

TD1330 Portable Tester for AC EV Chargers



1. Summary

The TD1330 is a portable instrument dedicated to on-site inspection of EV AC charging spot, with three-phase AC voltage measurements up to 300 V, three-phase AC current measurements up to 78 A, and AC electrical energy measurement available in class 0.05 / 0.1. The instrument can be combined with TK4720 AC adjustable resistive load to complete the metrology characteristics test.

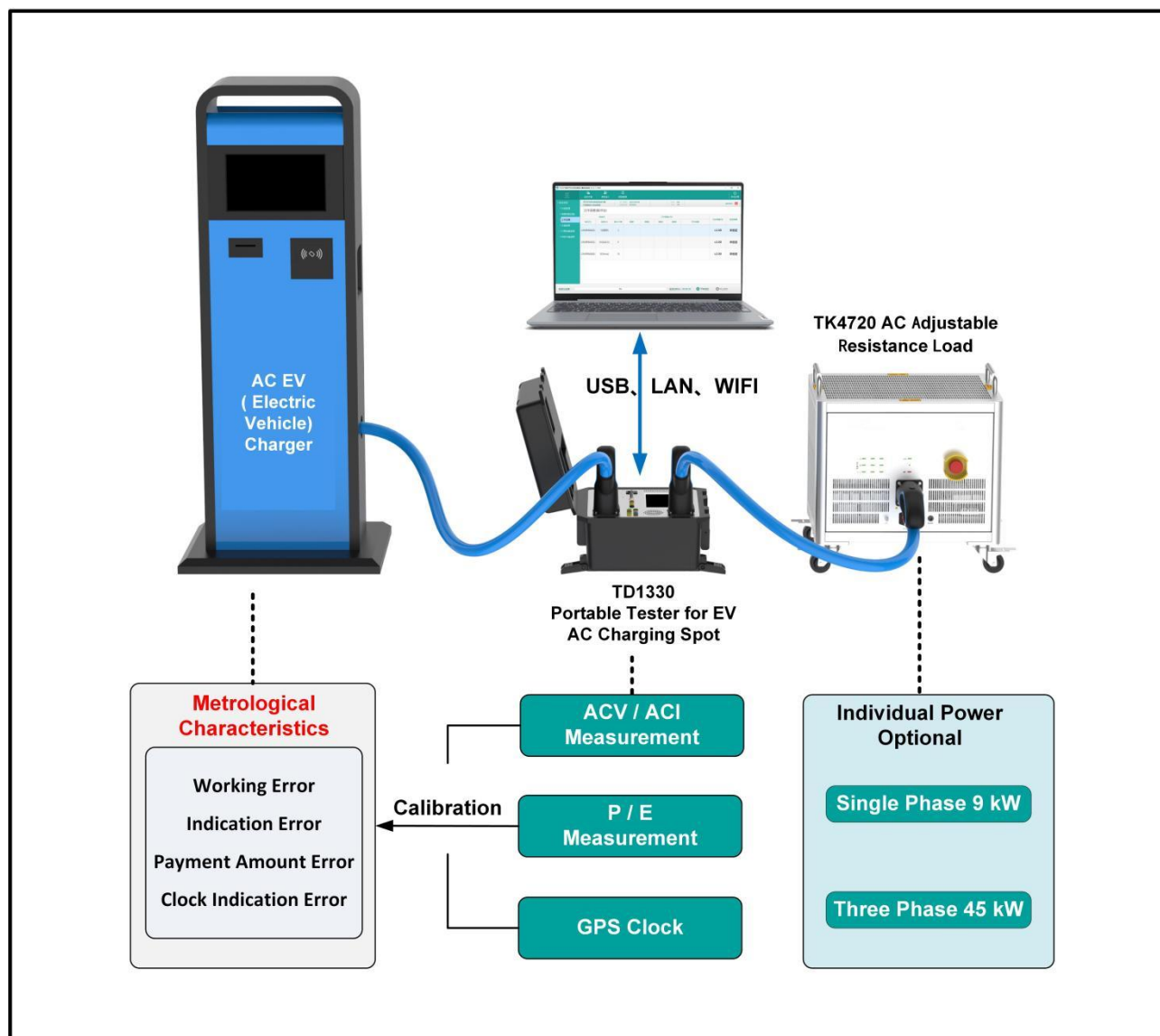
2. Features

- **AC harmonic measurement:** Harmonics order of 2 to 64 can be detected.
- **Power waveform display:** Real-time charging curve $U(t)$, $I(t)$, $P(t)$, $E(t)$ display and record, etc.
- **Ambient temperature measurement:** Built-in temperature sensor for measuring the ambient temperature of the site to correct the working error.
- **Clock verification function:** Built-in GPS clock module, real-time clock display, and correct the Beijing time of the charging spot.
- **Integration:** Built-in measurement module, charge control guidance circuit, waveform acquisition and other modules, can complete all interoperability test items of AC charging spots.
- **Built-in vehicle control guidance circuit:** AC charging spot interoperability test can be completed, built-in L1, L2, L3, N, PE, CP, CC circuit on-off switch and CP ground short circuit switch, can realize the vehicle AC charging interface circuit fault simulation function. Built-in vehicle-side R2 resistance, R3 resistance simulation equivalent resistance simulation function, R2 resistance has adjustment range of $500\ \Omega \sim 6800\ \Omega$, with resistance value online

continuously adjustable with adjustment fineness of 1 Ω ; R3 equivalent resistance has nominal value of 500 Ω ~ 13000 Ω , with resistance value online continuously adjustable with adjustment fineness of 1 Ω . Each contact point has an on-off switch, which can simulate the on-off state of the contact point.

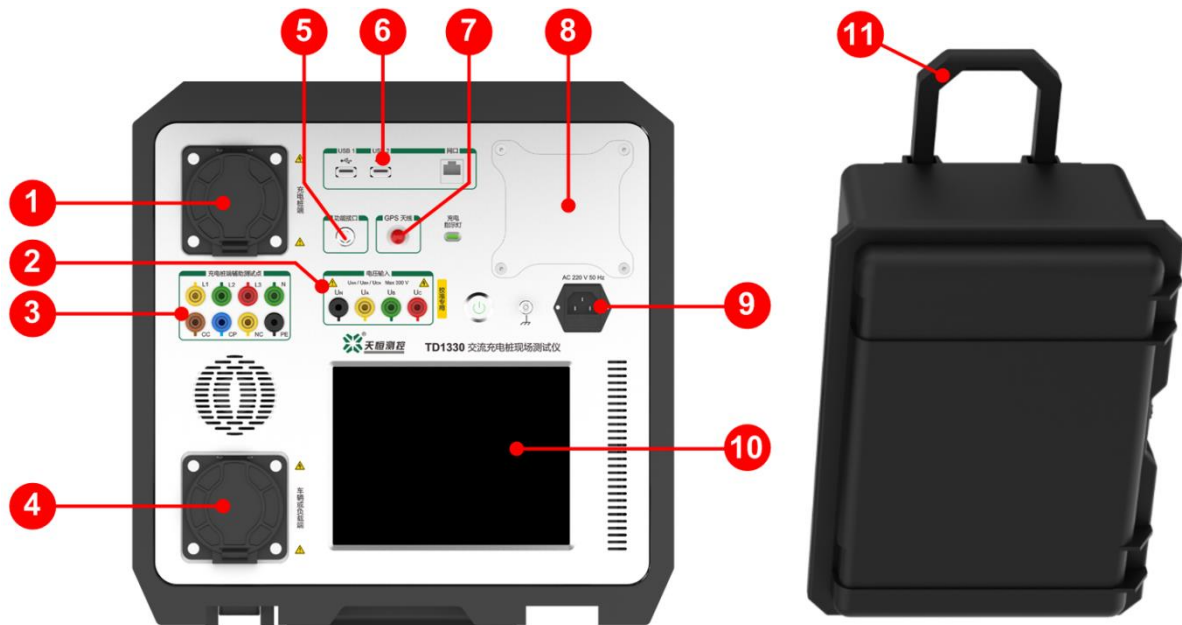
- **Waveform acquisition:** Built-in 6-channel high-speed waveform acquisition module to ensure long-term operation and zero data loss.
- **PWM signal measurement:** Measure the frequency and duty factor of the PWM signal on the CP line in the control guidance circuit and display it in real time.
- **High reliability:** No switches, relays and other mechanical contacts in the current loop, can be overloaded at 2 times the rated current for 5 s.
- **Calibration and verification:** With dedicated calibration terminals, the device can be calibrated or verified by two methods, and the TK4965 AC charging electrical energy calibration adapter is optional.
- High-definition LCD touch color screen.
- Ethernet, WIFI, USB, interface and host computer software.
- Support input of commercial power, built-in lithium battery and EV charger power supply.
- Equipped with portable instrument box, high seismic and electrical protection level.

3. Application



4. Instrument Appearance

☆ Instrument Front Panel



S/N	Function description
1	AC charging socket, using a dedicated charging connector to connect the inspected AC charging spot.
2	A dedicated interface for voltage calibration.
3	Auxiliary test point to transfer the AC charging socket to a conventional instrument terminal.
4	AC charging socket, use a dedicated charging connector to connect the load or electric car.
5	Multi-function interface: support photoelectric head, pulse input, pulse output, temperature sensor and other functions.
6	Communication interface: including USB and LAN ports
7	A GPS antenna that receives a standard clock signal to correct the time of the AC charging spot under test.
8	Built-in large-capacity lithium battery.
9	AC 220V power interface to power the instrument via commercial power

10	LCD touch color screen, multi-power intuitive display, full touch operation.
11	Instrument box lever, easy for user to carry the mobile tester.

5. Specifications

5.1 Three-phase ACV measurement

Range	Resolution	Accuracy (k=2) (ppm of reading + ppm of range) [1]		Temp. Coefficient, $\pm\text{ppm} \cdot \text{RD} / ^\circ\text{C}$ @-25°C~55°C	
		Class 0.1	Class 0.05	Class 0.1	Class 0.05
240 V	0.1 mV	400 + 100	200 + 50	30	20

Note [1] : (ppm = parts per million) (e.g., 10ppm = 0.001%).

- Range: Manual/auto shift
- Measurement range: 30 V ~ 300 V
- Harmonic measurement uncertainty (k = 2): 0.05% * RG, RMS

5.2 Three-phase ACI measurement

Range	Resolution	Accuracy (k=2) (ppm of reading + ppm of range)		Temp. Coefficient, $\pm\text{ppm} \cdot \text{RD} / ^\circ\text{C}$ @-25°C~55°C	
		Class 0.1	Class 0.05	Class 0.1	Class 0.05
100 mA	0.1 μA	400 + 100	200 + 50	50	20
200 mA	0.1 μA	400 + 100	200 + 50	50	20
500 mA	0.1 μA	400 + 100	200 + 50	50	20
1 A	1 μA	400 + 100	200 + 50	50	20
2 A	1 μA	400 + 100	200 + 50	50	20
5 A	1 μA	400 + 100	200 + 50	30	20
10 A	10 μA	400 + 100	200 + 50	30	20
30 A	10 μA	400 + 100	200 + 50	30	20
60 A	10 μA	400 + 100	200 + 50	30	20

- Range: Manual/auto shift
- Measurement range: 10 mA ~ 78 A
- Harmonic measurement uncertainty (k = 2): 0.05% * RG, RMS

5.3 Frequency and phase

- Frequency range: 45.000 Hz to 65.000 Hz.
Resolution: 0.001 Hz, uncertainty (k=2): 0.01 Hz.
- Phase range: 0.000°~359.999°
Resolution: 0.001°, uncertainty (k=2) : 0.025°.

5.4 P/E Energy Measurement

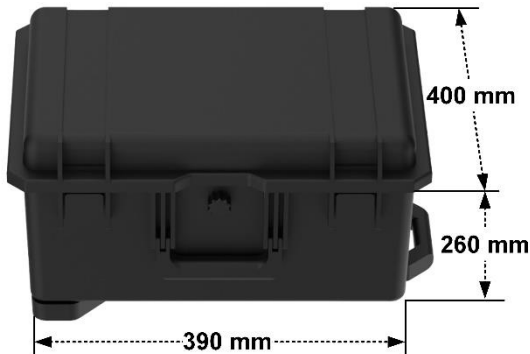
Power Factor	Measurement Uncertainty (k=2)	
	Class 0.1	Class 0.05
0.8L~1~0.8C	0.1%*RD	0.05%*RD

- Measuring range of power/energy: Combination of AC voltage and AC current range;
- Power factor measurement range: -1.000000...0.000000...1.000000
- Standard electrical energy pulse output: maximum frequency is 60 kHz
Supports active and passive pulses, load capacity: greater than 20 mA
- Standard electrical energy pulse input: maximum frequency is 100 kHz, level: 0 ~ 5V

5.5 Temperature Clock

DC power / electrical energy	Range	-30°C~60°C
	Accuracy	0.5°C
Clock function	Timing mode	GPS clock timing
	Accuracy	1s/d

6. General Specifications

Power supply mode	EV charger, built-in lithium battery, 220V commercial power
Power supply	AC (220 ± 22) V, (50 ± 2) Hz
Max. Power	80 VA
Communication interface	USB, LAN, WIFI
Temperature performance	Operating temperature: -25°C~55°C; Storage temperature: -30°C~70°C
Humidity Performance	Operating humidity: < 80% @ 30°C, < 70% @ 40°C, < 40% @ 50°C Storage humidity: <80% R·H, non-condensing。
Altitude	< 3000 m
Weight	About 13 kg
Dimensions	390 mm (W) × 400 mm (D) × 260 mm (H) 

7. Ordering Information

TD1330 –



Class	
Code	Note
1000	Class 0.1
500	Class 0.05

e.g.: **TD1330-500** note for Class 0.05.

8. Accessory List

8.1 Standard Accessory

S/N	Pic	Code	Name	Specification	Qty	Note
1		Q0701000 31	Standard Cable Assembly	GB Standard 10A Three-pin Power Cord; Gray; Flat Plug; Right-angle Connector; 1.5m Length	1	/
2		Q0702000 28	Custom Cable Assembly	14-core 1-to-3 Plug Assembly	1	/
3		Q0701000 50	Standard Cable Assembly	Ethernet Cable; UGREEN Cat 7 Double Shielded; Male-to-Male; 5m Length	1	/
4		P0101000 27	10A Test Leads	Yellow-Green Cable; 2.1mm ² × 2.5m; A/B End Φ4 Probe Style; Model ET-54	1	/
5		C0901000 07	Universal Communication Module	GPS Antenna; 5m Length	1	/
6		C0901000 31	Universal Communication Module	WiFi + Bluetooth Dual-function Transceiver	1	/
7		W0103000 05	Pulse Output Cable	A End: ET-23 Alligator Clips (Black, Red, Yellow) Set B End: Lemo 5-pin Connector MAG.1P.C05.SLAC52GZ	1	/
8		W0103000 06	Pulse Input Cable	A End: ET-23 Alligator Clips (Black/Red) Set B End: Lemo 5-pin Connector MAG.1P.C05.SLAC52GZ	1	/
9		K0301000 29	Wired Network Card	USB 3.0 to RJ45 Ethernet Adapter; Black	1	/
10		A0501000 07	Fusing Fuse	2A; 250V; One-time Use; 29.3mΩ; 5×20mm	3	/
11		H0202000 02	Temperature Probe	Cable Length: 2 meters	1	/

S/N	Pic	Code	Name	Specification	Qty	Note
12		H0203000 36	TD1320 Pulse Optoelectronic Input Cable	A End: TP-17C Photoelectric Sensor	1	/
				B End: Lemo MAG.1P.C05.CPAC52GZ Connector		
13		H0203002 71	TK403A Emergency Stop Signal Input Cable_V11	/	1	/
				/		
14		H0203002 70	TK403A Door Open Signal Input Cable_V11	/	1	/
				/		
15		R0103000 04	Certificate of Conformity	/	1	/
				/		
16		K0301000 37	USB (including manual/software)	/	1	/
				/		

8.2 Optional Accessory

S/N	Pic	Code	Name	Specification	Qty	Note
1		N070100001	Vehicle Charging Connector	AC Charging Plug Cable Assembly; 63A; Dolphin Type	1	Optional accessory for the main unit (sold separately)
2		K030100065	Test Laptop	- i5, Quad-core, 16GB RAM, 512GB Storage - Runs automated testing software	1	Optional
3		F010700135	TK4955 AC Charging Socket-Terminal Adapter	- Primarily used for interconnecting instruments with AC charging interfaces, such as AC charging stations and testing equipment, with instruments that have conventional terminal connections. - Rated Operating Voltage: 440V AC - Rated Operating Current: 63A	1	Optional
4		F010700145	TK4965 AC Charging-power Calibration Adapter	- Primarily used for calibrating the TD1330 with a standard power energy device. - Rated Operating Voltage: 440V AC - Rated Operating Current: 63A	1	Optional
5	-	N070100041	Vehicle Charging Connector	AC European Standard IEC Type 2 to GB/T, Three-phase, 32A	1	Optional
6	-	N070100050	Vehicle Charging Connector	AC American Standard IEC Type 1 to GB/T, Single-phase, 32A	1	Optional

Note: The above accessories need to be purchased separately and must be specified in the order contract.