# KEWTECH KEWEVSE Testing Charger Adapter User Manual



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**Adapter User Manual**

KEWTECH
キューテック

EVSE Adapter
Manual

GB Manual


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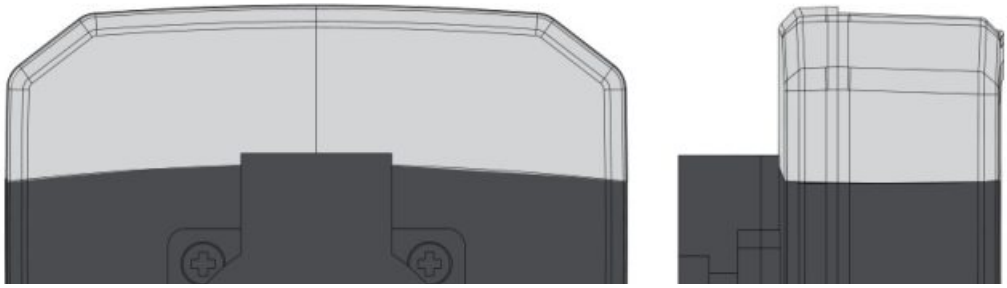

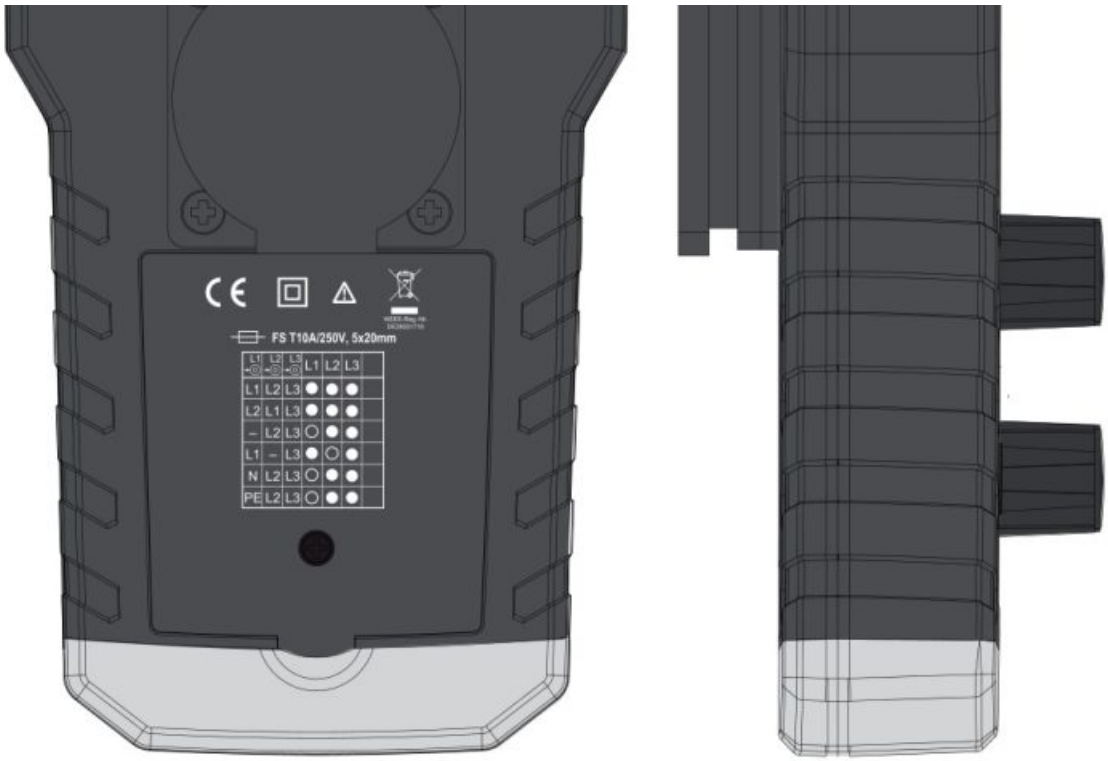


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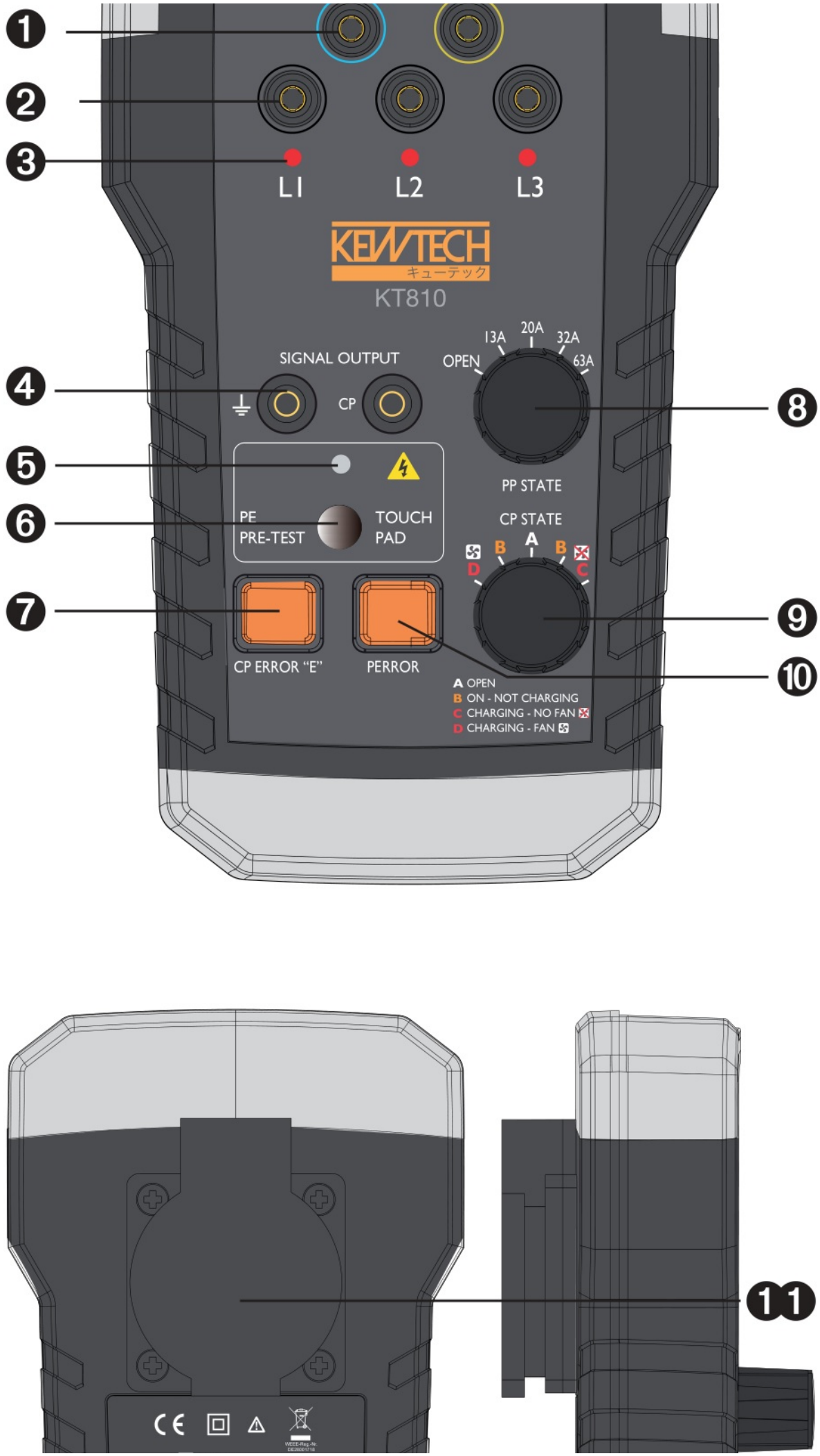
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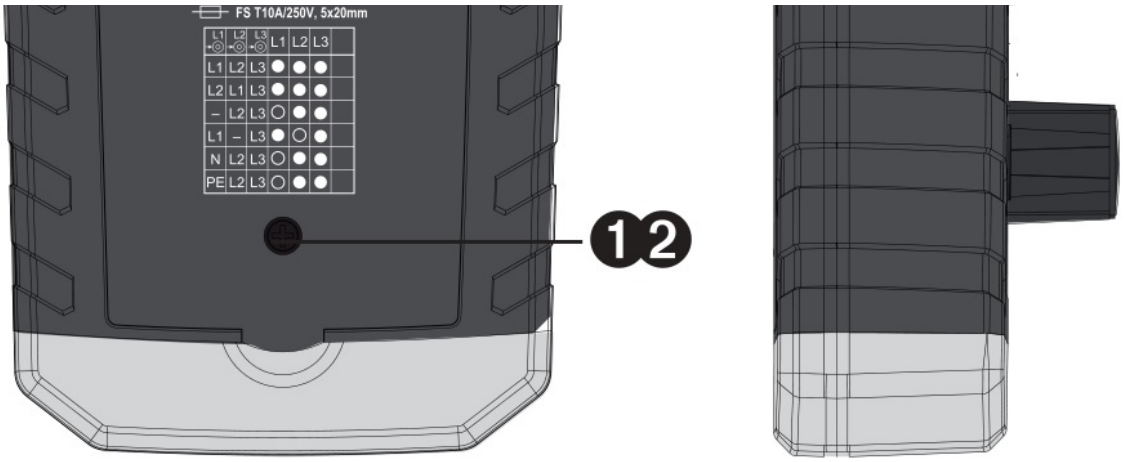


1. Measuring terminals N, PE
2. Measuring terminals L1, L2, L3
3. Phase indicators LED for L1, L2, L3 terminals
4. PE and CP Signal output terminals
5. PE Pre-Test warning light indicator
6. PE Pre-Test touch probe
7. “E” – CP Error simulation button
8. PP (Proximity Pilot) State rotary switch selector (open, 13A, 20A, 32A and 63A)
9. CP (Control Pilot) State rotary switch selector (A, B, C, D)
10. PE Error (Earth Fault) simultion button
11. Mains socket. Use for test purpose only.
    Allowed current max. 10 A
12. Mains socket fuse compartment.

**Adapter is equipped with 25 Cm cable with type 2 EVSE connector.**


## References

### References marked on instrument or in instruction manual

Warning of a potential danger, follow with instruction manual.

 Reference! Please use utmost attention.

 Caution! Dangerous voltage. Danger of electrical shock.

 Ground terminal

 Continuous double or reinforced insulation category II IEC 536 / DIN EN 61140.

 Conformity symbol, the instrument complies with the valid directives. It complies with the EMC Directive (2014/30/ EU), Standard EN 61326 is fulfilled. It also complies with the Low Voltage Directive (2014/35/EU) Standards EN 61010-1 and EN 61010-031.

 Instrument fulfils the standard (2012/19/EU) WEEE.
This marking indicates that this product should not be disposed with other household wastes throughout the EU. To prevent possible harm to the environment or human health from uncontrolled waste disposal, recycle it responsibly to promote the sustainable reuse of material resources. To return your used device, please use the return and collection systems or contact the retailer where the product was purchased. They can take this product for environmental safe recycling.

## Safety References

 The respective accident prevention regulations established by the professional associations for electrical systems and equipment must be strictly met at all times.

 In order to avoid electrical shock, the valid safety and VDE regulations regarding excessive contact voltages must receive utmost attention, when working with voltages exceeding 120V (60V) DC or 50V (25V)rms AC. The values in brackets are valid for limited ranges (as for example medicine and agriculture).

 Measurements in dangerous proximity of electrical systems are only to be carried out in compliance with the instructions of a responsible electronics technician, and never alone.

 If the operator’s safety is no longer ensured, the instrument is to be put out of service and protected against use. The safety is no longer insured, if the instrument:

- shows obvious damage
- does not carry out the desired measurements
- has been stored for too long under unfavourable conditions
- has been subjected to mechanical stress during transport.

 The instrument may only be used within the operating ranges as specified in the technical data section.

 Avoid any heating up of the instrument by direct sunlight to ensure perfect functioning and long instrument life.

 The opening of the instrument for fuse replacement, for example, may only be carried out by professionals. Prior to opening, the instrument has to be switched off and disconnected from any current circuit.

 The instrument may only be used under those conditions and for those purposes for which it was conceived. For this reason, in particular the safety references, the technical data including environmental conditions and the usage in dry environments must be followed.

When modifying or changing the instrument, the operational safety is no longer ensured.

## Testing of the charging station

#### PE Pre-Test

**Prior all other tests PE pretest must be successfully carried out. Never touch PE terminals at the mains socket on the back side before PE pretest is successfully finished.**

The PE Pre-Test allows the operator to test the PE conductor for possible presence of dangerous voltage against earth.
Normally the PE conductor is connected to earth and has no voltage against earth.
In the case when PE conductor is not connected to earth (mistakenly connected to phase or possibly broke) it can bring operator or users in to the life hazard situation .

#### Test procedure:

– Connect the test adapter to the charging station
– Touch the probe (no. 6 on the picture) with a bare finger
– If light indicator (no. 6 on the picture) is illuminated then dangerous voltage is present at PE conductor. Stop further testing immediately and check for a possible wiring fault.

Do not wear gloves while performing this test and ensure a proper connection to earth. Never touch any metal parts during this test. In case of improper earthing (e.g., operators body isolated from the earth) this test may be not reliable.

#### Proximity Pilot (PP) State (Cable Simulation)

With the PP State rotary switch, can be simulated current capabilitie of the charging cable. Current capabilities are

simulated with different resistances connected between PP and PE conductors. Correlation between resistance and current capability of the charging cable is shown in the table below.

| Cable current capability | Resistance between PP and PE |
|---|---|
| No cable | Open (∞) |
| 13 A | 1.5 kΩ |
| 20 A | 680Ω |
| 32 A | 220Ω |
| 63 A | 100Ω |

**Control Pilot (CP) State (Vehicle Simulation)**

With the CP State rotary switch selector various vehicle states can be simulated. Vehicle states are simulated with different resistances connected between CP and PE conductors. Correlation between resistance and vehicle states is shown in Table below.

| Vehicle State | State Description | CP-PE Resistance | CP terminal voltage |
|---|---|---|---|
| A | Electric vehicle not connected | Open (∞) | ±12V @ 1KHz |
| B | Vehicle connected, not ready to charge | 2.74K | +9V/-12V @ 1KHz |
| C | Electric vehicle connected, ready to charge, ventilation not required | 882Ω | +6V/-12V @ 1KHz |
| D | Electric vehicle connected, rady to charge, ventilation required | 246Ω | +3V/-12V @ 1KHz |

**CP Signal output terminals**

CP output terminals are short connected to the CP and PE conductors of the tested charging station via the test cable (no.4 on the
picture).
Use an oscilloscope to check the waveform and amplitude of the CP signal.
Control Pilot function uses Pulse Width Modulation (PWM) to code communication between a vehicle and charging station. The duty
cycle of the PWM signal defines the possible available charging current, while amplitude defines charger state.
For details of communication protocol please refer to IEC/EN 61851-1 and the documentation of the manufacturer of the charging station.

**Important note: In the case of wrong wiring of the charging station, low signal CP test terminals can get high, live hazard voltage.**

#### CP Error “E” simulation

“E” – CP Error simulation button (no. 7 on the picture). With pushed button “E” operator can simulate behavior of the station when there is established a short circuit between CP and PE through internal diode (acc. to standard IEC/EN 61851-1). In the case of CP Error (“E” is pushed), result should be aborting of the charging process and new charging process is prevented.

#### PE Error (Earth Fault) simulation

With the PE Error button (no. 10 on the picture), interruption of the PE conductor is simulated. As a result the pending charging process is aborted and new charging process is prevented.

#### Phase indicator

The phase indicators are LEDs, one LED for each phase (no. 3 on the picture). When the test adapter is connected to the charging station and phase voltages are present at the charging connector, the LED indicators will illuminate.

- In the case neutral (N) conductor is not present or it is interrupted, LED indicators will not indicate possible voltage presence at L1, L2 and L3 conductors. The LED indicators are not intended to be used for phase sequence testing.
- When tested single phase charging station, only one LED will illuminate.

#### Mains socket

The mains socket (no. 11 on the picture) is connected to L1, N and PE conductors of the charging station. External load can be connected to the socket. This output is intended for measuring purposes only and offers the possibility to check the electric power meter functionality. It is not allowed to supply anything else trough the socket. The max. current is limited to 10 A with an T10A/250V, 5×20 mm fuse located in the back compartment of the Adapter.

#### Measuring terminals L1, L2, L3, N and PE

Measuring terminals (no. 1 and 2 on the picture) are directly connected to L1, L2, L3, N and PE conductors of the tested charging station. It is allowed to use these for measuring purposes only. It is not allowed to draw current over a longer period or supply anything else. An appropriate measurement instrument is needed.

#### Fuse replacement

 Prior to fuse replacement, ensure that multimeter is disconnected from external voltage supply and the other connected instruments (such as UUT, control instruments, etc.)
Only use fuses as described in the technical data section!
Using auxiliary fuses, in particular short-circuiting fuse holders is prohibited and can cause instrument destruction or serious bodily
injury of operator.
The fuse (T 10 A / 250 V, 5 x 20 mm). If no voltage is present between the L and N terminals of mains socket when the charging connector is connected to the charging station and the charging station is in charging mode, it is possible that mains socket fuse is broken.

- In that case disconnect adapter from the charging station
- open cover from the back of the adapter (appropriate screwdriver is necessary)
- Locate and replace fuse with the fuse of the same type.
- Return back cover of the fuse compartment.

#### Cleaning

If the instrument is dirty after daily usage, it is advised to clean it by using a humid cloth and a mild household detergent. Prior to cleaning, ensure that instrument is switched off and disconnected from external voltage supply and any other instruments connected (such as UUT, control instruments, etc.).
Never use acid detergents or dissolvent for cleaning.

## Specifications

| | |
|---|---|
| Input voltage: | max. 250V (single phase), max. 430V (three phase) 50/60Hz |
| Measurement Category: | CAT II 300V |
| Mains socket rating: | 250V/10A |
| Mains socket protection: | Fuse T10A/250V |
| PP simulation: | Open circuit, 13A, 20A, 32A, 63A |
| CP simulation: | States A, B, C, D |
| Error simulation: | CP error “E”, PE (earth fault) error |
| PE Pre-Test: | Yes |
| Test connector type: | IEC62196-2 Type 2 male |
| Test cable length: | 25 Cm |
| Working temperature: | 0 … +40ºC |
| Storage temperature: | -10 … +50ºC |
| Humidity: | 0-80% RH |

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## Documents / Resources

| | |
|---|---|
|   | KEWTECH KEWEVSE Testing Charger Adapter [pdf] User Manual<br>KEWEVSE Testing Charger Adapter, KEWEVSE, Testing Charger Adapter |