

# Technical Disclosure Commons

---

Defensive Publications Series

---

February 2020

## WEATHER-PROOF HOUSING FOR A MULTI-PORT RF/DIGITAL CONNECTOR ASSEMBLY

Timothy Frank

Daniel Johnson

Follow this and additional works at: [https://www.tdcommons.org/dpubs\\_series](https://www.tdcommons.org/dpubs_series)

---

### Recommended Citation

Frank, Timothy and Johnson, Daniel, "WEATHER-PROOF HOUSING FOR A MULTI-PORT RF/DIGITAL CONNECTOR ASSEMBLY", Technical Disclosure Commons, (February 26, 2020)  
[https://www.tdcommons.org/dpubs\\_series/2975](https://www.tdcommons.org/dpubs_series/2975)



This work is licensed under a [Creative Commons Attribution 4.0 License](https://creativecommons.org/licenses/by/4.0/).

This Article is brought to you for free and open access by Technical Disclosure Commons. It has been accepted for inclusion in Defensive Publications Series by an authorized administrator of Technical Disclosure Commons.

## WEATHER-PROOF HOUSING FOR A MULTI-PORT RF/DIGITAL CONNECTOR ASSEMBLY

### AUTHORS:

Timothy Frank  
Daniel Johnson

### ABSTRACT

Presented herein is a weather-proof housing for a multi-port RF/digital connector assembly that can be used in an outdoor weather-proof application, without need to modify the existing connector design.

### DETAILED DESCRIPTION

Certain wireless access points (APs) use a multi-port RF/digital connector assembly to attached external antennas to the AP. The multi-port RF/digital connector assembly replaces legacy single conductor connectors, such as standard polarity and reverse polarity-Threaded Neill Concelman (RP-TCN) connectors and N-Type connectors. Unfortunately, due to the non-sealed design of conventional multi-port RF/digital connector assemblies, these connector assemblies can only be used in indoor applications. That is, outdoor AP's cannot use conventional multi-port RF/digital connector assemblies because the connector assembly will allow the ingress of water and moisture which, in turn, will damage the product.

Presented herein is a weather-proof housing for a multi-port RF/digital connector assembly that can be used in an outdoor weather-proof application, without need to modify the existing connector design. In particular, the techniques presented herein create a sealed housing interface between the multi-port RF/digital connector and the AP enclosure where the connection is made. The weather-proof housing presented herein allows the installer to terminate the antenna connection to the outdoor AP in the field, without need for special tools.

Figure 1, below, illustrates a first perspective and exploded view of a weather-proof housing in accordance embodiments presented herein, along with components of an multi-port RF/digital connector assembly. Figure 2, below, illustrates a second perspective and

exploded view of the weather-proof housing and multi-port RF/digital connector assembly of Figure 1. Figure 3, below, is a perspective of the weather-proof housing and the multi-port RF/digital connector assembly of Figures 1 and 2 in a sealed (operation) configuration (i.e., to prevent the ingress of fluid).

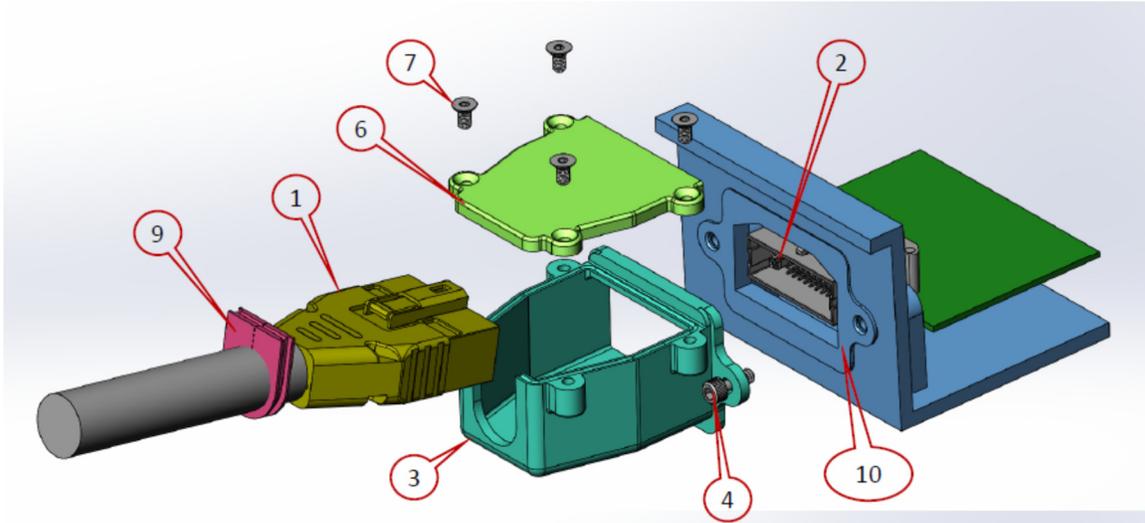


Figure 1

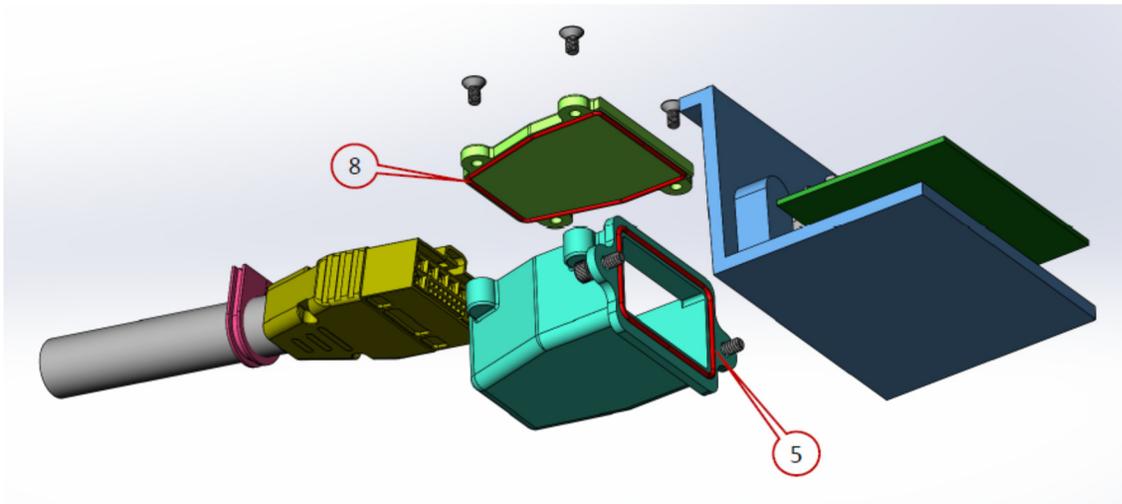
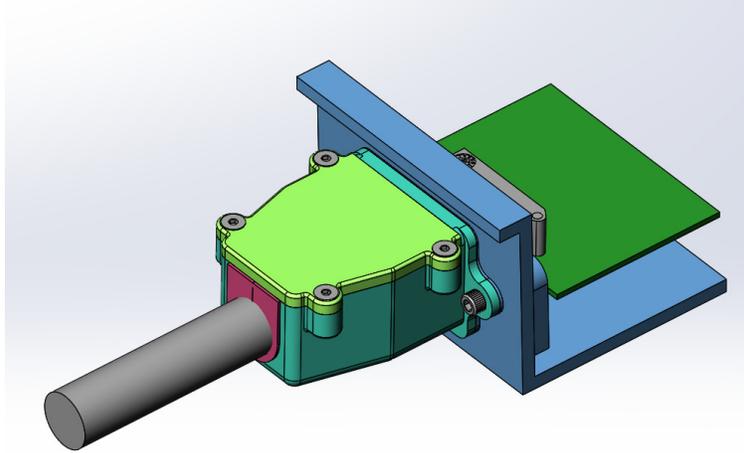


Figure 2



**Figure 3**

In Figures 1-3, element (1) is the connector plug and cable, while element (2) is the PCB connector. Element (3) is the housing body, element (4) is the housing body screw (2x), element (5) is the housing body rubber seal, element (6) is the housing cover, element (7) is the housing cover screw (4x), and element (8) is the housing cover rubber seal. In addition, element (9) is the split rubber grommet of the connector assembly cable, and element (10) is the AP enclosure interface.

One example method for use of the weather-proof housing presented herein is described below with reference to Figures 1-3. This method comprises:

- Step 1: Using the two housing body screws (4), the housing body (3) is mounted to the AP enclosure interface (10).
- Step 2: The split grommet (9) is slide over the cable.
- Step 3: The connector plug (1) is inserted into the housing body (3) and mated with the PCB connector (2). The split grommet (9) is also slide into the housing body (3) and properly aligned.
- Step 4: The housing cover (6) is installed onto the top of the housing body (3) using the four housing cover screws (7) to secure and seal the housing body.
- Step 5. The housing body screws (4) are tightened to the AP enclosure interface (10) to create a sealed interface protecting the DAT connector/cable from outdoor environments.