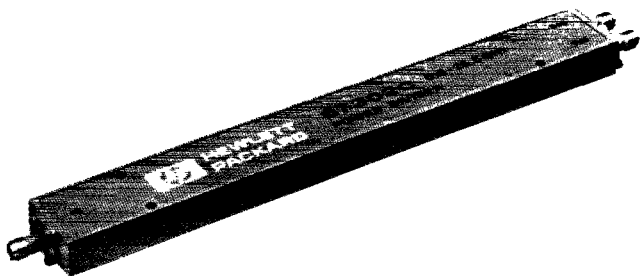


MICROWAVE TEST ACCESSORIES

Fixed Attenuators, Blocking Capacitor, 2.4 mm Connectors, Harmonic Mixers

HP 87302/3/4C, 8490 Series, 11581/2/3, 11742A, 11970 Series, 33392/3 Series

375



HP 87302C, 87303C, and 87304C

Hybrid Power Dividers

The HP 87302C, 87303C, and 87304C Power Dividers are compact, hybrid microwave couplers designed for power splitting applications that require minimal insertion loss.

The HP 87302C covers the entire 0.5 to 26.5 GHz frequency range with a maximum insertion loss of 1.9 dB. The HP 87303C and 87304C cover the frequency range of 1 to 26.5 GHz and 2 to 26.5 GHz with an even lower insertion loss of 1.6 dB and 1.4 dB, respectively.

These hybrid power dividers are excellent for any application requiring low loss power division. They typically exhibit an insertion loss that is 1 to 2 dB lower than an equivalent resistive power divider.

Frequency range (GHz)	Model	Band segments	Insertion loss (dB)	Isolation (dB)
0.5 to 26.5	HP 87302C	0.5 to 18 GHz	1.5	19
		18 to 26 GHz	1.9	19
1.0 to 26.5	HP 87303C	1.0 to 18 GHz	1.2	19
		18 to 26.5 GHz	1.1	21
2.0 to 26.5	HP 87304C	2.0 to 18 GHz	1.1	19
		18 to 26.5 GHz	1.4	18

Power Rating: 10 W, CW (2:1 maximum SWR)

Connectors: 3.5 mm (f), SMA compatible

HP 8490D, 8491A/B, 8492A, 8493A/B/C Fixed Attenuators

Hewlett-Packard coaxial fixed attenuators provide precision attenuation, flat frequency response, low SWR over broad frequency ranges (dc to 50.0 GHz) at low prices. Attenuators are available in nominal attenuations of 3 dB and 6 dB, also 10 dB increments from 10 dB to 60 dB. These attenuators are swept-frequency tested to ensure they meet specifications at all frequencies. Calibration points are provided on a nameplate chart attached to each unit.

HP 8491C Economy Fixed Attenuators

The HP 8491C Series general-purpose fixed attenuators feature precision attenuation, flat frequency response, and low SWR from dc to 18 GHz. Available with precision Type-N connectors, the HP 8491C family is available in 3, 6, 10, 20, and 30 dB attenuation values. Please specify attenuation value (option) when ordering.

HP 11581A, 11582A, 11583A/C Attenuator Sets

A set of four Hewlett-Packard attenuators—3, 6, 10, and 20 dB—are furnished in a handsome walnut accessory case. The HP 11581A set consists of HP 8491A Attenuators; the HP 11582A set, HP 8491B Attenuators; the HP 11583A set, HP 8492A Attenuators; and the HP 11583C set, HP 8493C Attenuators. The set includes calibration reports certified traceable to the National Institute of Standards and Technology, containing both the attenuation and the reflection coefficients for each attenuator at the frequencies indicated under "Option 890" calibration data on the next page. Thus it is not required to specify Option 890.

These sets are ideal for calibration labs or where precise knowledge of attenuation and SWR is desired.

HP 8498A High Power Attenuator

The HP 8498A Option 030 is designed to meet the needs of high power attenuation applications in the RF and microwave frequency range. It is specified from dc to 18 GHz at 25 W average, 500 W peak, from dc to 5.8 GHz and 125 W peak from 5.8 to 18 GHz. Available only in a 30 dB model (Option 030), the unit offers low SWR (<1.30 at 18 GHz) and good accuracy (± 1 dB at 18 GHz). The unit also features "human engineered" cooling fins that prevent operator burns even under continuous maximum input power conditions.

Option 890 Calibration Data

Extensive calibration data is available on HP attenuators at low cost. When Option 890 is specified for the fixed attenuators or microwave step attenuators, standardized calibration data in frequency steps no larger than 500 MHz is provided over the frequency range of the units. This data is generated from measurements made on an HP 8510 Automatic Network Analyzer and features excellent accuracy (traceable to NIST) and low cost. Data is given for attenuation and the SWR (reflection coefficient for the HP 8493C) of each port and is provided in a protective plastic envelope.

HP 11742A Blocking Capacitor

The HP 11742A is a high-performance outside blocking capacitor. It features broadband performance, low SWR (1.2 from .01 to 26.5 GHz) and low insertion loss (.6 dB from .01 to 26.5 GHz). The HP 11742A comes with 3.5 mm connectors. It is ideal for use with high-frequency oscilloscopes and in bias circuits for the attenuation of low frequencies and blocking dc voltages up to 50 V.

HP 11970 Series Harmonic Mixers

Although designed for operation with HP spectrum analyzers, these broadband mixers also serve a wide variety of general-purpose uses for the frequency bands from 18 to 110 GHz. Such uses include down-conversion for noise figure and network analysis measurements.

As down-conversion mixers for test receivers, the HP 11970s offer flat response, low SWR, and low conversion loss without requiring bias. These mixers can also serve as harmonic generators with input signals from 2 to 6.1 GHz. Outputs are at the band specified, and each mixer is individually calibrated for conversion loss over its complete band.

HP 11970 Series Specifications

HP model	Frequency range (GHz)	Frequency response (dB)	Waveguide and equivalent flange	Price
11970K	18 to 26.5	± 1.9 ± 2.1	WR-42 UG-595/U	\$2,100
11970A	26.5 to 40	± 1.9 ± 2.1	WR-28 UG-599/U	\$2,200
11970Q	33 to 50	± 1.9 $\pm 2/3$	WR-22 UG-383/U	\$2,275
11970U	40 to 60	± 1.9 ± 2.3	WR-19 UG-383/U (mod)	\$2,550
11970V	50 to 75	± 2.1 ± 2.5	WR-15 UG-385/U	\$3,000
11970W	75 to 110	± 3.0	WR-10 UG-385/U (mod)	\$3,400