RF Power Dividers
Installation Instructions

PRODUCT DESCRIPTION
RF power dividers, which are available for VHF, UHF, 800 MHz, and PCS applications, permit the customer to design multiple antenna arrays in the field to achieve keyhole patterns, additional gain, and shadow-filling.

Constructed of rugged copper with constant-impedance, female N-connectors, they provide a neat and effective way to connect two or four equal-length 50-ohm cable connections to each antenna. This cable array can then be easily connected to the same transmitter.

An example using the RF power divider would be: Feeding a signal to two omnidirectional antennas mounted on opposing tower faces to provide a more omnidirectional pattern (see Figure 2). Another application could be: Feeding a signal to two or four yagi antennas for a high-gain, highly-directional array (see Figure 3).

SPECIFICATIONS
VSFR: Less than 1.4:1
Power: 500 watts maximum

There are eight models available to cover the normal frequencies from 144-1990 MHz. These models are shown in the following table.

<table>
<thead>
<tr>
<th>Model</th>
<th>Frequency Range</th>
<th>Number of Outputs</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>K 522</td>
<td>144-174 MHz</td>
<td>2</td>
<td>20&quot; x 5.5&quot; x 3&quot;</td>
</tr>
<tr>
<td>K 542</td>
<td>144-174 MHz</td>
<td>4</td>
<td>8&quot; x 5.5&quot; x 3&quot;</td>
</tr>
<tr>
<td>K 526</td>
<td>406-512 MHz</td>
<td>2</td>
<td>14&quot; x 5.5&quot; x 3&quot;</td>
</tr>
<tr>
<td>K 546</td>
<td>406-512 MHz</td>
<td>4</td>
<td>8&quot; x 5.5&quot; x 3&quot;</td>
</tr>
<tr>
<td>K 528</td>
<td>800-960 MHz</td>
<td>2</td>
<td>5&quot; x 5.5&quot; x 3&quot;</td>
</tr>
<tr>
<td>K 548</td>
<td>800-960 MHz</td>
<td>4</td>
<td>8&quot; x 5.5&quot; x 3&quot;</td>
</tr>
<tr>
<td>K 528M</td>
<td>1850-1990 MHz</td>
<td>2</td>
<td>2.34&quot; x 5.5&quot;</td>
</tr>
<tr>
<td>K 548M</td>
<td>1850-1990 MHz</td>
<td>4</td>
<td>4.516&quot; x 5.5&quot;</td>
</tr>
</tbody>
</table>

INSTALLATION
For phased arrays, follow the antenna manufacturer's instructions and recommendations, observing proper spacing between mounted antennas and proper antenna orientation. (Spacing should be at approximately one wavelength for optimum performance; see Figure 4.)

It is important for all individual antennas to be fed in-phase, and all like elements to be oriented in the same direction.

For optimum performance, observe the following guidelines when installing power dividers:

1. Use only high-quality, 50-ohm cable (such as RG-213/U or Heliax) from the divider to the antennas and from the transmitter to the powerdivider.
2. The cable length to each antenna is not critical; however, electrically, each cable must be the same length for the antennas to remain in-phase.
3. To reduce the chance of damage from wind, ice, etc., securely fasten the power divider and cables to the antenna boom and tower.

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Warning
Installation of any antenna near power lines is dangerous. For your safety, follow proper installation procedures.

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Two omnidirectional antennas can be phased to provide fill-in coverage for a signal that is degraded by large tower or building geometries. The antennas need not be similar; for example, a beam or corner reflector could be phased with a collinear antenna to solve difficult coverage problems.

**Figure 2 - Feeding Two Antennas to Avoid Tower Shielding**

Two or four yagi antennas can easily be phased for applications that require high-gain and high-directivity. Resultant gain is +3 dB for two and +6 dB for four. Horizontal, vertical, or cross-polarization can be used as desired.

**Figure 3 - Feeding Two or Four Yagi Antennas In-Phase**
Figure 4 - Phased Yagi Radiation Pattern Examples (One wavelength boom-to-boom spacing)