

ME432 Three-phase Power Meter



Connectivity advantages	
MODEL	ME432
Support Extra sensor	333mV CT Rogowski coil
Programmable digital output	Relay
I/O function	1*digital output
Power	85~265V AC/DC

Feature

Specification	
Model	ME432
Product component type	Multifunction power meter
Poles description	3PH4W 3PH3W 1PH2W (L-N); 1PH2W(L-L);1PH3W(L-L-N)
Device application	Power analysis Energy meter
Input type	External CT(333mV only) And External Rogowski coil
Display	3.5 inch TFT screen display
Sampling rate	8k samples per second
Mounting mode	Panel mounting
Harmonic	52th Max
Display characteristics	
Feature	3.5 Inch TFT screen display 320*480
Mechanical characteristics	
Weight	350g
Dimension	L*W*D:96*96*99mm

Display

Maximum value measured		
Parameter	Range	Resolution
Voltage	0.001V 999.9V 999.9kV 999.9MV	0.1
Current	999.9A 999.9kA	0.1
Power	999.9kW 999.9MW	0.1
Power factor	0.999	0.001
THD	99.9%	0.1%
Energy	999.9WH 999.9.KWH 999.9MWH 999.9GWH	0.1KWH 0.01MKWH

Instantaneous rms Values	
Voltage	U, UTH2, UTH3, UTH4(Per Phase,AVG)
Current	I,ITHD2, ITHD3, ITHD4(Per Phase,AVG)
Power	P,FQ,S,PF(Per Phase,SUM)
Energy	EP,EFQ,ES,Freq(Per Phase,SUM) over 999.9MWh,value reset
UTHD(%)	UTHD,THD2,THD3,THD4(Per Phase,AVG)
ITHD(%)	ITHD,THD2,THD3,THD4(Per Phase,AVG)
Line voltage	Uab,Ubc,Uac(only enable in 3PH4W)
Voltage angle	Uab,Ubc,Uac
Current angle	Iab,Ibc,Iac
DPF	DPFa,DPFb,DPFc,AVG
Update rate	
Data acquisition rate	400ms
Display update rate	0.5s
Calibration	
Current	Per phase,all
Voltage	Per phase,all
Power factor	Per phase,all
Energy	Reset to "0" EP,EQ,ES all phase

MODBUS RS485

Communication	
Transmission mode	RS485 port,Half duplex
RS485 link	3 wires
Communication protocol	MODBUS RTU
Settings	
Communication address	1 to 247 (default 1)
Baud rate(communication speed)	1200 to 57600 baud (default 9600)
Parity	Even(default),Old,None
Data bit	8
Stop bit	1

Certificate

Environmental conditions	
Operating temperature	-25℃ to +55℃
Storage temperature	-40℃ to +85℃
Humidity rating	5 to 95% RH at 50℃(non-condensing)
Pollution degree	2
Overvoltage category	III,for distribution systems up to 277/480VAC
Dielectric withstand	As per IEC61010-1, Doubled insulated front panel display
Altitude	3000m Max
IP degree of protection	IP20 conforming to IEC 60629
Colour	White
Contractual warranty	12months
EMC	
Electrostatic discharge	Level IV(IEC61000-4-2)
Immunity to radiated fields	Level III (IEC61000-4-3)
Immunity to fast transients	Level IV (IEC61000-4-4)
Immunity to surge	Level IV (IEC61000-4-5)
Conducted immunity	Level III (IEC61000-4-6)
Immunity to power frequency magnetic fields	0.5mT (IEC61000-4-8)
Conducted and radiated emissions	Class B (EN55022)
Standard compliance	
EN 62052-11,EN61557-12,EN 62053-21,EN 62053-22,EN 62053-23,EN 50470-1,EN 50470-3, EN 61010-1,EN 61010-2,EN 61010-031	

Specification

Measurement accuracy	
Current	0.5% from 1% to 120%(don't ensure accuracy when <10A)
Rated current	500A(0.5% from 10A to 600A)
	3000A(0.5% from 30A to 3600A)
	10kA(0.5% from 100A to 12kA)
Rogowski coil specification	85mV/kA@50Hz±0.5%
Voltage	0.2% from 80V to 400V(or 100 to 500V)
Power factor	±0.005 from 10% to 120%
Active/Apparent Power	IEC62053-22 Class 0.5
Reactive power	IEC62053-21 Class 2
Frequency	0.01% from 45 to 65Hz
Active energy	IEC62053-22 Class 0.5s
Reactive energy	IEC62053-21 Class 2
Measurement arrange	
Measured voltage	80V to 400V AC(or 100 to 500V)
Frequency range	50/60Hz
Input-current characteristics	
Primary current range	Adjustable from 0.1A to 9999A
Measurement input range	1/2 ²⁵ mV-333mV
Permissible overload	600mV for 10s/hours
Control Power	
AC/DC	85 to 265V AC/DC, 3.5W
Output	
Digital output	1× digital output(2 ports) from 1pcs relay, rated 24V/800mA, 75mΩ max, 2.5kVrms insulation(controlled by Modbus) Maximum Switching Power : 0.5A, 125VAC 1A, 30VDC
Wire diameter for terminals	
Connections-terminals	Screw terminals 2.5mm ² , interval 5.08mm
Alarm	
Setting	U and I Each phase,AVG
Output form	Relay

Port definition

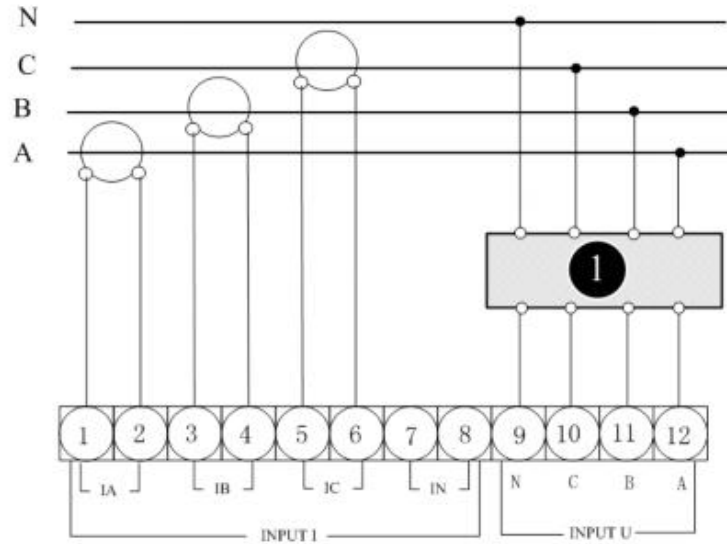
Port number	Port name	Port function	Remarks
1	IA1	A-phase current input positive	A-phase current
2	IA2	A-phase current input negative	
3	IB1	B-phase current input positive	B-phase current
4	IB2	B-phase current input negative	
5	IC1	C-phase current input positive	C-phase current
6	IC2	C-phase current input negative	
7	IN1	N-phase current input positive	N-phase current
8	IN2	N-phase current input negative	
9	Vn	N-phase voltage input	Voltage input
10	V3	C-phase voltage input	
11	V2	B-phase voltage input	
12	V1	A-phase voltage input	
13	L	POWER(+)	Power 85~265V AC/DC
14	N/A	N/A	
15	N	POWER(-)	
16	N/A	To be option	Option
17	N/A	To be option	
18	N/A	Relay output	Relay output
19	RCOM	Relay COM	
20	RO1	To be option	Option
21	N/A	To be option	
22	A	RS485 A	RS485 communication
23	B	RS485 B	
24	GND	RS485 GND	

Wiring

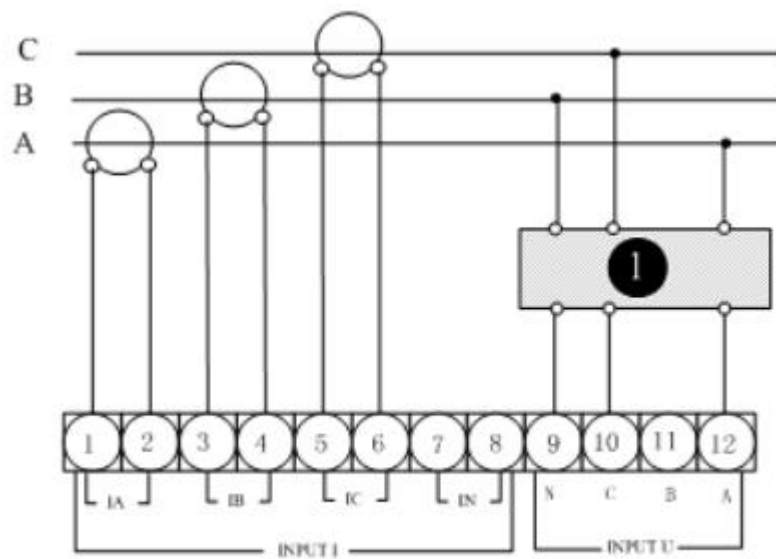
*: Rogowski coil secondary output voltage can not over 333mV rms.

^: CT must be voltage output,secondary output can not over 333mV rms.

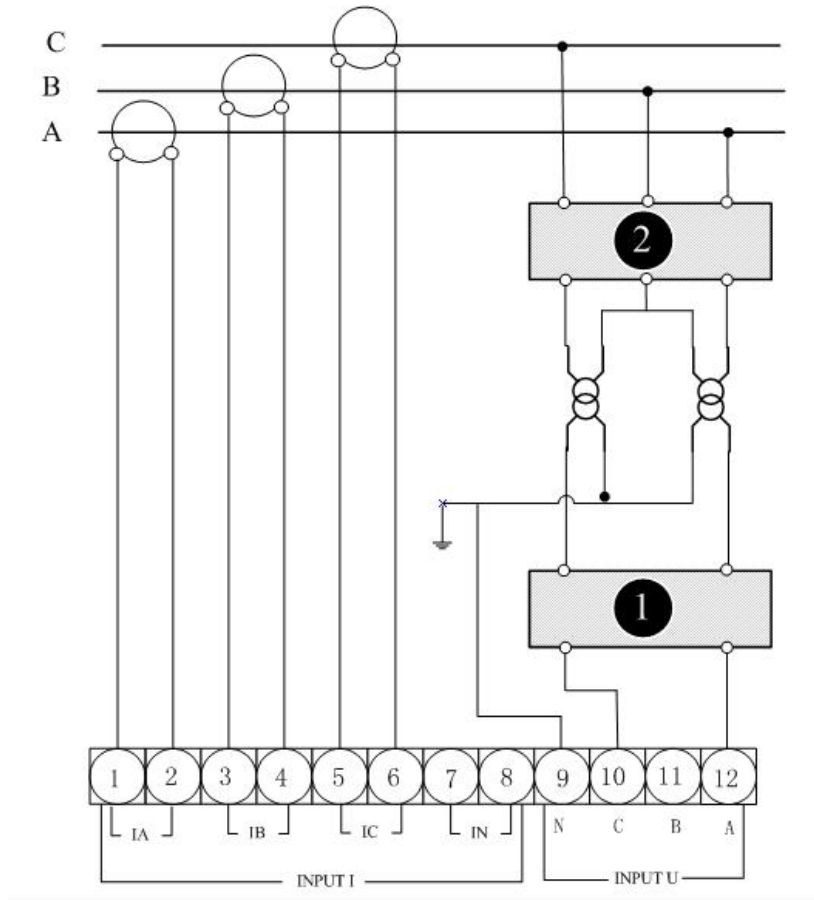
3PH4W no VT



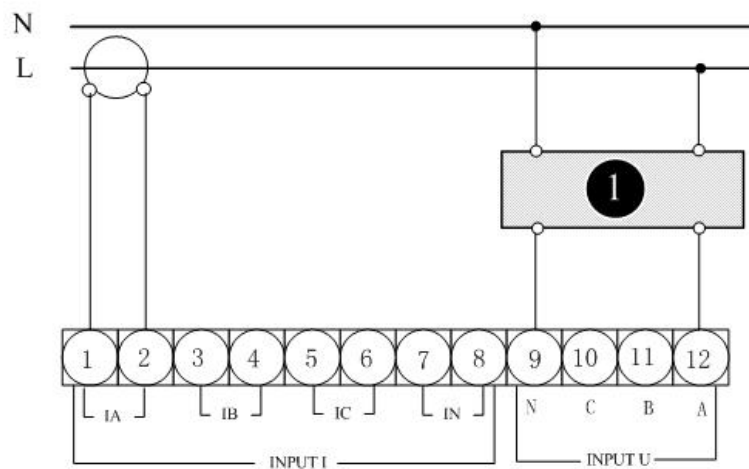
3PH3W no VT



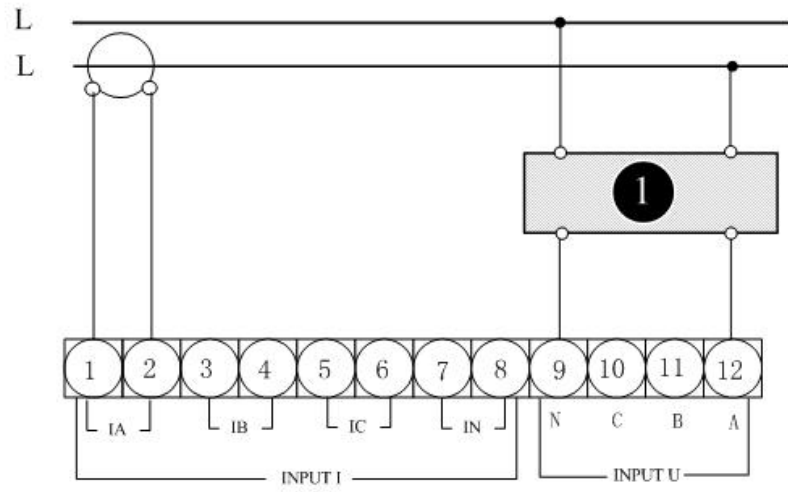
3PH3W with VT



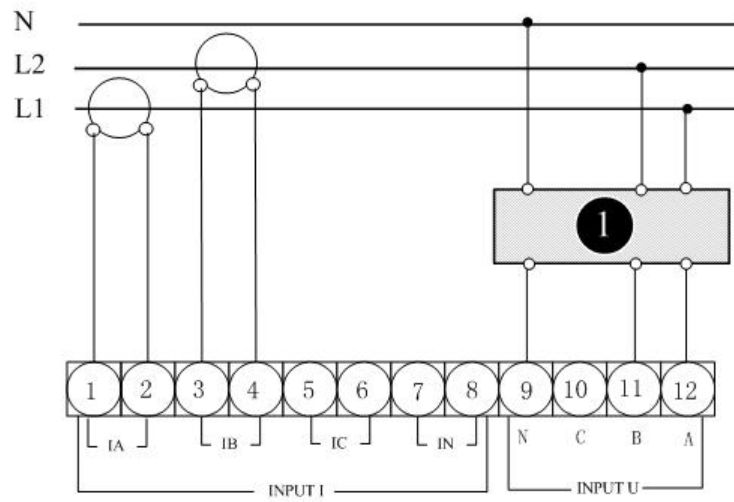
1PH2W L-N



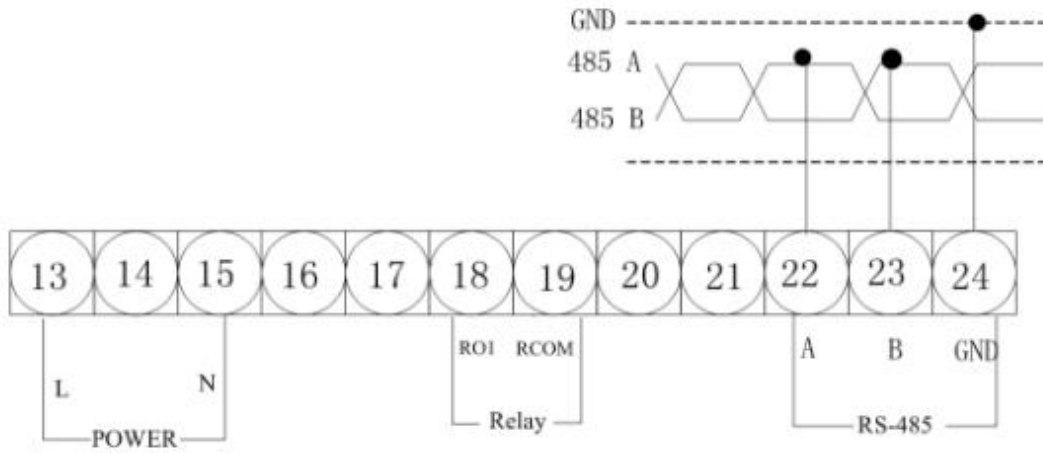
1PH2W L-L



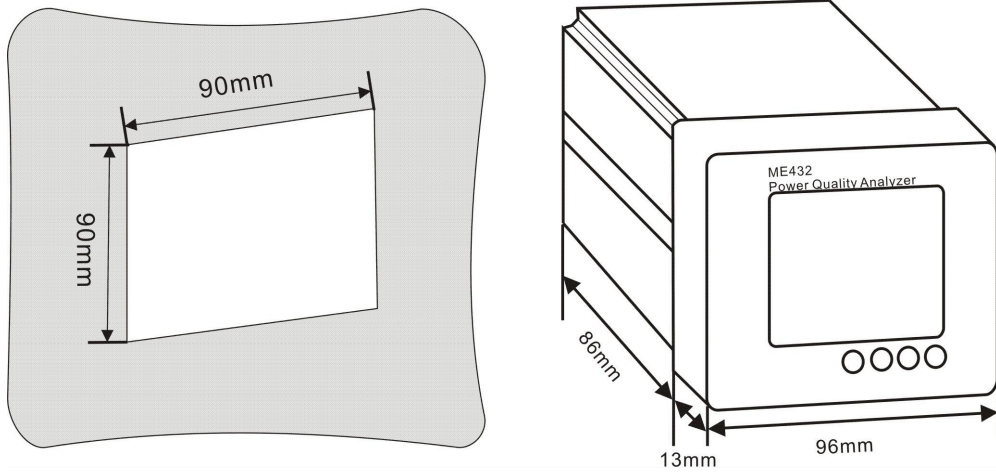
1PH3W L-L-N



ModBus communication & output Wiring diagram



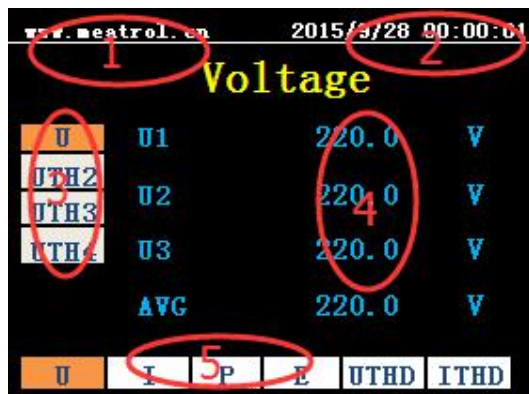
Installation



Operating Instruction

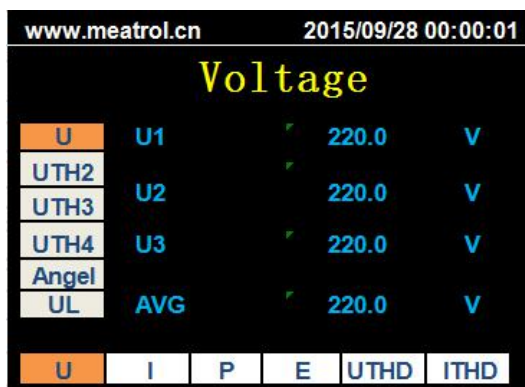
Instructions of ME432

1. Description of Interface



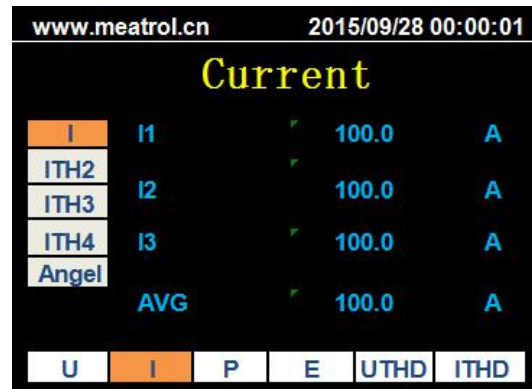
- ① Company website
- ② Meter's time
- ③ Secondary menus of measuring data
- ④ Meter of measuring data display
- ⑤ Main menus of measuring data: from left to right are U (voltage), I (current), Power, Energy, UTHD(harmonics voltage distortion), ITHD (harmonics current distortion).

2. Main menu of U (voltage)



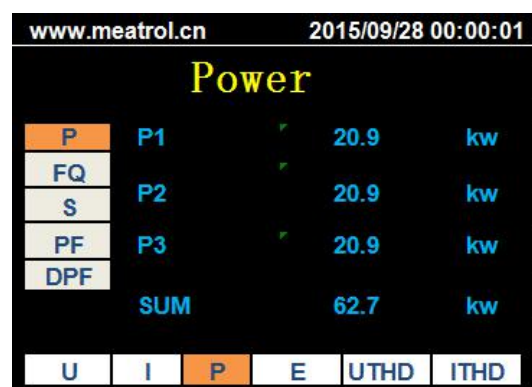
The secondary menus, from top to bottom are: U (voltage), UTH2 (2 harmonics voltage), UTH3 (3 harmonics voltage), UTH4 (4 harmonics voltage).

3. Main menu of I (current)



The secondary menus, from top to bottom are: I (current), ITH2 (2 harmonics current), ITH3 (3 harmonics current), ITH4 (4 harmonics current).

4. Main menu of Power



The secondary menus, from top to bottom are: P (active power), FQ (reactive power), S (apparent power), PF (power factor).

5. Main menu of Energy

Menu Item	Sub-Item	Value	Unit
EP	EP1	20.9	kwh
EFQ	EP2	20.9	kwh
ES	EP3	20.9	kwh
ETF	EP3	20.9	kwh
Freq	SUM	62.7	kwh

The secondary menus, from top to bottom are: EP (active energy), EFQ (reactive energy), ES (apparent energy), Freq (frequency).

6. Main menu of U-THD (harmonics voltage distortion)

Menu Item	Sub-Item	Value	Unit
Uthd	U1	1.0	%
THD2	U2	1.0	%
THD3	U3	1.0	%
THD4	U3	1.0	%
	AVG	1.0	%

The secondary menus, from top to bottom are: Uthd (total harmonics voltage distortion), THD2(2 harmonics voltage distortion), THD3(3 harmonics voltage distortion), THD4 (4 harmonics voltage distortion).

7. Main menu of I-THD (harmonics current distortion)

current distortion)

Menu Item	Sub-Item	Value	Unit
Ithd	U1	1.0	%
THD2	U2	1.0	%
THD3	U3	1.0	%
THD4	U3	1.0	%
	AVG	1.0	%

The secondary menus, from top to bottom are: Ithd (total harmonics current distortion), THD2(2harmonics current distortion), THD3 (3harmonics current distortion), THD4 (4 harmonics current distortion).

8. Instructions of key used



Instructions: long press is Left/Right, Click is Up/Down.

Switching main menus of measuring data: U→I, long press Left. I→U, long press Right. Switching secondary menus of measuring data:

a:U→UTH2, click Down. UTH2→U, click Up.

Menu display and quit: click Menu/Quit, display menu. Click Menu/Quit again, exit menu, and enter the interface of measuring data.



9. Instructions of function and Setting

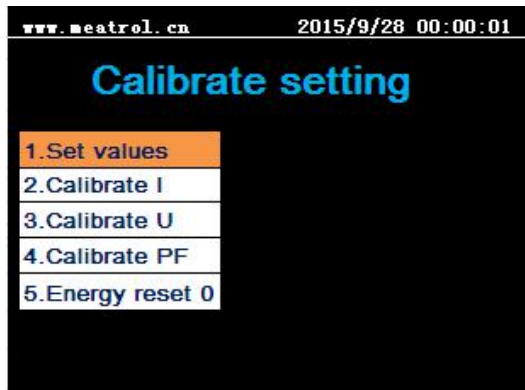
Switching main menu:

Click Up/Down to select main menu, and Click Enter to go to secondary menu. Please input

Password to entry into secondary menu, Password of Set is 1000 and Password of Cal. need to apply.



9.1 Secondary menu Select and set Secondary menu of Set or Cal. is as the following pictures: Click Up/Down to select third menu, Click Enter to enter third menu. Secondary menu of Cal.



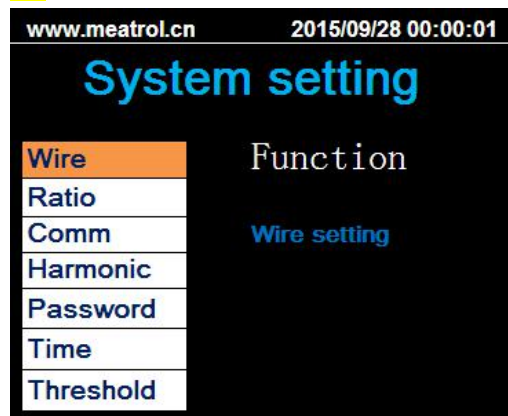
The calibrate setting only use on below conditions:

- A.Change Rated Value
- B.Change other ratio rogowski coil connection

9.2 Third menu of set

Settings of Ct,Addr,Baud, Harmonic, Password, Time,Threshold:

Long press Left/Right to switch displacement or items, click Up/Down to change value of figures, and Click Enter to set.



9.2.1 Setting of Wire

Click Up/Down to select Wire, and Click Enter to set.

Long press Left/Right to switch displacement, click Up/Down to change value of figures, and Click Enter to set.

“Mode” select the wiring connect mod:

- “3PH4W”:3 phase 4 wire system
- “3PH3W”:3 phase 3 wire system
- “1PH2W_LL”:1 phase 2 wire L_L system
- “1PH2W_LN”1 phase 2 wire L_N system
- “1PH3W_LLN”1 phase 2 wire L_L_N system
- “Vcon” select Direct voltage connect or VT conect:

“DirectCon”:Directly voltage connect

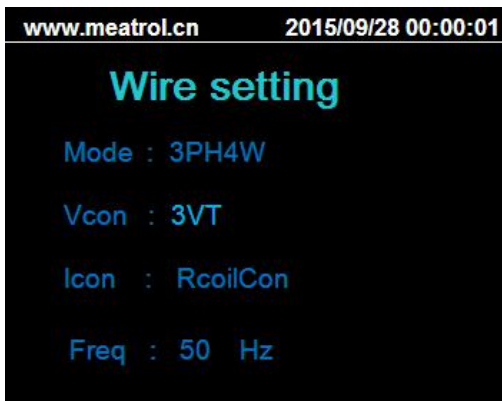
“3VT”:3 Voltage sensor connect when 3phase system

“Icon” select Rogowski coil or CTs.

“CTCon” :CT connection

“RoCon”:Rogowski coil connection

“Freq”select rated frequency.



9.2.2 Setting of Ratio

Click Up/Down to select Ratio, and Click Enter to set.



If select RcoilCon,setting Rcoil Sec and Rcoil Pri.

If select CtCon,setting CT sec and Pri

Long press Left/Right to switch displacement, **click** Up/Down to change value of figures, and Click Enter to set.

Note:

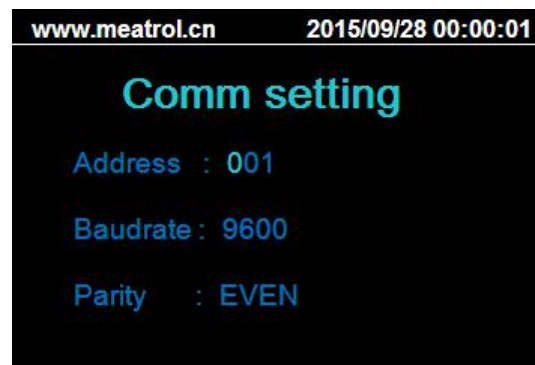
Rcoil Pri is the primary nominal current ,Rcoil Sec is the Corresponding output of Rogowski coil.

ME432 can measure big different current range,make sure the accuracy through ratio setting without calibration.

VT Sec(V):only 100,110,115,120 selected.

9.2.3 Setting of Comm

Click Up/Down to select Comm, and Click Enter to set.



Long press Left/Right to switch displacement, **click** Up/Down to change value of figures, and Click Enter to set.

Note:

Address can be setted 1 to 247;

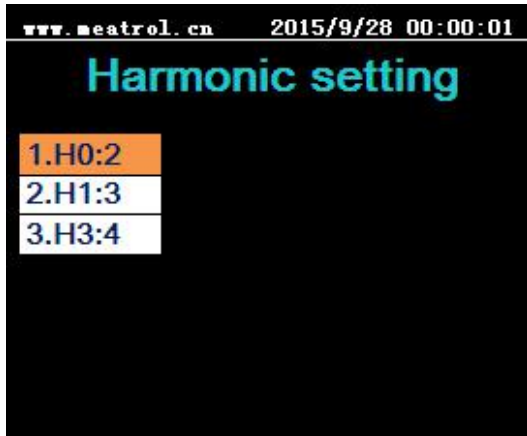
Baudrate is 1200-57600.

“Parity” select parity checking.

“EVEN” and “OLD” or “NONE”

9.2.4 Setting of Harmonic

Click Up/Down to select Harmonic, and Click Enter to set.

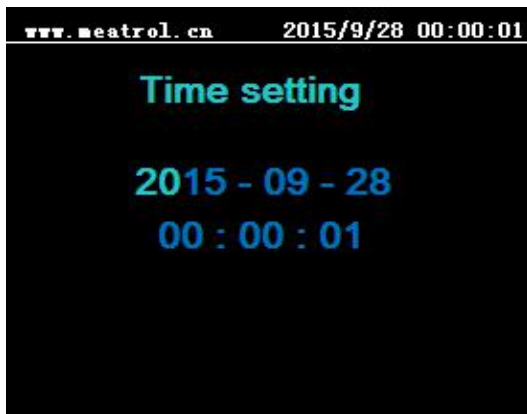


Long press Left/Right to switch displacement,

Click Up/Down to change value of figures, and Click Enter to set.

9.2.6 Setting of Time

Click Up/Down to select time, and Click Enter to set.



Long press Left/Right to switch displacement,

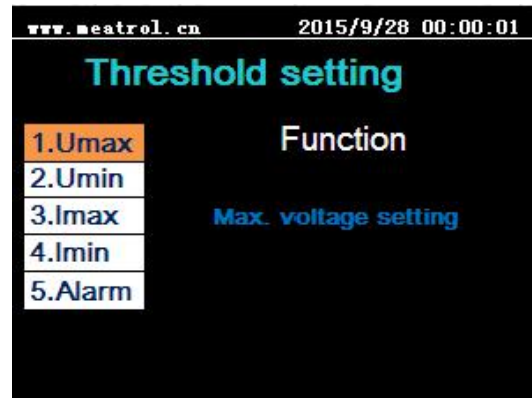
Click Up/Down to change value of figures, and Click Enter to set.

9.2.7 Setting of Threshold

Click Up/Down to select Threshold , and Click Enter to set.

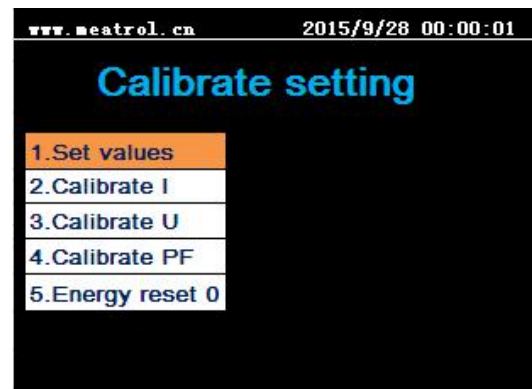
First set the threshold of Umax, Umin, Imax, Imin; and then enable the Alarm.

Next chose to enable Buzzer.



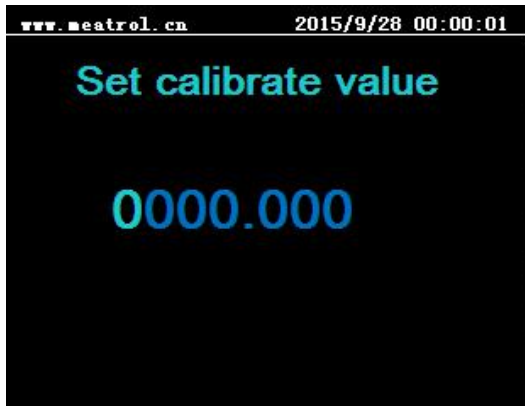
9.3 Third menu of Cal.

Calibrate current and voltage:



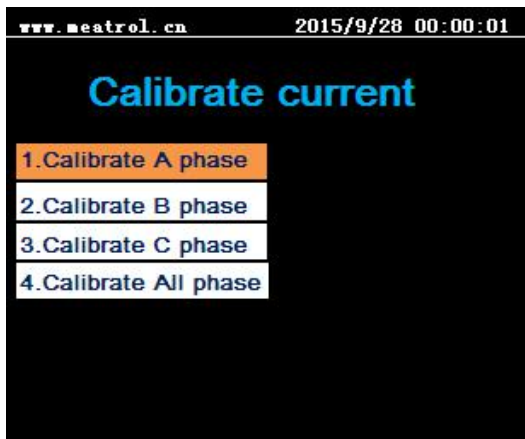
9.3.1 Click Up/Down to select" Set values"

Click Enter to input calibrating values, then click Enter again.



9.3.2 Click Up/Down to select Calibrate U or Calibrate I

Click Enter and select Calibrate A, B,C or All phase, then click Enter again, then meter is calibrating.



9.3.3 Energy reset

1. Select Energy reset 0 and Click Enter. No need to select Set values or input calibrating values.

2. Reset A, B, C or All phase active, reactive, apparent energy. Click Enter, then the energy reset.

9.4 Third menu of information

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