

PM-01 Power Metering Socket

1. Related symbols in the manual

- ⚠ This manual includes necessary safe handling information and equipment maintenance methods. Please read each part of this manual carefully before using this equipment.
- ⚠ In case of any unread or incomprehensive behaviors to usages of equipment in this manual, physical injury may happen to you. Also, this equipment may be damaged.
- △ Conforms to UL STD 61010-1, 61010-2-030;
- △ Conforms to CSA STD C22.2 NO.61010-1, 61010-2-030

	Do not discard this product as an unclassified municipal waste, but put it into a fixed cell recycle bin for disposal.
CAT II	Test and measuring circuits connected directly to utilization points (socket outlets and similar points)the low-voltage MAINS installation.

2. Safety instructions

- Its housing is necessary to be checked before using this power metering socket. Check whether the housing is cracked or lack of plastic parts, especially the insulation situation around the plug. In case of any damaged appearance, do not use this product.
- In the event of any abnormal operation, please do not use this power metering socket, its internal structure may be damaged; for any question, please deliver this product to a designated place for maintenance and repair.
- Keep this power metering socket away from explosive gases, vapor and dust environment, and avoid laying it on some moist/wet place.
- The load power of electrical appliance of this product should not exceed its rated power of 1500W or the maximum current of 6A. When in full load, it is recommended no more than 1h service time.
- Do not unplug this product at will, let alone disassemble the energized product for check.
- This power metering socket with hazardous voltage should be placed on some places keeping away from children.

3.PM-01 product presentation

The brand-new HTC multifunctional power metering socket series includes five-country versions of PM-01, and its main functions are metering and charging. This product inside is designed with professional micro-chips and electric energy metering chips, and equipped with a high-precision current sensor, thus giving real-time monitoring to

AC power supply unit situation: when over-current appears, it would alarm and prompt users to cut off power so as to make sure electrical safety. Product features are shown below:

- 1) Electric safety transfer function
Electric safety transfer and other functions are available by connecting this product to a common socket and then plugging the electrical appliance in this product.
- 2) Measuring and metering function
Detect the electrical appliances' (load) voltage, current, power, power factor, frequency, electric quantity, electric charge, CO2 emission load, total time, etc. In real time, and these data would be displayed via the display interface of this product, so you can master the working state and power consumption situations of electrical appliance conveniently and visually; in case of sudden power lost, the recorded electric quantity, electric charge, total time, CO2 emission load and other information could be saved automatically.
- 3) Over-current warning function
When using this product, in case the load current exceeds 5.6A for around 10s, the power light and "OL", "△" and other characters on the display screen would flicker to prompt users to cut off the power due to over-current.

● **Note: In case over-current emerges, this power socket would remain in "OL" and "△" flickering state (protection model), and any other operations are invalid (however, current measurement reading is valid this moment), even reenergizing this product. If you want to exit this state, you need to long press any key under the premise of energizing this product by external power supply (that is, plugging this power socket into a common outlet), then normal model can be available.**

4. Display interface

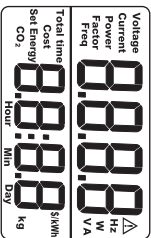


Figure 1 Full Display Image

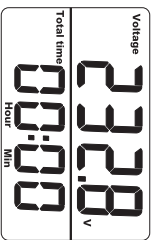


Figure 3

- a. The display area is divided into two parts, the upper half is the main display area and can be viewed by switching "MODEL" key.
The bottom half is secondary display area and can be viewed by switching "COST" key.
- b. Display mode: Corresponding parameter + metering value + metering unit. For example: Voltage 220 V ; Current 10 A ; Cost 99.99 \$, Energy 1000 kWh Hour Min Day, the last line in the display area, is used to record the total time after the power socket is energized. For example, 08Hour50Min, only Day is displayed when the total time exceeds 1 day, and the xx Hour xx Min total time can be viewed by short pressing the "+" key. See Figure 11, 12 and 13 for details.

5. Detailed key function introduction



Figure 2

- 1) "COST" key, is used to switch function states in the lower half and show cyclic contents one by one, that is, "Total time", "Cost", "Set", "Energy", "CO2" and corresponding values display circularly.
- 2) "MODEL" key, is used to switch each function states in the upper half display area, display content cycling, i.e., "Voltage", "Current", "Power", "Power Factor", "Trend" and corresponding values display circularly.
- 3) "Set" key, is used to switch to corresponding model via "COST" key, long press "Set" key and enter setting state; there are only two models can enter the setting state, i.e. "COST" and "CO2", among which, the "COST" is used to set the unit price of electric charge which can be set based on the actual conditions; under the setting interface, it indicates that the figure can be set if it flickers, press "+" to increase the number of digits, then conduct next step by short pressing "Set" after setting, and save data by long pressing "Set" after the complementation of all sets.
- 4) The "+" key has three main functions, the first is to increase the number of digits, increasing one digit by once short press, 0-9 cycle. The second is the reset function; reset the Energy, Cost or the emission load of CO2 by long press under corresponding models. The third is the wakeup function; wake up the power metering socket by short press under standby state, and only this key can wake up the power metering socket.

6. Operation and use

- 1) Measure the interface
Plug the power metering socket into household socket, it will start automatically then enter the default measurement interface ("Voltage and Total time" model), see Figure 3
- 2) Check the functions and states of all models
Check all models of the upper half by short pressing "MODEL", return to default model ("Voltage" model) by long pressing "MODEL"; Check all models of the bottom half by short pressing "COST", return to default model ("Total time" model) by long pressing "COST"
The check methods of all upper half models are as follows: the default model is the "Voltage" model. See Figure 3

Enter the "Current" model by short pressing "MODEL"; (assume the bottom half is "Totaltime" model)



Figure 4

Enter the "Power" model by short pressing "MODEL"; (assume the bottom half is "Totaltime" model)

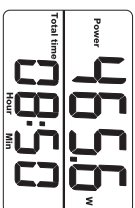


Figure 5

Enter the "PowerFactor" model by short pressing "MODEL"; (assume the bottom half is "Totaltime" model)



Figure 6

Enter the "Trend" model by short pressing "MODEL"; (assume the bottom half is "Totaltime" model)



Figure 7

- The check methods of all bottom half models are as follows: the default model is the "Total time" model.
Enter the "Cost" model by short pressing "COST". (Assume the upper half is "Voltage" model)
- Enter the "Energy" model by short pressing "COST". (Assume the upper half is "Voltage" model)



Figure 8



Figure 9

Enter the "CO₂" model by short pressing "COST". (Assume the upper half is "Voltage" model)

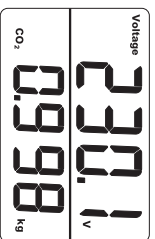


Figure 10

If the time accumulated is less than 1 day, only "Hour and Min" will be displayed, see Figure 12; Check the stopwatch time by short pressing "+", see Figure 13.

If the time accumulated exceeds 1 day, it will be displayed in the form of "Day", see Figure 11 below; at that time, check "Hour and Min" by short pressing "+", see Figure 12, and the total time is: 2 Day 8 Hour 50 min



Figure 11



Figure 12



Figure 13

△ There will be interface which is similar to the following under over-current state (see Figure 14).

("Δ", "OL" and other characters flicker, the power light will also flicker)



Figure 14



Figure 15

7. CO₂ parameter setting

Switch to the "CO₂" model by short pressing "COST" key, and then enter the interface of CO₂ parameter setting interface by long pressing "Set" key, adjust by short pressing "+", 0-9 cycle, then conduct next step by short pressing "Set", and save data by long pressing "Set" after the complementation of the set, the parameters of which range from 0-9.999kg. The default parameter value is: 0.998kg. See Figure 15 to Figure 16

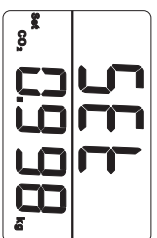


Figure 15

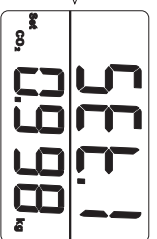


Figure 16

8. Cost setting

Switch to "COST" model by short pressing "COST", enter the interface of setting unit price of electric charge by long pressing "Set" key, and adjust by short pressing "+", then conduct next step by short pressing "Set", and save data by long pressing "Set" after the complementation of set, the parameters of which range from: 0-99.99 \$/kWh. The default parameter value is: 01.00 \$/kWh. See Figure 17 to Figure 18



Figure 17

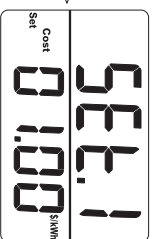


Figure 18

9. Application and replacement of the cell

1) The power metering socket comes with 3V button cell to save data and ensure the accurate operation of the clock, and let users easily separate the external power operation and prevent the potential safety hazard caused by accident electric shock.

The power metering socket will close display automatically if there is no operation for 5s after separating the external power, and enter the standby state. See Figure 19

2) Under the standby state, wake up the power metering socket by short pressing "+", and then enter related parameters setting to set the parameters of unit price of electric charge and CO₂ emission load and check the set parameters at the same time.

Under the condition of separating the external power, the power metering socket will enter the standby model automatically if there is no operation for about 10s. See Figure 19

• Cell replacement

If the power metering socket is powered by cell only (namely, powered separately from the external power), the cases of fuzzy LCD display, figure or the LED flicking and no display on the LCD indicate that the cell will run out and is needed to be replaced in time.

- Please ensure that the metering socket has been disconnected with power prior to replacing the cell.
 - Remove the cell cover's screw with a screwdriver.
 - Then remove the cell cover and take out the cell.
 - Install the prepared new cell, fit on cell cover, and tighten the screw with screwdriver.
- See the following figure for detailed steps:

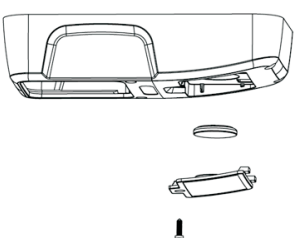


Figure 20

10. Technical indexes

Voltage (V): 100VAC-260VAC 50Hz
Current (A): 0-6A
Rated Power(W): 1380W
Power Factor: 0-1.00
Energy: 0-9999kWh
Cost: 0-\$9999
Total time: 0Min-9999Day
Frequency Measurement: 45Hz-65Hz
Over-current warning: >6.6A 10s, >7.2A 2s
Operation Temperature/Relative Humidity: 0°C-45°C/<95%RH
Storage Temperature/Relative Humidity: -10°C-60°C/<95%RH
Operating height: max.2000m (above sea level)

Other parameters:

Power supply	3V button cell (CR2032) X 1
LCD size	50×36mm
Color	
Weight	155g
Dimension:	130mm×65mm×37 mm
Standard fittings:	Cell and cell insulating strip
Standard packing	Gift box , manual

Manufacturer:

HTC Instruments
DR.CWJ ROAD , DHOBI TAOLA
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