

BASE STATION ANTENNA UPGRADE

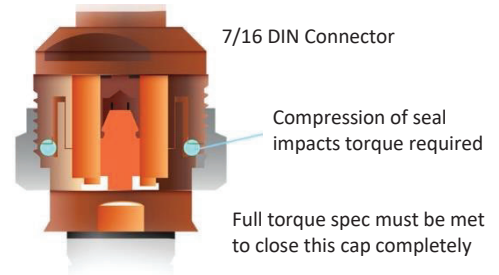
Connector Evolution to 4.3-10

March 2021

In the past 50 years, Land Mobile Radio systems have evolved and improved. As this has occurred, there have been advancements in connector technology that made it necessary to transition from one connector to another. As passive intermodulation (PIM) became more prevalent, the 7/16 DIN connector replaced the PL259 and N type connectors in order to minimize receiver degradation. The 7/16 DIN connector was instrumental in the redesign of base station antennas and achieving significant improvements in PIM specifications and performance.

In order to achieve these improvements, the 7/16 DIN was designed to be much larger than its predecessors and it required a significant and specific amount of torque. Considering where connectors may be located (confined locations, antennas on towers, etc.), applying this torque can be quite challenging.

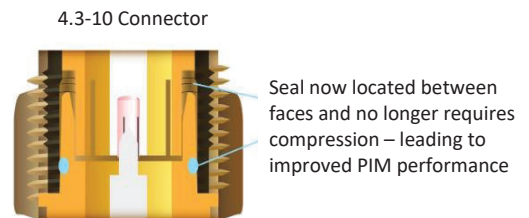
A 7/16 DIN requires 18-22ft-lb of torque, with the max torque essential to make sufficient compression of the outer contact surfaces to achieve low PIM levels. This connector relies on the nut to bring the mating interfaces into position and form the connection and is restricted by this travel as well as the O-ring (compression) within the male connector.



Superior Technology – 4.3-10 Connector

The 7/16 DIN has served the industry well, but it has now been surpassed by the 4.3-10 connector, which is smaller and does not require nearly the amount of torque. Thus, it is much easier to install.

Unlike previous connector designs, the 4.3-10 does not rely on the outer nut to make good electrical contact and in fact, good contact is made before the nut is even secured.



- The O-ring has been moved to the side wall, avoiding obstructing the final connection, while forming a weather-tight seal
- The radial contact of the outer conductor means good contact is made before the nut is applied. With the final torque applied, a solid, long-term connection is ensured.
- Relocation of the O-ring and compact size reduces need for torque by 80%. Only 3.7ft-lb is required for correct termination as opposed to >18ft-lb with the 7/16 DIN.
- The above means a faster and easier installation

Backwards Compatibility

RFI is providing a high quality, low PIM adaptor with every 4.3-10 antenna to insure backwards compatibility with 7/16 DIN installations. When the site is upgraded to 4.3-10 connectors, the adapter can be removed to insure consistency throughout the system. An alternative to this adaptor is to replace the jumper between the transmission line and antenna which is often done during an antenna installation.



Pricing

This upgrade, including backward compatibility, is sold at the same price as the previous model. The RFI part numbers now have a “-P” trailer indicating the 4.3-10 connector (e.g. CC807-11-P).