

100 W 3 dB Coupler (90° Hybrid)

DESCRIPTION

- Hybrid Coupler with 3 dB coupling covering the 380 - 520 MHz band.
- Excellent high-power performance.
- If working as combiner max. input power 50 W per port into max. two ports of the four ports.
- If working as splitter 100 W into max. one port.
- Very low insertion loss over the entire frequency range.
- Available with N(f), 4.3/10(f) or 7/16-DIN(f) connectors.
- 3 dB 90° Hybrid Couplers also known as quadrature hybrids are a passive four port device that can be used in many different modes depending on the application. It can be used as a splitter, combiner or injection of a signal into a signal path.



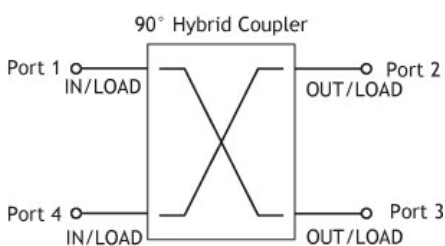
SPECIFICATIONS

Electrical	
Model	PRO-PHY 380-520-3 dB-...
Frequency	380 - 520 MHz
Max. Input Power	50 W per port, when used as a combiner 100 W on one port, when used as a splitter
Insertion Loss	< 3.3 dB ±0.5 dB (Port 1 to 2 or 1 to 3)
Impedance	50 Ω
Port-Port Isolation	> 20 dB (Port 1 to 4 or 2 to 3)
VSWR	< 1.5:1
Mechanical	
Compliance	RoHS
Connection(s)	N(f), 4.3/10(f) or 7/16 DIN(f)
Dimensions	125.6 x 99.6 x 46.1 mm / 4.94 x 3.92 x 1.81 in. (incl. connectors and flanges)
Weight	Approx. 0.865 kg / 1.91 lb.
Mounting	5.2 mm / 0.205 in. dia. (4 holes)
Environmental	
Operating Temperature Range	-30 °C to +60 °C
Ingress Protection	IP67

ORDERING

Model	Product No.
PRO-PHY 380-520-3 dB-N(f)	200002373
PRO-PHY 380-520-3 dB-4.3/10(f)	200002766
PRO-PHY 380-520-3 dB-7/16(f)	200002312

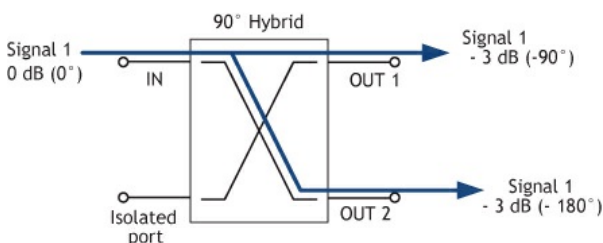
BLOCK DIAGRAM



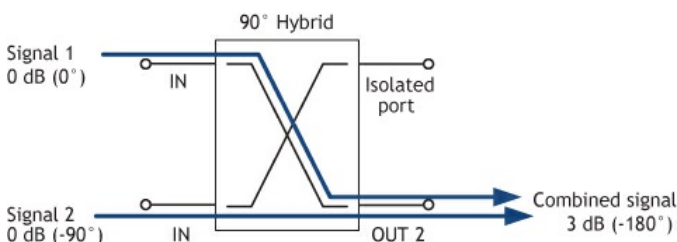
DIFFERENT MODES OF THE 3 DB HYBRID COUPLER

Coupler splitter mode:

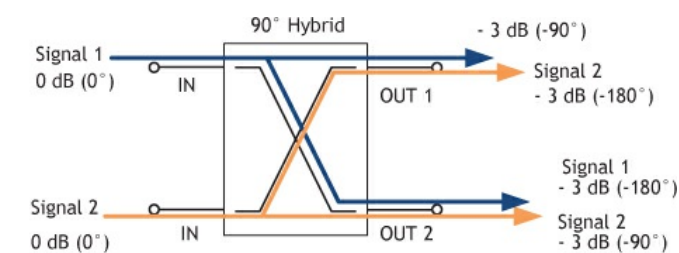
Divides the signal into two equal components with a 90° phase difference that can be used to split signals from tower top amplifiers to the base station receivers.

**Coupler combiner mode 1:**

If the same signals is applied at the input ports with a 90° phase difference the signals adds up on one port.

**Coupler combiner mode 2:**

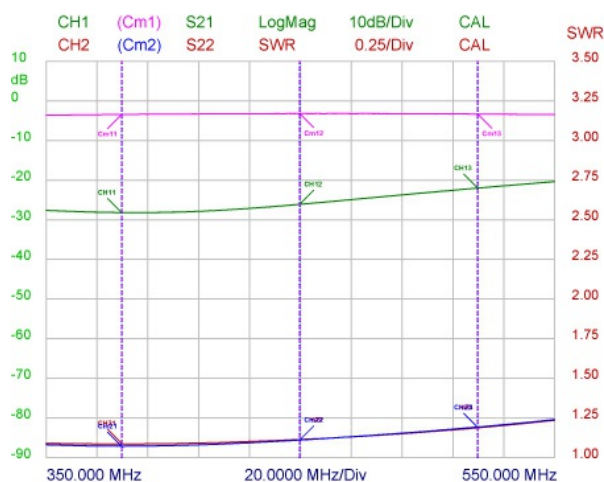
Combining two non-coherent signals that are available at both ports.



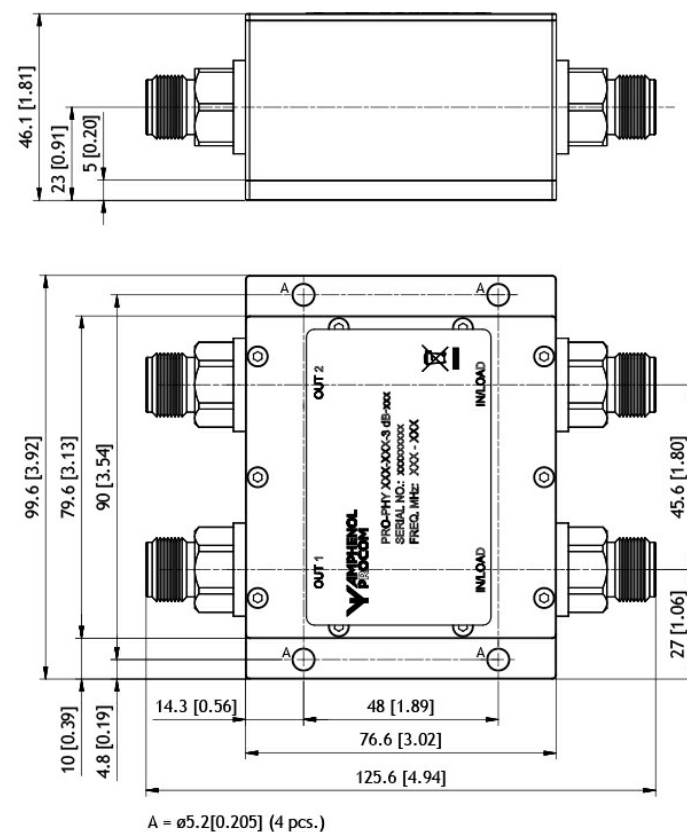
COMMON APPLICATIONS OF 3 DB 90° HYBRID COUPLERS

- Combining two transmitters with very narrow spacing to one common antenna or to a DAS network.
- Combining two carrier inputs to one or two antennas or leaky feeder/radiating cables.
- Splitting signals from tower mounted amplifiers to base station receivers.

TYPICAL COUPLING, ISOLATION AND VSWR CURVES



MOUNTING DETAILS



All dimensions are given in mm [in.]