

8105 HF Multicoupler



The versatile Model 8105 is an HF multicoupler that provides multiple phase- and amplitude-matched outputs from a single or multiple RF antennas operating in the 2 to 30 MHz range. It consists of a standard 4U (19-in) rack-mount chassis holding one to eight plug-in multicoupler modules. Each module is a 1-IN x M-OUT, where M = 1, 2, 4, or 8. The full complement of eight modules offers a maximum of 8 inputs and 64 outputs, which can be configured in many ways, including cascading modules to provide up to 57 outputs from a single input. This flexibility enables the 8105 to provide highly cost-effective RF distribution to multiple receivers from multiple-element antenna arrays. It is also ideal for distributing reference signals such as 5 or 10 MHz frequency standards.

Outstanding performance is assured

A high dynamic range amplifier fully compensates for signal loss from the M-way power split, while providing a 5 dB noise figure and +70 dBm 2nd-order and +40 dBm 3rd-order IMD intercepts. MF and VHF band interference rejection filters eliminate intermodulation distortion caused by strong local interference from AM broadcast and television signals. Independent double-regulated power supplies minimize power line hum, which is critical for frequency standard distribution.

Reliability is also exceptional

The amplifier is protected against static discharge and induced lightning transients. Built-in RF overload circuitry withstands

input signals up to 40 Vrms. When input signals exceed a +15 dBm threshold, a PIN diode switch automatically disconnects the input and lights an "RF Overload" fault indicator on the front panel.

KEY FEATURES

- › High-performance, cost-effective
- › High dynamic range: 5 dB NF, +40 dBm IP₃
- › Phase and amplitude matching: $\pm 2^\circ$, ± 0.5 dB
- › Input overload protection and alert
- › Rugged modular design: 1–8 plug-in modules per chassis
- › Wide selection of module types: 1, 2, 4, or 8 outputs per module
- › Stable operation when cascaded for additional outputs
- › Many configurations: 1 to 8 inputs, 8 to 64 outputs

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Model 8105 Specifications	
Frequency Range	2 to 30 MHz (1.5 to 1.99 MHz, reduced gain)
Input	One 50 Ω (BNC) input per multicoupler module
Outputs	Eight (optional: 4, 2 or 1) 50 Ω (BNC) outputs per multicoupler module
Multicoupler Modules per Chassis	One to eight
Input VSWR	< 2:1 (<1.5:1 typical)
Output VSWR	< 2:1 (<1.5:1 typical)
Output-to-output Phase and Amplitude Match	$\pm 2^\circ$, ± 0.5 dB (any output to any other output) at 15° to 30°C ambient
Output-to-output Isolation	25 dB min. (within one module) 70 dB min. (between modules)
Output-to-input Isolation	25 dB
RF Signal Gain (2 to 30 MHz)	+1.8 dB (8-output) +4.8 dB (4-output) +7.8 dB (2-output) +9.5 dB (1-output LNA)
Gain Variation	± 0.8 dB (8 output module, -08 option)
Noise Figure	5 dB (typical) 8 dB (maximum)
Intermodulation Distortion	2nd-order IMD +70 dBm 3rd-order IMD +40 dBm (typical), +38 dBm (minimum)
1 dB Compression Point	+19 dBm input (typical)
Maximum Output Power	+25 dBm (at saturation)
AC Power-Line Hum	-80 dBc or -110 dBm, whichever is greater
Out-of-Band Rejection	20 dB min. at 500 kHz VHF 20 dB min. at 100 MHz
RF Input Overload Protection Threshold	+15 dBm (typical)
Maximum RF Input	40 Vrms without damage
Indicators	Power On LED (green) RF Input Overload LED (red)

Physical	
AC Line Input	Selectable 100, 120, 220, or 240 VAC; -10%, +5% 50-60 Hz; 140 watts max. (Power consumption depends on number of modules.)
Size	(4U) h x 35.5 d x 48.3 w (cm) 7 h x 14 d x 19 w (in) (EIA RS-310 rack mount)
Weight	7.3 kg (16 lb) (8 multicoupler modules) 5.5 kg (12 lb) (2 multicoupler modules)
Operating Temperature	0 to +40°C -20° to +50° with slightly reduced performance
Operating Humidity	0-95%, non-condensing

Order Code	
8105-17NM-VV where:	8105-17NM-VV where: N = number of multicoupler modules per chassis (1 to 8) M = number of output ports per module (1, 2, 4 or 8) VV = option codes

Option Codes (VV)	
-08	2 to 30 MHz, not phase-matched (standard model)
-11	2 to 30 MHz phase-matched
Example: 8105-1734-08	3 inputs, 4 outputs per input, 2 to 30 MHz, not phase-matched



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