

# UNIVERSAL SYSTEM

## MS-9150 / MS-9160



### ■ FEATURE

#### ALL-IN-ONE UNIVERSAL SYSTEM

- 2.7GHz Frequency Counter
- 2MHz Function Generator (MS-9150)  
10MHz Function Generator (MS-9160)
- 3 1/2-digit True RMS DMM
- Triple DC Power Supply

### ■ Technical Specification

<b>Frequency Counter</b> -Measuring range CH A : 1 Hz to 20 MHz LED display depending on gate time and input signal. At least 7 digits are displayed per each second of gate time CH B : 20 MHz to 2.7 GHz -Input Sensitivity CH A : 20 mV RMS Sinewave or 100 mV p CH B : 40 mV RMS Sinewave for 20 MHz to 1.3 GHz or 70 mV RMS Sinewave for 1.3 GHz to 2.7 GHz -Maximum Input Voltage : 3V CH A : 35 mV p-p / CH B : 3 mV p-p -Input Impedance CH A : 1 MΩ / CH B : 50Ω -Time Base : CH A,B Switch Selectable	<b>Function Generator</b> -Wave forms : Sign, Square, Triangle, Skewed Sine, Ramp, Pulse, TTL Level -Frequency : 0.2 Hz to 2 MHz (MS-9150) 1Hz to 10MHz (MS-9160) -VCF Voltage Level : 0 to 10V DC -Output Impedance : Selectable 50Ω ±10% / 600Ω ±10% -Output Amplitude : 2Vp-p to 20Vp-p open load 1Vp-p to 10Vp-p (50Ω load) -Sign Wave Distortion Less than 1% (at 1 kHz) Flatness + 0.3dB -Square Wave Symmetry less than + 3% (at 1 kHz) Rise & Fall Time Less than 150nS (at 1 kHz) -Triangle Wave Linearity Less than 1% (up to 100 kHz) 5% (100 kHz to 20 MHz) -TTL output Rise & Fall Time - Less than 30ns (at 1 kHz)			
<b>Power Supply</b> -3 1/2digit LCD with Back-Light)				
		Terminal1	Terminal2	Terminal3
Output Voltage		0 - 30V	5V Fixed	15V Fixed
Output Current	MS-9150	0 - 2A	2A	1A
	MS-9160	0 - 3A	2A	1A
Ripple		1 mV max	2 mV max	2 mV max
Max. Output Current		2A(MS-9150)	2.2A	1.2A
		3A(MS-9160)	2.2A	1.2A
Power Source : Line Voltage 110V/120V or 220V/240V AC at 50 Hz ~ 60 Hz				
<b>Digital Multimeter</b>				
DC Voltage	400 mV to 400V (±0.3%+1dgts) / 1000V (±0.5%+1dgts)			
AC Voltage	400 mV to 400V (±0.8%+3dgts at 40Hz to 400Hz)			
MS-9160 (True-RMS)	400 mV to 400V (±2.5%+5dgts at 40Hz to 10KHz)			
	750V (±1.0%+3dgts at 40Hz to 400Hz)			
MS-9160 (True-RMS)	750V (±1.0%+3dgts at 40Hz to 1KHz)			
DC Current	40 mA to 400 mA(±0.8%+3dgts) / 20A(±1.0%+3dgts)			
AC Current	40 mA to 400 mA (±1.5%+3dgts at 40Hz to 400Hz) / 20A (±2.0%+5dgts at 40Hz to 400Hz)			
MS-9160 (True-RMS)	40 mA to 400 mA (±2.0%+3dgts at 40Hz to 10KHz) / 20A (±2.0%+5dgts at 40Hz to 1KHz)			
Resistance	400Ω to 4 MΩ (±0.5%+1dgt) / 40 MΩ (±1.0%+2dgt)			
Capacitance	40 nF to 400 nF(±2.0%+3dgts) / 4 μF to 200 μF (±3.0%+5dgts)			
Inductance(MS-9160 Only)	40mH (±3.0%+20dgts) / 400mH (±3.0%+10dgts)			
Diode (MS-9150 Only)	Current max. 1 mA at 1 kΩ (forward DC voltage max. 3V)			