

Reactive RF Splitter Basics

Introduction

Reactive splitters have long been the prevailing signal distribution component for antenna arrays and radiating cable systems for in-building deployments because of their low loss and rugged nature. Unlike Wilkinson power dividers that use internal resistors to provide isolation between the output paths, reactive splitters are quarter wave length lines matched to split signals evenly to the output paths. This characteristic allows for efficient, high power, broadband operation with minimal solder joints and low passive intermodulation (PIM) characteristics.



RF Splitter
Made in USA

Why reactive splitters are not suitable for combining

Reactive splitters, by design, do not provide isolation between the output ports and exhibit very poor VSWR looking back into the device, so they should not be used as combiners. Applications that employ a need for both combining and dividing benefit greatly by use of a Wilkinson power divider/combiner, but special care must be taken to not damage the input resistor.

Most industry Wilkinson power dividers are rated between 10–30 watts but can only handle a few mW as an unbalanced combiner. As a general rule to calculate combining rated power, the following formula is used:

$(\text{rated input power of divider} * 5\%) / \text{"N"} \# \text{ of input channels} = \text{max input at each port for combining}$

For higher power Wilkinson combining applications, check out MECA H-Series Combiners.

Ordering

MECA introduces a new line of compact, high-power capable (700 watts) reactive splitters covering all wireless frequencies from 0.700 - 2.700 GHz. Available in 2-way and 3-way configurations fitted with 7/16 DIN, N or SMA-Female connectors at all ports. Indoor or Outdoor use (IP65).

This RF power splitter series provides a low loss, equal power split at all output ports while maintaining excellent amplitude and phase balance. MECA's unique design eliminates the need for extraneous (often misplaced) mounting hardware