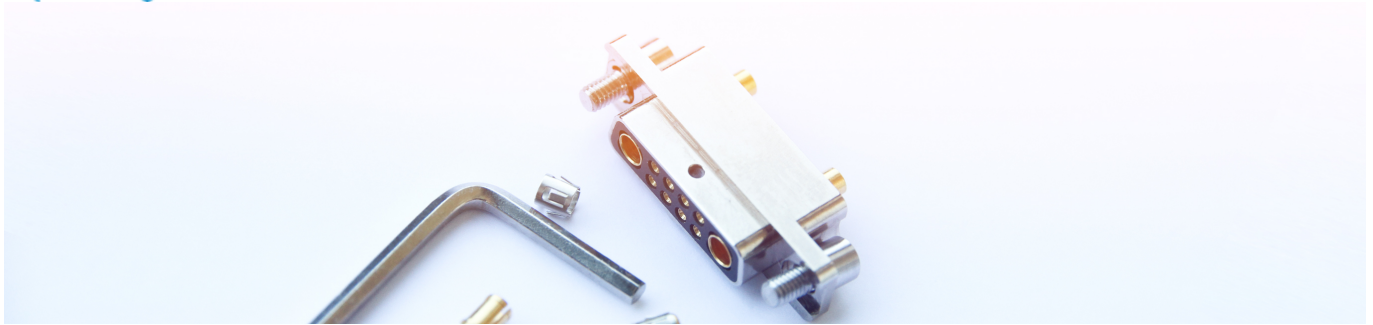




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IP 68 & Sealing for Radar Application Case (2020/10/21 04:24:54pm)

The end user of the radar systems requires the system to be durable, reliable and with low maintenance. In-order to track multiple targets, the system needs to have the most accurate information transmission and its protection of signal. The expectation of radar manufactures is very high, and that is why they demand excellent quality and performance from each component that makes up the entire system.

Here is an example of a connector project that will be used in a radar system. The project showcases Nicomatic's IP68 sealing & EMI protection capabilities with our cable assemblies and harnessing. This specific radar system is mounted on a truck trailer that will be used to monitor the sky for surveillance of unfriendly missile cruising the sky.

The application requires a low loss, phase stable cable assembly and harness. Nicomatic fulfilled this need by offering custom designed cable assembly with multiple value-added features. The final cable assembly and harness was shielded end to end for EMI protection to ensure high signal integrity. The radar system will have different assemblies that operate at different frequencies which cannot interfere with one another, that is why EMI protection is a key requirement for a rugged and reliable connector solution.

Nicomatic offers many levels of EMI protection that can be adapted to different applications. Each customer situation is unique and may require specific features that a customer can combine depending on their application. In this situation the customer chose five different options for EMI protection.

- **Added Flange:** Use to fill the panel cut clearance and provided efficient shouldering.
- **Conductive EMI O Ring:** Provides 360-degree protection around the connector and provides a conductive seal between the panel and connector.
- **Canted Coil Spring:** Provides signal continuity between mated connectors
- **Split or Mono Back Shell:** A backshell is used to secure the cable and to avoid stresses on the soldered/cripped part of the contact. It also shields against electrical interference and from mechanical damages.
- **EMI Braid:** Provides end to end mechanical and signal protection of the full harness solution.

IP68 sealing was another requirement of the customer. This connector will be used in extreme

environments outside of the box, it will be exposed to various elements such as dust and water. Nicomatic offers multiple options to meet the needs of different IP rating requirements. For this situation the customer chose four different options for IP protection.

- **IPXX Interfacial Seal:** Provides ingress protective from elements while the connector is unmated.
- **Flange with Sealing O Ring:** Use to fill the panel cut clearance and provided efficient shouldering while providing 360-degree protection around the connector and provides a waterproof seal between the panel and connector. This feature is available in a conductive and non-conductive silicone.
- **Sealed Fixing Hardware:** Provides additional sealing around the fixing hardware to protect from unwanted debris or liquid (or moisture) from entering the connector.
- **Backpotting:** Used for protection from moisture and debris, both prevented from entering a connector housing. Increases the surface area of attachment between the wire and the housing. This adds strength, increases reliability, and reduces the potential for connector failure.

When choosing a cable assembly and harness keep in mind that there are always many ways to protect it from harsh elements. Depending on your situation you may only need one added feature, but in a different application you may need to select many features to meet your overall system requirements. Contact Nicomatic to review your specific application and see how we can help solve your EMI or IP requirements.