

Section VII



DC - Block Connectors

INTRODUCTION: DC-Block Connectors consist of a short length of a coaxial transmission line and having a capacitance in series with the center conductor or the outer conductor, or both. The RF is transmitted with negligible reflections and attenuation while the DC or video frequencies are blocked. The DC-Blocks are carefully designed and matched to work to higher frequencies, e.g. 18.0 GHz.

Applications: DC-Blocks are used to prevent the flow of direct current or video along a transmission line while permitting the uninterrupted flow of RF. DC-Blocks are mostly needed in systems applications, occasionally also during test and measurement.

Average Power Handling: This is the maximum allowable CW power to which the unit can be subjected to without suffering permanent damage.

Connectors: DC-Block Connectors are available with a large variety of connectors, meeting the appropriate standard interface specifications, such as MIL-Standards, DIN- or IEC-Specifications, etc.

Custom Designs: In addition to the standard Internal DC-Block Connectors, using the SMA connector style, as shown in this section, Spectrum Elektrotechnik GmbH has been designing and supplying special DC-Block Connectors and Adapters to suit particular requirements, such as unique mechanical outline, unusual mounting or special connector requirements, higher power dissipation, rough environment, etc., etc.

Frequency and Bandwidth: DC-Block Connectors do usually operate over a multi-octave bandwidth. In special applications they can be designed for certain criteria in narrower bands.

High Reliability Components: DC-Block Connectors can also be supplied to Customers High Reliability Specifications, environmental, military or governmental requirements, and/or to customer specified procedures.

Inner Block: The Inner Blocks have a capacitance in series with the center conductor to prevent the flow of DC current along the center line. They are employed when unwanted DC current is monitored on the center conductor, or when DC current is injected onto the center of part of the system and is undesired in the RF section, as it would damage sensitive RF components.

Inner-Outer Block: The inner-outer blocks have both, a capacitance in series with the center conductor and a capacitance in series with the outer conductor to prevent the flow of DC current on both conductors.

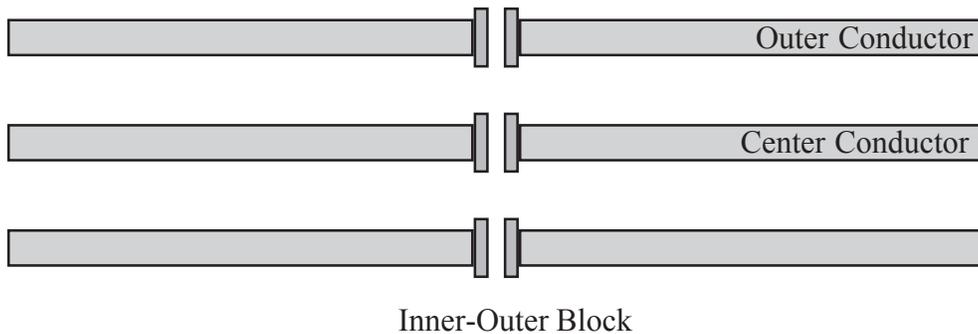
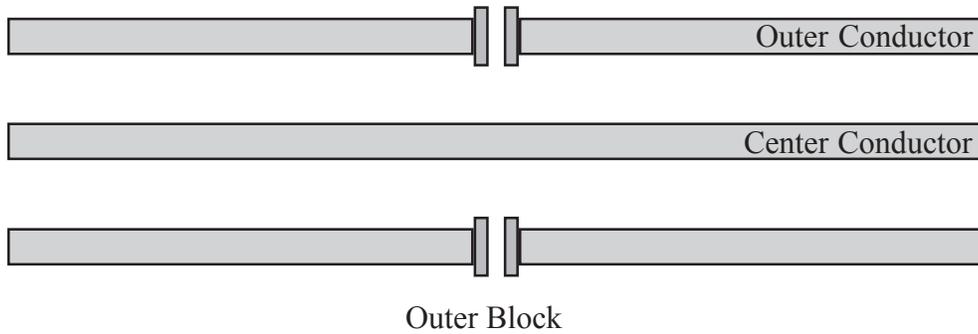
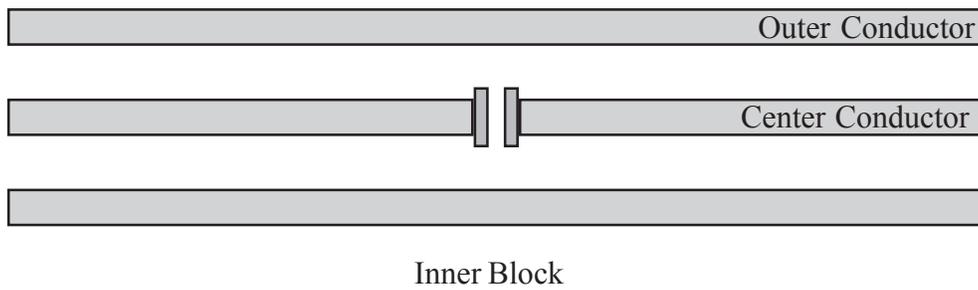
Operating Temperature Range: The temperature ranges usually from -54°C to $+115^{\circ}\text{C}$, or even wider, depending on the application and the design.

Outer Block: The outer blocks have a capacitance in series with the outer conductor to prevent the flow of DC current along the outer shell. Outer blocks are employed when the outer conductor of part of the system is necessary to be operated with a potential.

Outline: The outline dimensions of the standard components are usually same as for standard connectors or adapters. Special components can be engineered to customer specifications, showing almost any dimensions as needed in the application.

Peak Power Handling: This is the maximum allowable power to which the unit can be subjected to without suffering permanent damage or without changing permanently the specified characteristics of the device. The peak power is transmitted with a certain pulse width and pulse repetition rate.

VSWR: VSWR is the ratio of the reflected signal and the incident signal. It is desired that the DC-Blocks have little reflections. But the built-in capacitance will show some reflections and discontinuities within the circuit, and manufacturing tolerances will cause some additional reflections.



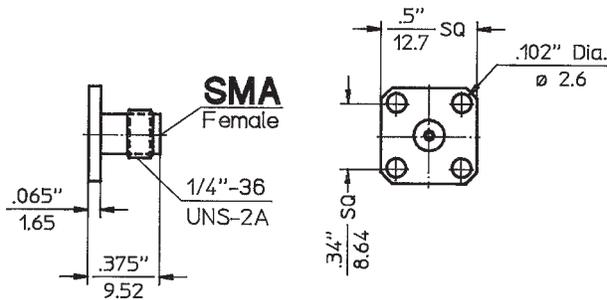
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DC - Block Connectors (Inner Block)

The DC Block is used to prevent the flow of direct current or video along a transmission line while permitting the uninterrupted flow of RF. The unit consists of a short length of coaxial line, having a capacitance in series with the center conductor. The RF is transmitted with negligible reflection or attenuation while the DC or video frequencies are blocked. The outline dimensions of the components are same as for standard connectors and adapters. Special components can be engineered to customer specification.

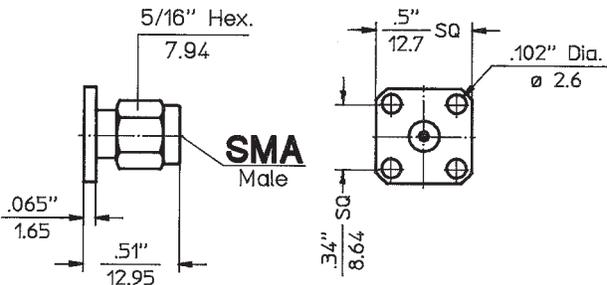
Frequency Range:	0.5 - 18.0 GHz
VSWR:	1.25 max.
Insertion Loss:	.5 dB max.
DC Voltage:	100 V max.
Capacitance:	100 pF, other values available
Operating Temperature:	-54°C to +115°C
Impedance:	50 Ohms

SMA Female, Panel Mount Contact Termination



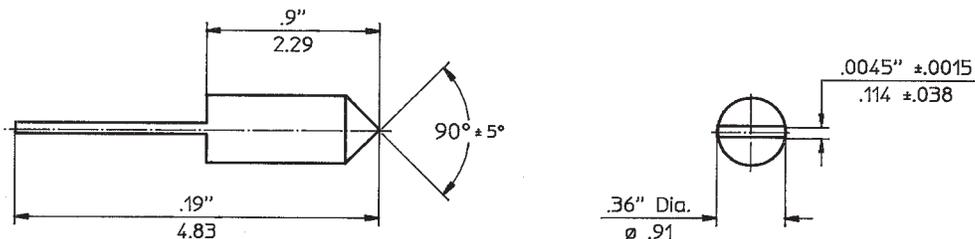
Part No.	DC-0018-2100
Frequency Range	0.5 - 18.0 GHz
Max. VSWR	1.25 max.

SMA Male, Panel Mount Contact Termination



Part No.	DC-0018-1100
Frequency Range	0.5 - 18.0 GHz
Max. VSWR	1.25 max.

Center Conductor

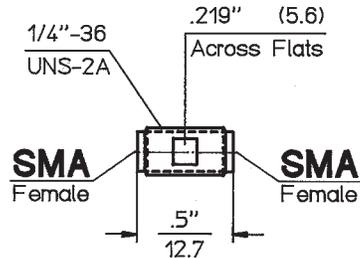


Part No.	90-059-1
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Dimensions shown are inches over millimeters. Standard connectors are made from stainless steel passivated. Connector interface specifications apply, as outlined in Section X: Connector Specifications.

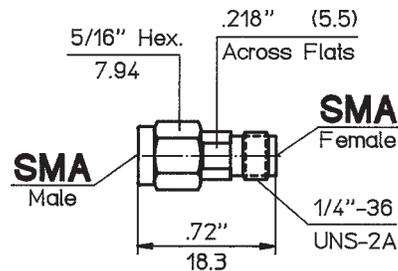
SMA Female to SMA Female

Part No.	DC-0018-2121
Frequency Range	0.5 - 18.0 GHz
Max. VSWR	1.25 max.



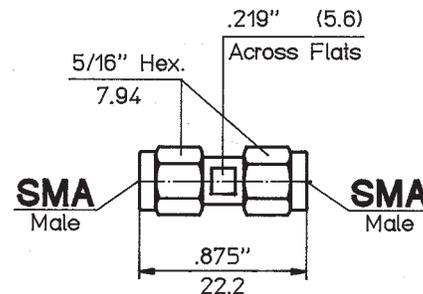
SMA Female to SMA Male

Part No.	DC-0018-1121
Frequency Range	0.5 - 18.0 GHz
Max. VSWR	1.25 max.



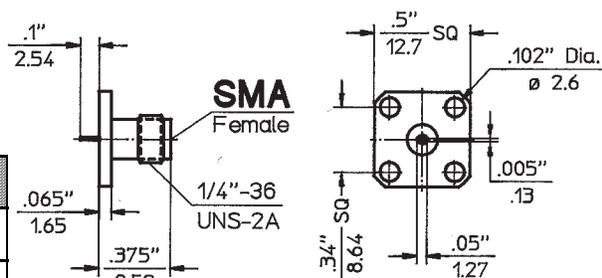
SMA Male to SMA Male

Part No.	DC-0018-1111
Frequency Range	0.5 - 18.0 GHz
Max. VSWR	1.25 max.



SMA Female Flange Mount, Stripline

Part No.	DC-0018-2101
Frequency Range	0.5 - 18.0 GHz
Max. VSWR	1.25 max.



Dimensions shown are inches over millimeters. Standard connectors are made from stainless steel passivated. Connector interface specifications apply, as outlined in Section X: Connector Specifications.

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