

T-STYLE POWER DIVIDER/COMBINER

0.7-2.7 GHz, 40 Watts, 2-Way & 3-Way, N & SMA-Jack Connectors



2-Way, N-Jack Connectors



2-Way, SMA-Jack Connectors



3-Way, N-Jack Connectors



3-Way, SMA-Jack Connectors

Application Note

STOCK T-Style Power Divider, Power Combiners are available in two configurations, 2-Way and 3-Way, each offered with N-Jack and SMA-Jack connectors. All four models are optimized for broadband operation covering the frequency range from 0.7– 2.7 GHz with outstanding electrical performance. These Wilkinson-type, T-Style, power divider, power combiners are reciprocal units that can be used to divide or combine signals with equal facility.

In 2-way power divider applications, the input signal is equally split into two output

signals, each down 3 dB from the incident due to the 2 x 1/2 power division. No power is actually lost from this power split; it is just allocated

into two amplitude and phase matched signals, thus a so-called 3 dB insertion loss. True insertion loss of less than 0.4 dB max @ 2.7 GHz will be found at the output ports resulting from dissipation of small amounts of RF & microwave energy within the connectors and microstrip circuit.

In 3-way power divider applications, the input signal is equally split into three output signals, each down 4.77 dB from the incident due to the 3 x 1/3rd power division. No power is actually lost from this power split; it is just allocated into three amplitude and phase matched signals, thus a so-called 4.77 dB insertion loss. True insertion loss of less than 0.7 dB max @ 2.7 GHz will be found at the output ports resulting from dissipation of small amounts of RF & microwave energy within the connectors and microstrip circuit.

In both configurations, all output signals are isolated from one another by 22 dB minimum through the use of resistors that

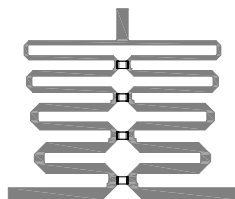
dissipate any power reflected back to the circuit caused by unequal or unbalanced output loads. The 40 watt maximum power rating of these power dividers is applicable when connected to matched output load VSWR's of 1.2:1 or better. This maximum power rating must be reduced when load VSWR's increase or are unbalanced or out-of-phase with respect to one another. See **Power Divider Input Rating Tables** for additional guidelines.

The situation with power combining is a bit more complex. While it is possible to sum two or three input signals, respectively, with no loss, this can only be accomplished if the input signals are coherent and identical in phase and amplitude. Such a case would be the 2 or 3-way splitting of a signal which is

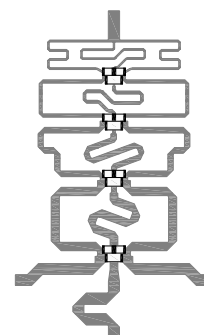
then recombined after amplification, provided the amplified signals are phase-locked together. But outside this case, or cases of pure sine signals, or CW signals

without any transmitted info, the combining of two non-coherent signals will result in a minimum 3 dB loss (1/2 power ratio) plus the true insertion loss of the power combiner (0.4 dB max @ 2.7 GHz). The combining of three non-coherent signals will result in a minimum 4.77 dB loss (1/3rd power ratio) plus the true insertion loss of the power combiner (0.7 dB max @ 2.7 GHz). Worst-case combining loss occurs with coherent signals 180° out-of-phase, where all input power is dissipated. Because the combining loss is dissipated through the isolation resistors, it is the power handling capability of these resistors that ultimately determines the combiner power rating. See **Power Combiner Input Rating Tables** for more information.

Model Number	Configuration	Connectors
PD3020	2-Way	N-Jack
PD3120	2-Way	SMA-Jack
PD3030	3-Way	N-Jack
PD3130	3-Way	SMA-Jack



2-Way, T-Style, Power Divider Circuit



3-Way, T-Style, Power Divider Circuit

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- manufacture
- direct sales

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50 Intervale Road
Boonton, NJ 07005 USA
ph: 973.335.6550
fx: 973.335.6770

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web: www.instockwireless.com