DTZY 566-M Meter User’s Manual

Three Phase Smart Energy Meter

1. BASIC PARAMETERS

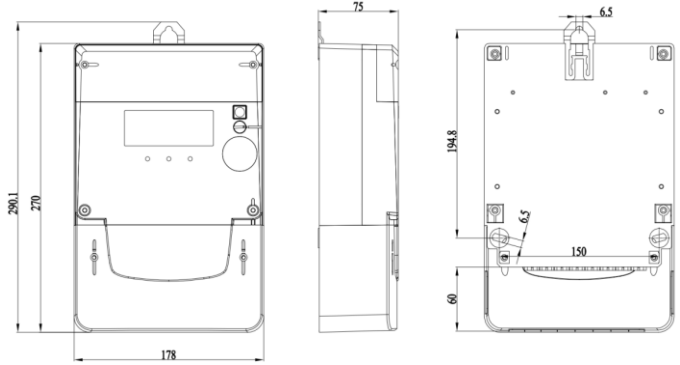
Item	Technical Character
Type	Three phase CT operated electric meter
Model	DTZY566-M
Reference Voltage (Un)	3x277/480VAC
Normal Operating Voltage Range	80%~120%Un
Operating Frequency	60Hz
Rated Current (In)	1A
Maximum Current (Imax)	10A
Starting Current (Ist)	1‰Ib
Accuracy Class	Class 0.5S for active Class 2 for reactive
Pulse Constant	10000imp/kWh 10000imp/kvarh

Operating Temperature	-30℃ to 75℃
Storage Temperature	-40℃ to 85℃
Relative Humidity	≤95%
Voltage circuit Consumption	< 2 W / 10 VA at Un
Current circuit Consumption	< 1 VA at In
Isolation	4 kV AC, 50 Hz, 1min
High voltage	8 kV, Impulse 1.2/50 μs
Mechanical environment	Class M1 as per 2014/32/EU Directive
Electromagnetic environment	Class E2 as per 2014/32/EU Directive
Class of protection	II
Degree of protection	IP 54

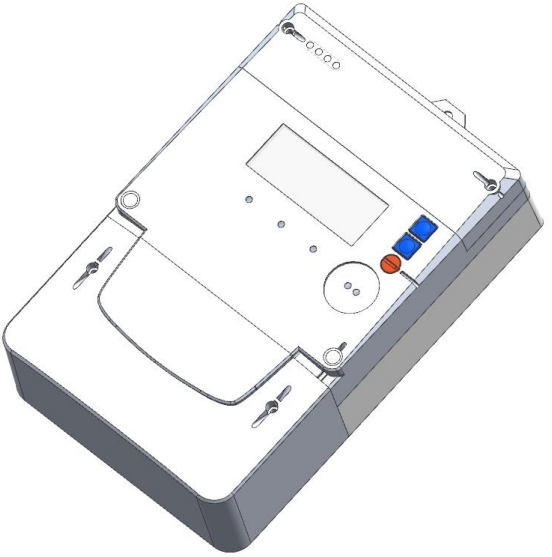
2. PHYSICAL DIMENSION AND INSTALLATION

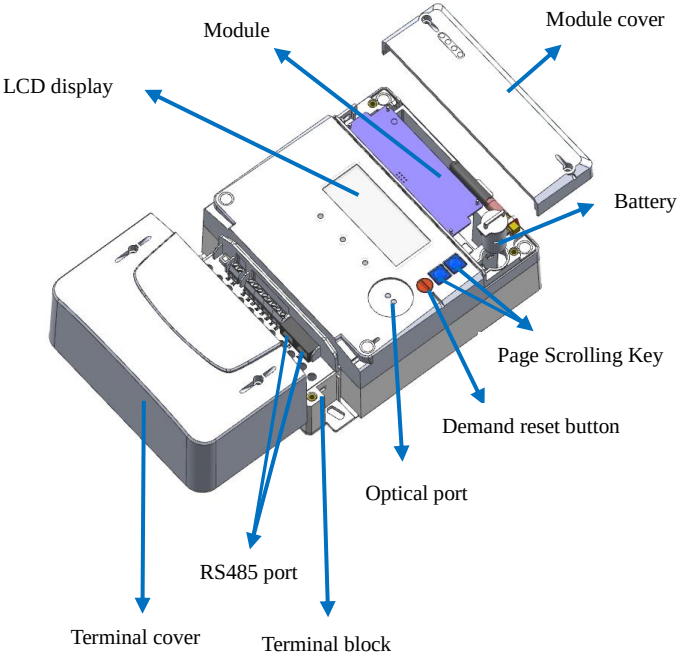
2.1. OUTLINE DIMENSION

Dimension is L×W×H=290.5mm×178mm×75mm, The front view,side view and back view as below.

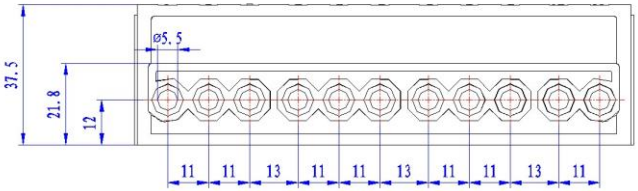


2.2. OUTLINE DIAGRAM



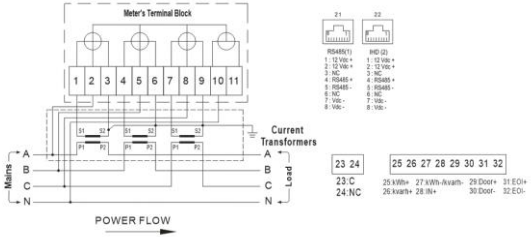


2.3. TERMINAL BLOCK



2.4. CONNECTION DIAGRAM

The connection diagram is printed on terminal cover.



Terminal	Name	Function
1	Current L1IN	Phase L1 current input;
2	VoltageL1	Phase L1 voltage Input

3	Current L1OUT	Phase L1 current output
4	Current L2IN	Phase L2 current input;
5	Voltage L2	Phase L2 voltage input
6	Current L2OUT	Phase L2 current output
7	Current L3IN	Phase L3 current input;
8	Voltage L3	Phase L3 voltage input
9	Current L3OUT	Phase L3 current output
10	Neutral (N) in	Neutral line input
11	Neutral (N) out	Neutral line output
21	RS485-1	RS485 port of meter, can be used to connect to external modem or local reading device.
22	RS485-2	RS485 port of meter , can be used to connect to local reading device.
23,24	Relay output	Used to connect breaker to disconnect/reconnect the load.
25,26,27	Remote pulse output	Used to connect other device to transfer pulse.
28	Reserved	Reserved
29,30	Meter box open detection	Used to connect meter box switch.
31,32	EOI/ RTC output	Used to connect other device to transfer signal.

2.5. INSTALLATION&MAINTENANCE

DANGER!

Incorrect handling of components under voltage can lead to serious injuries and accidents, which can be fatal even at 230V.

The conductors connected to the appliance must be disconnected from the mains during assembly and disassembly. They must be secured against unintentional reactivation.

The installer must consult and comply with local regulations and read the installation& maintenance instructions written in User manual before installation& maintenance.

CAUTION

The installer must be correctly equipped with personal protection equipment (PPE) and use the appropriate tools at all times during the installation.

CAUTION

Defective devices cannot be repaired themselves. All warranty and warranty rights expire when the device is opened. The same applies to damage caused by external influences.

DISPOSAL

When the device has reached the end of its useful life, it must be disposed of in accordance with national and local regulations.

3. OPERATION INTERFACE

3.1. Communication Interface

The meter provides one optical communication port and two RS485 ports for data reading and setting locally and remotely.

3.1.1. Optical port

The meter has an infrared optical interface module to enable the use of a RS-232 / USB compatible optical probe in compliance with IEC 62056-21. The login baud rate is fixed to 300bps. The communication baud rate can be negotiated with DLMS client, the default baud rate is 9600bps.

The optical port allows bi-directional communication with a Hand Held Unit (HHU) or any PC which provide standard RS232 port or USB port for rapid, error free electronic data transfer using the DLMS/COSEM protocol as well as IEC 62056-21.

The optical port can be used to locally access the meter to configure the meter parameters, read all the meter data and troubleshooting the network connection issue.

3.1.2. RS485 port

The meter provides two RS485 (RJ45 type)interfaces:

Port #21:

This port RS485 is used to local access the meter to configure the meter parameters, read all the meter data and troubleshooting the network connection issue.

Also it can be connected with external communication device.

Once the meter connected external communication device, The meter shall operate as a slave RS-485 communication unit, while communication device operates as its master unit.

Also this port can be used for locally Laptop reading via RS485 communication cable.

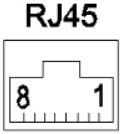
Port #22:

This port RS485 is used to local access the meter to configure the meter parameters, read all the meter data and troubleshooting the network connection issue.

Also it can be connected with IHD device can be wired(RS485) and wireless (Bluetooth, WIFI and etc).The protocol between meter and IHD is also DLMS/COSEM.

The RJ-45 terminals are protected by rubber sealing which is IP54 rated for dust ingress protection.

Both RJ-45 pin-out configuration as below:



Pin No.	**1.**	**2.**	**3.**	**4.**	**5.**	**6.**	**7.**	**8.**
Pin-out	12Vdc+	12Vdc+	NC	RS485 (+)	RS485 (-)	NC	GND (Vdc-)	GND (Vdc-)

3.1.3. Module

The meter provides a TTL interface which is used for different communication module, including Celluar/RF/PLC/LoRa and etc.

After install the communication module, the meter can have Bi-directional communication with HES/DCU directly

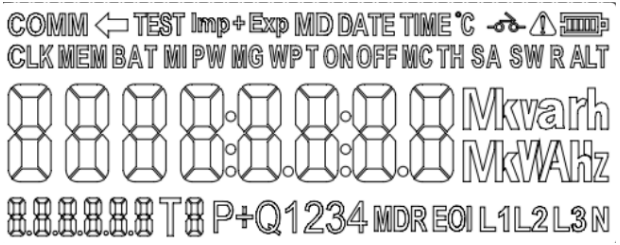
3.2. LCD Display

Meter provides the high-contrast and easy-to-read Liquid Crystal Display (LCD), which offers a wide array of the information and flexibility.

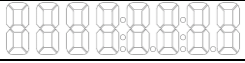
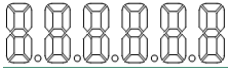
The meter display is comply with clause 5.10 “display of measured values” of IEC 62052-11 2016.

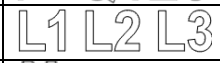
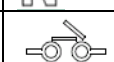
LCD display area size: 82.8mm × 32.48mm

Digit size: 5.69mm × 13mm



The display information as below table, it includes data area, status area, indicator, unit and so on..

	Symbol	Description
1		Main data display area.
2		OBIS short code (The C, D and E codes) to distinguish the displayed items.

3		Meter Tariff Indication
4		The quadrant indication of Active & Reactive power
5		Phase Indication
6		Neutral line indication
7		Relay status indication.
8		Reverse Current Indication
9		Indication for Direction of Energy, Demand and etc.
10		Indication for maximum demand
11		Alarm symbol Indication
12		Battery status Indication.
13		ALT mode Indication
14		TEST mode Indication
15		DATE indication
16		Time indication

17		Manual Demand reset lock Indication
18		End of Demand Interval
19		Reserved
20		Indication of energy value (Multiplication factor)
21		Communication Process Indication (Flashing)
22		Measuring Units: It supports var, W, V, A, VA, kW, kvar, KVA, KVAh, kWh, kvarh, Mvarh, MVAh, MWh, Hz.
23		Temperature indication
24		Clock Initialization indication
25		Memory Error indication
26		Battery Low/Failure indication
27		Meter Initialization indication
28		Reserved
29		Magnetic Field Detection indication
30		Reserved

31	T	Reserved
32	ON	Relay Control Operation (ON) indication
33	OFF	Relay Control Operation (OFF) indication
34	MC	Reserved
35	TH	Total Harmonics Limit Operation indication
36	SA	Sag Limit Operation indication
37	SW	Swell Limit Operation indication
38	R	Auto register indication

3.3. Keys

3.3.1. Display buttons

The two display buttons are used to scroll the display item on LCD screen.

3.3.2. Demand reset button

The Demand reset button is used to reset billing period data.

3.4. External Battery

The internal battery is a lithium battery, it supplies power for RTC, and easy to replacement it without soldering when meter in service.

Nominal capacity: 1200mAh

Lifetime:＞15 years

Back up time for RTC when power outage: ＞2 year

4. FCC warning statements:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off

and on, the user is encouraged to try to correct the interference by one or more of the following measures:
• Reorient or relocate the receiving antenna.
• Increase the separation between the equipment and receiver.
• Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
• Consult the dealer or an experienced radio/TV technician for help.

Caution: Any changes or modifications to this device not explicitly approved by manufacturer could void your authority to operate this equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The device has been evaluated to meet general RF exposure requirement. This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.
This equipment should be installed and operated with

minimum distance 20cm between the radiator & your body.