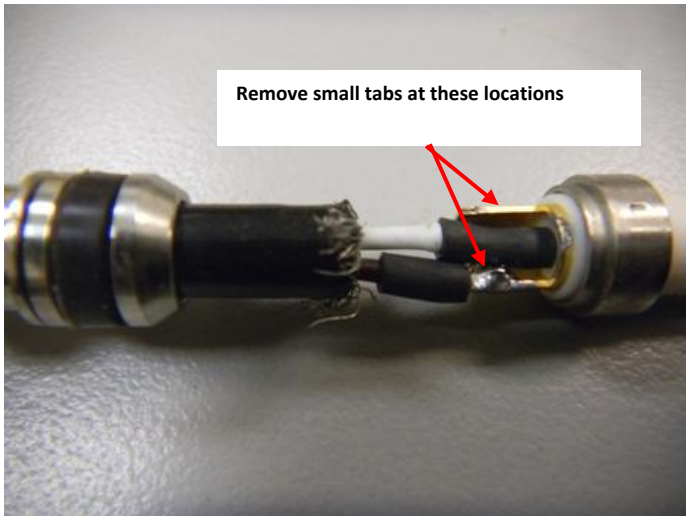


Figure 3

7. Solder the brown wire to the inner part of the Outer Conductor (#10).

8. Solder the white wire to the Inner Conductor (#10).

9. Shrink the two sections of shrink tubing using heat gun or equivalent.

10. Install the Split Insert Carriers (#6).
    - ➢ Make sure the tab goes into the slot so the two parts settle into position.
    - ! If this is done wrong it may incorrectly ground some part against the housing.

11. Install and tighten the Collet Nut (#1).
    - ! Do not exceed 0.8 Newton-Meters or 7.08 lbf-in.

Test

- Perform continuity test by checking for shorts and opens.
- Perform insulation resistance test to > 5 MegOhm.
- Connect a WindSensor P2546 sensor to the cable and test with logger.

Reference:

- Connector images pulled from LEMO datasheet for the E Series. If needed for reference, search for "lemo e series assy straight" and look for the Digikey search result.
- Pictures were taken at Renewable NRG Systems during cable assembly.