Laboratory Frequency Counters

- Frequency Ranges to 1 GHz
- 20 mV Sensitivity
- High Accuracy and Stability

Leader Frequency Counters provide accurate, reliable frequency and period measurements for a wide variety of laboratory, communications and bench applications. LSI and MSI technology results in cost-effective instrumentation for today's stringent requirements.

Large, fluorescent displays make these instruments particularly well-suited to production testing and other applications where a large, bright readout is essential.

All four units are housed in well-shielded metal cases which virtually eliminates errors caused by nearby R.F. fields.

In addition to frequency readout, period measurements can also be made. Normally, a sampling rate of ten seconds can be expected for direct frequency readouts when the test signal frequency is very low and resolution to 0.1 Hz or greater is required. The period function can be used to reduce sampling time and to increase the accuracy of the measurement while increasing the resolution significantly. In the period mode, the time duration of one period is measured, averaged over the gate time. A reading of 16.09 milliseconds, for instance, can be converted to 62.15 Hz using the relationship $f = 1/t$. The period mode is particularly useful when performing high resolution frequency adjustments because the counter readout permits constant observation of any change in frequency.

Resolution

Counter resolution is dependent upon frequency range, gate time and the number of digits in the display. The charts below compare the resolution of the four Leader laboratory counters.

LDC-825 1 GHz Counter

The LDC-825 has the widest frequency range of any Leader counter, 10 Hz to 1 GHz. It also has the highest time base accuracy (± 0.03 ppm), making it the ideal counter for critical, high-frequency requirements. Two input impedances, 1 MΩ (10 Hz to 80 MHz) and 50 Ω (50 MHz to 1 GHz) are available for precise matching to the device under test.

LDC-824S 520 MHz Counter

The LDC-824S has a standard time base accuracy of 1 ppm (0.03 ppm optional) over its 10 Hz to 520 MHz frequency range.

LDC-823S 250 MHz Counter

The LDC-823S has a standard time base accuracy of 1 ppm from 10 Hz to 250 MHz. It is also available with an ovenized time base which gives 0.03 ppm stability.

LDC-822 80 MHz Counter

The seven digit, 80 MHz LDC-822 is the simplest and least expensive bench-type counter from Leader. It has a time base accuracy of 5 ppm, offering high performance at a cost effective price.

LDC-825 RESOLUTION

FREQUENCY RANGE	GATE TIME	DISPLAY	RESOLUTION
10 Hz–80 MHz	0.1s	0.01 kHz–80000.00 kHz (10 Hz–80 MHz)	10 Hz
	1s	0.010 kHz–80000.000 kHz (10 Hz–80 MHz)	1 Hz
	10s	0.0100 kHz–9999.9999 kHz (10 Hz–10 MHz)	0.1 Hz
50 MHz–1 GHz	0.04s	50.000 MHz–1000.000 MHz (50 MHz–1 GHz)	1000 Hz
	0.4s	50.0000 MHz–1000.0000 MHz (50 MHz–1 GHz)	100 Hz
	4s	50.00000 MHz–999.99999 MHz (50 MHz–1 GHz)	10 Hz

LDC-823S RESOLUTION

FREQUENCY RANGE	GATE TIME	DISPLAY	RESOLUTION
80 MHz	0.1s	0.01 kHz–8000.00 kHz (10 Hz–80 MHz)	10 Hz
	1s	0.010 kHz–8000.000 kHz (10 Hz–80 MHz)	1 Hz
	10s	0.0100 kHz–9999.9999 kHz (10 Hz–10 MHz)	0.1 Hz
250 MHz	0.1s	0.0001 MHz–250.0000 MHz (100 Hz–250 MHz)	100 Hz
	1s	0.00001 MHz–250.00000 MHz (10 Hz–250 MHz)	10 Hz
	10s	0.000010 MHz–99.999999 MHz (10 Hz–100 MHz)	1 Hz

LDC-824S RESOLUTION

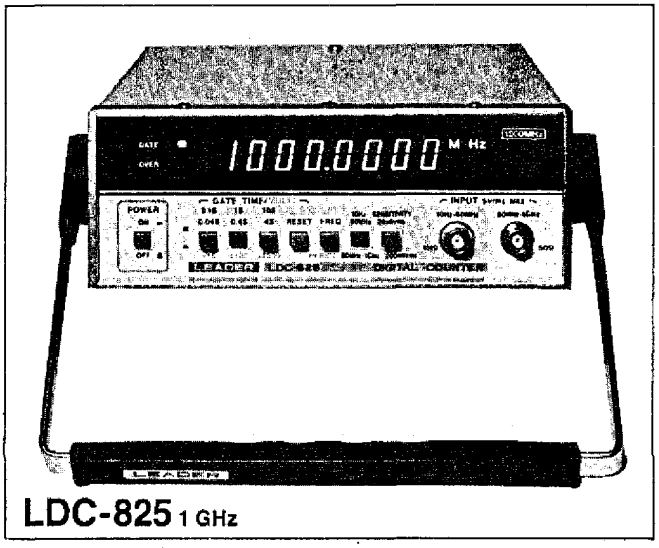
FREQUENCY RANGE	GATE TIME	DISPLAY	RESOLUTION
80 MHz	0.1s	0.01 kHz–80000.00 kHz (10 Hz–80 MHz)	10 Hz
	1s	0.010 kHz–80000.000 kHz (10 Hz–80 MHz)	1 Hz
	10s	0.0100 kHz–9999.9999 kHz (10 Hz–10 MHz)	0.1 Hz
520 MHz	0.1s	0.0001 MHz–520.0000 MHz (100 Hz–520 MHz)	100 Hz
	1s	0.00001 MHz–520.00000 MHz (10 Hz–520 MHz)	10 Hz
	10s	0.000010 MHz–99.999999 MHz (10 Hz–100 MHz)	1 Hz

LDC-822 RESOLUTION

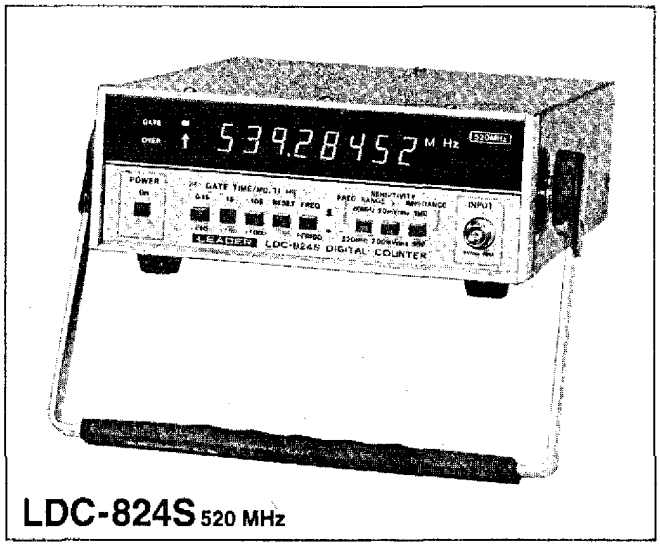
GATE TIME	DISPLAY	RESOLUTION
0.1s	0.00001 MHz–80.00000 MHz (10 Hz–80 MHz)	10 Hz
1s	0.010 kHz–9999.999 kHz (10 Hz–10 MHz)	1 Hz
10s	0.0100 kHz–999.9999 kHz (10 Hz–1 MHz)	0.1 Hz

Laboratory Frequency Counters

- External Time Base May Be Applied*
- Internal Time Base Output Is Available**
- Metal Cases Provide RFI Immunity
- Large Fluorescent Displays



LDC-825 1 GHz



LDC-824S 520 MHz

LDC-825 SPECIFICATIONS

FREQUENCY MEASUREMENTS

Range
10 Hz to 1 GHz in two ranges.
Gate Time
0.1 s; 1 s; 10 s; 0.04 s; 0.4s; 4s.
Resolution
See chart on page 59.
Accuracy
± time base accuracy ± 1 count.

PERIOD MEASUREMENTS

Range
100 ms, to 1 μs.
Multiplication Factors
X10, X100, X1000.
Resolution
10 μs, 1 μs, 0.1 μs.
Accuracy
± time base accuracy ± trigger error ± 1 count.

INPUT SECTION

Input Impedance
1 MΩ at 10 Hz to 80 MHz.
50 Ω at 50 MHz to 1 GHz.
Coupling
ac.
Attenuator
Times 1, 10 (10 Hz-80MHz).
Sensitivity
10 Hz to 80 MHz: 20 mV rms into 1 MΩ.
50 MHz to 1 GHz: 50 mV rms into 50 Ω.
Max. Input Voltage
100 V rms at 10 Hz to 400 Hz into 1 MΩ.
20 V rms at 400 Hz to 100 kHz into 1 MΩ.
5 V rms at 100 kHz to 80 MHz into 1 MΩ.
5 V rms at 50 MHz to 1 GHz into 50 Ω.

TIME BASE

Frequency
1 MHz, crystal controlled.
Accuracy
± 0.03 ppm, 0° to 40°C.
Aging Rate
.02 ppm/day.
Output
1 V p-p, 1 MHz.
External Input
1 to 10 V p-p, 1 MHz.

GENERAL

Display
8 digit, 0.5" fluorescent with overflow, gate and zero blanking.
Operating Temperature
0° to 40°C.

POWER REQUIREMENTS

100, 120, 200, 220, 240 Vac ±10%, 50/60 Hz, 15 VA.

PHYSICAL

Size (W x H x D)
230 x 90 x 285 mm.
9 x 3½ x 11¼ in.
Weight
5½ lbs.; 2.5 kg.

ACCESSORIES SUPPLIED

One 50 Ω BNC-BNC Cable.

LDC-824S SPECIFICATIONS

FREQUENCY MEASUREMENTS

Range
10 Hz-520 MHz in two ranges.
Gate Time
0.1, 1, 10 s.
Resolution
See chart on page 59.
Accuracy
±1 count,
± time base accuracy.

PERIOD MEASUREMENT

Range
100 ms to 1 μs.
Multiplication Factors
Times 10, 100 and 1,000.
Resolution
10, 1, 0.1 μs.
Accuracy
± 1 count,
± time base accuracy,
± trigger error ÷ mult. factor.

INPUT SECTION

Sensitivity
20mV (50 mV above 80 MHz).
Attenuator
Times 1 and 10.
Coupling
ac.
Impedance
1 MΩ or 50 Ω switchable.
Maximum Input
10 to 400 Hz; 100 V rms.
400 Hz to 100 kHz; 20 V rm.
100 kHz to 520 MHz; 5 V rms.

TIME BASE

Frequency
10 MHz.
Temp. Stability (0–40°C)
1 ppm (0.03 ppm optional*).
Aging Rate
1 ppm/yr. (.02 ppm/day optional*).
Output
1 Vp-p, 10 MHz.
External Input
1 to 10 Vp-p.

GENERAL

Display
8 digits, 0.5" flourescent.
Operating Temperature
0–40°C (32–104°F).

POWER REQUIREMENTS

100, 120, 200, 220, 240 Vac ±10%, 50/60 Hz, 10 VA.

PHYSICAL

Size (W x H x D)
8 x 3 x 10 in.
203 x 76 x 254 mm.
Weight
6 lbs; 2.6 kg.

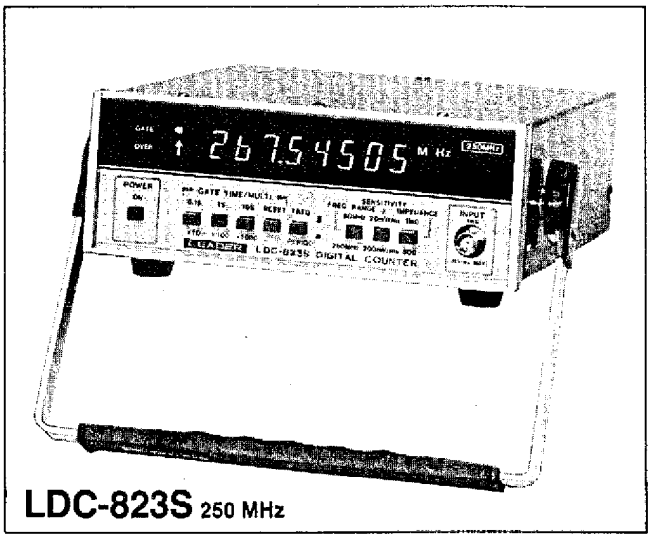
ACCESSORIES SUPPLIED

One (1) pair Test Leads.

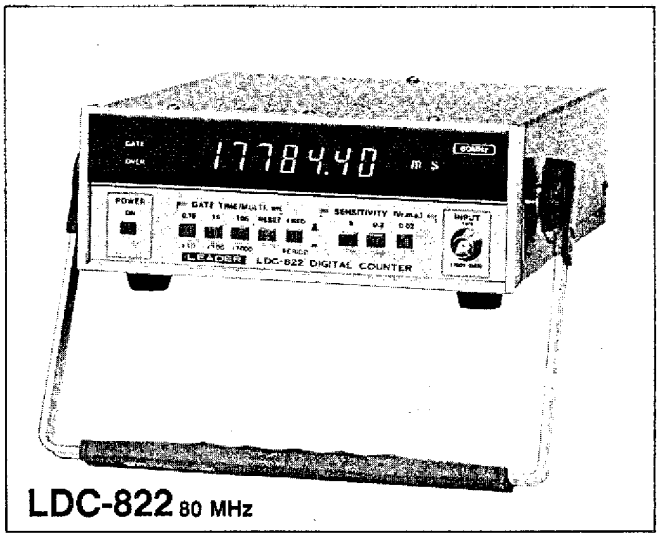
*LDC-823S-01 and LDC-824S-01 available with optional ovenized time base with 0.03 ppm stability (0–40°C).

**Except for LDC-822.

For professionals who know the difference. LEADER Instruments Corporation



LDC-823S 250 MHz



LDC-822 80 MHz

LDC-823S SPECIFICATIONS

FREQUENCY MEASUREMENTS

Range
10 Hz–250 MHz in two ranges.
Gate Time
0.1, 1, 10 s.
Resolution
See chart on page 59.
Accuracy
±1 count,
± time base accuracy.

PERIOD MEASUREMENT

Range
100 ms to 1 µs.
Multiplication Factors
Times 10, 100 and 1,000.
Resolution
10, 1, 0.1 µs
Accuracy
± 1 count,
± time base accuracy,
± trigger error ÷ mult. factor.

INPUT SECTION

Sensitivity
20 mV (50 mV above 100 MHz)
Attenuator
Times 1 and 10.
Coupling
ac.
Impedance
1 MΩ or 50 Ω switchable.
Maximum Input
10 to 400 Hz; 100 V rms.
400 Hz to 100 kHz; 20 V rms.
100 kHz to 250 MHz; 5 V rms.

TIME BASE

Frequency
10 MHz.
Temp. Stability (0–40°C)
1 ppm (0.03 ppm optional*).
Aging Rate
1 ppm/yr. (0.02 ppm/day optional*).
Output
1 Vp-p, 10 MHz.
External Input
1 to 10 Vp-p.

GENERAL

Display
8 digits, 0.5" flourescent.
Operating Temperature
0–40°C (32–104°F).

POWER REQUIREMENTS

100, 120, 200, 220, 240 Vac ±10%,
50/60 Hz, 10 VA.

PHYSICAL

Size (W x H x D)
8 x 3 x 10 in.
203 x 76 x 254 mm.
Weight
6 lbs; 2.6 kg.

ACCESSORIES SUPPLIED

One (1) pair Test Leads.

LDC-822 SPECIFICATIONS

FREQUENCY MEASUREMENTS

Range
10 Hz-80 MHz.
Gate Time
0.1, 1, 10 s.
Resolution
See chart on page 59.
Accuracy
± 1 count,
± time base accuracy.

PERIOD MEASUREMENT

Range (X1)
100 ms to 1 µs.
Multiplication Factors
Times 10, 100 and 1,000.
Resolution
10, 1, 0.1 µs.
Accuracy
± 1 count,
± time base accuracy,
± trigger error ÷ mult. factor.

INPUT SECTION

Sensitivity
20 mV rms.
Attenuator
Times 1, 10, and 100.
Coupling
ac.
Impedance
1 MΩ nominal.
Maximum Input
10 to 400 Hz; 100 V rms.
400 Hz to 100 kHz; 20 V rms.
100 kHz to 80 MHz; 5 V rms.

TIME BASE

Frequency
10 MHz.
Temp. Stability (0–40°C)
5 ppm.
Aging Rate
5ppm/yr.

GENERAL

Display
7 digits, 0.5" fluorescent.
Operating Temperature
0–40°C (32–104°F).

POWER REQUIREMENTS

100, 120, 200, 220, 240 Vac ±10%,
50/60 Hz, 10 VA.

PHYSICAL

Size (W x H x D).
8 x 3 x 10 in.
203 x 76 x 254 mm.
Weight
5 lbs; 2.3 kg.

ACCESSORIES SUPPLIED

One (1) pair Test Leads.

*LDC-823S-01 and LDC-824S-01 available with optional ovenized time base with 0.03 ppm stability (0–40°C).