

METADU

METRO Single Phase 60A Sub-Meter

USER MANUAL



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www.metro prepaid.com

1.Product Description

The METADU is a single phase 60A two wire prepayment keypad integrated-type STS sub-meter, with IEC62055-compliant data encryption .

It has a built-in relay with advanced anti-tamper functions.

2. Features and Technical Parameters

2.1 Features

- Numeric keypad for inputting 20-digit STS tokens and Short Codes
- Keypad lifetime > 25000 inputs (multiple LAB tests)
- Full events record with optical interface
- Low balance credit and emergency LED
- LCD display
- Internal 60A relay
- Over load protection
- Terminal cover tamper protection
- Meter supports IR communication
- RoHS compliant
- UL + ANSI

2.2 Technical Parameters

Voltage:	120VAC
Current:	5(60) A
Accuracy class:	0.5
Standard:	UL61010-2-030, ANSI C12.1-2022, UL61010-1
Frequency:	50Hz

Impulse constant:	1 0 0 0 imp/ kWh
Display:	LCD 6+2
Power consumption:	≤10VA ≤1W
Starting current:	0.4%Ib
Temperature range:	-20 ~ 55℃
Average humidity value:	75%
Maximal value:	95%
Communication:	IR IEC62056-2 1 A Mode

3. Description

3.1 Description of Meter



- A low credit alarm indicator
- B pulse indicator
- C 3*4 keypad
- D LCD
- E IR communication interface pulse
- F output

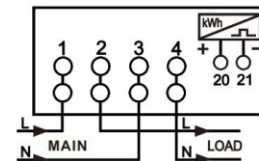
4. Display

4.1 LCD display



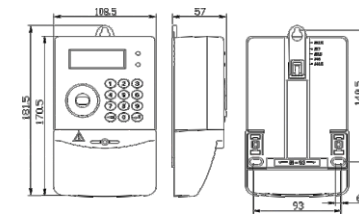
Symbol	Description
←	Power Reverse
Hand	Tampering status
Key	Relay open
Signal	Present power

5. Connection Diagram



6. Dimensions

6.1 Meter Dimensions



Height	170.5mm
Width	108.5mm
Depth	57mm

7. Software

7.1.1 Short Codes - Meter Programming

- Set Alarm Credit: input 456XX-enter.
where XX is alarm credit (kWh),no decimal,setting, range is 5-99kWh
- Alarm Buzzer Interval: input 123XXX-enter.
XXX is interval (minutes),setting range is 0-999 minutes.
- Emergency overdraft Credit: input 234510-enter
Overdraft is 10kWh.

Note: This process will fail when the balance credit is more than 0.
- Set low voltage alarm: Input XXX125-enter where XXX is voltage (V).
- Set low current alarm: Input XXX246-enter where XXX is current (A).

7.1.2 Short Codes - Queries







Code	Description	Code	Description
00	Test LCD display	59	Last credit kWh
01	Test the load switch	60	Last 2nd credit kWh
02	Test the Display	61	Last 3rd credit kWh
03	Total kWh register	62	Last 4th credit kWh
04	KRN & KT	63	Last 5th credit kWh
05	TI	64	Total technical tokens accepted
06	EEPROM error code	65	Last technical token accepted
07	Display power limit, kW	66	Last 2'rd technical token accepted
08	Tampering status	67	Last 3'rd technical token accepted
09	Instantaneous power	68	Total trip because over load times
10	Display software version	69	Total power source off times
37	Remaining Credit (kWh)	70	Total terminal cover open times
38	Total recharge kWh	71	Total meter cover open times
39	Power Factor(PF)	73	Overdraft energy
40	Apparent power	74	Hardware version
41	Rms voltage (V)	75	Meter ID No.
44	Rms current (A)	76	Meter Constant
47	Instantaneous power (W)	77	Supply Group Code (SGC)
53	Total number of tokens accepted	78	Alarm Duration time
54	Last credit token accepted	79	Alarm Low Credit limit
55	Last 2nd credit token accepted	81	Remain kWh allowed using time (hour/day)
56	Last 3rd credit token accepted	90	Low voltage
57	Last 4th credit token accepted		
58	Last 5th credit token accepted	91	High voltage

7.2 Events Record

- ※ Last 50 recharges - token codes
- ※ Last 50 recharges - credit
- ※ Last 50 recharges - technical tokens
- ※ Recharges - total quantity
- ※ Overload events - total quantity
- ※ Power-off events - total quantity
- ※ Terminal cover open - quantity
- ※ Top cover open - quantity
- ※ Last 50 technical tokens
- ※ Total number of technical tokens

Note: The maximum number of the above events is 60,000.

Yellow LED will light and LCD will display information as below table.

Tampering Type	Meter status	Symbol display	Normalization
Open the terminal cover when meter is working	 Relay open  Data record		Token
Reverse current	 Meter measures normally  Data record		Repair

7.3 Metro Code (token) prepayment function

Recharge:

After purchasing a recharge token, enter the 20-digit token into keypad

The token will scroll display from right to left. The typing time interval should within 20 seconds. Type * back button " to modify an input error.

After correct token entry, press "Enter".

If full Metro Code is not entered, code will not accept.

If the TOKEN is accepted, the LCD will display corresponding code.

Error Codes:

- Err-40: Invalid subclass
- Err-45: expired key
- Err-47: not permitted to purchase electricity in this mode
- Err-48: Inconformity to key modify process
- Err-49: this data is not used by meter
- Err-53 :setting key overtime
- Err-59: the balance exceeds the allowed power and this recharge is not valid

Press short code 8, LCD display instruction for tampering status:

- 1 : terminal cover has been opened before
- 2 : terminal cover has been opened before when power off
- 3 : phase reverse

If all these tampering status exist at the same time, then LCD will display these numbers at the same time.

Successful code:

- Good-01 :key modification, Token 1 decode successfully(if input Token 1 first)
- Good-02 :key modification, Token 2 decode successfully(if input Token 2 first)
- Good :set alarming delay successfully
- Good :set alarming kWh successfully

If recharge successfully, LCD will display below 3 pages:

Good : TOKEN accept

123 : recharge value this time

1234: total recharge value for this meter

7.4 Overload process

The relay will open when the overload lasts for 45 sec and close after 150 seconds.

If the above situation re-occurs 5 times in 30 minutes, the relay will close again after 45 minutes.

If overloads are less than (eg. 4) in 30 minutes, the recovery time of the relay will be 150 seconds,

and this record will be cleared unless repeated in the next 30 minutes. The overload value can be

set through keypad or PC software.

7.5 Relay off when voltage is abnormal:

When the voltage is very low or high, the meter relay will open in order to protect the electric equipment, the low/high voltage limit value can be set through keypad or communication, the permitted setting range is 120-290VAC, and the tolerant range in the meter is 130-253VAC.

Details as below:

1. Low voltage relay off: when the meter detects the voltage in electricity grid is lower than

130V for 10 seconds, relay will open, and then LCD shows "Err-VL", only when the voltage rise to over 140V, relay will close.

2. High voltage relay open: when the meter detects the voltage in electricity grid is higher than 253V

for 10seconds, relay will open, and then LCD shows "Err-VH", only when the voltage drops to lower than 243V, relay will close.

7.6 Credit Balance alarm

This meter has the function of class 1 credit balance alarm. It could be set through short code or communication. When the credit balance is less than the limit, the red LED will flicker. It could be cleared up by pressing any button but it will flicker again after a time interval. The interval can be set through short code or communication. After credit is fully used, the red LED will display all the time.

8 Safety Instructions

Information for Your Own Safety

This manual does not contain all of the safety measures for operation of this equipment (module, device) because special operating conditions, local code requirements or local regulations may necessitate further measures. However, it does contain information which must be adhered to for your own personal safety and to avoid damage to the equipment. This information is highlighted by a warning triangle with an exclamation mark or a lightning bolt depending on the severity of the warning.



Warning

Means that failure to observe the instruction can result in death, serious injury or considerable material damage.



Caution

Risk of electric shock and failure to take the necessary safety precautions will result in death, serious injury or considerable material damage.

Installation by Qualified Professional

Installation and operation of Metro sub- meters may only be performed by qualified professionals Meter installation should be accompanied by a Certificate of electrical Compliance

Use for the intend purpose

The equipment (device, module) may only be used for the application cases specified in the catalog and the user manual and only in connection with devices and components recommended and approved by YTL.

Exclusion of liability

Whilst we have taken every precaution to ensure the accuracy of the information in this User Manual, we don't warrant that it is error free and disclaim any liability for errors or omissions.

Warranty

Metro meters carry a 1 year factory warranty. see our website for more details.
<https://metro prepaid.com/>

Technical support

Email : help@metro prepaid.com
 Web chat : www.metro prepaid.com

Metro Prepaid Help Desk - 24 Hours