

## 4016A AC/DC Digital Power Analyzer Specification

Item		Specification		
<b>ACV &amp; DCV Vrms, Vpk+/Vpk-, Vmax/Vmin, V Harmonic</b>	Input Resistance ≥100KΩ	Range	20Vpeak/0.001V	
			40Vpeak/0.001V	
			80Vpeak/0.01V	
		Max.	80Vpeak/50Vrms	
	Input Resistance ≥1MΩ	Range	200Vpeak/0.01V	
			400Vpeak/0.01V	
			800Vpeak/0.1V	
		Max.	800Vpeak/500Vrms	
Accuracy			±0.1% of (Reading + Range)	
			±0.5% of (Reading + Range, For Peak)	
<b>ACA &amp; DCA Arms, Apk+/Apk-, Amax/Amin, A Harmonic</b>	Shunt 0.05A (10Ω)	Range	0.002Apeak/0.1uA 0.004Apeak/0.1uA 0.008Apeak/0.001mA 0.02Apeak/0.001mA 0.04Apeak/0.001mA 0.08Apeak/0.01mA	
		Max. Input	0.08Apeak per 25ms/0.05Arms continuous	
	Shunt 0.5A (1Ω)	Range	0.2Apeak/0.01mA 0.4Apeak/0.01mA 0.8Apeak/0.1mA	
		Max. Input	0.8Apeak per 25ms/0.5Arms continuous	
	Shunt 5A (0.04Ω)	Range	2Apeak/0.1mA 4Apeak/0.1mA 8Apeak/0.001A	
		Max. Input	8Apeak per 25ms/5Arms continuous	
	Shunt 20A (0.005 Ω)	Range	10Apeak/0.001A 20Apeak/0.001A 40Apeak/0.001A 50Apeak/0.001A 100Apeak/0.01A 200Apeak/0.01A	
		Max. Input	200Apeak per 25ms/30Arms continuous	
	Ext. Input	Input impedance	10KΩ	
		Input Range	0~ +/-2.5Vpeak	
		Scaling	1.00~10000.00	
	Accuracy			±0.1% of (Reading + Range)
				±0.5% of (Reading + Range, For Peak)
	VCF & ICF		Range	0.0000~9.9999
			Accuracy	±0.5% of (Reading + Range)
AC Power & DC Power Watt, VA, VAR		Range	Vrange*Arange	
		Accuracy	±0.2% of (Reading + Range)	
PF		Range	±0.001~1.000/0.001	
		Accuracy	1% of (Reading + Range, Corresponds to V and A)	

Voltage& Current Frequency Bandwith		dc~409.6KHz	
Voltage Fundamental Frequency	Range	dc, 20~1000/0.1Hz	
	Accuracy	± 0.1 Hz	
V/A Harmonic	Number	1~50 th/ Same as ACV, ACA meter	
	Accuracy	±0.5% of (Reading + Range)	
V/A THD	Range	0%~255%/0.001%	
	Accuracy	±0.5% of (Reading + Range)	
Inrush V/A	Voltage	Range	Same as ACV & DCV
		Max.	
		Accuracy	
	Current Shunt 20A (0.005Ω)	Range	Same as ACA & DCA
		Max. Input	
	Accuracy		±2% of (Reading + Range)
Measurement Wide		100mS	
AC ON/OFF Programmable output switch	ON	0~359°/1°	
	OFF	0~359°/1°	
	Accuracy	Max. +/- 1° @50/60Hz	
AC Whr Standby Power	Accumulated Time	0 <sub>D</sub> 0 <sub>H</sub> 0 <sub>M</sub> 0 <sub>S</sub> ~9999 <sub>D</sub> 23 <sub>H</sub> 59 <sub>M</sub> 59 <sub>S</sub>	
	WHr	0.000000 nWHr~999.999999 WHr / 1.000~9999.999KWHr	
	Counter	0 <sub>H</sub> 0 <sub>M</sub> 0 <sub>S</sub> ~99 <sub>H</sub> 59 <sub>M</sub> 59 <sub>S</sub>	
	Accuracy	±0.2% of (Reading + Range)	
DC Ahr/Whr Accumulator	Accumulated Time	0 <sub>D</sub> 0 <sub>H</sub> 0 <sub>M</sub> 0 <sub>S</sub> ~9999 <sub>D</sub> 23 <sub>H</sub> 59 <sub>M</sub> 59 <sub>S</sub>	
	WHr	0.000000 nWHr~999.999999 WHr / 1.000~9999.999 KWHr	
	AHr	0.000000 uAhr~999.999999 AHr / 1.000~9999.999 KAhr	
	Counter	0 <sub>H</sub> 0 <sub>M</sub> 0 <sub>S</sub> ~99 <sub>H</sub> 59 <sub>M</sub> 59 <sub>S</sub>	
	Accuracy	±0.2% of (Reading + Range)	
Data Logger	Item	Vrms 、 Arms 、 Watt 、 PF 、 V <sub>THD</sub> 、 I <sub>THD</sub>	
	Updata Rate	0.2 、 0.5 、 1 、 2 、 5 、 10 Second	
	Image Time Wide	Updata Rate*256 second	
ON/OFF Cycling	ON time	0 <sub>M</sub> 0.200 <sub>S</sub> ~ 10 <sub>M</sub> 0 <sub>S</sub>	
	OFF Time	0 <sub>M</sub> 0.200 <sub>S</sub> ~ 10 <sub>M</sub> 0 <sub>S</sub>	
	Cycling times	0~9999	
	Image Time Wide	(ON Time + OFF Time)*256	
Low Pass Filter(V & A)		50KHz	
Interface(Optional)		RS-232, GPIB, USB, Ethernet	

Operating Theory	Rms Voltage (Vrms)	$\sqrt{\frac{1}{T} \int_0^T V_i^2 dt}$
	Rms Current (Arms)	$\sqrt{\frac{1}{T} \int_0^T A_i^2 dt}$
	+ or - Peak Value (+/-Vpk, +/-Apk)	Max[Value <sub>(t)</sub> ] or Min[Value <sub>(t)</sub> ]
	Max.or Min Value (Vmax/Vmin, Amax/Amin, Wmax/Wmin)	Max[Value] or Min[Value]
	Crest Factor (VCF, ICF)	Peak Value/Rms Value
	Active Power (Watt)	$\frac{1}{T} \int_0^T V_i \times A_i dt$
	Apparent Power (VA)	$V_{rms} \times A_{rms}$
	Reactive Power (VAR)	$\sqrt{VA^2 - W^2}$
	Power Factor (P.F.)	$\frac{Watt}{V_{rms} \times A_{rms}}$
	Harmonic	$\sqrt{Hr^2 + Hq^2}$
	Total Harmonic Distortion (%)	$\sqrt{H_2^2 + H_3^2 + \dots H_{50}^2} \div H_1$
Rms Sampling Rate		4096 sample/Cycle @ 50/60 Hz
Inrush Sampling		<2.5us
V/A ADC		Dual 16-Bit, 500KSPS ADC with DSP

Power Input		110/220V 50/60Hz
Consumption		38VA
Protection(fuse)	Shunt 0.05A (10Ω)	3.6x11mm 250Vac 0.2A Fast
	Shunt 0.5A (1Ω)	3.6x11mm 250Vac 1A Lag
	Switch	6*30mm 250V/25A

Display		3.5" TFT LCD, 320 x RGB x 240
Dimensions	Height	99.4 mm with feet
	Width	213 mm
	Depth	304 mm
Weight		3.5 Kg
Storage temperature		-20 °C to +60 °C (-4 °F to 140 °F)
Operating temperature		0 °C to 40 °C (32 °F to 104 °F)
Maximum operating altitude		2000 M (6562 ft)
Maximum relative humidity		80% for temperatures up to 31 °C (88 °F) decreasing linearly to 50 % relative humidity at 40 °C (104 °F)