NOTE
All numerical values are in metric units [with U.S. customary units in brackets]. Dimensions are in millimeters. Unless otherwise specified, dimensions have a tolerance of ±0.13 mm and angles have a tolerance of ±2°. Figures and illustrations are for identification only and are not drawn to scale.

1. INTRODUCTION

This specification provides assembly and disassembly procedures for Universal MATE-N-LOK Splash Proof Wire Seals series. The wire seal installs into the Universal MATE-N-LOK connector housings and accommodates Universal MATE-N-LOK contacts (socket and plug) crimped to a range of wire conductor sizes and insulation diameters. When properly assembled, the wire seal provides water ingress protection into the connector housings at the wire entry locations. The degree of water ingress protection and allowable range of wire insulation diameters is specified on the wire seal component drawing.

Note: An accessory Interface Seal provides ingress protection at mating connectors interface.

Connectors and seal components are shown in Figure 1.

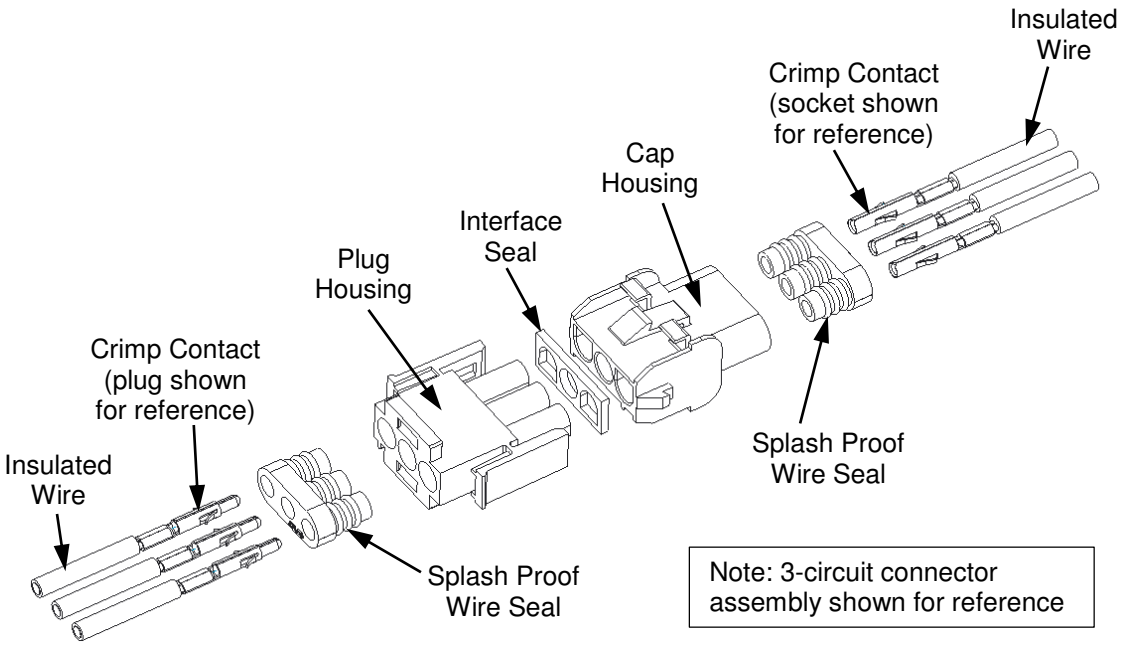

Figure 1

When corresponding with Tyco Electronics Personnel, use the terminology provided in this specification to facilitate your inquiries for information. Basic terms and features of this product are provided in Figure 1.

2. REFERENCE MATERIAL

2.1. Revision Summary

Reference Product Base Part Number 2213782 is representative of the Splash Proof Seal for Universal MATE-N-LOK connectors. Use of these numbers will identify the product line and expedite your inquiries through a service network established to help you obtain product and tooling information. Such information can be

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obtained through a local TE Representative, by visiting our website at www.te.com, or by calling PRODUCT INFORMATION or the TOOLING ASSISTANCE CENTER at the numbers at the bottom of page 1.

2.2. Drawings

Customer Drawings for product part numbers are available from the service network. If there is a conflict between the information contained in the Customer Drawings and this specification or with any other technical documentation supplied, the information contained in the Customer Drawings takes priority.

2.3. Specifications

Application Specification 114-1010 - Universal MATE-N-LOK Connectors
Component drawing 2213782 – Extended Range Wire Seal, Universal MATE-N-LOK

3. REQUIREMENTS

3.1. Safety

Do not stack product shipping containers so high that the containers buckle or deform.

3.2. Limitations

The connectors are designed to operate in a temperature range of -55° to 105°C.

3.3. Material

The materials used in the construction of this product shall be as specified on the applicable product drawings.

3.4. Storage

A. Ultraviolet Light

Prolonged exposure to ultraviolet light may deteriorate the chemical composition used in the product material.

B. Shelf Life

The product should remain in the shipping containers until ready for use to prevent deformation to components. The product should be used on a first in, first out basis to avoid storage contamination that could adversely affect performance.

C. Chemical Exposure

Do not store product near any chemical listed below as they may cause stress corrosion cracking in the material.

Alkalies	Ammonia	Citrates	Phosphates Citrates	Sulfur Compounds
Amines	Carbonates	Nitrites	Sulfur Nitrites	Tartrates

4. CONNECTOR ASSEMBLY COMPONENTS

The wire seal assembles to Universal MATE-N-LOK connector housings prior to assembly of wires with crimped Universal MATE-N-LOK contacts (socket and plug). The crimped contact/wire passes through the assembled seal and is retained in the connector housing to complete the assembly.

4.1. Connectors Housings

The wire seal assembles into the wire receptacles of Universal MATE-N-LOK housings. The housings are available in 2 styles referred to as “PLUG” housing and “CAP” housing (reference Figure 1). Each style housing has similar wire receptacles and accepts plug contacts, or, socket contacts. Reference Universal MATE-N-LOK Connectors Application Specification 114-1010 for additional information regarding inter-changability of housing and contact components.

4.2. Wire Conductors

Universal MATE-N-LOK contacts (socket and plug) are intended to crimp onto stranded conductor wire. Reference Universal MATE-N-LOK Connectors Application Specification 114-1010 for allowable conductor sizes and contacts crimping parameters.

4.3. Wire Insulation Diameter

The wire seal acts upon the outer diameter (Figure 2) of the wire insulation to prevent water ingress into the connector along the wire insulation outer diameter. The seal accommodates a range of wire insulation diameters as specified in the wire seal component drawing.

4.4. Contacts Crimping

The wire strip length and crimping (Figure 2) shall be according to the specifications of Universal MATE-N-LOK Connectors application specification 114-1010.

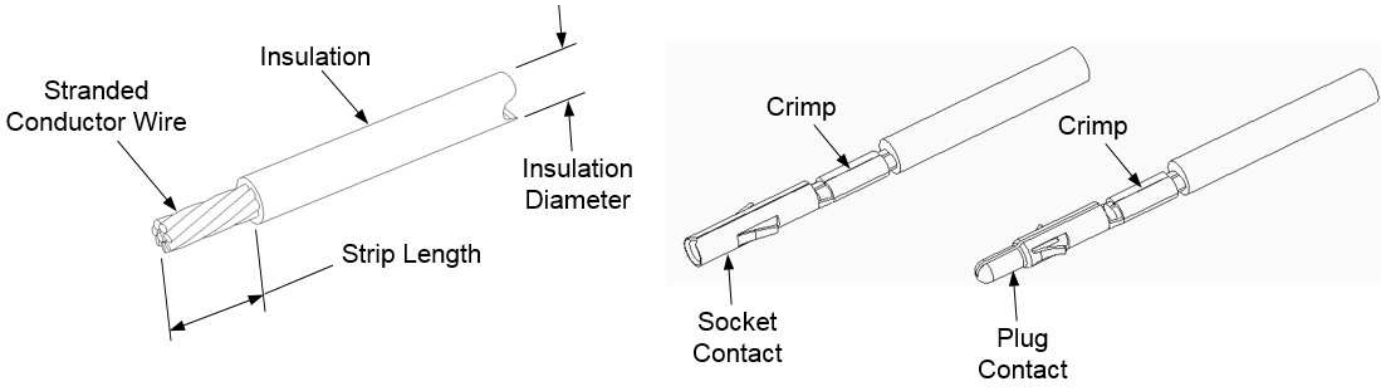


Figure 2

5. CONNECTOR ASSEMBLY

The following components are required to make a complete Universal MATE-N-LOK Connector assembly that is protected against water ingress at the wire entry locations:

- Connector housing (Plug or Cap style)
- Wires with crimped contacts (socket or plug)
- Wire seal (must have same number of wire entry receptacles as housing)

The procedure to assemble the connector is as follows (reference Figure 3):

1. Identify the wire entry receptacles of the housing. These are readily identified on the Plug housing. However, the Cap housing should be examined carefully to identify the fully circular wire entry receptacles.
2. Align wire entry receptacles of wire seal with corresponding receptacles of housing. The ribbed receptacle extensions on the wire seal must be oriented in the direction of the housing.
3. Insert the ribbed extensions of the wire seal into the wire receptacles of the connector housing. There will be some resistance as the ribs of the wire seal are compressed by the housing wire receptacles. Light pressure will overcome the resistance and allow the wire seal receptacle extensions to be inserted into the housing wire receptacles.

4. Fully insert the wire seal wire receptacles into the housing wire receptacles until the wire seal raised shoulder is against the housing. The compression fit of the rubber wire seal will retain the wire seal in the housing.
5. Align a wire with crimp contact (socket or plug) to a wire receptacle opening in the wire seal. The crimp contact must be oriented in the direction of the wire seal with the long axis of the wire aligned in the direction the wire inserts into the wire seal. The crimp contact does not require any angular orientation with respect to the wire receptacle in the wire seal or housing.
6. Insert the contact into the selected wire receptacle in the wire seal. The contact compresses the rubber of the wire seal as it passes through the wire receptacle opening. Again, light pressure is required to advance the contact through the wire seal receptacle opening.
7. After passing through the wire seal receptacle opening the contact engages sloped lead-in surfaces in the housing. The sloped surfaces direct the contact into the circuit openings in the housing.
8. Continue to apply force along the wire axis to fully insert the wire into the circuit openings of the connector housing. An abrupt increase in the insertion force indicates the contact is fully seated in the housing. In addition, a “click” sound may be heard as the contact latches snap into place in the housing.
9. Confirm the contact has fully seated in the housing by applying light force to withdraw the wire from the housing. The contact should not move in the withdrawal direction and the wire seal should remain in place against the housing. No portion of the contact crimp should be visible protruding from the wire seal.
10. Repeat the wire assembly process steps 5-9 for each wire to be inserted into the connector housing.

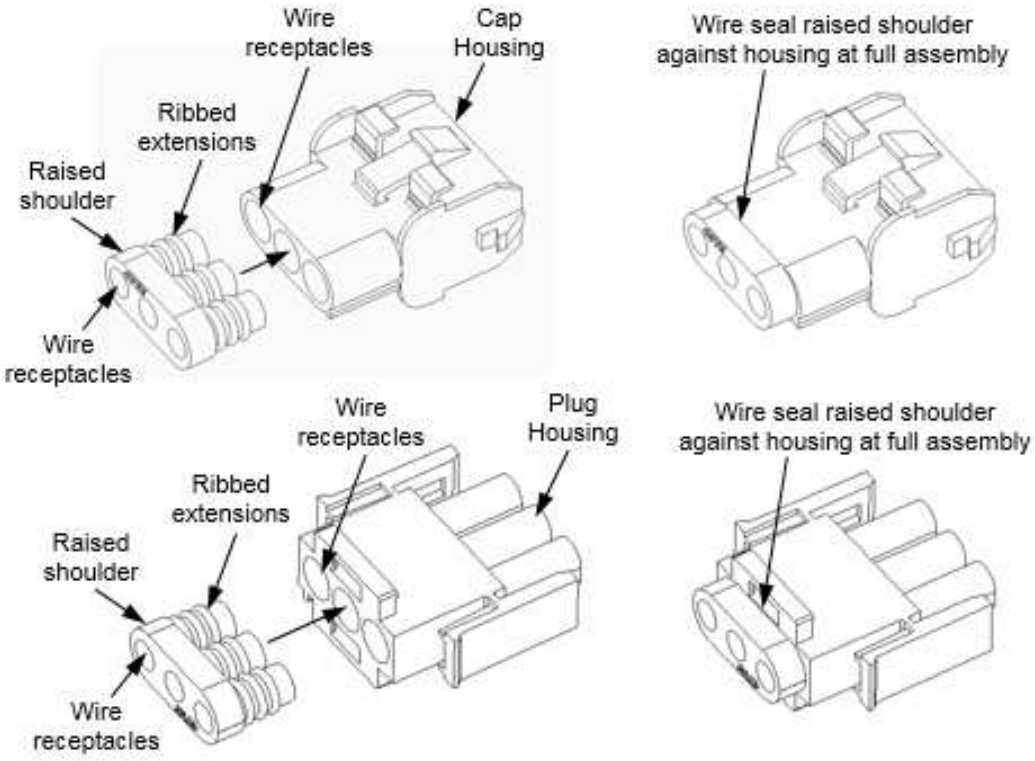


Figure 3

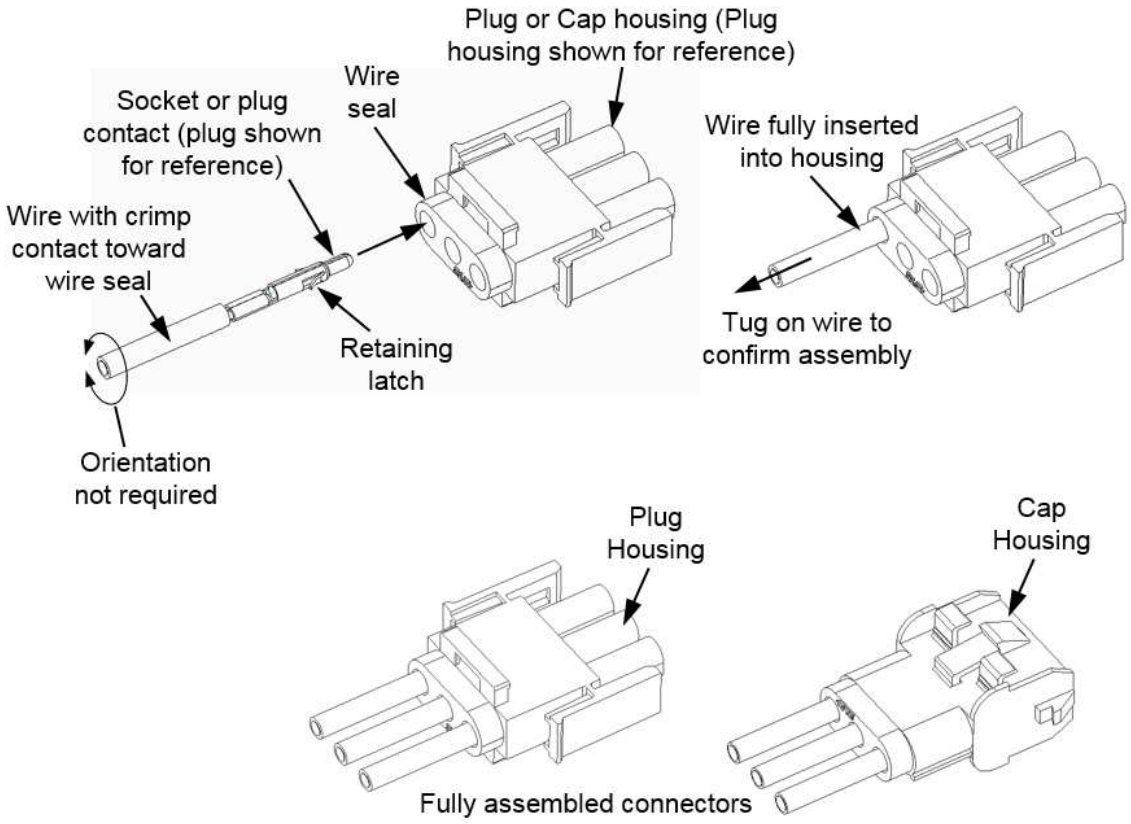
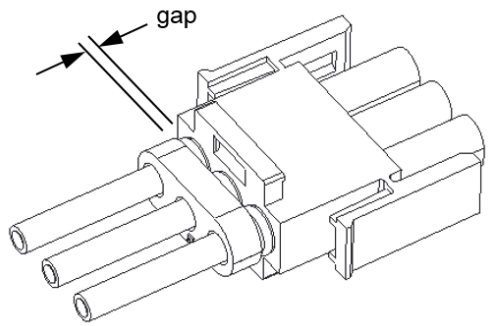


Figure 3 (cont'd)

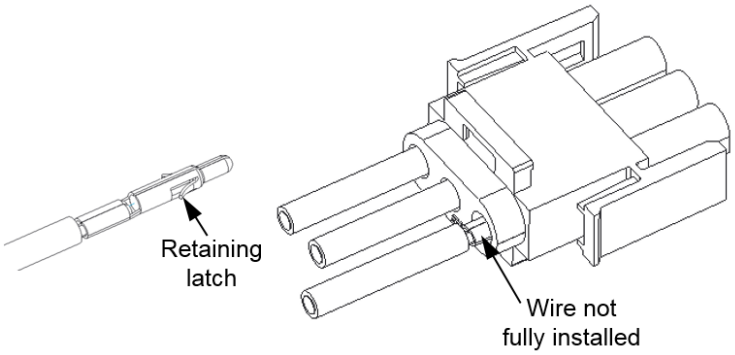
6. VISUAL AID

Figure 4 shows typical applications of a Universal MATE-N-LOK Connector assembly. These illustrations should be used by production personnel to ensure a correctly applied product. Applications which DO NOT appear correct should be inspected using the information in the preceding pages of this specification and in the instructional material shipped with the product or tooling.



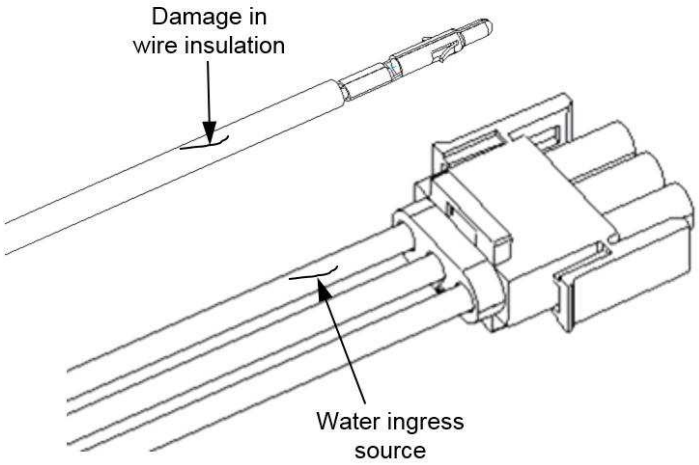
The wire seal should be inserted full depth into the housing wire receptacles (reference para. 5.0, assembly step 4, and Figure 3).

There shall be no gap between the wire seal shoulder and the connector housing.



Crimped contacts should be fully inserted through the wire seal and into the housing so that contact retaining latches engage corresponding latch features inside the housing (reference para. 5.0, assembly step 9, and Figure 3, also ref. 114-1010).

No portion of the contact crimp should protrude from the wire seal.



Wires should be carefully examined for damage prior to final installation into housings. Damage to wires insulation may provide water ingress path along inside of wire insulation and into the assembled connector.

FIGURE 4. VISUAL AID