UTE9811+ Smart Digital Power Meter

Datasheet

REV 0

2023.2

1. Characteristics and Advantages

- VA broken code screen display for intuitive reading.
- Multi-window simultaneous display of voltage, current, power, power factor, frequency, voltage crest ratio, current crest ratio and harmonic measurement data.
- Harmonic measurement adopts phase-locked loop (PLL) synchronization method. The maximum of harmonic analysis is 50 times.
- Voltage and current range can switch automatically, it will help for improving the measurement accuracy.
- Average function can make the reading more stable and it suitable for measuring the load or power with large variations.
- Data upgrade period can be set. User can select a faster upgrade period according to the test needs, so as to improve the test efficiency.
- Communication interface supports RS-232 and RS-485. Communication protocol supports SCPI and Modbus for communicating with computer and PLC.
- It can freely set the upper and lower limit of current and power, the digital power meter will automatic judge whether the test value is exceed. Sound and light alarm indication, it is convenient for batch detection to improve the measurement efficiency.

2. Product Introduction

UTE9811+ smart digital power meter is an economic and portable measuring instrument. It is a multi-functional measuring instrument which integrating voltage, current, power, power factor and harmonic wave. The products is widely used in production, testing, evaluation and scientific research and multi-field.

UTE9811+ smart digital power meter adopts high speed CPU for data processing, the sampling resistance of voltage and current are all use low temperature drift resistor, therefore, the stability and accuracy of measurement data are guaranteed.

The instrument can measure voltage, current, power, power factor, frequency, voltage crest ratio and current crest ratio. It also has harmonic analysis and serial communication function.

The instrument has perfect functions, superior performance and simple operation. It meets the needs of high-speed measurement in production sites, as well as laboratory and R&D measurements. It is widely used in in the fields of lighting appliances, power tools, household appliances, electric motors and electric heating appliances of production lines, laboratories and quality inspection departments.

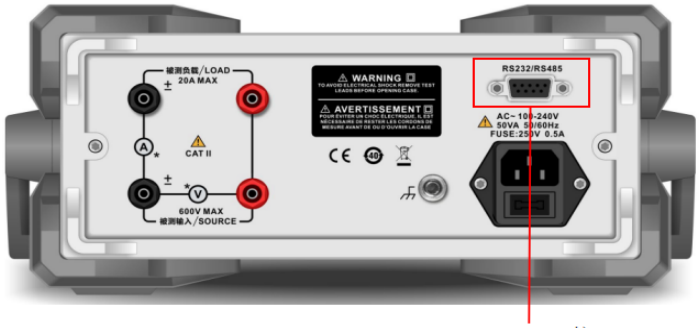
3. Design Highlights

VA broken code screen display, data and state display directly

Multi-window simultaneous display of voltage, current, power, power factor, frequency, voltage crest ratio, current crest ratio and harmonic measurement data. It can intuitive display measurement mode and alarm state.

Multiple interface and communication protocol

UTE9811+ supports RS232 and RS485 communication interface and with SCP, Modbus communication command. It make sure that the instrument has good compatibility in the system integration of automatic test equipment.



RS232/RS485 接口

Innovative Harmonic Processing Algorithm

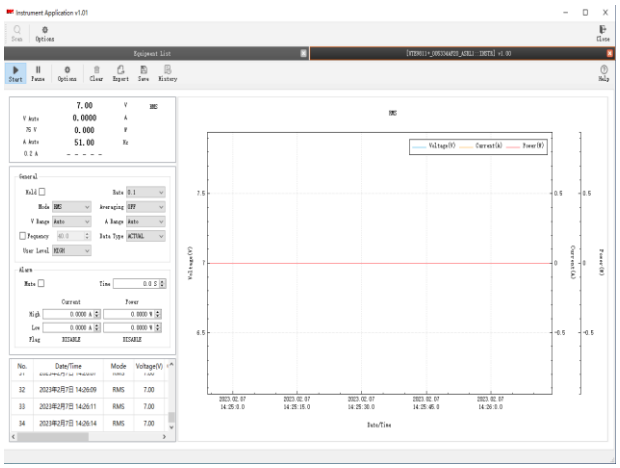
Harmonic measurement adopts phase-locked loop (PLL) synchronization method and combine with the innovative digital signal processing algorithm, which makes the update rate of harmonic measurement data up to 0.1s, it greatly improving the test efficiency, so as the precision of harmonic measurement is higher than other similar products.

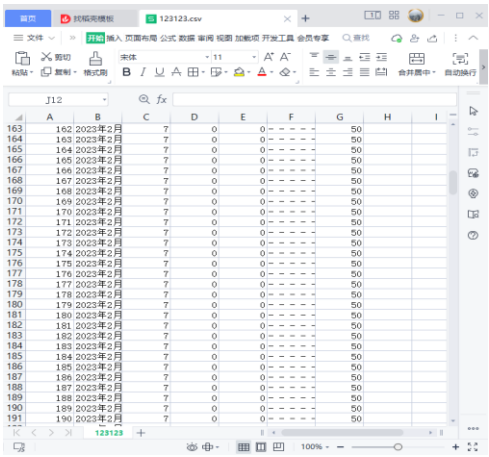
参数测量	电压	谐波次数	单位	基频电压	UTE9811+		品牌A		品牌B	
					测量值	误差	测量值	误差	测量值	误差
电压谐波	30	10	V	220V	30	0	29.9	0.1	29.8	0.2
	30	25	V	220V	30.1	0.1	29.4	0.6	29.4	0.6
	30	50	V	220V	30.2	0.2	28	2	27.9	2.1

参数测量	电流值	谐波次数	单位	基频电流	UTE9811+		品牌A		品牌B	
					测量值	误差	测量值	误差	测量值	误差
电流谐波	1	10	A	5A	1.001	0.001	0.997	0.003	0.993	0.007
	1	25	A	5A	1.004	0.004	0.983	0.017	0.971	0.029
	1	50	A	5A	1.007	0.007	0.937	0.063	0.908	0.092

Complete upper computer control software

The instrument can be remote control via the upper computer control software, it can also visually display the measurement data and the historical trend of the measurement data, and save the historical data to the computer in CSV file format for further analysis.





4. Technical Index

Notes: * f represent the frequency of input signal in the below table.

Model	UTE9811+
Display	VA broken code display, 5 digits, four windows
Display Update Rate	0.1S, 0.25S, 0.5S, 1S, 2S, 5S
Measuring Object	V,A,W,PF/HZ/THD/CF
Measuring Mode	AC
Measuring Range of Voltage	3.0V-600V
Voltage Range	75V/150V/300V/600V
Accuracy of Voltage	40Hz≤f≤70Hz: ±(0.4% reading+ 0.1 range+1 character)

Voltage Resolution		0.01V/0.1V
Measuring Range of Current		5.0mA~20.0A
Current Range		200mA/1A/4A/20A
Accuracy of Current		40Hz≤f≤70Hz：±(0.4% reading+ 0.1 range+1 character)
Current Resolution		0.001A
Switching Range		Auto
Power Range		1W~12kW
Accuracy of Power		40Hz≤f≤70Hz：±(0.4% reading+ 0.1 range+1 character)
Power Resolution		0.01W/0.1W/1W
Power Factor Range		-1.000~1.000
Accuracy of Power Factor		±(0.004 + 0.001* reading +1 character)
Frequency Range		40Hz~70Hz
Accuracy of Frequency		±(0.1% reading +1 character)
Auto Range Switching	Voltage Range Increasing	Urms exceeds the measuring range about 110 %(CF < 2)
	Voltage Range Decreasing	Urms is less than the lower part range about 80 %(CF < 2)
	Current Range Increasing	Irms exceeds the measuring range about 110 %(CF < 2)
	Current Range Decreasing	Irms is less than the lower part range about 60 %(CF < 2)
Harmonic Analysis Times		1~50
Accuracy of Harmonic		±(0.3% range +5% reading+1 character)
Pre-heating Time		>30 minutes
Current Peak		The maximum display 24A
Maximum of Allowed Input for Continuous		Voltage 700V，Current 24A
Maximum of Allowed Input for Instant		1000V, 40A(1 min)

Input Impedance	Voltage about 2 M Ω，Current is less than 0.02Ω
Upper/Lower limit	Four settings for the upper/lower limit of power and current
	P Hi (Power high),
	P Lo (Power low),
	A Hi (Current high),
	A Lo (Current low)
Average Function	√
Interface	RS232（DB9 ; 2 pin: TX, 3-pin: RX, 5-pin: GND）
	RS485 (DB9 ; 8-pin: A , 9-pin: B)
Baud Rate	4800，9600，19.2K，38.4K，57.6K，115.2K，default 9600. It follows communication protocol of standard SCPI and Modbus-RTU.
Display Hold	√
Mute	√
Lock Key	√
Power Source	Input power：AC 100V~240V Frequency 50/60Hz
Precision Environment	18℃~28℃，30%~75%RH （28℃ < operating temperature <18℃(when in 18℃, it needs to add temperature coefficient)：reading of 0.05%/℃）
Storage Temperature	-10℃~50℃，non-condensing below 80% RH
Operating Altitude	≤2000 meters
General Characteristic	
Color	Gray
Weight	3.2kg
Size	214mm×88mm×340mm
Standard Accessories	Specialized power cable x1；RS232 serial port line X1
Optional Accessories	UTE-L10A 10A three-pronged plug convert banana head plug connection cable x1

	UTE-L16C 16A connection cable with alligator clip x1
	UTE-L16A 16A three-pronged plug convert banana head plug connection cable x1
Standard Packing Quantity	2
Standard Packing Size	400mm*300m*325mm
Gross Weight of Standard Packing	9kg

5. Accessories and Optional

Model	Description	Length	Specification of Voltage/Current
UTE-L10A	10A three-pronged plug convert banana head connect wire	1.2m	250V/10A
			
UTE-L16A	16A three-pronged convert banana head connect wire	1.2m	250V/16A
			
UTE-L16C	16A connect wire with alligator clip	1.2m	250V/16A
			

6. Contact Us

UNI-T Technical Support Hotline: 400-876-7822

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