

Universal Counter (5Hz - 175MHz)

FC-757A

OUTLINE

The FC-757A is a universal counter mounting measurement functions of frequency, period, period average, time interval, frequency ratio and addition accumulation. As a display, it employs an 8-digit LED. Its display resolution is 1 Hz in MHz range measurement and 0.1 Hz in kHz range measurement. For period measurement, the period required for 1 cycle can be measured between 5 Hz and 2 MHz (with a unit of $\mu\text{sec.}$ or msec.). For lower frequencies, period measurement is obtained at a higher degree of accuracy than that of frequency measurement. The frequency ratio measurement is effective in comparing two frequencies (as comparison between clock pulses on the digital circuits) and to obtain the ratio between them. Addition measurements are also possible for counting the number of phenomena occurred. A gate control is also possible for the manual or external control of the counting operation to a higher degree of precision. In the display area, red LEDs are adopted to indicate various information with an automatic decimal position setting, zero blanking, measurement unit, over flow, and gate status since a high-stability 10 MHz crystal oscillator is employed, the FC-757A assures an extraordinary stability against temperature change or fluctuation of power source, etc.

FEATURES

Variety of Measurement Items

Not only for frequency and period, the time interval or frequency ratio between two signals are also measured as well as an addition counter and other measurement functions.

Low-Pass Filter Provided

A low-pass filter having the attenuation characteristics of -3 dB at 10 kHz is provided for to reduce an RF noise. It assures minimized mis-counting. (CH-A only)

Attenuator Provided

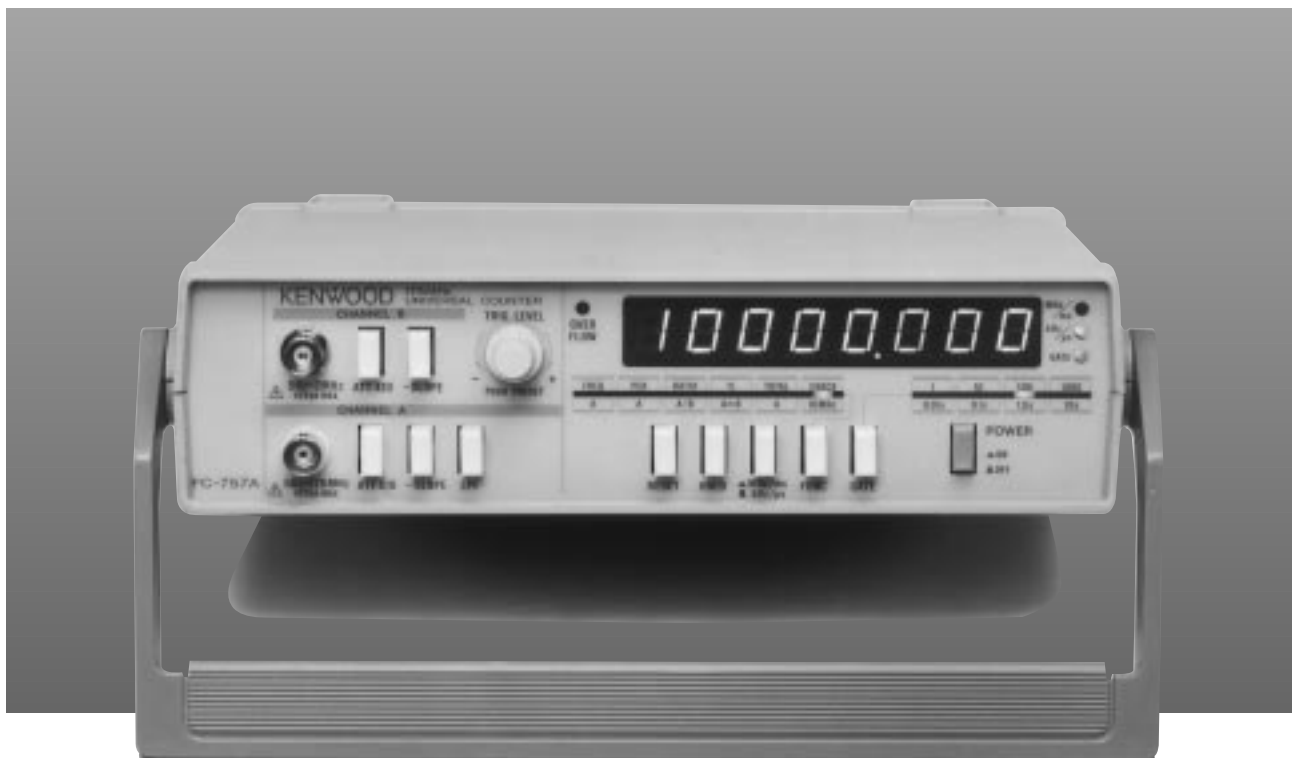
A -20 dB attenuator is provided to reduce the mis-counting which could occur due to an excessive input. (CH-A only)

Data Hold Function

This function hold display values by temporarily interrupting the measurement.

Addition Counting Function

Not only a manual operation using the front panel controls available, but to start and stop control from external signal is also enabled.



4-Step Gate Time Setting and Automatic Decimal Position Select

Since the gate time and the decimal point of the measured values are interlocked, the measurement is made possible with the most appropriate resolution.

Zero Blanking

Zeros "0" at the digits above the display of the effective values will not be displayed.

Over Flow Indicator

LED lights when the measurement value exceeds the displayed digits to prevent mis-counting.

Combination Tilt Stand/Carrying Handle

The carrying handle can be used as a tilt stand as it is for mounting the FC-757A with the best-viewing angle.

External Reference Frequency Input Terminal Provided

When more accurate measurement is required, a higher precision reference frequency generated by external equipment can be input for the improvement of reference time accuracy

SPECIFICATIONS

Frequency Measurement (ch A)

Measurement Range/Unit	kHz mode : 5 Hz – 10 MHz/kHz MHz mode: 5 Hz – 175 MHz/kHz
Accuracy	± Reference time accuracy ± 1 count
Gate Time	0.01 s, 0.1 s, 1 s, 10 s
Period Measurement (A)	
Measurement Range	0.5µs – 200ms (5Hz – 2MHz)
Accuracy	± 1 count ± reference time accuracy ± trigger error
Resolution	100 ps – 100 ns
Unit	ms, µs.
Minimum Pulse Width	250 ns
Magnification	× 1, × 10, × 100, × 1000
Frequency Ratio Measurement (ch A/ch B)	
Measurement Range	ch A : 5 Hz – 10 MHz ch B : 5Hz – 2 MHz
Denominator Measurement	
Accuracy	× 1, × 10, × 100, × 1000 ± {Freq B/(Freq A × N)} ± trigger error
Time Interval Measurement (chA to ch B)	
Measurement Range	0.5 µs – 200 ms (5 Hz – 2 MHz)
Resolution	100 ps – 100 ns
Accuracy	± 1 count ± reference time accuracy ± trigger error ± N
Minimum Pulse Width	250 ns
Unit	ms, µs.
Magnification	× 1, × 10, × 100, × 1000
Single Phenomenon	Standby mode by resetting
Addition Counter Measurement (A)	
Counting Capacity	0 – 99,999,999
Measurement Range	5 Hz – 10 MHz
Control	Reset/Hold possible from front panel. Always ON except when Start/Stop on the rear panel is set to LOW level.

Input Characteristics (ch A)

Frequency Bandwidth	5 Hz – 175 MHz, AC coupling
Sensitivity (Sine Wave)	kHz Freq. : 20 mVrms (5 Hz – 10 MHz) MHz Freq. : 50 mVrms (5 Hz – 125 MHz) 100 mVrms (125 MHz – 150 MHz) 150 mVrms (150 MHz – 175 MHz)

Input Impedance	1 MΩ, 40 pF or less
Max. Input Voltage	42 V (DC + AC peak)
Attenuator	× 1 (1/1), × 10 (1/10)
Low-Pass Filter	10 kHz, –3 dB
Slope/Trigger Level	Preset or variable, approx. ± 1 V

Input Characteristics (ch B)

Frequency Bandwidth	5Hz – 2 MHz, AC coupling
Sensitivity (Sine Wave)	30 mVrms
Input Impedance	1.2 MΩ, 40 pF or less
Max. Input Voltage	42 V (DC + AC peak)
Attenuator	× 1 (1/1), × 10 (1/10)
Slope	+, – selectable

Reference Oscillator

Oscillating Frequency (ch A, B)	10 MHz, 1×10^{-6} / $23 \pm 5^\circ\text{C}$
Stability (ch A, B)	1×10^{-6} / 0 to 40°C (23°C as a reference) 1×10^{-6} / year

Reference Frequency Input

Frequency	10 MHz
Max. Input / Coupling	1.77 Vrms or less / AC coupling
Input Impedance	540Ω
Display	
Display	8 digits, LED (7-segment) kHz/µs, MHz/ms, GATE, OVER FLOW
Function Display	FREQ, PER, RATIO, T1(A to B), TOTAL, CHECK
Gate Time	CH A: 0.01 s, 0.1 s, 1.0 s, 10 s CH B: 1, 10, 100, 1000

Self Check

Display	Counting time base (10MHz)
Counting Time/Resolution	0.01 s, 0.1 s, 10s / 0.1 Hz – 100 Hz

Environmental Condition

Storage Temperature/Humidity	–20°C to 60°C, 70% or less
Operate Temperature/Humidity	0°C to 40°C, 80% or less
Specification Guarantee Temperature/Humidity	23°C ± 5°C, 70% or less
Power Requirements/Power Consumption	
	AC 100/120/220/230 V, ± 10% 50/60 Hz / Approx. 20 VA
Dimensions (W × H × D)	240 × 64 × 190 mm (260 × 70 × 210 mm, maximum dimensions)
Weight	1.8 kg
Supplied Accessories	Instruction Manual (1) Power Cable (1)

Applicable Standard

EMI	EN55011 (1991) Class B
EMS	IEC801-2 (1991) 8kVAD, IEC801-3 (1984) 3 V/m, IEC801-4 (1998) 1 kV, 5/50 µs, 5 kHz