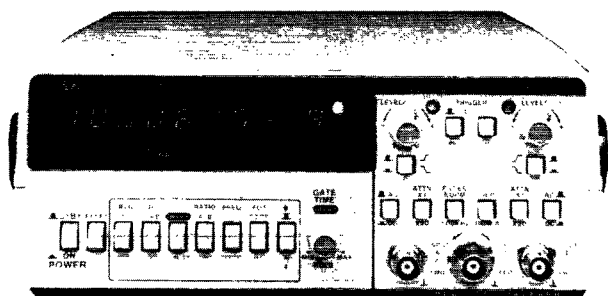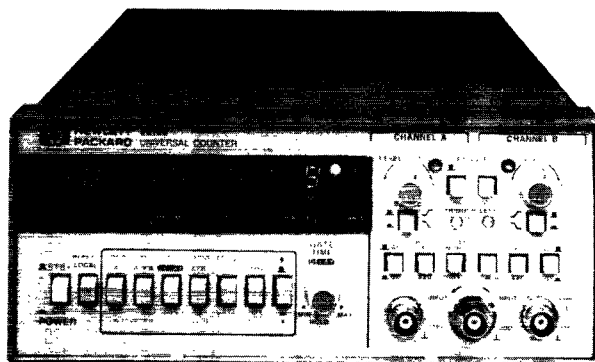# ELECTRONIC COUNTERS
Universal Counters
Models 5315A, 5316B

- Frequency, period, ratio, and totalize to 100 MHz
- Portable, and HP-IB models
- 1 GHz capability available

- Uses reciprocal technique for full low-frequency resolution
- 100 ns time interval, 10 ps T.I. averaging
- Oven option for increased accuracy

HP 5315A

HP 5316B

HP 5315A and HP 5316B Universal Counters

A Quiet Revolution in Capability ...

HP's economical HP 5315A and HP 5316B counters provide all the universal counter capability you've come to expect at much higher prices. That's because they use a unique custom circuit called the MRC (Multiple Register Counter) which packs counting and computing power into this popular counter series. To a user, the differences in operation from conventional direct models can be listed quickly: low frequency resolution is an outstanding 7 digits per second of gate time and reliability is extremely good due to the counter's low chip count. Also, the continuously adjustable gate time allows automatic selection of sample size for easy trade-offs between measurement time and resolution.

Much of the counter's performance is based on reciprocal counting techniques first pioneered in HP's high-performance HP 5360A computing counter, and the current HP 5345A Universal Counter. The use of these techniques coupled with HP's MRC and a microprocessor provides a quiet but powerful revolution in counter performance within the HP 5315A and HP 5316B. For example, this counter gives you its full 7-digits/second resolution over the range from 1 Hz to 100 MHz. This, simply stated, shows the power of the MRC and reciprocal counting.

High Performance, Low Price

In addition to its economy, the MRC counter offers a full set of universal counter measurements, and there are very few limitations to this capability. Increased accuracy in low-cost portable and system counters is also available with the oven oscillator option through improved temperature stability and lower aging rates.

Frequency to 100 MHz, C-Channel to 1.0 GHz

The MRC counter measures frequency to 100 MHz. Additionally the optional C-Channel measures to 1.0 GHz for both CW and pulsed RF signals as narrow as 60 ms. The C-Channel option is particularly useful in navigation and communications equipment testing due to this pulsed RF measurement feature.

Time Interval to 100 ns, T.I. Averaging to 10 ps

The MRC counter provides three time measurement modes. Single-shot time interval allows measurements over a range of 100 ns to 100,000 seconds. This capability can be used to measure pulse width. Time interval averaging provides greater resolution for repetitive events. Finally, time interval delay avoids measurement of spurious signals by holding off the counter's trigger point by a precise, operator-selectable amount of time.

A Full Set of Measurements

Besides the frequency and time functions mentioned above, the MRC counter has other measurement functions that make it a truly impressive value:

Period A—allows single period measurements via Channel A.
Ratio A/B—allows frequencies to 100 MHz into both Channel A and B.
A By B—totalizes the A input between 2 events on B channel.
Totalize—a manually gated totalize mode of operation.

Input Signal Conditioning Versatility

A full complement of input signal conditioning controls are provided for both channels. These include ± slope, ±2.5 Vdc trigger level, and ac/dc coupling. Other controls are a Separate/Common switch, and a 100 kHz low-pass filter for Channel A.

A Choice of Portable or System Models

HP 5315A: a portable, light-weight unit best suited for field applications. This unit has a convenient carrying handle and optional battery power is available for up to 4 hours continuous operation.

HP 5316B: this model possesses all the characteristics of the HP 5315A, and it has HP-IB capability built-in as standard equipment. It has low RFI, it is rackable, and it is functionally identical to the HP 5315A. In addition to programmable measurement functions, the user can also select dc trigger level and ± slope under HP-IB control. Channel A and B trigger levels are brought out to the front panel on this unit for easy measurement with a DVM.