

Antenna Development Corporation
151 S. Walnut Street, Suite B-6, Las Cruces, NM 88001

Reactive Power Divider/Combiners

Antenna Development Corporation, Inc. (*AntDevCo*) employees have designed and manufactured spacecraft microstrip patch antennas for spacecraft and missile/rocket programs. Many of these antennas have incorporated internal reactive power divider/combiners to realize arrays of individual elements. The stand-alone power divider/combiners described here and offered by *AntDevCo* fill a niche by providing efficient solutions for small arrays on spacecraft and other applications that do not require isolation between the output ports. The units are very reliable in that they have only three (for the two-way) and four (for the three-way) internal solder joints. There are no internal resistors that could be damaged – like in the Wilkinson design.

All power divider/combiners are supplied with extensive testing data including insertion losses and return losses. Simulations of the expected performance on your satellite antenna array that uses these devices can also be ordered for additional fees.

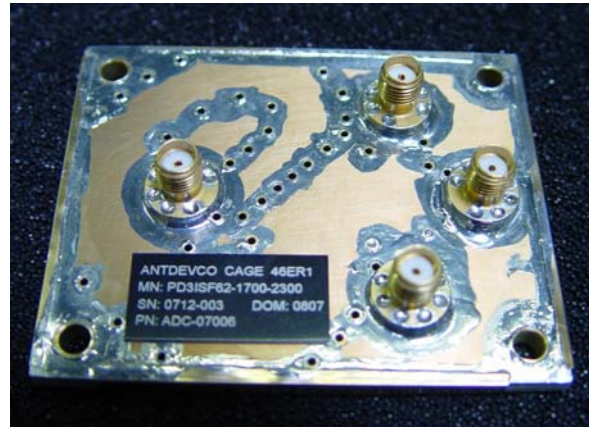
The power divider/combiners may also be ordered with an internal grounding structure that will eliminate charging issues with floating conductors internal to microstrip patch or other antenna types. Another option is that the power divider/combiners can be specified to provide minimal insertion loss in the case of a failure of one of the array cable connections.

Contact us if you require units with more output ports.

Wide Band Units



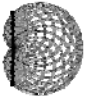
Two-way Divider



Three-way Divider

Wide-band Specifications

- Insertion Loss: 0.3 dB in excess of theoretical, each port. 0.2 dB balance
- Output Ports: 2 way or 3 way available
- Isolation: Reactive divider, no internal impedance matching loads
- Frequency: S-band (1500 – 2300 MHz) (C-band, & X-band frequencies are available)
- Bandwidth: 600 MHz typical at S-band
- Impedance: 50 Ohms – Common Port (outputs terminated)
- VSWR: < 1.3:1
- Grounding: Optional internal DC short
- Connector: SMA Female
- Failure Mode: Optional tolerance to cable/antenna connector failure
- Dimensions: 2.175" X 2.685" X 0.120" (Excluding projection of connectors)
- Mounting: 1.75" X 2.25" 4-hole rectangle, 0.158" dia thru holes.
- Mass: < 50 grams
- Temperature: -65 C to +100 C
- Power: up to 10 Watts CW



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Narrow Band Units

These units are more compact and operate over the entire range of Space Network S-band frequencies.



Two-way Narrow-Band Dividers

Note that PN ADC-10004 has all connectors on the same side of the divider and the PN-17010 has the two output ports on one side and the common on the other side.

AntDevCo is ISO 9001:2008 certified.

Contact us for more details and discussions about your particular application.

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Narrow-band Specifications

- Insertion Loss: 0.3 dB in excess of theoretical, each port. 0.2 dB balance
- Output Ports: 2 way
- Isolation: Reactive divider, no internal impedance matching loads
- Frequency: S-band (2000 – 2300 MHz)
- Bandwidth: 300 MHz typical at S-band
- Phase Imbalance +/- 2 degrees max
- Impedance: 50 Ohms – Common Port (outputs terminated)
- VSWR: < 1.5:1
- Connector: SMA Female
- Temperature: -90 C to +100 C
- Power: 10 Watts CW, 20 Watts Peak

- **Part Number:** ADC-10004
- **Grounding:** Internal DC short
- **Dimensions:** 1.100" X 4.000" X 0.130"
(Excluding projection of connectors)
- **Mass:** < 25 grams

- **Part Number:** ADC-17010
- **Grounding:** None
- **Dimensions:** 2.75" X 0.875" X 0.130"
(Excluding projection of connectors)
- **Mass:** < 20 grams

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Precision Antennas for Spacecraft, Rockets, and Missiles

ADC-0607021544 R1 – Approved for release – No ITAR restrictions – updated 2/18/2017