# DTSU666
# Smart Power Sensor
# Quick Guide

**Issue :019.1104-01**
**Date :2025-04**

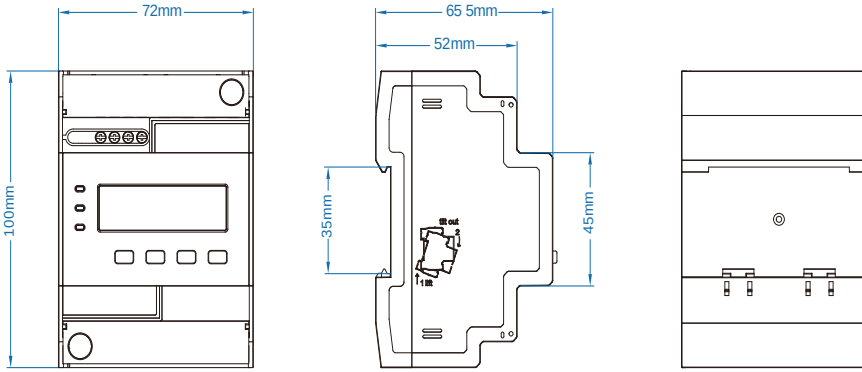
ZTW0.464.0393EN

# 1 Overview

## 1.1 Models

| Type | Width(18 mm module in Din rail mounting) | Dimension (L*W*H)/mm | Net weight/g |
|---|---|---|---|
| DTSU666 | 4 | 100×72×65.5 | Approx. 236 |

Note: the max. length is 175mm with upper and lower terminal long cover.




NOTE Unmarked tolerance is ±1mm;
The appearance, dimensions information please refer to the actual product received.

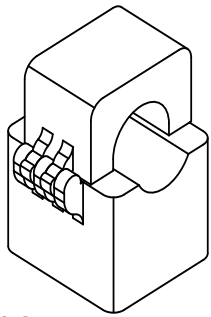
## 1.2 Performance and Specification

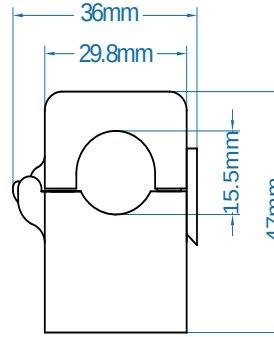
| Category | DTSU666 |
|---|---|
| Nominal voltage | 3×57.7V/100V…3×240V/415V |
| Nominal current | 100A/40mA, 250A/50mA, 100A/333mV, 250A/333mV (customizable) |
| Frequency | 50/60Hz |
| Voltage range | 0.8Un-1.15Un |
| Accuracy class | Class 1 |
| Power grid system | 1P2W or 3P4W or 3P3W |
| Baud rate | 1200bps/2400bps/4800bps/9600bps (default 9600bps) /19200bps/38400bps/115200bps (optional) |
| Temperature | -25℃~+55℃(nominal),-40℃~+70℃(ultimate) |
| Way to install | DIN-Rail Mounting |
| Certification | CE，SAA，RoHS，REACH |

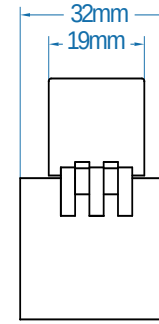
## 1.3 Current transformer(CT)

| Type | Cable length/mm | Net weight per CT/g |
|---|---|---|
| 100A/40mA | 6000±20 | Approx. 79 |
| 100A/333mV | | |
| 250A/50mA | | Approx. 162 |
| 250A/333mV | | |

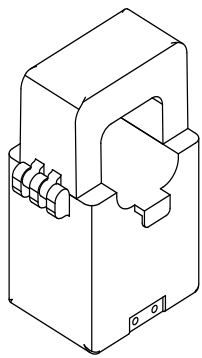
- **100A CT**

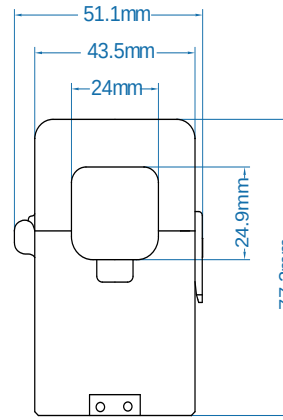


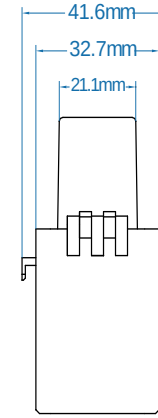



- **250A CT**

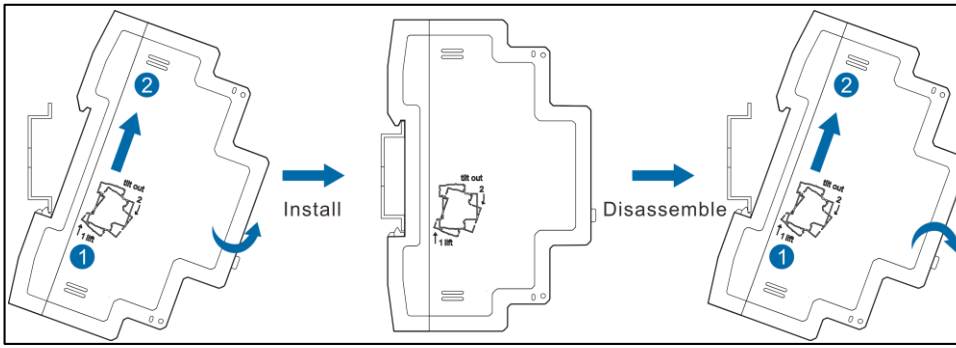





NOTE The dimensional tolerance is ±1mm ; The appearance, size and information are subject to actual objects.

# 2 Installing




# 3 Installing the Cable

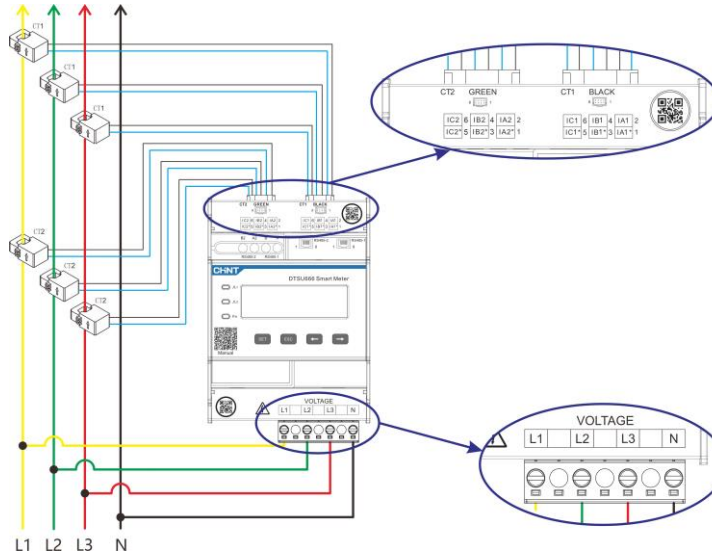
## 3.1 Prepare cables

| Cable | Port | Type | Conductor Cross-sectional Area Range | Outer Diameter | Source |
|---|---|---|---|---|---|
| AC power cable | L1(Ua) | Multi-core outdoor copper cable | 1.5mm²~2.5mm² | 3mm~5mm | Prepared by the customer |
| | L2(Ub) | | | | |
| | L3(Uc) | | | | |
| | N | | | | |
| CT cable | IA1*、IA1 | / | / | / | Manufacturer |
| | IB1*、IB1 | | | | |
| | IC1*、IC1 | | | | |
| | IA2*、IA2 | | | | |
| | IB2*、IB2 | | | | |
| | IC2*、IC2 | | | | |
| communication cable | RS485_1<br>RS485_2 | Two core outdoor shielded twisted pair | 0.25mm²~1mm² | 4mm~11mm | Prepared by the customer |
| | RS485_1(RJ45)<br>RS485_2(RJ45) | Cat 6 Ethernet Cable | / | / | |

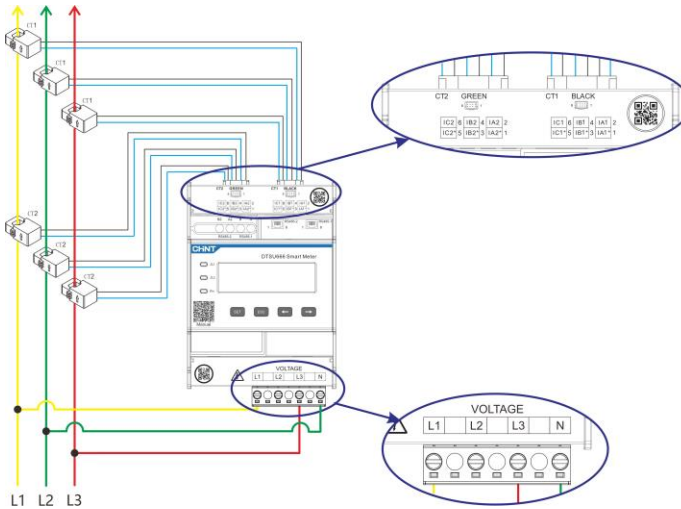
NOTE The maximum torque of AC power and comm. terminal screws is 0.5N.m, and the recommended skive wire length is 7mm.

## 3.2 Wiring diagram

- **Three-phase four-wire, 'nEt' = n.34**




- **Three-phase three-wire, 'nEt' = n.33**



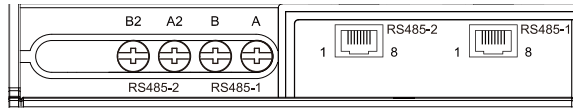

**NOTE**

- 'nEt' value need to be checked after connection complete. Refer to section 4 'Display and Parameter Settings' for details,

**CAUTION**

Before connecting cables, ensure that the Smart Meter is not damaged in any way; Please ensure that the grounding wire is securely installed; Before powering on, please ensure that the wiring is correct, otherwise electric shock, damage to the smart meter, or fire may occur.

## 3.3 Communication Connection




- **RS485-1**

  There are 2 types of connection interface. Screw type and RJ45 type. The default A is PIN3 and B is PIN6 in RJ45. Please note that the customer's customized requirements shall be subject to the actual product.

- **RS485-2**

  There are 2 types of connection interface. Screw type and RJ45 type. The default A is PIN3 and B is PIN6 in RJ45. Please note that the customer's customized requirements shall be subject to the actual product.

⚠ CAUTION RS485-1 and RS485-2 are completely independent in both physical layer and function.

# 4 User Interface

## 4.1 LED and LCD overview


NOTE The figure above is for reference only, please refer to the actual product received.

- **LED**

  "⎍1" and "⎍2" indicates the first loop and the second loop energy pulse respectively; "Fn" is function indication, always on during phase sequence adjust process.

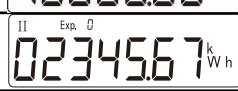
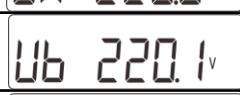
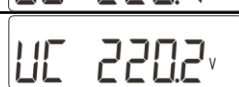
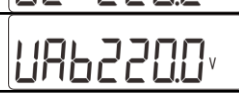
- **LCD**

| No. | Symbol | Description |
|---|---|---|
| 1 | III | The first measuring loop: I<br>The second measuring loop: II |
| 2 | Imp. | Import direction |
| 3 | Exp. | Export direction |
| 4 | 8 | RS485-1 or RS485-2 |
| 5 |  | Flash during communication |
| 6 | kMm°C<br>VVAh<br>varh | Unit (according to the display items) |

## 4.2 Display

Press the "←" and "→" keys to switch the display items. The display items is listed in following table.

The sequence and items is varied from product types, please refer to the actual product received.

| No. | Display interface | Description |
|---|---|---|
| 1 |  | Imp. active energy of the first loop<br>= 10000.00kWh |
| 2 |  | Exp. active energy of the second loop<br>= 2345.67kWh |
| 3 |  | Phase A voltage = 220.0V (3P3W not support) |
| 4 |  | Phase B voltage = 220.1V (3P3W not support) |
| 5 |  | Phase C voltage = 220.2V (3P3W not support) |
| 6 |  | Uab = 220.0V |

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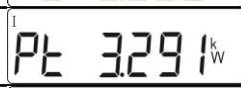
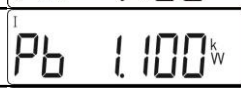
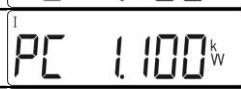
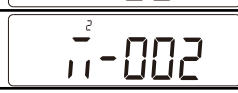
| No. | Display interface | Description |
|---|---|---|
| 7 |  | Ubc = 220.0V |
| 8 |  | Uca = 220.0V |
| 9 |  | Phase A current of the first loop = 5.000 A |
| 10 |  | Phase B current of the first loop = 5.001A |
| 11 |  | Phase C current of the first loop = 5.002A |
| 12 |  | Total active power of the first loop = 3.291kW |
| 13 |  | Phase A active power of the first loop = 1.100 kW |
| 14 |  | Phase B active power of the first loop = 1.100 kW |
| 15 |  | Phase C active power of the first loop = 1.100 kW |
| 16 |  | Power factor(PF) of the first loop =0.500 (direction is the same with active power) |
| 17 |  | Phase A PF of the first loop =1.000 (3P3W shows “----") |
| 18 |  | Phase B PF of the first loop =1.000 (3P3W shows “----") |
| 19 |  | Phase C PF of the first loop =1.000 (3P3W shows “----") |
| 20 |  | Frequency of the first loop =50.001Hz |
| 21 |  | RS485-1is Modbus, and the communication address is 1 |
| 22 |  | RS485-2 is Modbus, and the communication address is 2<br>(If there is only one communication serial port, it will not show) |

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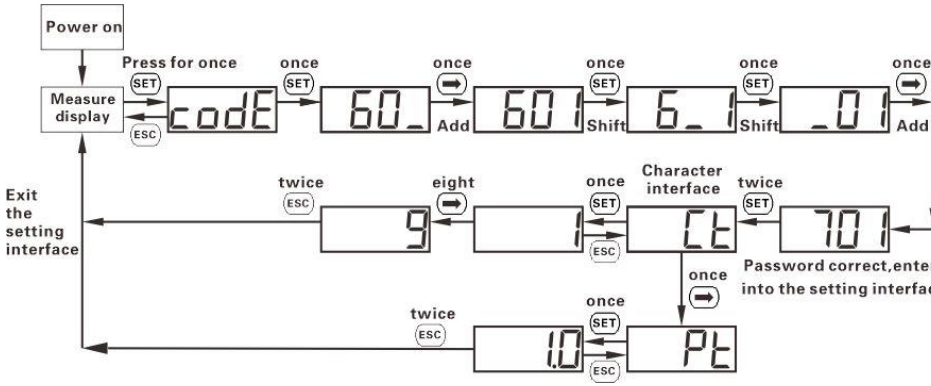
| No. | Display interface | Description |
|---|---|---|
| 23 |  | RS485-1 baud rate is 9600bps |
| 24 |  | RS485-2 baud rate is 9600bps<br>(If there is only one communication serial port, it will not show) |
| 25 |  | RS485-1 use 8 data bits, no check bit, and 1 stop bit |
| 26 |  | RS485-2 use 8 data bits, no check bit, and 1 stop bit<br>(If there is only one communication serial port, it will not show) |

## 4.3 Parameter

| Parameter | Value range | Description |
|---|---|---|
| Ct | 1~10 | Current ratio, used for setting the input loop current ratio: When the current is connected to the line via the transformer, Ct=the rated current of the primary loop / the rated current of the secondary circuit; When the current is directly connected to the line, Ct shall be set as 1.<br>1=100A/40mA,2=200A/40mA,4=400A/40mA,6=600A/40mA,10=1000A/40mA |
| Pt | 1.0 | PT defaults to 1.0 |
| Adr1 | 1~247 | Communication address, Adr1 is used in RS485-1 and Adr2 is used in RS485-2. |
| Adr2 | | |
| bPS1 | 1.200; 2.400;<br>4.800; 9.600;<br>19.20; 38.40;<br>115.2 | Communication baud rate, bPS1 is used in RS485-1, bPS2 is used in RS485-2<br>1.200:1200bps; 2.400:2400bps;<br>4.800:4800bps; 9.600:9600bps;<br>19.20:19200bps; 38.40:38400bps;<br>115.2:115200bps |
| bPS2 | | |
| nEt | n.34;<br>n.33; | Power grid system:<br>n.34:represents 3P4W;<br>n.33:represents 3P3W; |

## 4.4 Parameter Setup

Button description: "SET" represents "confirm" or "cursor shift" (when entering digits), "ESC" represents "exit", "←" represents "reduce", and "→" represents "add". The password is **701** by default.




When modify digits, " SET " can be used as cursor shift button ; " → " is " add " button; " ESC " represents exiting the setting interface or switch to the character interface from digit modification interface, restarting adding from zero after setting the digits to be the maximum value.

NOTE If the communication is abnormal, check and set parameters.

# 5 Diagnosis , analysis and elimination for common faults

| Fault phenomenon | Reason analysis | Elimination |
|---|---|---|
| No display after the instrument being powered on | 1.Incorrect wiring mode.<br>2.Abnormal voltage supplied for the instrument. | 1.If the wiring mode is incorrect, please connect based on the correct wiring mode (see the wiring diagram).<br>2.If the supplied voltage is abnormal, please supply the voltage on the instrument specification. |

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| Fault phenomenon | Reason analysis | Elimination |
|---|---|---|
| Power metering inaccuracy | 1.Wrong wiring, please check whether the corresponding phase sequence of voltage and current is correct.<br>2. Check whether the CT specification is correct.<br>Note : Pa, Pb, and Pc are abnormal if the values are negative. (except for some special equipment). | 1.For wrong wiring, please connect based on the correct wiring mode (see the wiring diagram).<br>2.If a negative value is displayed, change the cable connection mode of the current transformer to ensure that the high and low ends are connected properly. |
| Abnormal RS485 communication | 1. The RS485 communication cable is disconnected, short circuit or reversely connected.<br>2.The address, baud rate, data bit and parity bit of the instrument is not in accordance with the inverter.<br>3.The RS485 communication cable is not equipped with a matching resistor at the end (usually when the distance exceeds 150 meters);<br>4. Check whether external devices are reliably grounded;<br>Note: The communication protocol command between the instrument and the host does not match. | 1.If any problems for the communication cable, please change the cable.<br>2.Set the address, baud rate, data bit and parity bit of the instrument to be the same as the inverter through buttons and so as the "parameter setting".<br>Note: If the communication distance exceeds 150 meters and the communication parameters between the instrument and the host are the same, but communication still cannot be achieved, please reduce the communication baud rate or add a 120 Ω resistor at the beginning and end of the communication cable (the resistance value can be adjusted according to the on-site conditions). |

## 6 Warranty and Service

The manufacturer implements three guarantees for product quality. Within 18 months from the date of delivery, if the user fully complies with the provisions of this manual and the factory seal is still intact, the instrument is found damaged during use, and the company is responsible for free repair or replacement.

# 7 Environmental protection

Dear customer：

Please help us do one thing, when this product at the end of its life, in order to protect our environment, please do a good job of recycling the product or its parts and materials. Please also dispose of materials that cannot be recycled. Thank you very much for your cooperation and support.

# 8 Declaration

1. The products, services or features purchased by you are subject to the commercial contracts and terms signed with the Company, and all or part of the products, services or features described in this manual may not be included in the products purchased by you.

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# 9 Manufacturer Information

| | |
|---|---|
| Manufacturer | Zhejiang Chint IoT Technology Co.,Ltd. |
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| Website | http://aiot.chint.com |
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