

## SMP High Frequency Push-on

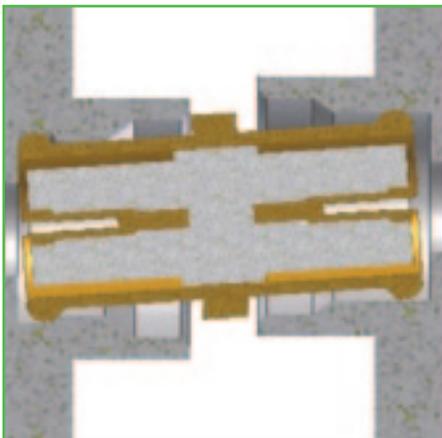
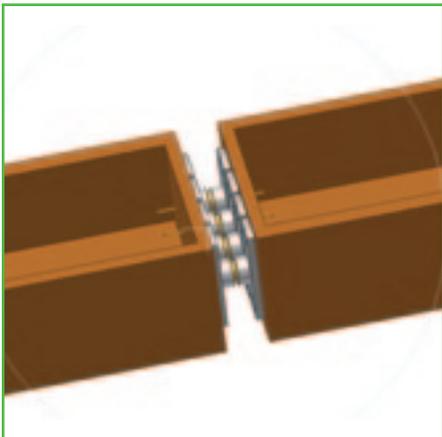
The SMP connector is a multi-functional, miniature, high frequency, push-on connector that can be adaptable for use in wide variety of high reliability applications. This connector is suitable for applications ranging from hermetic modules to backplanes. The multitude of configurations and styles provide specifically tailored solutions for a wide range of cabled and module to module assemblies. A unique feature of this connector is the ability to install cable assemblies with minimal movement. The floating connector feature provide a maximum allowance for misalignment. Unlike other push-on type connectors, the frequency range of the connector is not self limited by its push-on, blind mate features. These robust connectors are designed to mate tightly and maintain performance through 40 GHz.

## Module to Module (board to board)

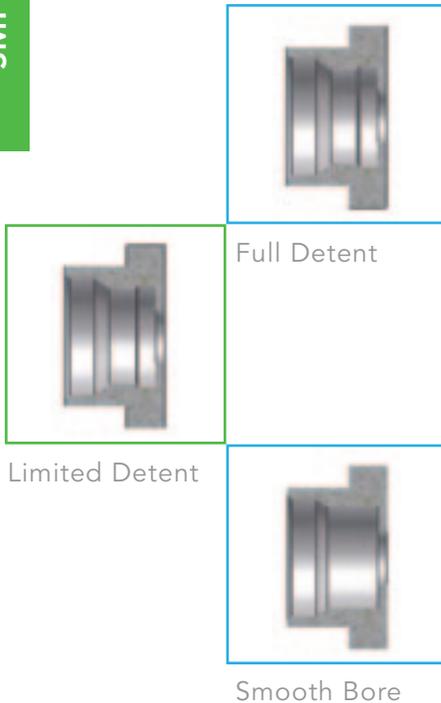
One of the benefits of the SMP connector is its ability to join two RF/ Microwave Modules or PC Boards to each other without the use of cables and the attendant insertion loss penalty. In the past, this was difficult and costly due to the necessary tolerances to ensure good alignment between modules or boards. The key component used in these applications is an inseries, female to female, SMP adapter called a "Bullet". The bullet is a unique connector, when placed between two SMP male connectors or shrouds, is used to join two microwave modules or boards. This method produces a tight compact arrangement with good performance characteristics from DC to 40 GHz.

## Misalignment

The SMP's ability to tolerate axial and radial misalignment while maintaining microwave performance is one of the driving forces behind its widespread industry success. The SMP allows for axial and radial misalignment without the use of bulky springs or other alignment tools. This is why it is possible to use these connectors in module to module (board to board) applications. Although the bullet fits tightly into the shroud, by design it has the ability to move slightly while maintaining its performance. This slight radial and axial movement gives the SMP bullet its "Float". When installed properly, the SMP bullet/shroud combination can withstand .010"(.25mm) axial and  $\pm$ .010"(.25mm) radial float.

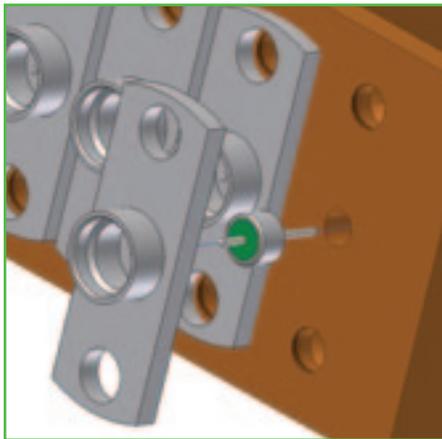


## Detents



The SMP male connector is available in three standard detents specified in MIL-STD-348 to provide the proper amount of mating and retention force for its selected applications. These are defined as the “full”, “limited”, and “smooth bore”. The full detent provides the highest insertion and withdrawal forces and the smooth bore, the least. The user selects the detent most suitable for his or her application. The smooth bore is used on many blindmate applications where increased axial and radial float is needed. To ensure the bullet will stay on one of the modules, the limited or full detent SMP male shroud is used on one module and a smooth bore shroud is used on the other. When the modules are taken apart the bullet will then remain captivated within limited or full detent shroud. The limited detent shroud is often used when some captivation of the bullet is needed but there is risk that the higher forces may damaged the component. One example is the potential risk of cracking a printed circuit board and damaging the solder joints on the mating, PCB mounted connector. Full detents are used when retention forces need to be high, such as in a cable application

## Hermetic Seals



In some case it is necessary to have a hermetic module, thus creating high expense and extreme difficulties for most connectors. In the case of the SMP, it is an easy process to create a hermetic module. All that is needed is an .015” glass feed through and shroud. The glass feed through is fired or soldered in the housing just as any other feed through, then the shroud is placed around the feed through, creating the SMP male connector. A wide variety of shrouds are available to suit many customer preferences. Performance is improved over other hermetic seals since the center pin of the feed through is the male contact and no additional contacts or insulators are needed.

## Cable Connectors

The SMP also can be used for cable assemblies. These assemblies have the advantage of being quick disconnects while still maintaining performance at frequency ranges higher than other push on type connectors. The full detent is used when mating an SMP cable assembly so that it will maintain the maximum retention. Since a cable assembly does not need to have axial or radial float, several small changes are made to SMP female interface as defined by MIL-STD-348. This includes adding an anti-rock ring and EMI ring to improve performance of the connector and reduce RF leakage. The SMP connectors are available for use on both semi-rigid and flexible cable types.