ADTEK

CPM-12D

Multifunction Power Meter (DIN Rail)

Manual

43504d313244-4d-454e-53-41, Rev 1.0
2019-05-03

CPM-12D Manual

Description

CPM-12D din rail mounting power meter with high accuracy measurement for single phase and three-phase system.

Measuring all basic parameters ; V, I, P, Q, kWh, kVarh etc..

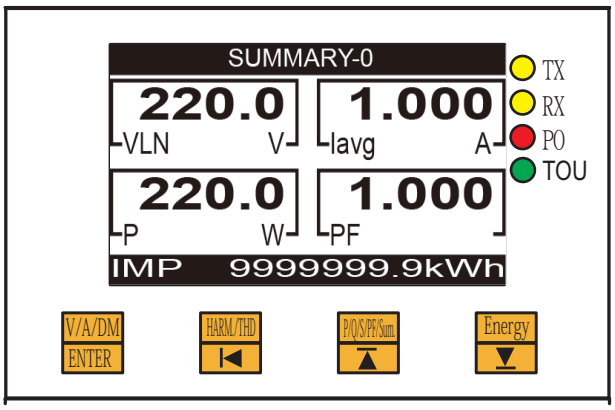
Standard with RS485 Modbus RTU communication port, front LCD display with buttons for programming.

Auto wiring change **(Note)** via software

CE and FCC approved

Note: Auto wiring change have certain condition limit, please refer to operation manual for further details.

Panel Description



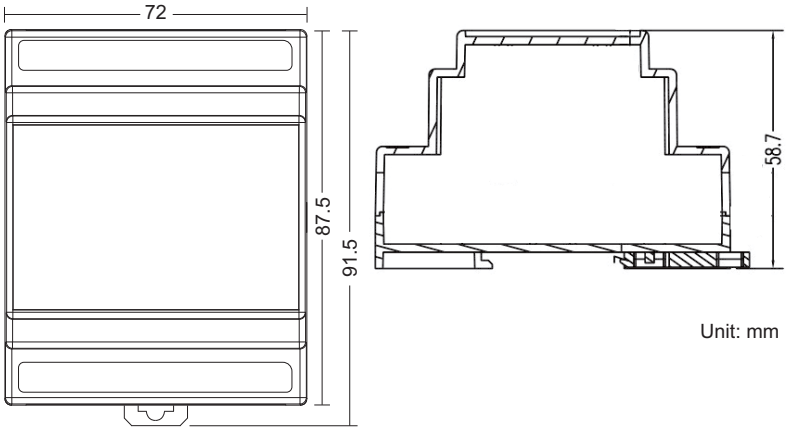
V/A/DM ENTER **Enter** / Quickly index: Voltage / Current

HARM./THD **Shift** / Quickly index: THD

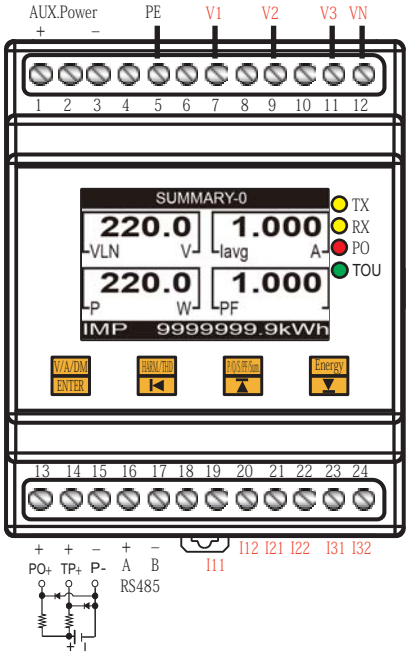
P/Q/S/PF/Sum. **Up** / Quickly index: Power parameters

Energy **Down** / Quickly index: Energy parameters

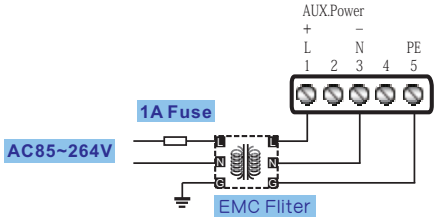
Dimensions & Installation



Unit: mm

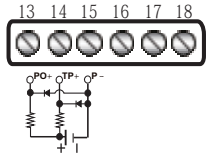


AUX Power



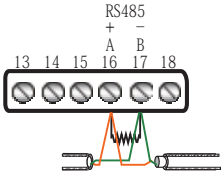
Pulse Output

Terminal blocks:
AWG 28~12 (0.2~2.5mm²)



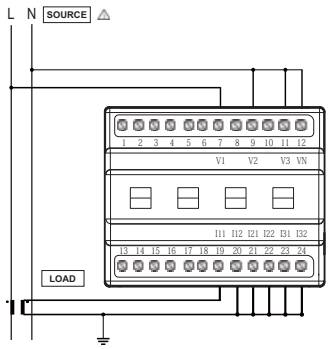
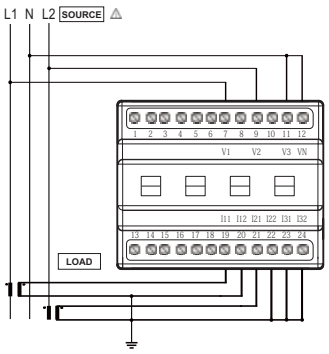
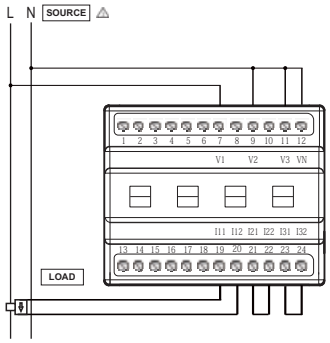
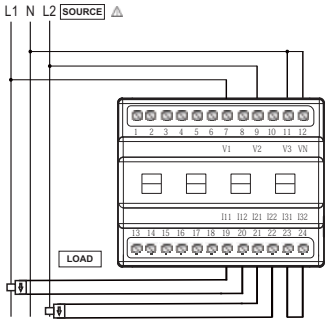
RS485 Communication port

Terminal blocks:
AWG 28~12(0.2~2.5mm²)



Distance Max. : 1200M
Terminator : 120~300Ω/0.25W
(Standard: 150Ω)

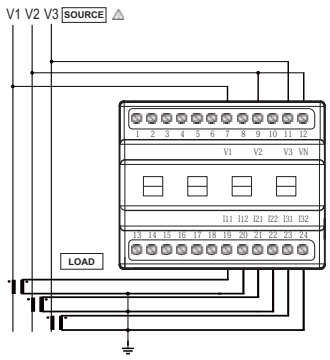
Voltage and current connection (CT secondary side distinguishes 1A/5A and 333mV)

1P2W(0~1A/5A)	1P3W(0~1A/5A)
	
1P2W(0~333mV)	**1P3W(0~333mV)**
	

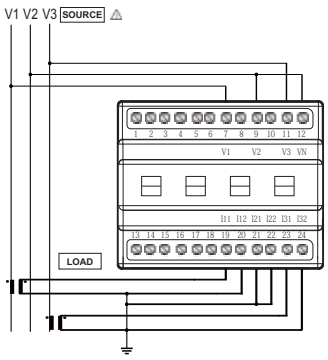
Voltage and current connection

3P3W w/o PT

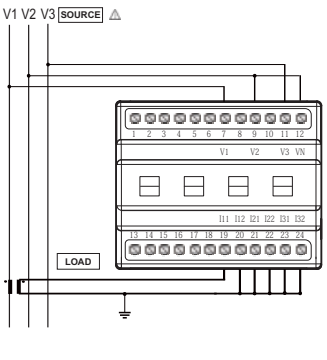
3CT(0~1A/5A)



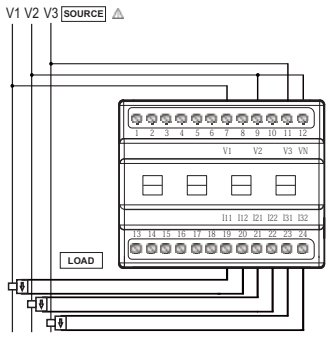
2CT(0~1A/5A)



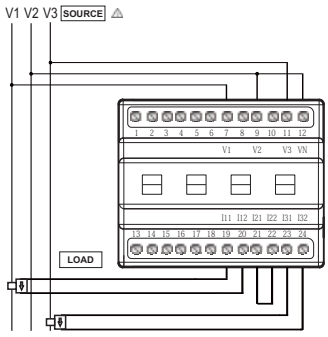
1CT(0~1A/5A)



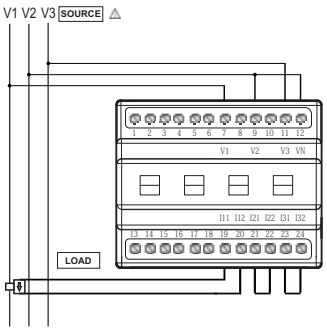
3CT(0~333mV)



2CT(0~333mV)

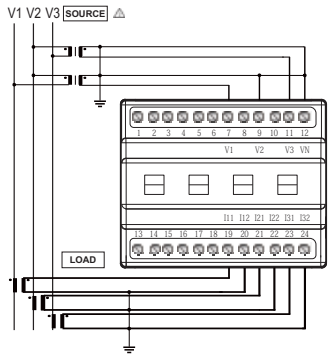


1CT(0~333mV)

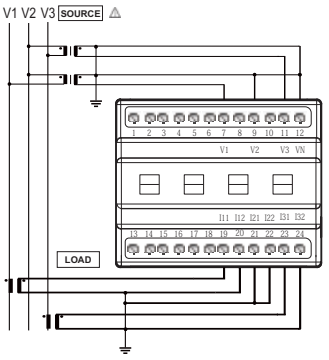


3P3W 2PT

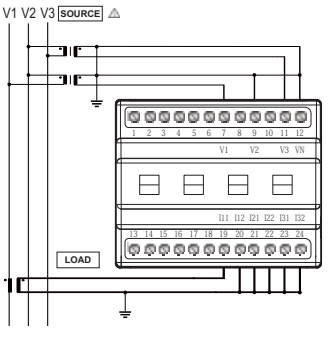
3CT(0~1A/5A)



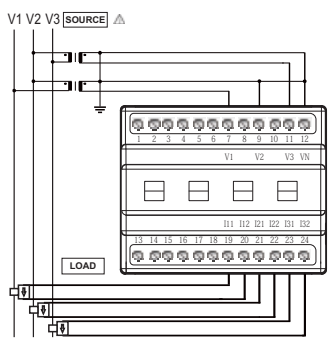
2CT(0~1A/5A)



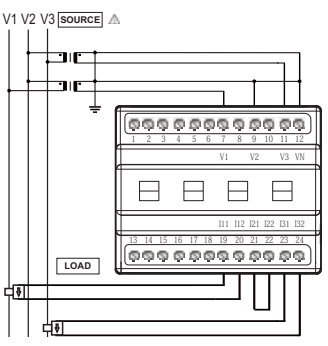
1CT(0~1A/5A)



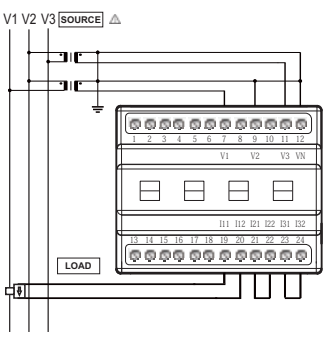
3CT(0~333mV)



2CT(0~333mV)



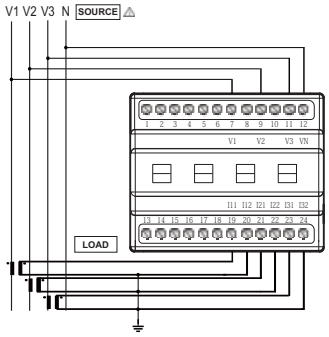
1CT(0~333mV)



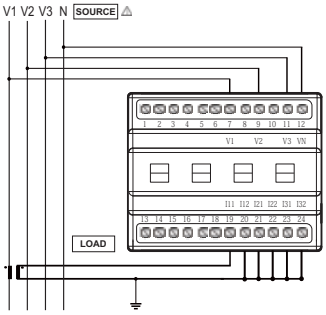
Voltage and current connection

3P4W w/o PT

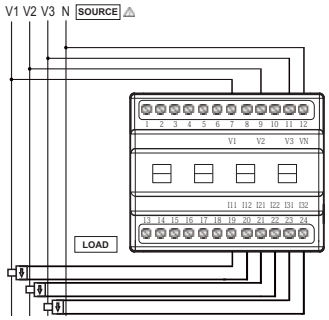
3CT(0~1A/5A)



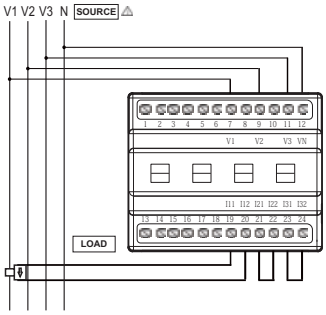
1CT(0~1A/5A)



3CT(0~333mV)

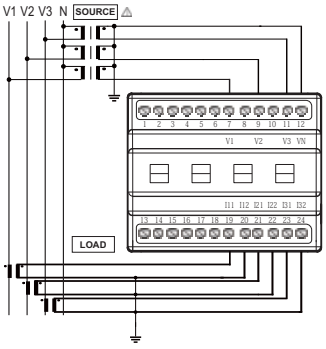


1CT(0~333mV)

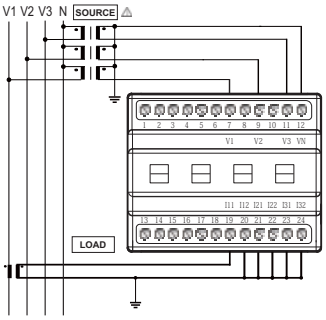


3P4W3PT

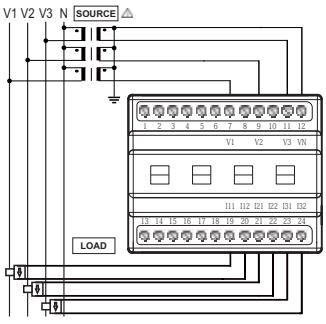
3CT(0~1A/5A)



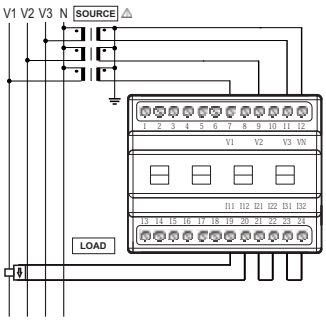
1CT(0~1A/5A)



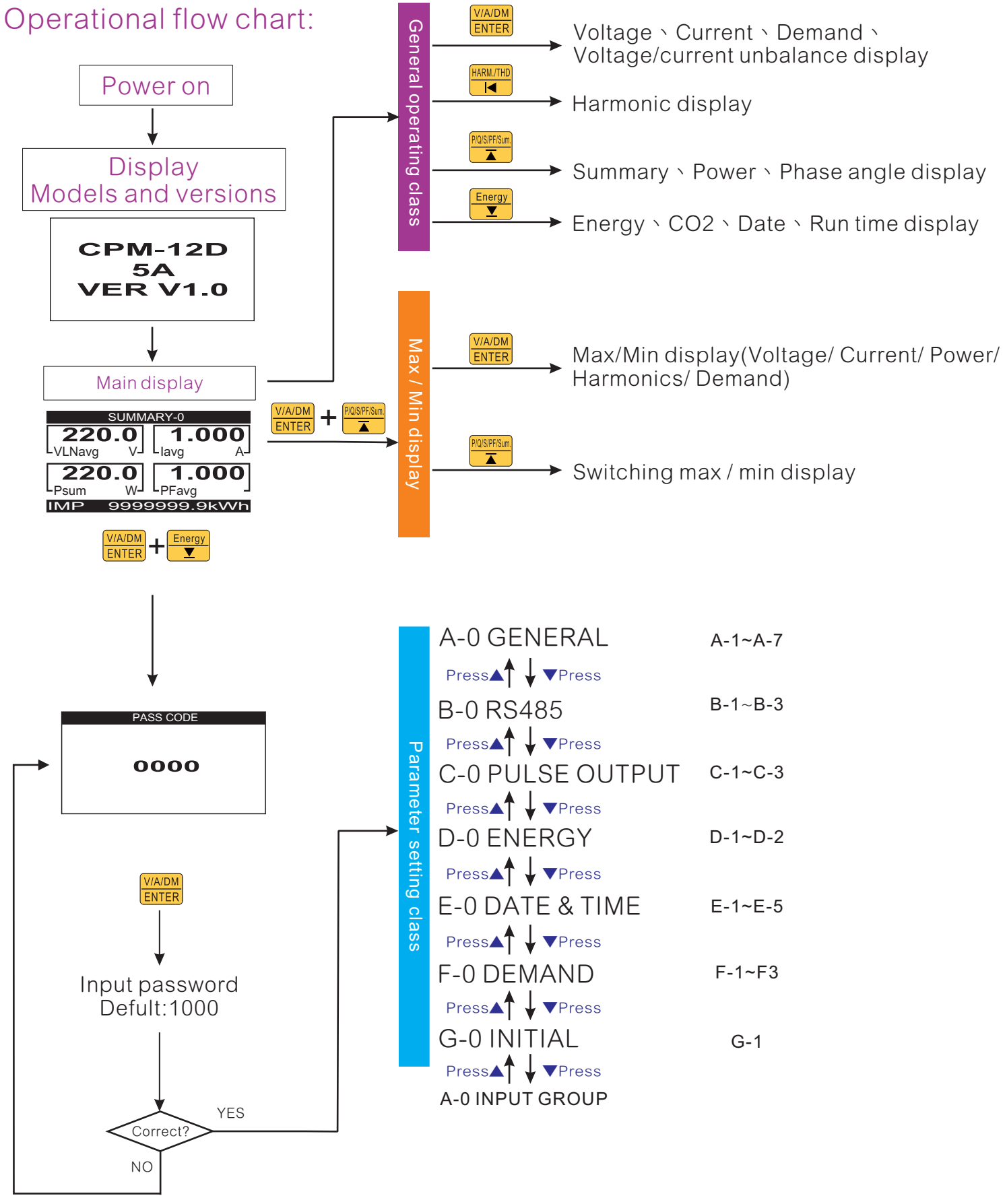
3CT(0~333mV)



1CT(0~333mV)

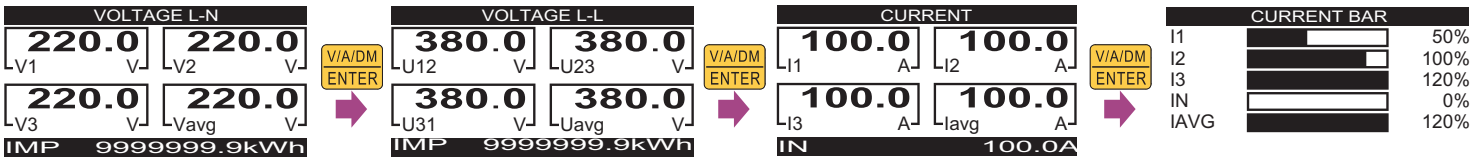


Operational flow chart:



Voltage/Current/Demand display

Press V/A/DM ENTER



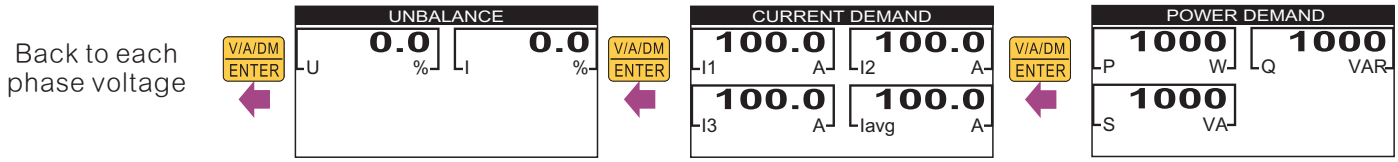
Each phase voltage

Each line voltage

Current & Neutral current

Current load bar graph

V/A/DM ENTER



Voltage/ Current unbalance

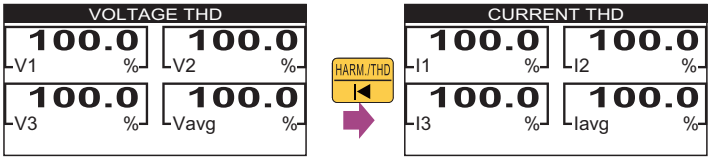
Current demand

Power demand

Total harmonic display

Press HARM./THD

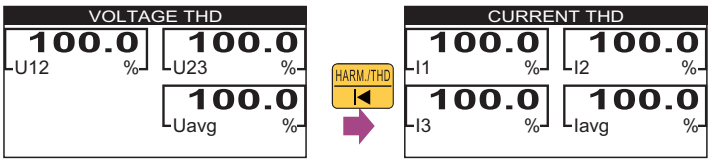
System type: 1P2W/1P3W/ 3P4W1CT/ 3P4W3CT



Each phase voltage harmonic & Average phase voltage harmonic

Current harmonic & Average current harmonic

System type: 3P3W1CT/ 3P3W2CT/ 3P3W3CT/

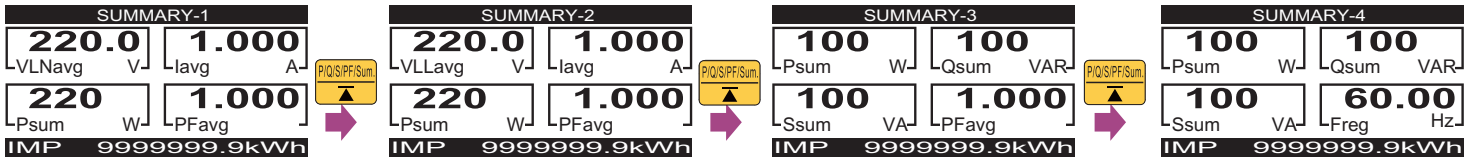


Each line voltage harmonic & Average line voltage harmonic

Current harmonic & Average current harmonic

Summary、Power、Phase angle display

Press P/Q/S/PF/Sum.

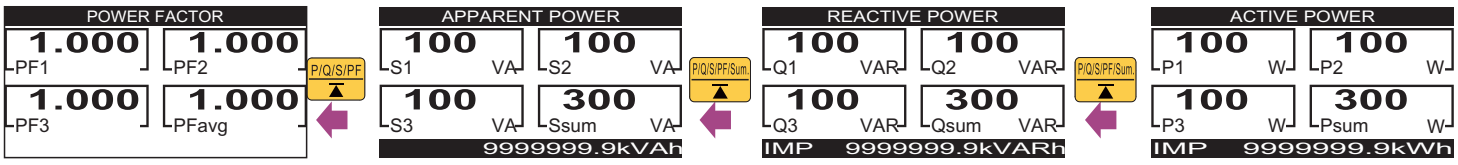


Summary-1
Phase voltage/
Current/ Active
power/ PF/
IMP active energy

Summary-2
Line voltage/
Current/
Active power/ PF/
IMP active energy

Summary-3
Active power/
Reactive power/
Total apparent
power/ PF

Summary-4
Active power/
Reactive power/
Total apparent power/
Frequency

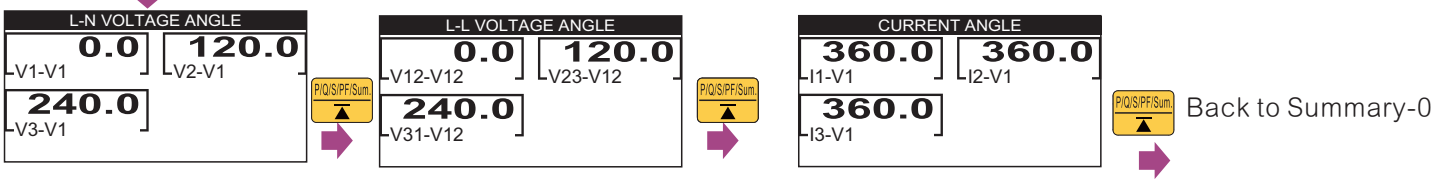


Each phase power
factor/
Average power factor

Each phase
apparent power/
Apparent energy

Each phase reactive
power/
IMP reactive energy

Each phase active
power/
IMP active energy



Phase voltage angle
V1-V1
V2-V1
V3-V1

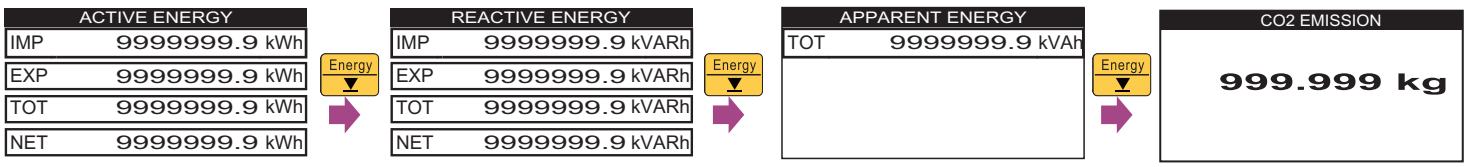
Line voltage angle
V12-V12
V23-V12
V31-V12

Current phase angle
I1-V1(V12)
I2-V1(V12)
I3-V1(V12)

Back to Summary-0

Energy and Time display

Press Energy



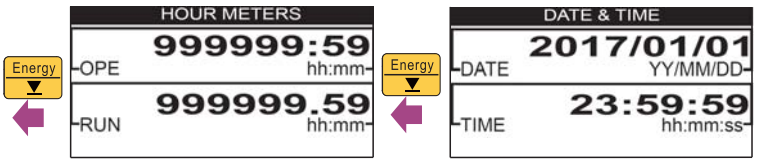
IMP/ EXP/ Total active /
Net active energy

IMP/ EXP/ Total
reactive /
Net reactive energy

Total apparent
energy

CO_2

Back to active energy

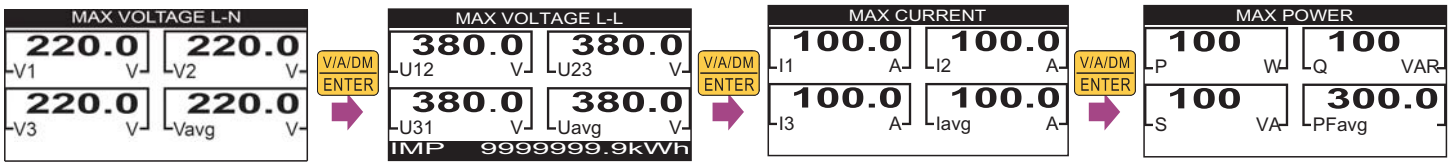


Operation time/
Running time(Time
start at current of
secondary side >1%)

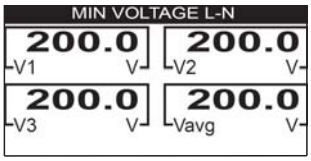
Date and Time

Max/Min display

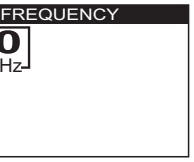
Press V/A/DM ENTER + P/Q/S/PF/Sum.



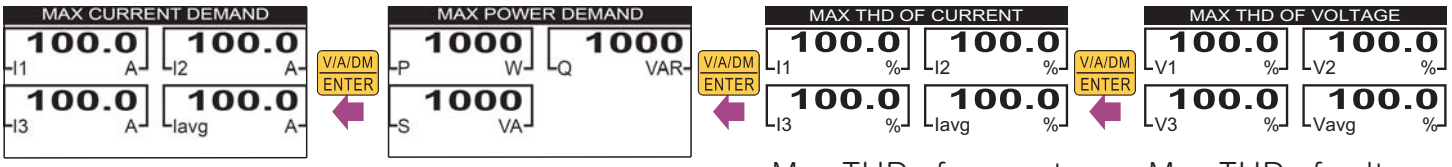
Max phase voltage | Max line voltage | Max current | Max power



Min phase voltage

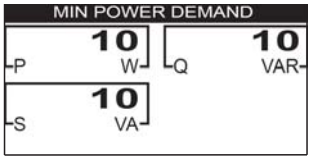


Max frequency



Max current demand | Max power demand | Max THD of current | Max THD of voltage

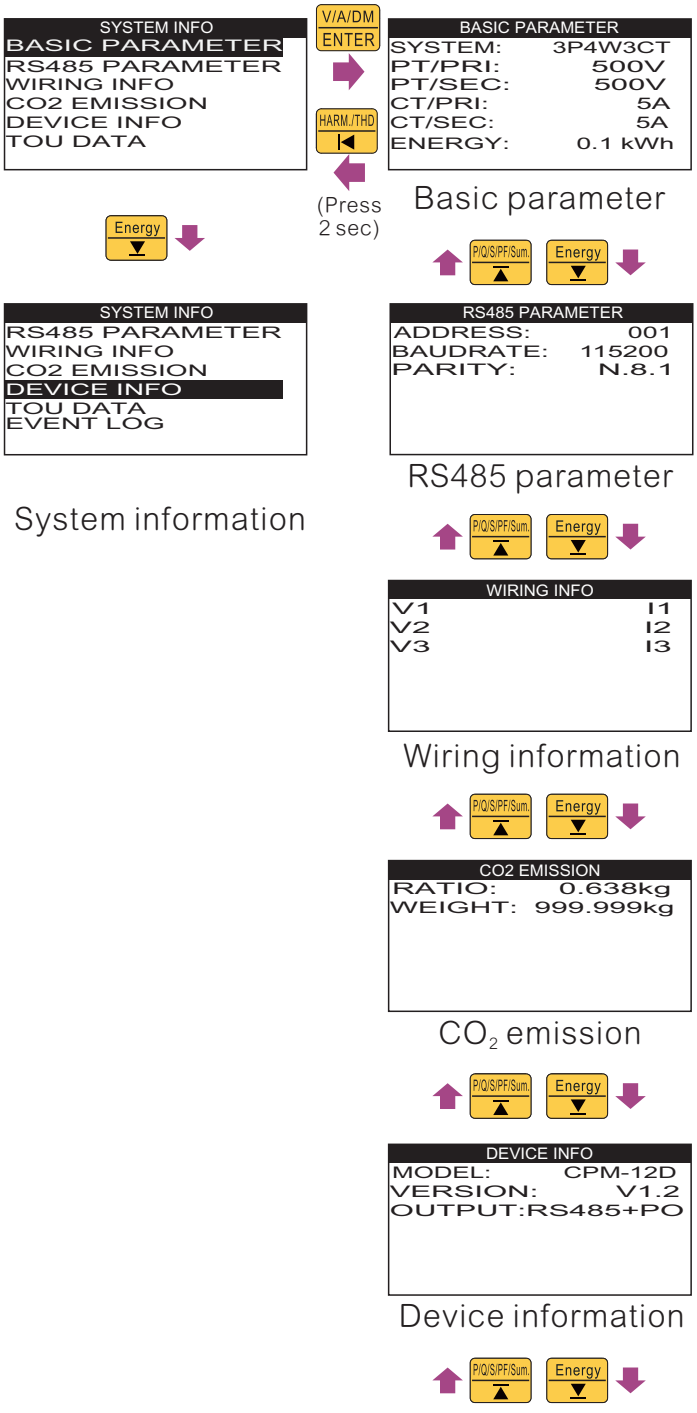
Back to Max phase voltage

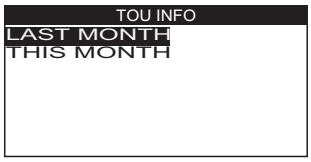


Min power demand

System information inquiry

Press HARM./THD + Energy





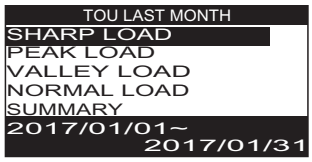
Month selection

V/A/DM ENTER

HARM./THD

(Press 2 sec)

※THIS MONTH and LAST MONTH display in the same way



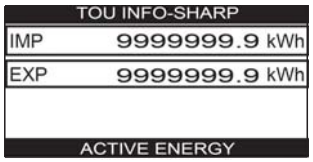
Item selection

V/A/DM ENTER

HARM./THD

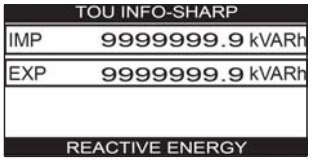
(Press 2 sec)

※PEAK、VALLEY、NORMAL、SUMMARY display content is the same as SHARP



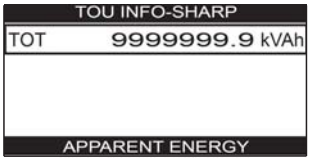
Active energy

Energy



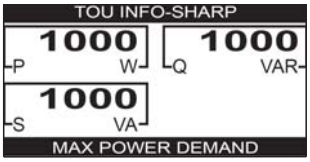
Reactive energy

Energy



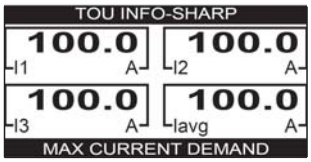
Apparent energy

Energy



Max power demand

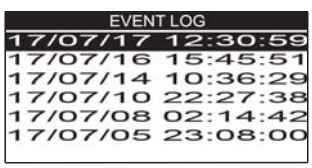
Energy



Max current demand

Energy

Back to active energy



Sorting by time EVENT LOG has 16 records

V/A/DM ENTER

HARM./THD

EVENT LOG NO. number According to the location number stored in the 485 table

Key Description

P/Q/S/PF/Sum. Move/Increase

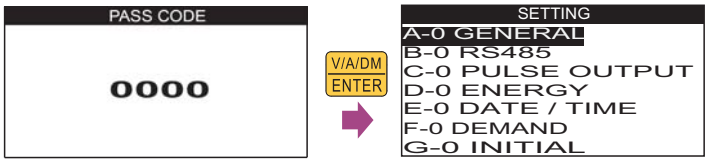
Energy Down/Decrease

V/A/DM ENTER Into setting or confirm setting and back to previous menu

HARM./THD Press 2 Sec back to previous menu or main display

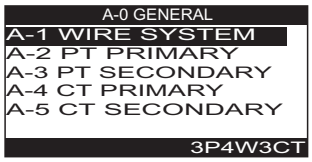
Parameters setting

Press V/A/DM ENTER + Energy



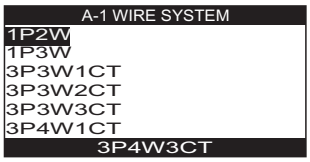
Pass word:1000 Setting item

A-0 General Setting



Setting item

Energy



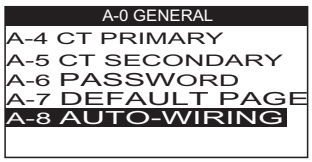
A-1 Wire system setting
1P2W/1P3W/3P3W1CT/
3P3W2CT/3P3W3CT/3P4W1CT/
3P4W3CT

P/Q/S/PF/Sum. Move/Increase

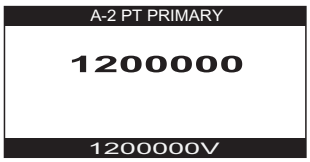
Energy Down/Decrease

V/A/DM ENTER Into setting or confirm setting and back to previous menu

HARM./THD Press 2 Sec back to previous menu



Setting item



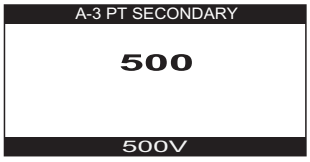
A-2 PT Primary side voltage setting
100~1200000V

P/Q/S/PF/Sum. Move/Increase

Energy Down/Decrease

V/A/DM ENTER Confirm setting and back to previous menu

HARM./THD Press 2 Sec back to previous menu



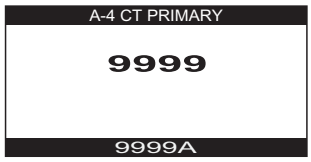
A-3 PT Secondary side voltage setting
50~500V

P/Q/S/PF/Sum. Move/Increase

Energy Down/Decrease

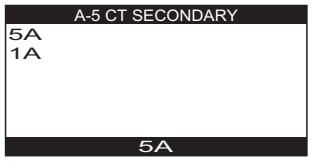
V/A/DM ENTER Confirm setting and back to previous menu

HARM./THD Press 2 Sec back to previous menu



A-4 Current setting of CT primary side
1~9999A

P/Q/S/PF/Sum. ▲ Increase
Energy ▼ Decrease
V/A/DM ENTER Confirm setting and back to previous menu
HARM./THD |◀ Press 2 Sec back to previous menu

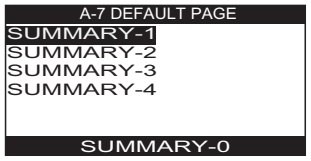


A-5 Current setting of CT second side
5A/1A
※This display is not available at 333mV

P/Q/S/PF/Sum. ▲ Move
Energy ▼ Down
V/A/DM ENTER Confirm setting and back to previous menu
HARM./THD |◀ Press 2 Sec back to previous menu

A-6 Password modify
0000~9999

P/Q/S/PF/Sum. ▲ Increase
Energy ▼ Decrease
V/A/DM ENTER Confirm setting and back to previous menu
HARM./THD |◀ Press 2 Sec back to previous menu

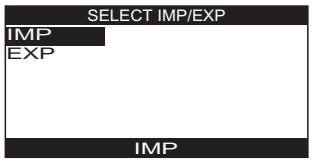


A-7 Main display select
SUMMARY1~4

P/Q/S/PF/Sum. ▲ Move
Energy ▼ Down
V/A/DM ENTER Confirm setting and back to previous menu
HARM./THD |◀ Press 2 Sec back to previous menu

A-8 Wire change progress

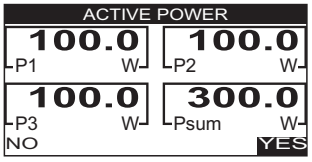
YES
V/A/DM ENTER



Select system input is IMP/EXP

V/A/DM ENTER

Wire change processing

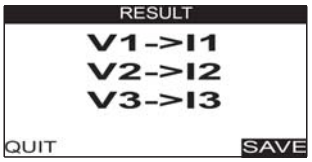


Confirm active power values:
YES/NO

NO

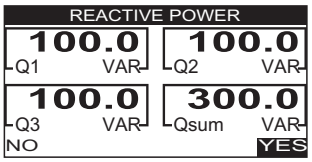
V/A/DM ENTER YES

Wiring change failure
Press Enter to QUIT



Wiring change complete:
default / SAVE /QUIT

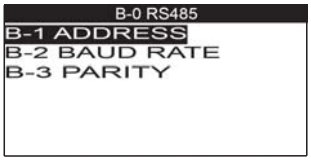
NO
V/A/DM ENTER
YES



Confirm reactive power values:
YES/NO

Auto wiring change condition limit:
3P4W-3CT:VN must be correct and θ <±59°
3P4W-1CT: θ <±59°
3P3W-2CT:V2 must be correct and θ <±59°
3P3W-3CT:V2 must be correct and θ <±59°
1P3W:VN must be correct and θ <±59°
1P2W: θ <±59°
3P3W-1CT:N/A

B-0 RS485 Setting



Setting item

V/A/DM ENTER

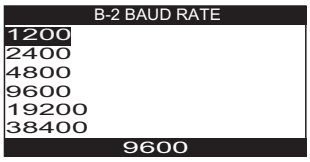
B-1 Device address setting
1~247

P/Q/S/PF/Sum ▲ Increase

Energy ▼ Decrease

V/A/DM ENTER Confirm setting and back to previous menu

HARM./THD |◀ Press 2 Sec back to previous menu

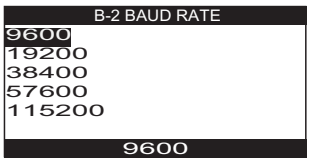


P/Q/S/PF/Sum ▲ Increase

Energy ▼ Decrease

V/A/DM ENTER Confirm setting and back to previous menu

HARM./THD |◀ Press 2 Sec back to previous menu



B-2 Baud rate setting
1200/2400/4800/9600/19200/
38400/57600/115200 bps

B-3 Parity check setting
N.8.1/N.8.2/O.8.1/E.8.1

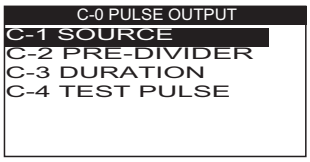
P/Q/S/PF/Sum ▲ Move

Energy ▼ Down

V/A/DM ENTER Confirm setting and back to previous menu

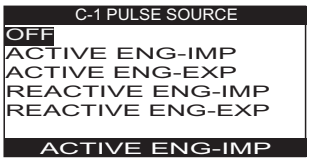
HARM./THD |◀ Press 2 Sec back to previous menu

C-0 Pulse Output Setting



V/A/DM ENTER

Setting item

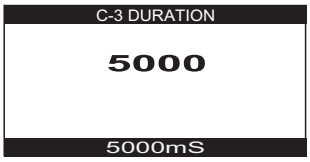


C-1 Parameters setting of pulse output
OFF/AE.IMP/AE.EXP/RE.IMP/ RE.EXP

P/Q/S/PF/Sum. Move
Energy Down
V/A/DM ENTER Confirm setting and back to previous menu
HARM./THD Press 2 Sec back to previous menu

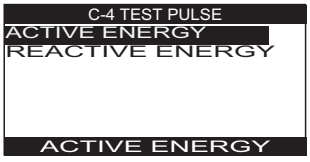
C-2 Divider of pulse output
1~9999次

P/Q/S/PF/Sum. Increase
Energy Decrease
V/A/DM ENTER Confirm setting and back to previous menu
HARM./THD Press 2 Sec back to previous menu



C-3 Pulse width setting:
0~5000(mS)

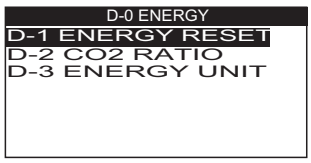
P/Q/S/PF/Sum. Increase
Energy Decrease
V/A/DM ENTER Confirm setting and back to previous menu
HARM./THD Press 2 Sec back to previous menu



C-4 Test pulse setting
Active energy/Reactive energy

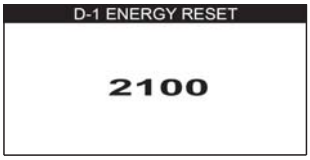
P/Q/S/PF/Sum. Move
Energy Down
V/A/DM ENTER Confirm setting and back to previous menu
HARM./THD Press 2 Sec back to previous menu

D-0 Energy Setting



Setting item

V/A/DM ENTER



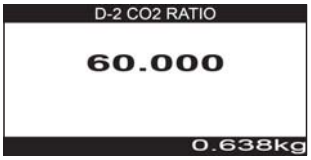
D-1 Reset energy
2100

P/Q/S/PF/Sum. Increase

Energy Decrease

V/A/DM ENTER Confirm setting and back to previous menu

HARM./THD Press 2 Sec back to previous menu



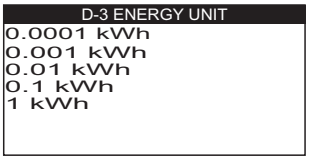
D-2 Total CO_2 weight of energy
00.000~60.000kg

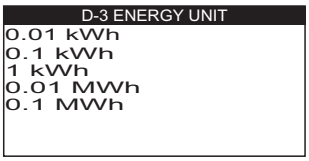
P/Q/S/PF/Sum. Increase

Energy Decrease

V/A/DM ENTER Confirm setting and back to previous menu

HARM./THD Press 2 Sec back to previous menu





D-3 Energy unit setting

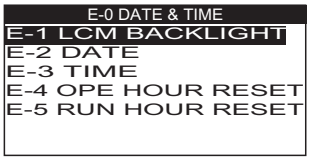
P/Q/S/PF/Sum. Move

Energy Down

V/A/DM ENTER Confirm setting and back to previous menu

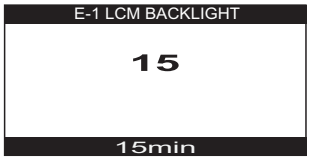
HARM./THD Press 2 Sec back to previous menu

E-0 Date & Time Setting



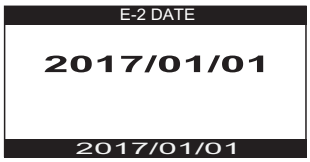
Setting item

V/A/DM ENTER



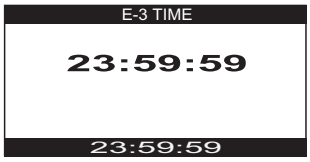
E-1 LCM backlight delay time setting
0~15Min
0 is always ON

P/Q/S/PF/Sum. Increase
Energy Decrease
V/A/DM ENTER Confirm setting and back to previous menu
HARM./THD Press 2 Sec back to previous menu



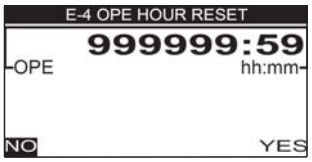
E-2 Date setting

P/Q/S/PF/Sum. Increase
Energy Decrease
V/A/DM ENTER Confirm setting and back to previous menu
HARM./THD Press 2 Sec back to previous menu



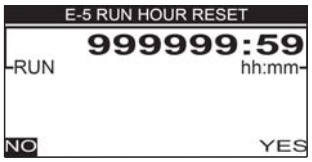
E-3 Time setting

P/Q/S/PF/Sum. Increase
Energy Decrease
V/A/DM ENTER Confirm setting and back to previous menu
HARM./THD Press 2 Sec back to previous menu



E-4 Reset operation time
NO/YES

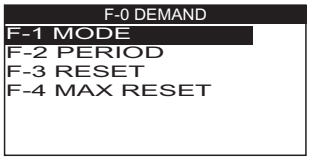
P/Q/S/PF/Sum. Move
Energy Down
V/A/DM ENTER Confirm setting and back to previous menu
HARM./THD Press 2 Sec back to previous menu



E-5 Reset running time
NO/YES

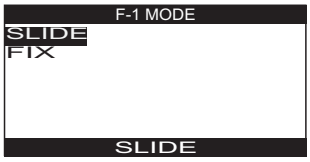
P/Q/S/PF/Sum. Move
Energy Down
V/A/DM ENTER Confirm setting and back to previous menu
HARM./THD Press 2 Sec back to previous menu

F-0 Demand Setting



Setting item

V/A/DM ENTER



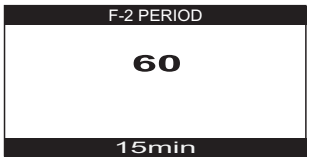
F-1 Calculation method:
SLIDE/FIX

P/Q/S/PF/Sum. ▲ Move

Energy ▼ Down

V/A/DM ENTER Confirm setting and back to previous menu

HARM./THD |◀ Press 2 Sec back to previous menu



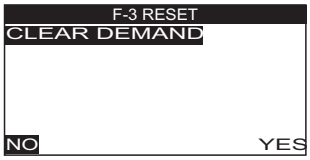
F-2 Demand interval time setting:
1~60Min

P/Q/S/PF/Sum. ▲ Increase

Energy ▼ Decrease

V/A/DM ENTER Confirm setting and back to previous menu

HARM./THD |◀ Press 2 Sec back to previous menu



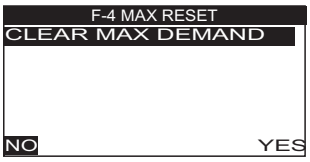
F-3 Reset demand:
DEMAND

P/Q/S/PF/Sum. ▲ Move

Energy ▼ Down

V/A/DM ENTER Confirm setting and back to previous menu

HARM./THD |◀ Press 2 Sec back to previous menu



F-4 Reset Maximum demand:
MAX DEMAND

P/Q/S/PF/Sum. ▲ Move

Energy ▼ Down

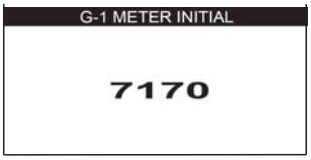
V/A/DM ENTER Confirm setting and back to previous menu

HARM./THD |◀ Press 2 Sec back to previous menu

G-0 Initial

Setting item

V/A/DM ENTER



G-1 Meter initial

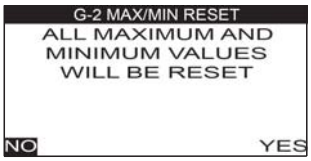
After inputting 7170, it will reboot and return to default value, but the adjusted value will be retained.

P/Q/S/PF/Sum. ▲ Increase

Energy ▼ Decrease

V/A/DM ENTER Confirm setting and back to previous menu

HARM./THD |◀ Press 2 Sec back to previous menu



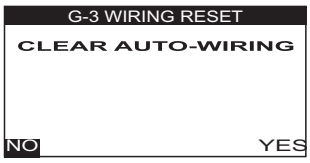
G-2 Reset MAX/MIN value

P/Q/S/PF/Sum. ▲ Move

Energy ▼ Down

V/A/DM ENTER Confirm setting and back to previous menu

HARM./THD |◀ Press 2 Sec back to previous menu



G-3 Clear auto-wiring

P/Q/S/PF/Sum. ▲ Move

Energy ▼ Down

V/A/DM ENTER Confirm setting and back to previous menu

HARM./THD |◀ Press 2 Sec back to previous menu