2900 True RMS Multimeter

FEATURES

- ❑ Variable – frequency drive (VFD) V & Hz measurement
- ❑ Lo – Z voltage measurement to drain ghost voltages
- ❑ Check 3Φ phase sequence
- ❑ Data hold, Auto hold & Peak hold mode
- ❑ Max/Min/Avg record mode
- ❑ Relative value display
- ❑ Frequecy count. (Auto-Range)
- ❑ Temperature type K, J measurement
- ❑ Capacitance measurement
- ❑ Data memory & read function

SPECIFICATIONS

AC conversions are ac-coupled and valid from 3 % to 100 % of range.

AC Voltage

Range	Resolution	Accuracy					
		45 – 65Hz	15 – 200Hz	200 – 440Hz	440Hz – 1kHz	1 – 5kHz	5 – 20kHz
999.9 mV	0.1 mV	±(0.7%+4)	±(1.0 % + 4)			±(2%+4)	±(2%+20) [1]
9.999 V	0.001 V						
99.99 V	0.01 V	±(0.7%+2)				±(2%+4) [2]	Unspecified
999.9 V	0.1 V						
VFD			+1.0%+4	±(1.0%+4)	Unspecified	Unspecified	Unspecified
				-6.0%-4 [3]			

[1] Below 10 % of range, add 12 counts.
[2] Frequency range: 1 to 2.5 kHz
[3] Specification increases from -1 % to -6 % at 440 Hz when filter is used.

DC Voltage, Conductance, and Resistance

Function	Range	Resolution	Accuracy
mV dc	999.9 mV	0.1mV	±(0.1 % + 1)
V dc	9.999 V	0.001 V	±(0.05 % + 1)
	99.99 V	0.01 V	
	999.9 V	0.1 V	
Ω	999.9 Ω	0.1 Ω	±(0.2 % + 2) [2]
	9.999 kΩ	0.001 kΩ	±(0.2 % + 1)
	99.99 kΩ	0.01 kΩ	
	999.9 kΩ	0.1 kΩ	
	9.999 MΩ	0.001 MΩ	
	50.00 MΩ	0.01 MΩ	±(1.0 % + 1) [1]
nS	99.99 nS	0.01 nS	±(1.0 % + 10) [1,2]

[1] Add 0.5 % of reading when measuring above 30 MΩ in the 50 MΩ range, and 20 counts below 33 nS in the 100 nS range.
[2] When using the rel function to compensate for offsets.

Temperature

Thermocouple Type	Range	Accuracy
K	-40 to 500℃ (-40 to 932 ℉)	±0.3%±1℃ (2 ℉)
J	-40 to 500℃ (-40 to 932 ℉)	

[1] Does not include error of the thermocouple probe.
[2] Accuracy specification assumes ambient temperature stable to ± 1 °C.
For ambient temperature changes of ± 5 °C, rated accuracy applies after 2 hour.

AC Current

Function	Range	Resolution	Burden Voltage	Accuracy
μA ac	999.9μA	0.1μA	100μV/μA	±(1.0 % + 2)
	9999μA	1μA	100μV/μA	
mA ac	99.99 mA	0.01 mA	1.8 mV/mA	
	400.0 mA	0.1 mA	1.8 mV/mA	
A ac	9.999 A	1 mA	0.03 V/A	

AC conversions are ac coupled, true rms responding, and valid from 3 % to 100 % of range, except 400 mA range.
(5 % to 100 % of range) and 10 A range (15 % to 100 % or range).

Duty Cycle (Vdc and mVdc)

Range	Accuracy
0.0 % to 99.9 % [1]	Within ± (0.2 % per kHz + 0.1 %) for rise times < 1 μs.

[1] 0.5 Hz to 100 kHz, pulse width >2 μs. Pulse width range is determined by the frequency of the signal.

Power Source : 006P DC9V Accessories : Test leads (pair), Battery, Operating Instruction.
Weight / Size : Approx. 370g / 186mm(L)×84mm(W)×51mm(T), (7.32"L×3.31"W×2.0"T)

DC Current

Function	Range	Resolution	Burden Voltage	Accuracy
μA dc	999.9μA	0.1μA	100μV/μA	±(0.2 % + 4)
	9999μA	1μA	100μV/μA	±(0.2 % + 2)
mA dc	99.99 mA	0.01 mA	1.8 mV/mA	±(0.2 % + 4)
	400.0 mA	0.1 mA	1.8 mV/mA	±(0.2 % + 2)
A dc	9.999 A	1 mA	0.03 V/A	±(0.2 % + 2)

Capacitance

Range	Resolution	Accuracy
10.00 nF	0.01 nF	±(1.0 % + 2) [1]
100.0 nF	0.1 nF	
1.000 μF	0.001 μF	±(1.0 % + 2)
10.00 μF	0.01 μF	
100.0 μF	0.1 μF	
9999 μF	1 μF	

[1] With a film capacitor or better, using the rel mode to zero residual.

Diode

Range	Resolution	Accuracy
9.999 V	0.001 V	±(1.0 % + 1)

3Φ Phase sequence indication

Range	Frequency Response	Overload Protection
80V to 480V	50Hz / 60Hz	1000V

Frequency

Range	Resolution	Accuracy
99.99 Hz	0.01 Hz	±(0.005 % + 1) [1]
999.9 Hz	0.1 Hz	
9.999 kHz	0.001 kHz	
99.99 kHz	0.01 kHz	

[1] From 0.5 Hz to 100 kHz and for pulse widths >2μs.

Frequency Counter Sensitivity and Trigger Levels

Input Range	Minimum Sensitivity (RMS Sine Wave)		Approximate Trigger Level (DC Voltage Function)
	5 Hz – 10 kHz	0.5 Hz – 100 kHz	
999.9 mV dc	70 mV (to 400 Hz)	70 mV (to 400 Hz)	40 mV
999.9 mV ac	150 mV	150 mV	-
9.999 V	0.3 V	0.7 V	1.7 V
99.99 V	3 V	7 V (≤140 kHz)	4 V
999.9 V	30 V	70 V (≤14.0 kHz)	40 V

Input Characteristics

Function	Overload Protection	Input Impedance (nominal)	Common Mode Rejection Ratio (1 kΩ unbalance)	Normal Mode Rejection
⎓ V	1000V rms	10MΩ<100pF	> 120 dB at dc, 50 Hz or 60 Hz	> 60 dB at 50 Hz or 60 Hz
⎓ mV	1000V rms		> 120 dB at dc, 50 Hz or 60 Hz	> 60 dB at 50 Hz or 60 Hz
~ V	1000V rms	10MΩ<100pF (ac-coupled)	> 60 dB, dc to 60 Hz	

		Open Circuit Test Voltage	Full Scale Voltage		Typical Short Circuit Current					
			To 6 MΩ	5MΩ or 60 nS	1kΩ	10kΩ	100kΩ	1MΩ	10MΩ	50MΩ
Ω	1000V rms	<2.8 V dc	<850mV dc	<1.3V dc	500μA	100μA	10μA	1μA	0.2μA	0.1μA
→|	1000V rms	<2.8 V dc	2.200 V dc		1.0 mA typical					

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