OPERATION AND MAINTENANCE MANUAL FOR MODEL K261 AND V261 DC BLOCK

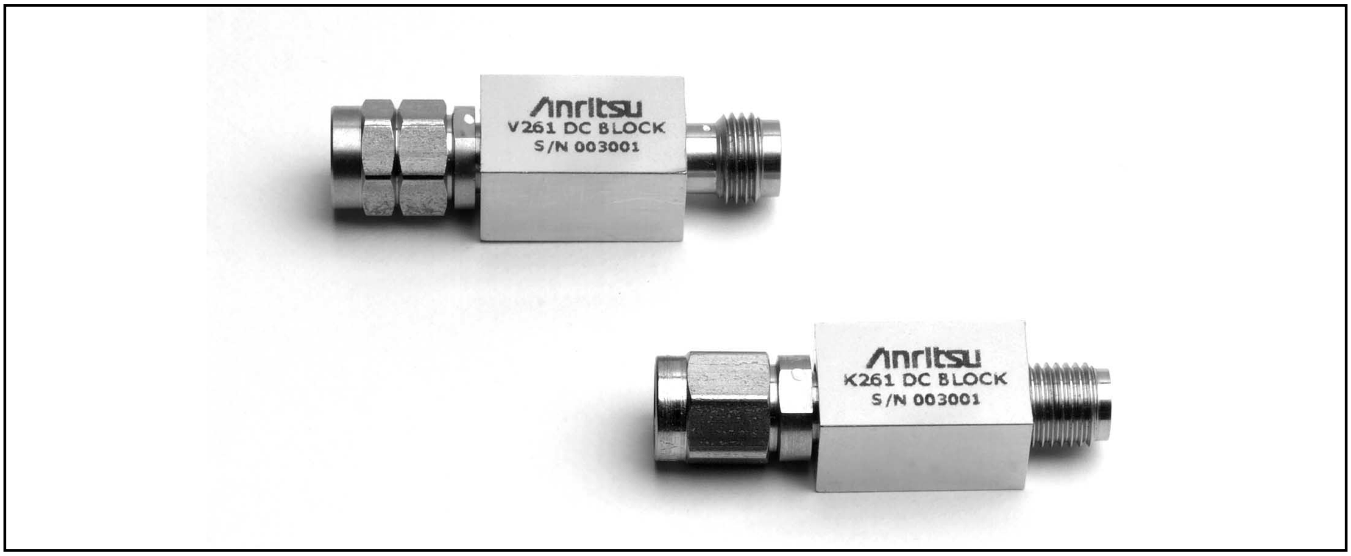

Figure 1. Model K261 and V261 DC Blocks

1. INTRODUCTION

This manual describes the Models K261 and V261 DC Blocks (Figure 1). It provides specifications and a list of precautions the user should observe when using these devices.

2. DESCRIPTION

The K261 and V261 Precision DC Blocks have been optimized for optical communications and other high-speed pulse, data or microwave applications.

Designed to apply AC drive signals to a device while eliminating any DC components, these DC Blocks feature wide bandwidth, excellent low frequency response, minimum insertion loss and flat group delay. Precision K Connectors® and V Connectors® assure excellent impedance match across the wide bandwidths available.

3. SPECIFICATIONS

Table 2 provides performance specifications.

4. PRECAUTIONS

ANRITSU K261 and V261 DC Blocks are high-quality, precision laboratory devices and should receive the same care and respect afforded other such components. Complying with the following precautionary notes will guarantee longer component life and less equipment downtime due to connector failure. Also, such compliance will ensure that RF component failures are not due to misuse or abuse—two failure modes not covered under the ANRITSU warranty.

a. ***Beware of Destructive Pin Depth on Mating Connectors.*** Measure the pin depth of the connector that mates with the RF component, *before* mating. Use an ANRITSU Pin Depth Gauge (Figure 2, Table 1) or equivalent. Based on RF components returned for repair, destructive pin depth on mating connectors is the major cause of failure in the field. When an RF component connector is mated with a connector having a destructive pin depth, damage will likely occur to the RF component connector. (A destructive pin

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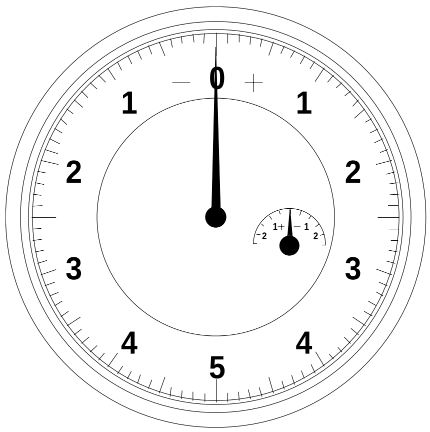


Figure 2. Pin Depth Gauge

Table 1. Available Gauging Sets

Model	Connector Type	Gauging Set Model
V261	V	Consult Factory
K261	K	01-162

depth has a center pin that is too long in respect to the connector's reference plane.)

The center pin on an RF component connector has a precision tolerance measured in mils (1/1000 inch), whereas connectors on test devices that mate with RF components may not be precision types. Their pins may not have the proper depth. *They must be measured before mating to ensure suitability.* When gauging pin depth, if the test device connector measures out of tolerance in the "+" region, the center pin is too long. Mating under this condition will likely damage the RF component connector. On the other hand, if the test device connector measures out of tolerance in the "–" region, the center pin is too short. While this will not cause any damage, it will result in a poor connection and a consequent degradation in performance.

The pin depth for DC Block models are as shown below:

K261: 0.000 to –0.005.

V261: 0.000 to –0.003.

b. Avoid Over Torquing Connectors. Over torquing connectors is destructive; it may damage the connector center pin. *Never* use pliers to tighten connectors.

c. Avoid Mechanical Shock. RF components are designed to withstand years of normal bench handling. However, do not drop or otherwise treat them roughly. They are laboratory-quality devices and, like other such devices, require careful handling.

d. Keep DC Block Connectors Clean. The precise geometry that makes the RF component's high performance possible can be easily disturbed by dirt and other contamination adhering to connector interfaces. When not in use, keep the connectors covered. Refer to paragraph 5 for cleaning instructions.

5. MAINTENANCE

ANRITSU recommends that no maintenance other than cleaning be attempted by the customer. The DC Block should be returned to ANRITSU for repair and/or service when needed.

The traditional method of cleaning K Connectors with a cotton swab and alcohol can break the male connector pin on the precision connectors. The reason: the cotton swab has a larger diameter than the connector (that is, the area between the inner wall and the center pin.)

We still recommend using a cotton swab; however, you need to trim the swab before inserting into the connector.

For best results, observe the following precautions:

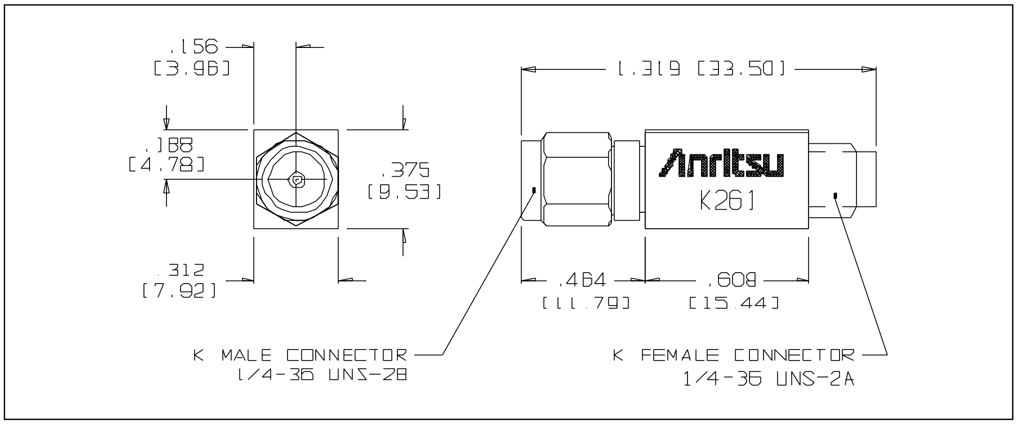
Use either the finger saver that has been provided with the DC Block or use a 5 inch-pound torque wrench when connecting to other devices. No other tools are recommended.

Always spin the coupling nut to tighten connections. Spinning the connector body causes premature wear to the connector interface.

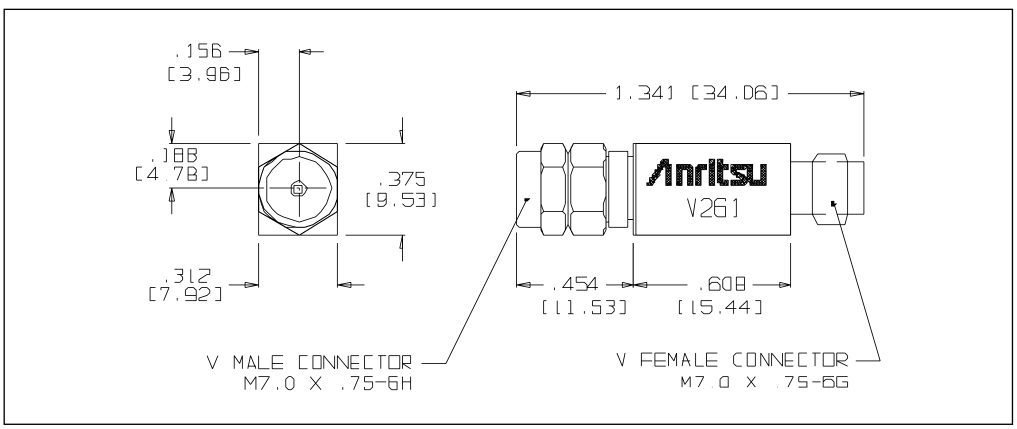
Do not disturb connector center pin. Improper use (see above) of a cotton swab or other such probe to clean the inner connector may cause the center conductor to hinge on its bead and weaken or shear the internal connection.

Table 2. Performance Specifications, 1 of 2

Specification	K261	V261
Frequency Range, 3dB BW	10 kHz to 40 GHz	50kHz to 65 GHz
Insertion Loss	<1.0 dB typical	<2.0 dB typical
Return Loss	See Figure 2 and 3	See Figure 4 and 5
Rise Time	< 7 ps typical	< 5 ps typical
Group Delay	110 ± 1 ps typical	113 ± 1 ps typical
Max DC Voltage	16VDC	16VDC
Max RF Power	1 W	1 W
RF Connectors	Input: K Male Output: K Female	Input: V Male Output: V Female



Outline Drawing, K261



Outline Drawing, V261

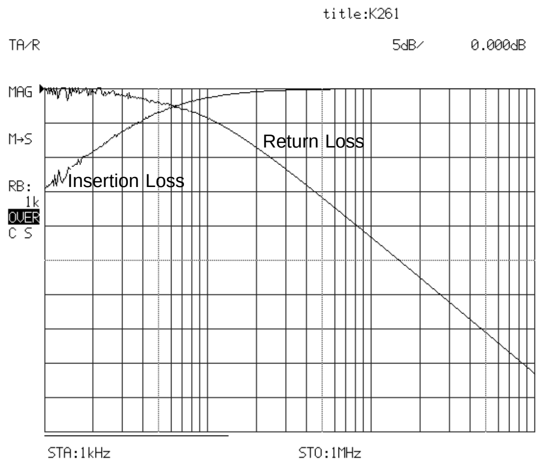


Figure 2. Typical K261 Insertion Loss and Return Loss, 1 kHz to 1 MHz

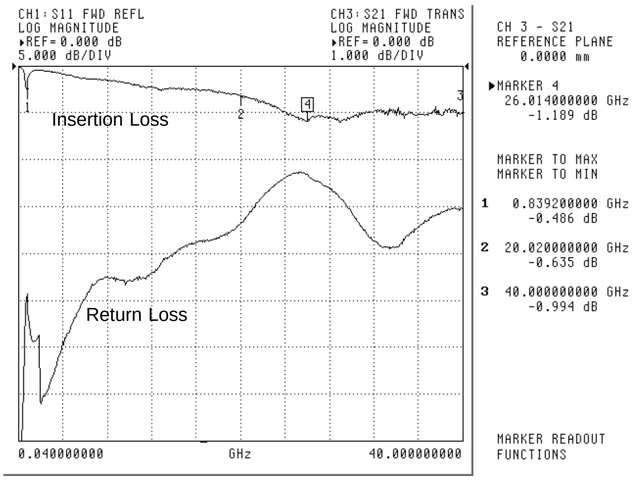


Figure 3. Typical K261 Insertion Loss and Return Loss, 40 MHz to 40 GHz

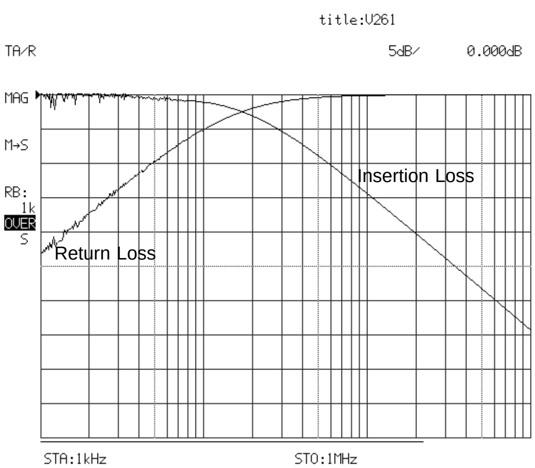


Figure 4. Typical V261 Insertion Loss and Return Loss, 1 kHz to 1 MHz

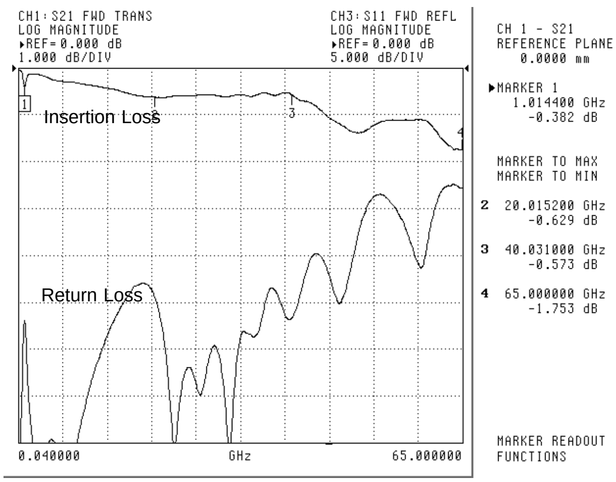


Figure 5. Typical V261 Insertion Loss and Return Loss, 40 MHz to 65 GHz

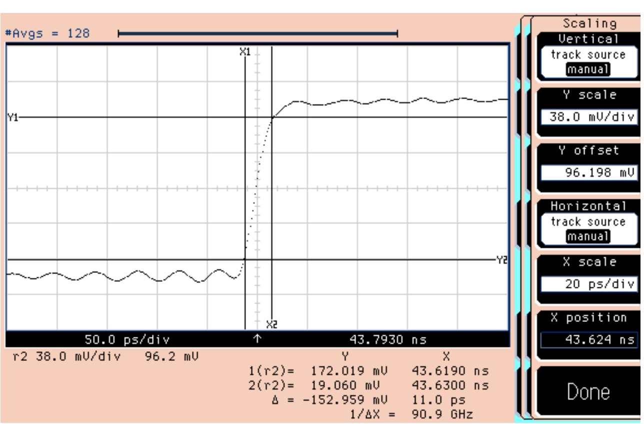


Figure 6. Typical Uncorrected Pulse Response for V261.

Absolute risetime for the DC Block is derived from this measured data by applying the RSS method to compensate for the risetime of the input pulse.

$$Tmeas = \sqrt{T_{BT}^2 + T_{PG}^2}$$

Tmeas = Uncorrected rise time

T_{BT} = Absolute Bias Tee risetime

T_{PG} = Rise time of input pulse