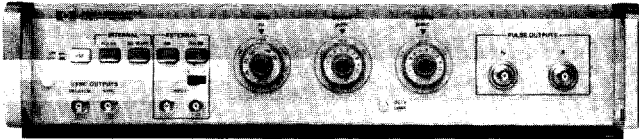


SIGNAL GENERATORS

PIN Modulators, Pulse Driver, Pulse Modulator

Models 8730 Series, 8403A, 11720A

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HP 8403A

HP 8730 Series PIN Modulators

With HP 8730 series PIN Modulators, signal sources, including klystrons, can be pulse-modulated, leveled or amplitude-modulated with sinusoidal and complex waveforms. Fast rise times, low incidental FM and a nearly constant impedance match to source and load are typical of these absorption-type modulators.

HP 8403A Modulator

The HP 8403A provides complete control of the HP 8730 Series PIN modulators, supplying the appropriate modulation wave shapes and bias levels for fast rise times, rated on/off ratios and amplitude modulation. An internal square-wave and pulse modulator with PRF of 50 Hz to 50 kHz and adjustable pulse width and delay also provide square wave and pulses for general pulse applications. For applications requiring an absorption-type modulator plus controls in a single unit, a PIN modulator can be installed inside the HP 8403A, for any specified frequency range.

HP 8403A Specifications

Output Characteristics (available separately at front panel).

For driving HP 8730 PIN modulators: AM and pulse output, pulse output specially shaped for optimum RF rise and decay times.

For general pulse applications: positive dc-coupled pulse 25 to 30 volts in amplitude, approximately symmetrical about 0 volt; no AM signal.

Modulation

Internal Square Wave

Frequency: variable from 50 Hz to 50 kHz.

Symmetry: better than 45/55%.

Internal Pulse

Repetition rate: variable from 50 Hz to 50 kHz.

Delay: variable from 0.1 μ s to 100 μ s, between sync out pulse and RF output pulse.

Width: variable from 0.1 μ s to 100 μ s.

General

Power: 115 or 230 volts \pm 10%, 50 to 400 Hz, approximately 10 watts.

Size: 96 H x 425 W x 467 mm D (3.75" x 16.73" x 18.4").

Weight: net, 7.4 kg (16.5 lb). Shipping, 9 kg (20 lb).

Ordering Information

HP 8403A Modulator

Price

\$3200

Options

002: HP 8731B PIN Modulator installed in HP 8403A +\$1900

004: HP 8732B PIN Modulator installed in HP 8403A +\$2000

006: HP 8733B PIN Modulator installed in HP 8403A +\$2150

008: HP 8734B PIN Modulator installed in HP 8403A +\$2150

009: Input and Output Connectors on rear panel +\$50

908: Rack flange kit +\$35

910: Extra Manual +\$7.50

HP 8730 Series Specifications

HP Model	Frequency Range (GHz)	Attn Min/Max (dB)	SWR On/Off	Rise time/Fall time nanosec	Price
8731B-H10 ¹	0.4 - 1.2	2.0/35	1.5/2.0	40/30	\$1950
8731B	0.8 - 2.4	2.0/80	1.6/2.0	30/20	\$1950
8732B	1.8 - 4.5	4.0/80	2.0/2.0	30/20	\$2050
8733B	3.7 - 8.3	3.0/80	2.0/2.2	30/20	\$2200
8734B	7.0 - 12.4	5.0/80	2.0/2.2	30/20	\$2200

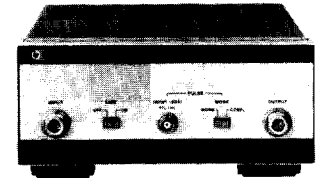
¹External high-pass filter required.

2 to 18 GHz Pulse Modulator

- <10 ns rise and fall times
- >80 dB ON/OFF ratio



HP 8730B Series



HP 11720A

HP 11720A Pulse Modulator

The HP 11720A Pulse Modulator is a high performance microwave pulse modulator covering the range of 2 to 18 GHz. Because of this wide frequency coverage, it can be used to increase the modulation capabilities of many microwave sources (sweepers or signal generators) and eliminate the need for several individual modulators in broadband applications.

In addition to wide frequency coverage, the HP 11720A features extremely short rise and fall times (<10 ns) and a high on/off ratio (>80 dB), making it suitable for almost any pulsed RF application.

The modulator used in the HP 11720A is a unique series-shunt PIN diode switch offering superior performance to that of a simple shunt-diode switch which reflects the input power back to the source in the "off" state. In the HP 11720A the series components reduce this reflection without significantly increasing the insertion loss.

The HP 11720A contains all the necessary modulator drive circuitry to achieve specified performance so that a standard pulse generator, or any other source that can deliver >3 V peak into 50 ohms, can supply the input. In addition, a normal/complement function is provided to adapt the HP 11720A to positive-true or negative-true logic inputs.

HP 11720A Specifications

Frequency range: 2 to 18 GHz.

ON/OFF ratio: >80 dB.

Rise and fall times: <10 ns.

Insertion loss: <6 dB, 2 to 12.4 GHz; <10 dB, 2 to 18 GHz.

Maximum RF input power: +20 dBm.

Maximum repetition rate: >5 MHz.

Minimum RF pulse width: <50 ns.

Video feedthrough: <60 mV peak-to-peak.

Pulse Input

Normal mode: >3 V (on), <0.5 V (off).

Complement mode: <0.5 V (on), >3 V (off).

Impedance: 50 Ω nominal.

Operating temperature: 0°C to +55°C.

Power: 100, 120, 220, 240 V +5, -10%; 48-400 Hz; 25 VA max.

Weight: net, 2.6 kg (5 lb 12 oz); shipping, 3.6 kg (8 lb).

Size: 101 mm H x 212 mm W x 290 mm D (4.0" x 8.4" x 11.4").

1/2 MW x 3 1/2 H x 11 D System II Module.

Ordering Information

HP 11720A Pulse Modulator

Price

\$3350

Option 910: Extra manual +\$5.00

Option W30: Two additional years of return to HP warranty +\$70.00