

VARIABLE TIMEBASE FREQUENCY METER/ TACHOMETER LOW FREQUENCY TACHOMETER



MODELS 874, 884, 894

FEATURES

- Accurate and fast readout of low frequencies (below 100hz) without multipliers (894)
- Gate time easily programmed to readout in engineering units
- Readout to 100th of an RPM (894)
- Up to 1megahertz input frequency on Model 874 and 884
- Precision crystal timebase
- CMOS Schmitt Trigger input circuitry for high noise immunity
- Optional three state, TTL compatible, parallel BCD outputs
- Accepts inputs from wide range of sensors
- Heavy duty all aluminum case
- .56" high-efficiency red LED display
- Non-glare lens

No longer do you have to wait ten to sixty seconds or use expensive phase locked loops or multipliers to read the rotational speed of a shaft. The DCI Model 894 only requires one cycle of the input signal to enable it to make a calculation. The calculation is made by measuring the elapsed time of the input cycle(s) and then calculating the reciprocal of the time. This method gives an accurate reading every time even with changing input frequencies, unlike phase locked loop multipliers which lose lock on when the input frequency changes. Total time required to read out to the nearest hundredth of an RPM is the time of one input cycle plus the gate time. For instance if a shaft is rotating at a speed of 60RPM and has an output of ten pulses/revolution, it would take 1.1 seconds to complete a calculation although a readout to the nearest whole RPM could be completed in .11 seconds if faster readings are required. An internal prescaler can be programmed to divide the input frequency by any number from two to one hundred so a reading can be averaged over more than one input cycle. The gate time is programmed via the front panel switches or internal solder pads.

The Model 874 is a tachometer that counts the input frequency over a predetermined length of time to read out in engineering units such as RPM. The gate time is programmable via internal diode jumpers and selectable in ten microsecond steps up to one hundred seconds. This unit will read out any frequency from one hertz up to one megahertz.

The Model 884 is a variable gate time frequency counter with the gate time easily adjustable via front panel thumbwheel switches. Having these thumbwheel switches (or optional solder pads) on the front panel allows the user to easily set the unit up to read out in engineering units such as RPM or GPM. For instance, if a readout of 7245 is desired with an input frequency of 9000hz a gate time of 805 msec would be selected. A precision one megacycle crystal timebase ensures a high degree of accuracy and repeatability. The unit will accept inputs from a wide range of sensors and has conditioning circuitry for slow rise time signals. Three state BCD outputs with single line enable are available for systems use.

SPECIFICATIONS

Accuracy:

(894) 1.00 hz to 100.00hz, $\pm .1\%$ @ 25°C \pm gate time tempo of $\pm 2\text{PPM}/^\circ\text{C}$ from -20° to $+60^\circ$ Celsius.

(874) (884) 1 hz to 1 megahertz, ± 1 count @ 25°C \pm gate time tempo of 2 PPM/ $^\circ\text{C}$ from -20° to $+60^\circ$ Celsius.

Display:

(894) 4 or 6 digits of .56" high efficiency red LED. Red LED dots for out of range and timing.

(874) (884) 4 or 6 digits of .56" high-efficiency red LED. Red LED dot to indicate unit is gating.

Front Panel Controls:

(884) (894) Four thumbwheel switches for setting gate time.

Input Count Rate:

(894) 1 hz to 100hz without input divider. The input divider will divide input count signal by any number from 2 to 10. Optional divider will divide input signal by 20 to 100 in steps of 10.

(874) (884) 1 hz to 1 megahertz (TTL input) 1 hz to 100khz (sine wave input).

Gate Time Periods:

(884) (894) 1 millisecond to 9.999 seconds in 1 millisecond steps. Selectable by front panel switches or internal solder pads.

(874) 10 microseconds to 99.99999 seconds in 10 microsecond steps. Selectable by internal diode jumpers. Normally set for one second when shipped unless specified otherwise.

Inputs:

Light test: Requires TTL logic zero or closure to logic common to force all LED segments on. Input loading 1LPTTL load.

Latch: (-01 option only) Requires TTL logic zero or closure to logic common. BCD data is held as long as latch line is low. Input loading 1LPTTL load.

Three state control: (-01 option only) Requires TTL logic zero or closure to logic common. Forces all BCD outputs to a high impedance state. Does not affect data stored in latches. Input loading 1LPTTL load.

Sine wave/pulse count input: (option -08) Minimum signal 150mVRMS, DC to 10Khz. 500mVRMS, DC to 100Khz. Maximum signal .115VAC without damage to circuitry. Input impedance 100Kohm. Threshold adjustable from the front panel with a small screwdriver. (option -09) Minimum signal 10mVRMS DC to 10Khz. Maximum signal 10VRMS. Input impedance 10Kohms (884 only).

TTL count input: Schmitt trigger type with no limit on rise or fall time of input pulse. Maximum count rate 1Mhz (874) (884), 100hz (894). Input loading 1LPTTL load.

Contact closure count inputs: Accepts form "C" closure input standard but can be modified to accept Form "A" closures by adding filter capacitors on N.O. count input to limit count rate to maximum rate expected. For instance for a count rate of 20hz a 1uf capacitor is required between the N.O. input and logic common with the N.C. input tied to logic common. Can be factory installed.

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**VARIABLE TIMEBASE
FREQUENCY METER/
TACHOMETER
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BCD Pitputs:

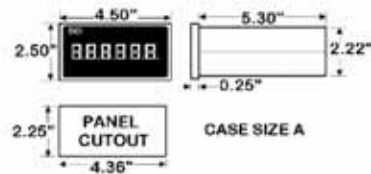
(Option -01 Parallel, 8411, TTL compatible, positive true. Output is updated at end of each gate time. Fan out is 4 TTL loads and is three state with single line enable.

Input Power

115VAC 50-400 hz	3 watts Maximum
230VAC 50-400 hz	3 watts maximum (Optional)
5VDC @ 400 mA maximum	(Optional)
10-15VDC @ 400 ma maximum	(Optional)
10-30VDC @ 400 ma Maximum	(Optional)

Operating Temperatur: -20 to +60 Celsius

Case size: "A" 4.50"W, 2.5"H, 5.30"L
(Cut out = 4.36"W X 2.25" H)



Options

- 01 TTL compatible, Buffered, latchable three state, parallel BCD outputs with single line enable. Fan out of 4 TTL loads.
- 02 Add two digits to left of display to make a six digit display.
- 03 Divide input signal by 20 to 100 in steps of 10. Specify division when ordering. (894 only)
- 05 5 VDC input power
- 08 Input amplifier for single wave/pulse input signals. Threshold is adjustable from front panel.
- 09 Low level sine wave input. (884 only)
- 10 (884, 894 only) Remove front panel switches used for setting gate time. Gate times are then programmed by internal solder pads.
- 12 10-15VDC input power
- 22 230VAC input power
- 23 Green LED display
- 24 10-30VDC input power
- 25 Logo and/or nomenclature change. (Special artwork to be supplied by customer)
- 26 No logo
- 27 screw terminal I/O connector
- 28 Blank Lens
- 37 RPM legend
- 41 IPM legend

Models:

- 874 Frequency meter/tachometer
- 884 Variable timebased frequency meter/tachometer
- 894 Low frequency tachometer



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