

UTE9802+ Smart Digital Power Meter

Datasheet

REV 0

2023.2

UNI-T[®]

1. Characteristics and Advantage

- VA broken code screen display for intuitive reading. It adopts high speed A/D transformer and 32-bit MCU operation.
- Multi-window simultaneous display of voltage, current, power, power factor/frequency.
- The range of voltage and current has manual range and automatic range.
- AC, DC, AC+DC (T-RMS) mode.
- Average function to 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

UTE9802+ 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 frequency. The products is widely used in production, testing, evaluation and scientific research and multi-field.

UTE9802+ 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.

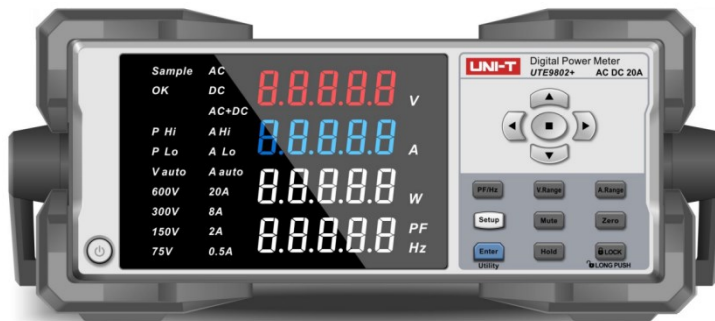
UTE9802+ has true RMS measurement, it can adjust to the electric parameter measurement of various occasions such as full wave, half wave (AC/DC type) and irregular waveform. This instrument can measure voltage (V), current (A), active power (W), power factor (PF) and frequency (Hz). It has perfect functions, superior performance and simple operation.

The instrument can meet 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. It can directly display the measurement mode and the state of gear and alarm.



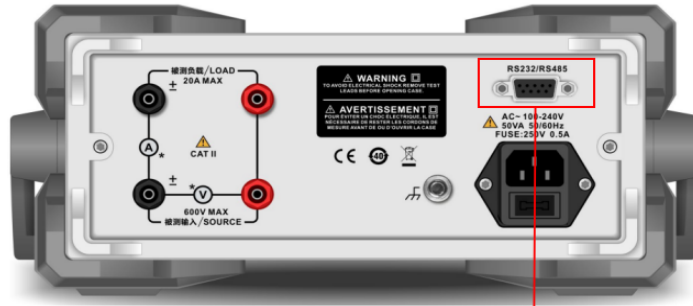
AC/DC design for measuring the maximum 700V of voltage and the minimum 0.5mA of current

UTE9802+ supports AC/DC measurement mode, the measurement range of voltage is 3.0V~700V, the measurement range of current is 0.5mA~24A. It is suitable for AC/DC charging pile, power battery, home appliance test and standby power consumption test.



Multiple interface and communication protocol

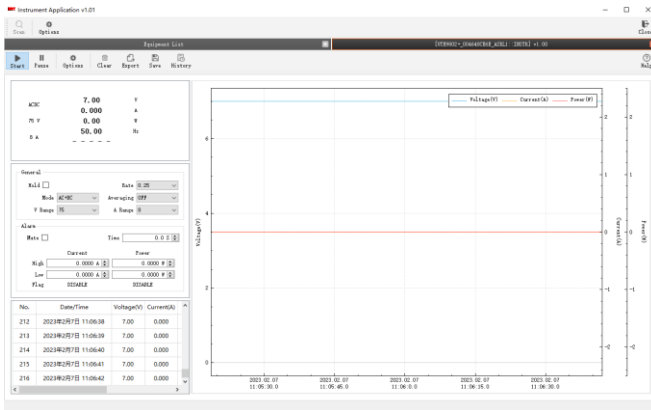
UTE9802+ supports RS232 and RS485 communication interface and with SCP, Modbus communication command. It make sure that the instrument has good compatibility in the system integration of automatic test equipment.



RS232/RS485 接口

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

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




Model	UTE9802+
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
Measuring Mode	AC, DC, AC+DC (T-RMS)
Measuring Range of Voltage	3.0V-600V
Voltage Range	75V/150V/300V/600V

Accuracy of Voltage	DC: $\pm(0.4\% \text{ reading} + 0.1 \text{ range} + 1 \text{ character})$ 40Hz \leq f \leq 66Hz: $\pm(0.4\% \text{ reading} + 0.1 \text{ range} + 1 \text{ character})$ 66Hz < f \leq 400Hz: $\pm(0.3\% \text{ reading} + 0.2 \text{ range} + 1 \text{ character})$	
Voltage Resolution	0.01V/0.1V	
Measuring Range of Current	0.5mA-20.0A	
Current Range	500mA/2A/8A/20A	
Accuracy of Current	DC: $\pm(0.4\% \text{ reading} + 0.1 \text{ range} + 1 \text{ character})$ 40Hz \leq f \leq 66Hz: $\pm(0.4\% \text{ reading} + 0.1 \text{ range} + 1 \text{ character})$ 66Hz < f \leq 400Hz: $\pm(0.3\% \text{ reading} + 0.2 \text{ range} + 1 \text{ character})$	
Current Resolution	0.0001A /0.001A	
Switching Range	Auto/Manual	
Power Range	1W~12kW	
Accuracy of Power	DC: $\pm(0.4\% \text{ reading} + 0.1 \text{ range} + 1 \text{ character})$	
	40Hz \leq f \leq 66Hz: $\pm(0.4\% \text{ reading} + 0.1 \text{ range} + 1 \text{ character})$	
	66Hz < f \leq 400Hz: $\pm(0.3\% \text{ reading} + 0.2 \text{ range} + 1 \text{ character})$	
Power Resolution	0.001W/0.01W/0.1W/1W	
Power Factor Range	-1.000~1.000	
Accuracy of Power Factor	$\pm(0.004 + 0.001 * \text{reading} + 1 \text{ character})$	
Frequency Range	DC, 40Hz ~ 400Hz	
Accuracy of Frequency	$\pm(0.1\% \text{ reading} + 1 \text{ character})$	
Auto Range	Voltage Range Increasing	Urms exceeds the measuring range about 110% (CF < 2)
	Voltage Range Decreasing	Urms 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 less than the lower part range about 60% (CF < 2)
Pre-heating Time	>30 mins	

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 0.02 Ω
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°C~28°C, 30%~75%RH (28°C < operating temperature < 18°C (when in 18°C, it needs to add temperature coefficient): reading of 0.05%/°C)
Storage Temperature	-10°C~50°C, non-condensing below 80% RH
Operating Altitude	≤2000 meters
General Characteristic	
Color	Gray
Weight	3.3kg
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 (Outer box)	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			
UTE-L16A	 16A three-pronged convert banana head connect wire	1.2m	250V/16A
UTE-L16C			
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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