



## AE-AN-TR-010-TR Multicoax Series Mounting on Either Side of PCB Board

### Purpose:

This application note provides detailed information regarding mounting TR Multicoax directly in line on either side of the PCB.

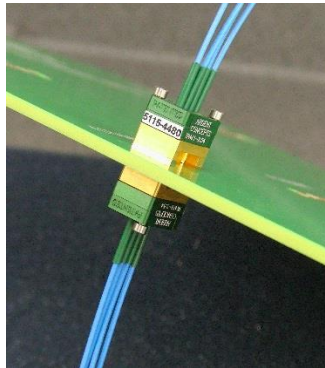


Figure 1: TR Multicoax in line on both sides of the PCB

### Overview:

Amphenol Ardent Concepts' patented TR Series compression mount high frequency connector assembly stands alone as the only industry solution for high density multi-coaxial cable assemblies capable of measurements up to 70 GHz.

The unique solderless design eliminates the need for components to be soldered to the board, and instead relies on a compression mount connection which works in conjunction with a footprint PCB board. The design is ultra-compact, allowing as many as 24 channels to occupy an area just 7mmx50.50mm. The end result is a consistent, reliable, and high-performance connection taking up minimal real estate on our customers PCB's.

A recent project required Amphenol Ardent to attempt to stack the TR Series PCB footprints on top of each other on either side of the board in an effort to maximize board real estate. The endeavor was a success and essentially allowed a total of 48 channels to occupy an area of 7mm x 50.50mm, albeit on either side of the board.

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## Back to Back Applications:

Straight Mount TRs are sold in pairs for back to back applications. This is because the TR mounted on one side of the board will differ slightly from the TR mounted on the opposite side of the board. There is no difference between the pairing of two right angle TRs, besides one side having longer screws while the other has none at all.

Back to Back mounting can be used with both the Straight Mount and Right Angle TR Assembly. Board stiffeners are not used, as the opposing TR connectors act as stiffeners to one another. For practical applications of this design, it is a requirement that the minimum board thickness is .065" (1.9mm). Maximum board thickness is dependent on specific configuration (see below):

## Straight Mount Configuration:

For the straight mount configuration, the pair of TRs will be configured as follows:

- One TR will have the standard length M2 captive Thumb screw replaced with a 20-31mm longer variation.
- The opposing TR will have the standard polycarbonate strain relief swapped out for a tapped aluminum version. The aluminum will provide proper thread strength, allowing sufficient clamping force to be obtained by the longer screws plunging through from the TR mounted on the opposite side of the board.
- The maximum board thickness for the Straight Mount configuration is .188" ( 4.78mm).

## Right Angle Configuration:

For the Right-Angle configuration, the pair of TRs will be configured as follows:

- One TR will have the standard length M2 captive Thumb screw replaced with a 12-13mm longer variation.
- The opposing Right Angle ground block sees no difference in design. It will come without any captive screws at all, allowing the longer screws of the opposing TR to thread into it.

*NOTE:* The maximum board thickness for the Right Angle configuration is .157" (4.0mm).

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## Application Note Summary:

- The unique and solderless design of the TR Series makes for a high-performance connection and more board real estate for as many as 24 channels.
- Amphenol Ardent Concepts has successfully stacked the TR Series PCB footprints on top of each other on both sides of the board, allowing 48 channels to occupy an area of 7mm x 50.50mm.
- This practice of mounting TR connectors on either side of the board can be used for the Straight Mount and Right-Angle mounting configurations.

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## Who Is Amphenol Ardent Concepts?

Amphenol Ardent Concepts is a leading designer and manufacturer of high performance multicoax and coaxial assemblies, connectors, and sockets used in the development of next generation semiconductors and electronics systems. Our core technology is the smallest, fastest, most electrically efficient compression mount connector technology worldwide. As data rate requirements increase and devices and systems shrink, Ardent's products deliver superior signal integrity in a dense footprint that can be reusable across programs to maximize cost savings.

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