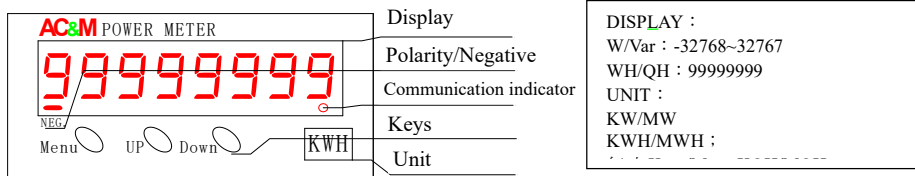


1.Panel and Keys



2.Keys Function

| KEY | FUNCTION | INSTRUCTION |
|------|-----------------------------|----------------------------|
| Menu | Menu / Confirm | Enter menu/Confirm setting |
| UP | Change number / Turn page | Page up |
| Down | Change position / Turn page | Page down |

3.Parameter Setting

3.1 Basic Setting (Press Menu for 2 seconds to enter setting mode)

| Menu | Function | Instruction |
|---------------------|----------|---|
| PHASE Press Menu | 3P4W | System Press Down to select 1P2W-1-3W-3P3W-3P4W |
| PE Press Menu | 000 1.0 | PT ratio Press UP and Down to set. Range: 1-5999.9 |
| CE Press Menu | 000 1 | CT ratio Press UP and Down to set. Range: 1-9999 |
| Unit Press Menu | KW | Unit Press Down to select KW/MW |
| d0E Press Menu | 1.8888 | Decimal point Press Down to set 888.8 |
| id Press Menu | 050 | Address Press UP and Down to set. Range: 1~255 |
| baud Press Menu | 96 | Baudrate Press Down to select 1200-2400-4800-9600-19200-38400-57600-115200 |
| PAR Press Menu | 8n 1 | Parity check Press Down to select 8N1-8N2-8O1-8O2-8E1-8E2 (PARITY) |
| PUL1 Press Menu | 1 1 | PULSE1 Press Down to select 1-10-100-0.01-0.1 PULSE / WH Press UP to select corresponding output signal: +WH/-WH/+QH/-QH Note: Corresponding to secondary value |
| PUL2 Press Menu | - 2 | PULSE2 |
| FUNC Press Menu | 0000 | NO function No need to set. |
| SAVE Press Menu | 0000 | Save setting Press UP and Down to key in password 0088 to confirm settings. |

Note: Any settings will only be effective after entering password.

3.2 Reset accumulated value

Press Down for 2 seconds to enter 0000

| Display | Instruction |
|---------|---|
| 00000 | Press UP and Down to key in password 0088 to reset. |
| | Press Menu to confirm setting |

3.3 Change password

Press Down for 2 seconds to enter FUNC 0000 Press UP and Down to enter 0087
Press Menu to enter setting:

| Instruction | Instruction |
|---------------------|---|
| 00000 Press Menu | Press UP and Down to key in old password. |
| 00000 Press Menu | Press UP and Down to key in new password. |
| 00000 Press Menu | Press UP and Down to key in new password again. |
| | Press Menu to finish setting. |

3.4 Auto page-turning: AUTO/STOP

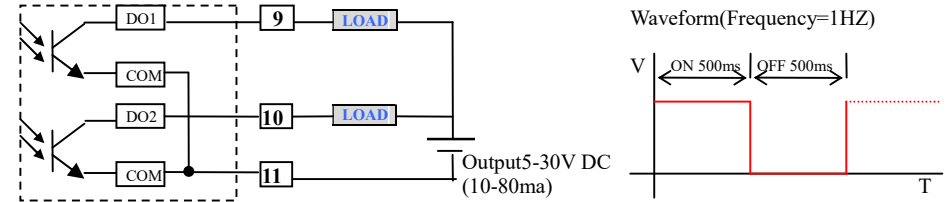
Press Down for 2 seconds to enter FUNC 0000 Press UP and Down to enter 0049
Press Menu to enter setting:

| Instruction | Instruction |
|-------------|----------------------------------|
| AUTO | Press Down to select AUTO / STOP |
| | Press Menu to confirm setting |

4.Pulse output setting (Optional)

4.1 Function and connection

- Dual pulse output
- Corresponding signals: (+WH, -WH, +VarH, -VarH)
- Programmable: (100-10-1-0.1-0.01)Pulse / wh (secondary value)



5.Example

Example1: 3P4W, Voltage: 380/220V; Current: 600/5A Watt=380*600*3; W=684.0KW(Max.)

| Parameter | Instruction |
|-----------|-------------|
| PHASE | 3P4W |
| PE | 000 1.0 |
| CE | 0 120 |
| Unit | KW |
| d0E | 1.888.8 |

Example2: 3P3W, Voltage: 22KV/110V; Current: 2000/5A Watt=22000*2000*√3; W=76.21MW(Max.)

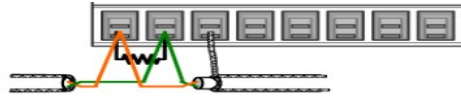
| Parameter | Instruction |
|-----------|-------------|
| PHASE | 3P3W |
| PE | 0200.0 |
| CE | 0400 |
| Unit | MW |
| d0E | 1.88.88 |

6. Communication

6.1 Function

1. MODBUS RTU MODE
2. RS485 (Half-Duplex)
3. Baudrate: (1200-2400-4800-9600-19200-38400-57600-115200)
4. Parity : (NONE-ODD-EVEN)
5. Address : 1-255
6. Stop Bit: 1 or 2
7. Data Bit: 8

6.2 Connection



Terminator:
In RS-485 circuit, there can only be 1 meter installed terminator. It's installed in the last meter of the circuit. Terminator : 120~150ohm

6.3 MODBUS RTU MODE PROTOCOL

DATA FORM (hexadecimal)

| (ID Number) 1Byte | (Function Code) 1Byte | (Data) N Byte | CRC 2 Byte |
|----------------------|--------------------------|------------------|---------------|
|----------------------|--------------------------|------------------|---------------|

ID Number : The address of the meter (1-255)

CRC : Error check 16Bit CRC

FUNCTION CODE

| | |
|----------|--------------------------|
| 03 (03H) | Read parameters of meter |
| 06 (06H) | Set parameter |

6.4 EXAMPLE

EX1. Read the R phase voltage of the meter .Master calls meter ID:1 to read address 0001. Data number:0001

| ID NUMBER 1Byte (01H) | Function code 1Byte (03H) | Address 2Byte (00 01H) | Data number 2Byte (00 01H) | CRC 2Byte (D5 CA) |
|-----------------------------|---------------------------------|------------------------------|----------------------------------|-------------------------|
|-----------------------------|---------------------------------|------------------------------|----------------------------------|-------------------------|

Meter displays 1000

| ID NUMBER 1Byte (01H) | Function code 1Byte (03H) | Data Byte 2Byte (02H) | Data 2Byte (03E8H) | CRC 2Byte (B8FAH) |
|-----------------------------|---------------------------------|-----------------------------|--------------------------|-------------------------|
|-----------------------------|---------------------------------|-----------------------------|--------------------------|-------------------------|

EX2. Read several parameters of the meter

| ID NUMBER 1Byte (01H) | Function code 1Byte (03H) | Address 2Byte (00 02H) | Data number 2Byte (xx,xxH = N) | CRC 2Byte (xx xxH) |
|-----------------------------|---------------------------------|------------------------------|--------------------------------------|--------------------------|
|-----------------------------|---------------------------------|------------------------------|--------------------------------------|--------------------------|

| ID NUMBER 1Byte (01H) | Function code 1Byte (03H) | Data Byte 2Byte (XXH = N) | Data 2Byte (N*2Byte) xxH,xxH.xxH.... | CRC 2Byte (xx xxH) |
|-----------------------------|---------------------------------|---------------------------------|---|--------------------------|
|-----------------------------|---------------------------------|---------------------------------|---|--------------------------|

6.5 Data address

| Address | Modbus | Name | Length (Byte) | Signed / Unsigned | Range | Function code | Instruction |
|---------|--------|---|---------------|-------------------|-------------|---------------|--|
| 00~09 | | No function | | | | | |
| 10 | 40011 | Σ W | 2Byte | Signed Int | -32767~3278 | 03H | |
| 11 | 40012 | Σ Q | 2Byte | Signed Int | -32767~3278 | 03H | |
| 12~13 | | No function | | | | | |
| 14 | 40015 | WH (Receive)(LO word) | 4Byte | Unsigned Long | 99999999 | 03H | Long integral HI_Word and LO_Word Read decimal point 0022 PS : W/Q/VA/WH/AH Same decimal poin |
| 15 | 40016 | WH (Receive)(HI word) | | | | | |
| 16 | 40017 | WH (Send)(LO word) | 4Byte | Unsigned Long | 99999999 | 03H | |
| 17 | 40018 | WH (Send)(HI word) | | | | | |
| 18 | 40019 | VarH(LAG) (LO word) | 4Byte | Unsigned Long | 99999999 | 03H | |
| 19 | 40020 | VarH(LAG) (HI word) | | | | | |
| 20 | 40021 | VarH(LEAD) (LO word) | 4Byte | Unsigned Long | 99999999 | 03H | |
| 21 | 40022 | VarH(LEAD) (HI word) | | | | | |
| 22 | 40023 | Decimal point (bit0-bit7 no function) W/Q(bit8-bit11) | 2Byte | Unsigned Int | | 03H | 00000001=1 digit after decimal point 00000010=2 digit after decimal point 00000011=3 digit after decimal point |

Note: Unsigned Int = 0-65535 ; Signed Int: Positive=0-32767 ; Negative : 32768-65535 (-32767)

7. Connection diagram

