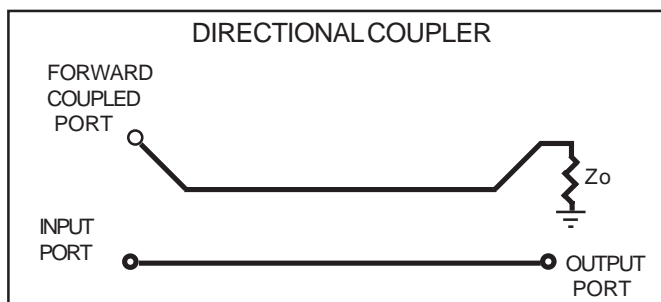
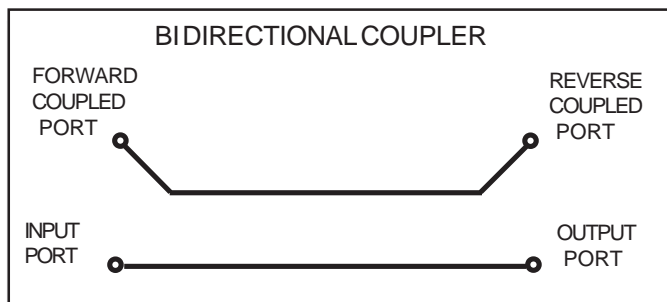


COUPLERS

Synergy's line of couplers consist of directional & bidirectional types with frequencies ranging from 10 KHz to 2.5 GHz. A bidirectional coupler is a 4 port device that produces two unequal amplitude outputs when a signal is fed through the input port and cancels the signal at the reverse coupled port. A directional coupler has the reverse coupled port internally terminated.

Couplers are categorized by the low signal level output. A 10 dB directional coupler will provide an output of 10 dB below the input signal level, and a "Main Line" signal level which has very little loss (0.46 dB theoretically). Listed below are the functional diagrams for both types.



PARAMETER DEFINITIONS

Coupling

Coupling is the attenuation in dB of a signal at a coupled port relative to the input port.

Coupling Flatness

Coupling flatness is the peak to peak variation in coupling over the specified frequency range.

Insertion Loss

Insertion loss is the unrecoverable power in dB dissipated within the circuit.

Coupling Loss

Theoretically, the RF power will split unevenly between the mainline and coupling port. Listed in Table 1 is the coupling loss for Synergy's line of directional couplers.

Mainline Loss

Mainline loss is equal to insertion loss plus the coupling loss.

Table 1

Coupling Value	Coupling loss
6 dB	1.25 dB
10 dB	0.46 dB
15 dB	0.140 dB
20 dB	0.044 dB

Directivity

Directivity is a measure of the coupler's ability to direct energy only to the desired port. Directivity is equal to the isolation value minus the coupling value.

VSWR

The voltage standing wave ratio is a term used to indicate how well the device is matched to the system impedance.