



AILTECH 445 & 446 Plug-in RF Power Signal Sources

FEATURES

- Plug-in heads for seven wide frequency ranges
- From 2 MHz to 2500 MHz
- 5-digit, LED-counter up to 1 GHz available
- Power output up to 50 watts
- AM-FM options
- Positive no-load protection
- Reads true forward and reflected power
- High-Q tuned cavity for spectral purity
- Excellent frequency and power stabilities

The AILTECH 445 & 446 cover the 2 MHz to 2500 MHz frequency range using seven RF plug-in heads. Both instruments feature positive load mismatch protection, and forward and reflected power metering.

The 445 plug-in heads incorporate a direct reading frequency dial. The 446 plug-in heads feature a built-in 5-digit true frequency counter up to 1 GHz, and above 1 GHz a dial readout is provided.

All RF plug-in heads have a coupling control that provides for optimization of power transfer to the load. The output power is continuously variable from full

rated power down to 50 mW. A low power sample is available for use with an external counter or detector.

Pulse and amplitude modulations pull the signal source frequency less than 0.1% typically. All power output and stability specifications are relatively unaffected by load VSWRS as high as 3:1.

The positive mismatch protection circuit is designed so that the power supply voltage is automatically turned off when the reflected power exceeds 10 watts. Up to 10 watts operation into an open or short circuit is possible without triggering the mismatch circuit or causing any damage to the unit.

On several plug-in heads power output flatness of the order of ± 0.75 dB may be achieved by minor adjustments of the coupling control as frequency is scanned.

Harmonics are typically 40 dB below the carrier, and is a function of frequency. For example at 10 MHz they are approximately 30 dB below the carrier and at 1000 MHz they are approximately 50 dB below the carrier.

The AILTECH 445 & 446 are ideally suited for production and laboratory tests where frequency, accuracy, precision, and quick determination are of prime importance.

FREQUENCY AND POWER SPECIFICATIONS FOR PLUG-IN HEADS

FOR USE WITH MODEL 445

FOR USE WITH MODEL 446

PART NO.	FREQUENCY RANGE	GUARANTEED POWER AVAILABLE	PART NO.	FREQUENCY RANGE	GUARANTEED POWER AVAILABLE
183	2 - 10 MHz	40 Watts	193	2 - 10 MHz	40 Watts
184	10 - 50 MHz	50 Watts	194	10 - 50 MHz	50 Watts
185	50 - 200 MHz	50 Watts	195	50 - 200 MHz	50 Watts
186	200 - 500 MHz	50 Watts	196	200 - 500 MHz	50 Watts
187	500 - 1000 MHz	50 Watts	197	500 - 1000 MHz	50 Watts
188A	1000 - 2000 MHz	25 Watts	188A-6	1000 - 2000 MHz (Dial)	25 Watts
189A	2000 - 2500 MHz	15 Watts	189A-6	2000 - 2500 MHz (Dial)	15 Watts

For frequency coverage down to 10 KHz use M5001 (see page 8).

ADDITIONAL SPECIFICATIONS

Frequency

Accuracy 185 thru 189A: $\pm 1\%$ at optimum coupling after 1/2-hour operation at maximum rated power.
 183: $\pm 5\%$; same conditions as above. 184: $\pm 2\%$; same conditions as above.
 190 Series Counter 0.005%

Stability $\pm 0.001\%/10$ minutes after 1/2-hour stabilization at constant power and frequency.

Power

Metering Forward power: 10 and 50 watts Full Scale.

Reflected power: 10 watts Full Scale.

Stability ± 0.1 dB/hr after 1/2-hour stabilization at constant power and frequency.

Sample output 15 to 40 dB below main RF output.

Overload Fully protected against excessive power reflected back into the output port.

Adjustment Continually variable down to 50 mW.

Spectral Purity (CW Operation)

Residual AM 1% maximum

Residual FM 0.003% maximum

Modulation

Internal 100% Square wave, 1000 Hz adjustable $\pm 10\%$.

External Pulse; zero residual; +15 volts required.

Line Power 115/230 V $\pm 5\%$, 50-60 Hz, 450 watts (nominal)

Size 8" w x 11 1/2" h x 17" d (20.3 x 29.2 x 43.1 cm)

Weight

Main Frame 40 lb. (18.2 kg) net, 60 lb. (27.3 kg) shipping weight

Plug-in Heads (typical) 10 lb. (4.5 kg) net, 15 lb. (6.8 kg) shipping weight

Options

Amplitude Modulation (To order, specify "-1"; e.g., P/N184-1, P/N 194-1)

Range & Frequency 0 to 100%, 300 Hz to 5 KHz. 0 to 30%, 5 KHz to 20 KHz

Input 23 volts RMS (nominal) into 16 ohms

Frequency Modulation (-2)

Frequency 10 Hz to 300 kHz

Input 20 volts p-p

Deviation See table

PART NO.	FREQUENCY (MHz)	MINIMUM DEVIATION (p-p)
184-2/194-2	20	15 KHz
185-2/195-2	50 200	25 KHz 80 KHz
186-2/196-2	200 - 400	90 KHz
187-2/197-2	500 1000	100 KHz 200 KHz
188A-2/188A-6-2	100 - 2000	200 KHz
189A-2/189A-6-2	2000 - 2500	200 KHz (2200-2300 MHz)

Not available on 183 or 193.

NOTE: It is possible to have both AM & FM at the same time (to order specify "-1-2"; e.g., P/N 184-1-2).

Wide Pulse (-6) (to order specify 445-6 or 446-6).

Allows for turning oscillator off and on with application of +12v dc.

Separate input is provided and can be used for pulse operation for any duty cycle up to 100%.