

## MATRIX MODEL HD-500 HUM DETECTOR (DEMODULATOR)

The MATRIX Model HD-500 is a detector-amplifier designed to demodulate the low frequency amplitude modulations on any RF carrier over the range of 5 to 1500 MHz. These modulations are usually the undesirable result of the 50 or 60 Hz power source and are not necessarily sinusoidal. The unit is calibrated to the SCTE definition of hum modulation, which is the ratio of the peak-to-peak hum modulation to the peak of the carrier. The magnitude of the demodulated signal is proportional to the degree of modulation and independent of the carrier level over a range of -10 to -50 dBm.

Some of the important specifications follow.

RF frequency range	5 to 1500 MHz
RF input power range	-10 to -50 dBm
Input return loss	> 15 dB, 50 Ohm 75 Ohm optional
Output voltage	3000 mV peak to peak for -40 dBC Hum 300 mV peak to peak for -60 dBC Hum 30 mV peak to peak for -80 dBC Hum 3 mV peak to peak for -100 dBC Hum
Noise floor	< -105 dBC
Maximum output voltage	20 Volts peak to peak
Modulation bandwidth	5 Hz to 500 Hz. Internal amplifier provides linear phase response. A 60 Hz square wave is reproduced with less than 2% tilt.
Power requirements	+15 Volts and -15 Volts @ 50 mA each
External equipment required	1. Digital storage oscilloscope with signal averaging capability.
	2. Carrier source with hum modulation levels lower than the levels that are to be measured.
Overall accuracy	+/- 1 dB for carrier and modulation levels specified above