UT283A OPERATING MANUAL

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Ⅰ. PRODUCT INTRODUCTION

1. Unpacking and accessory list

No.	Name of accessory	Model/specifications	Number
1	The analyzer	UT283A	1 set
2	Alligator clip	UT-C04	1 pair
3	Test probe	UT-C08	1 pair
4	Test lead	UT-L09	1 pair
5	Power adaptor	E221142	1 piece
6	SD card	CLASS 4	1 piece
7	Current clamp	1000A/100A/10A	1 piece
8	Instructions		1 piece
9	Software CD		1 piece

2. Instructions before use

1) Safety standards

To ensure the safe use of the analyzer, please follow the following guidelines.

UT283A single phase power quality analyzer complies with: IEC/EN 61010-1: 2010 nominal voltage class, CAT III 600V, CATII 1000V; Pollution Degree 2.

Please use the analyzer and its accessories in accordance with the User Manual, otherwise the protection provided by the analyzer and its accessories may be damaged.

Warning indicates conditions and actions that pose hazard(s) to the user.

Caution denotes conditions and actions that may damage the analyzer.

The following international symbols are used on the analyzer and in this Manual:

⧈	Double insulation	⚠	Warning & caution safety label
⏚	Earthing	⚠	Danger: high voltage
CE	Comply with EC standard		

2) Caution

Do not use the analyzer in inflammable and explosive environment and avoid exposure to dust, direct sunlight and high radiation.

Non-professional personnel are prohibited to open the back cover and if maintenance, component replacement or calibration is required, please contact qualified personnel or relevant dealer or after-sales service of our Company.

Do not dismantle or modify the analyzer and any unauthorized modification may result in permanent damage to the analyzer.

Use only insulated current clamp, test lead and adaptor supplied with or applicable to the analyzer.

When testing, please keep fingers behind the finger protection device of the current clamp.

Please inspect whether there is mechanical damage on the analyzer, current clamp, test lead and accessories before use. If any, please replace it immediately. Check whether plastic parts are damaged or missing and pay special attention to the insulating layer surrounding the connectors.

The operation of the analyzer is verified by measuring a known voltage.
Always connect the power adaptor to an AC power socket and then connect it to the analyzer.
Do not touch the high voltage: root mean square value of AC is 30V, maximum value of AC is 42V or that of DC is 60V.
Grounding terminal shall only be used for the grounding purpose of the analyzer and any voltage shall not be applied on the terminal.
Do not apply any voltage over nominal input voltage of the analyzer and the applied voltage shall not exceed the rated values marked on the voltage probe or the clamp ammeter.
Use only the voltage and current rated probes, test leads and adaptor with correct measurement category. Do not exceed the lowest rated measurement category of the analyzer, probe or individual component of accessories.

3) Connect current clamp through BNC.
Because BNC has the same potential as USB port and 12V power port, current clamp which complies with safety rating shall be used to measure the current to ensure the safety and accuracy, do not directly connect BNC port to the potential to measure.

3. Connection method

1) Connecting voltage probe
As shown in the figure below, plug the voltage probe into the voltage measurement port.
Plug test lead (black) into “COM” jack.
If the voltage value is to be measured, please plug test lead (red) into “V” jack, and if resistance, capacitance, diodes and continuity, etc. are to be measured, please plug test lead (red) into the corresponding versatile jack.

Note: Do not apply high voltage into the versatile jack, otherwise permanent damage may be caused to the analyzer.

2) Connecting current clamp
Please connect current clamp to BNC port to measure the current. (All current transformer and clamp below refers to current clamp).
Select proper current range of current clamp (3 ranges 10A, 100A, 1000A for standard current clamp).
The corresponding measuring range is set at SYSTEM page for current clamp, the prefix “D” represents standard current clamp.
Note: The arrow on standard current clamp points to the direction of a positive current.

3) Connecting the power adaptor
If the built-in battery is low in energy, please connect the power adaptor as soon as possible.

4) Connecting USB
If upper computer is to be connected, please plug in USB cable.

5) Inserting SD card
If event or trend data are to be recorded, please insert SD card when the device is turned off, do not plug or remove SD card when the device is turned on, otherwise, it may result in data loss and permanent damage to SD card. Figure

6) Switching on the analyzer
Long press the power button to start up the analyzer, wait for a few minutes until startup picture appears and then the device displays main menu page. Please select proper menu according to the measurement needs and enter the measurement function of the interface.
Long press the power button to shut down the analyzer, do not shut down the analyzer during recording or when SD card is being written, otherwise, data loss and permanent damage to SD card may be resulted.
Please read the measured values after the analyzer is stable for 10 minutes, otherwise, the measured values may be inaccurate.

II. Function and operating instructions

1. Overview

UT283A single phase power quality analyzer offers a wide range of powerful measurement, monitoring, recording functions to help users to inspect various parameters of power supply, transmission and distribution system, including the amplitude of voltage and current, phase, harmonic, event and other information. It is widely used in transformer substations, factories, hospitals, communication rooms, energy monitor and other power equipment.

UT283A has a function similar to oscilloscope and can intuitively display the waveform of voltage and current.

Measurement functions of UT283A are shown in the table below:

Name	Voltage related	Current related	Power related
RMS	●	●	
Peak value	●	●	
DC component	●	●	
AC component	●	●	
Active power			●
Reactive power			●
Apparent power			●
Overall power factor			●
Fundamental power factor			●
Positive power			●
Reverse power			●
Inductive power			●
Capacitive power			●
Crest factor	●	●	
K factor		●	
Total harmonic distortion	●	●	
Distortion rate of harmonic to fundamental wave	●	●	
Flick	●		

Trend recording functions of UT283A are shown in the table below:

Name	Symbol
Voltage RMS	URMS
Current RMS	IRMS
Frequency	FREQ
Active power	P
Reactive power	Q
Apparent power	S
Voltage distortion rate based on fundamental wave	UTHDR
Current distortion rate based on fundamental wave	ITHDR
Power factor	PF
Short flick	PST
Voltage crest factor	UCF
Current crest factor	ICF
DC voltage	Udc
AC voltage	Uac
DC current	Idc
AC current	Iac
K factor	KF

Event recording functions of UT283A are shown in the table below:

Name	Symbol
Voltage sub-harmonic over the upper limit	UHARM
Current sub-harmonic over the upper limit	IHARM
Frequency over the upper limit	FREQ+
Frequency below the lower limit	FREQ-
Inrush current over the upper limit	INRUSH
Voltage interruption	INTRPT
Voltage swell	SWELL
Voltage dip	DIP
Transient	TRANS

2. Basic operations

Introduction

Some basic operations of the analyzer are described in this chapter:
- Mount
- The power supply of the analyzer
- SD memory card

Kickstand

The analyzer is equipped with kickstand which will help you to view the screen at an angle when the analyzer is placed on a flat surface. The position of USB port connector is shown in Figure 4-1. This interface may be used to establish data connection between USB port and PC.

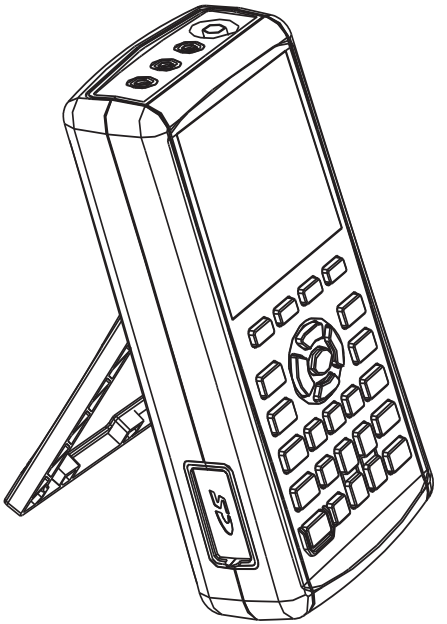

Figure 4-1