METi-2500 Series

User's Manual

Neopis Co., Ltd.

[Caution]

Ensure to read this manual before installing METi-2500.

➔ Make sure this product is complete without any mechanical damage on it.

➔ When disconnecting or disassembling METi-2500, make sure first to disconnect the power, current and voltage of the product.

➔ Make sure that the current input terminal, the secondary of the CT, is not opened when the current is provided to the primary of the CT.

➔ Make sure that the setup of METi-2500 is executed in concurrence with the systematical structure (a method of electric connection, the primary and secondary current, voltage and whether the PT is used or not) in order to prevent it from displaying inaccurate information.

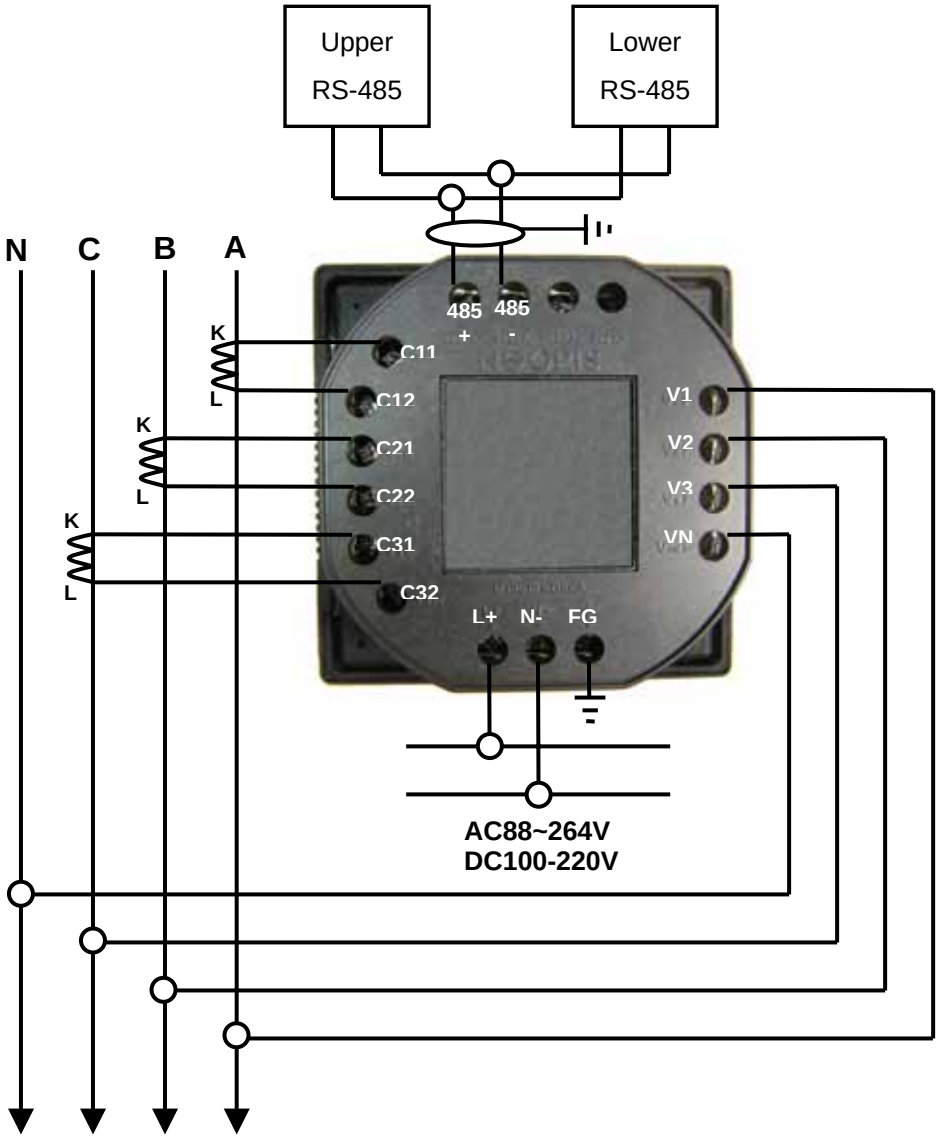
➔ When connecting the voltage and current to the terminal on the back of METi-2500, make sure that the wires and the numbers of the terminal fit to each other. If incorrectly connected, METi-2500 displays a sign, “E 1” on its display

➔ Do not install METi-X near inflammable or dangerous objects.

Quick Start

1 Basic method of connections (3P4W direct connection)

The below connection is used only for a three-phase and four-wire direct connection. The rated current and the phase voltage can be connected up to 5A and 300V (line voltage display: 600V), respectively. Refer to Chapter 2 or Chapter 8 for the details and other methods of connection.



2 Basic method of setting

a) Simultaneously press the **Down (∨) and Enter (ENT) keys** for three seconds

b) A sign **CONN** will appear on the first line of Segment, allowing the setting of the connecting method

c) Press the **Enter (ENT) key** to change the concerned setup menu.

d) The setup menu on the first line of the Segment will flicker.

e) Change the setting value using the **UP(∧) or Down (∨) key**.

f) Press **Enter (ENT) key** to select a setting value.

g) Press the **UP(∧) or Down (∨) key** to move to the next setup menu.

h) Press the **ESC key** to exit the setup mode and move to the indication mode.

Basic setting menu (* is the initial setting value)

Setting menu	Segment display	Setting range	Setting Step	Remark
Connection mode	'Conn'	1:3P4W,2:3P4WD*, 3:3P3W,4:3P3WD, 5:1P3W, 6:1P2W	1	
Primary Voltage	'Pt1'	0*/110 ~ 99990	10/100	Only Connection 1,3
Secondary Voltage	'Pt2'	110 ~ 300*	10	
CT Ratio	'Ct'	1 ~ 9999(10*)	1/10	
Communication Address	'Addr'	1*~ 255	1	Applied communication
Automatic scroll	'rEF'	0 ~ 10*	1	[sec]
Voltage display	'U_dP'	Phase voltage (L-n)/ Line voltage (L-L*)	Voltage display selection	Only 3P4W
Load display	‘Ld_F’	1~100*%	1	

Table of Contents

Product Information

1 Overview

METi-2500 series are high precision, multi-functional digital panel meters, applied with a DIN and ANSI standard. They are designed to replace various analog meters such as V, A, kW, kWh, power-factors and frequency meters and can be remote controlled using diverse communication methods

a) Features

① Supports various communications protocols

Designed for a user to construct a power management system with ease, by employing the standard protocols that are widely used in power system fields including MODBUS, DNP3.0 and Lon works.

② Applied with the IEC60687 Class 0.5 standard

Satisfies the IEC60687 standard, an international standard for testing digital energy meters, guaranteeing a precision and reliability of metering under any conditions for use.

③ Indication methods

- Employed with 7-Segments of high brightness, allowing a user to quickly recognize the metered data.
- Represents a load factor in a form of a bar graph, allowing a user to recognize the load status.
- Automatically scrolls the metered values within one to ten seconds, of which time can be set on the front part.

④ Operating voltage

Employed with the free voltage method of 85 to 265V(AC/DC), satisfying the operating voltage specifications of various panels.

⑤ Case

Designed to be fit to the DIN 96 and ANSI 4”, panel cutout standards .

⑥ External alarm output function (optional)

Can be equipped with an external output contact point that notifies the operation status of a digital panel meter.

b) Product types

① Basic type

- Model name: METi-2500S
- Meters a total of fourteen units including voltage, current, electric power, electric energy, frequency and power-factor

② Communication type(Option)

- Model name: METi-2500CM,CD,CL
- Provides the same functions as those of METi-2500S and additionally isolated RS485

③ Energy type(Option)

- Model name: METi-2500E
- Provides the same functions as those of METi-2500S and additionally a cumulative energy and demand function

④ Energy pulse output type(Option)

- Model name: METi-2500PO(No support in the METi-96)
- Provides the same functions as those of METi-2500S and additionally energy pulses(selected kwatt hour or kvar hour).

Table 1] Product specifications by function

Function \ Model		Accuracy	METi96S-560x	METi96E-560x
MEASURING	Three-phase voltage	0.2%	●	●
	Three-phase current	0.2%	●	●
	Active/reactive power	0.5%	●	●
	Active/reactive energy	0.5%	●	●
	Power factor	0.5%	●	●
	Frequency	0.5%	●	●
	Peak power	0.5%	●	●
	Current demand	0.2%		●
	Power demand	0.5%		●
	Max current demand	0.2%		●
	Max power demand	0.5%		●
	Monthly max demand	0.5%		●
	Monthly accumulated energy	0.5%		●
	Monthly power factor	0.5%		●
	Reverse power	0.5%		●
	Reverse active energy	0.5%		●
Option		Order Info		
Harmonic (THD)		H	●	●
COM	RS 485 MODBUS	CM	●	●
	DNP 3.0	CD	●	●
	LonWorks	CL	●	●
Energy pulse output(1 channel)		PO	●	●

c) Ratings

① Frequency: 50/60Hz

② Current Inputs:

- Inputs : I1,I2,I3
- CT 5A or 1A (optional)
- Measurement category Ⅲ
- Overload : 100Arms for 1second
- Dielectric Withstand : 3000Vrms, for 1minute
- Starting Current : 0.005A RMS
- Burden : 0.05VA(typical) @ 5A

③ Voltage Inputs:

- Inputs : V1,V2,V3,Vref
- 50 to 300VLN(86.6-600LL) VAC RMS (three phase)
- Measurement category Ⅲ
- Overload : 1000VAC RMS continuous
- Dielectric Withstand: >3250VAC RMS, 60Hz for 1minute
- Impedance: 2Mohm / phase

④ Power Supply:

- Rated Inputs : AC: 85 ~ 265VAC, 50~60Hz
  DC:100~300VDC
- Dielectric Withstand: 2000VAC RMS, 60Hz for 1minutes
- Burden : 30VA typical

⑤ Operating temperature : -20 to +70℃

⑥ Storage temperature : -25 to +80℃

⑦ Humidity: 5 to 95 % (status of no dewing)

⑧ Pollution degree 2

d) Conditions for environmental tests

① Insulation resistance: 2M between the charger and the ground

② AC voltage tests : AC 2000V/ 10mA/ for 1 min. period

③ Fast transients

- Standard: IEC1000-4-4
- Power supply terminal common mode: 2kV
- Current/voltage input: 2kV

④ Temperature cycle test

- Temperature: -20 to +60 ℃
- Repetition of two cycles

e) Case Standard

① METi-2500

- Applied with the DIN 96 standard and ANSI 4”
- 90 x 90 x 65 (HxWxD) mm

f) Instrument Weight : 0.5kG

g) Cleaning

If the meter is dirtied by stain, a user has to clean using a dry towel or a piece of cloth**.**

2 Method of Installation and Connection

a) Installation

① As shown on figure 1, insert METi-2500 into a through hole cut out.

② Insert each screw in the holes at the rear side of mounting panel.

③ Fix up screws in the insert holes of METi-2500

④ Tighten the screws by using a screw driver

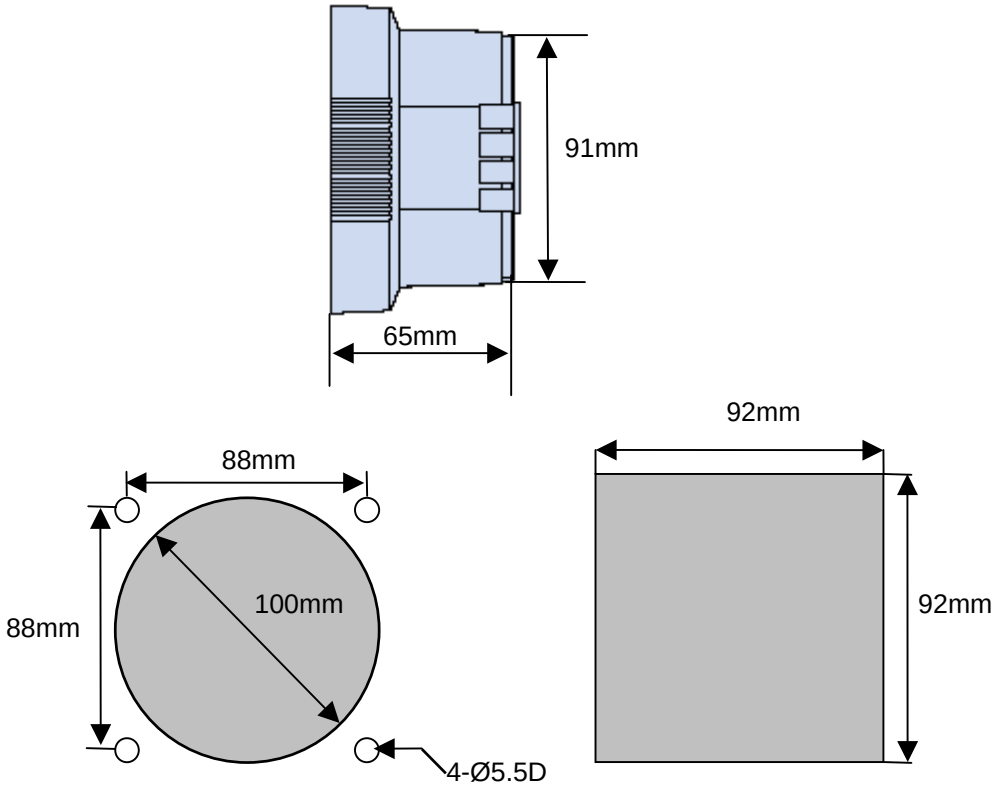


Figure 1-1) METi-2500 and panel's cutting size

b) Electric connection

① Terminal configurations

The terminal of METi-2500 is configured as follows:.

Figure 2) The drawing of terminal configurations of METi-2500

② The electric wires and terminal screw fastening torque

- Terminal size: M3.5
- Terminal interval: 8mm
- Terminal screw fastening torque (kgf-cm): Below 10
- Recommended wire size: 1 to 2 mm^2

③ The connection of the earth terminal (FG: Frame Ground)

The FG(⏚) terminal of the meter provides the safety ground connection. Make sure that the earth terminal is directly in earth or connected to the earth terminal of the panel.

It should be made to the switchgear earth ground using a dedicated AWG 14 or larger wire.

! Caution
Ensure that the earth terminal is connected. Otherwise some accident or operational error may occur.

④ The connection of the power supply terminal

The power supply terminal is the terminal that enables the operation of METi-2500. The permissible power input for this terminal ranges from 85 to 265V, which can be supplied with both AC and DC types. In case of a DC type, make sure to connect it in polarity. Otherwise, some damage may occur to the unit.

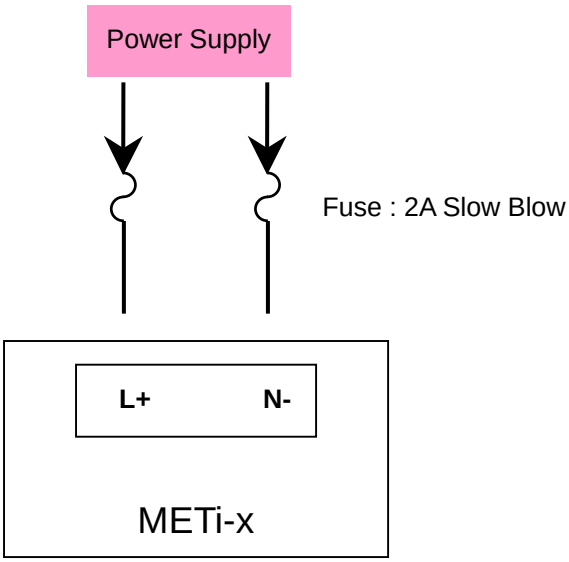


Figure 3) the drawing of the power supply terminal connection

⑤ The connection of the voltage input terminal

Connect it through V1, V2, V3 and VN. For the connecting method, refer to Figure 4 to 9 according to each phase and wire type and input type.

- The input range
  - ⇨ Direct connection : Use for lines below a 300V phase voltage. Set a value of 'Pt1' as 0 and 'Pt2', as a value between 110 and 300V.
  - ⇨ Connection through PT: Select a setup value of 'Pt1' from the range of 110 and 99,990V and of 'Pt2', from 110 and 300V.

[Note]
If the voltage is supplied without phase, the status display window of METi-2500 will display a sign, 'E 1,' when the power is applied.

⑥ The connection of the current input terminal

- Connect it through the terminals of C11, C12, C21, C22, C31 and C32. For the connecting method, refer to Picture 4 to 9 according to each phase and wiring type and input type.
- The range and method of input: Connection through CT(5A rating)

[Note]
- **The set value should be assigned as a ratio of the primary to the secondary current. If the primary current is 50A and the secondary is 5A CT, the set value will be 10.**
- **If the connections of current input are switched, the status display window of METi-2500 will display a sign, 'E 1,' when the power is applied.**

⑦ The connection of the communications terminal

Connect it in the 485(1)+, 485(1)-, the below figure represents connection of a RS-485 communications line in multi-drops.

.

! Caution
If the RS485 communications line is a shielded cable, connect it also to the FG terminal of METi-X.

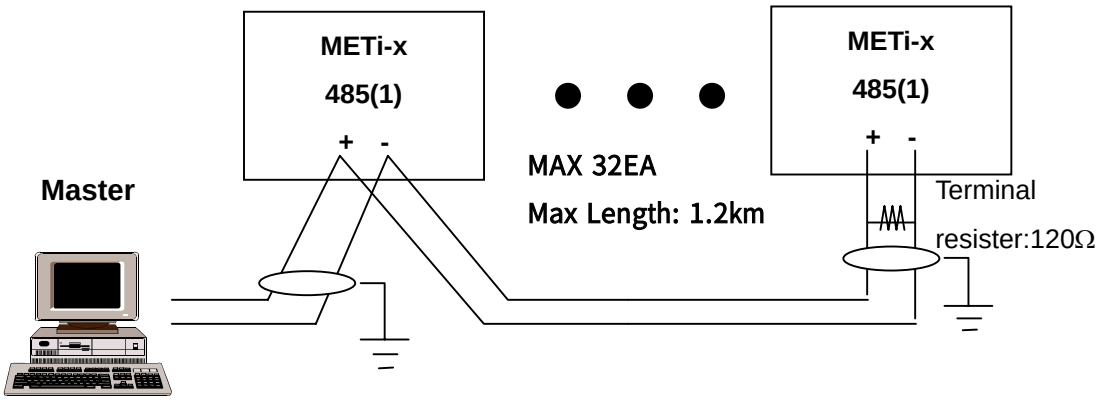


Figure 4) the drawing of the communications terminal connection

⑧ The drawing of voltage/ current connection

The below drawings represent the voltage/ current connections based on a phase and wiring, and input methods. The connections using other methods than those suggested here may cause some operational errors or shocks to the unit.

- Three-phase and four-wire PT connection

  Connect the voltage and current input circuits to the lines of three-phase and four-wire type, using PT. The connection mode setting should be No. 1 (CONN: 1).

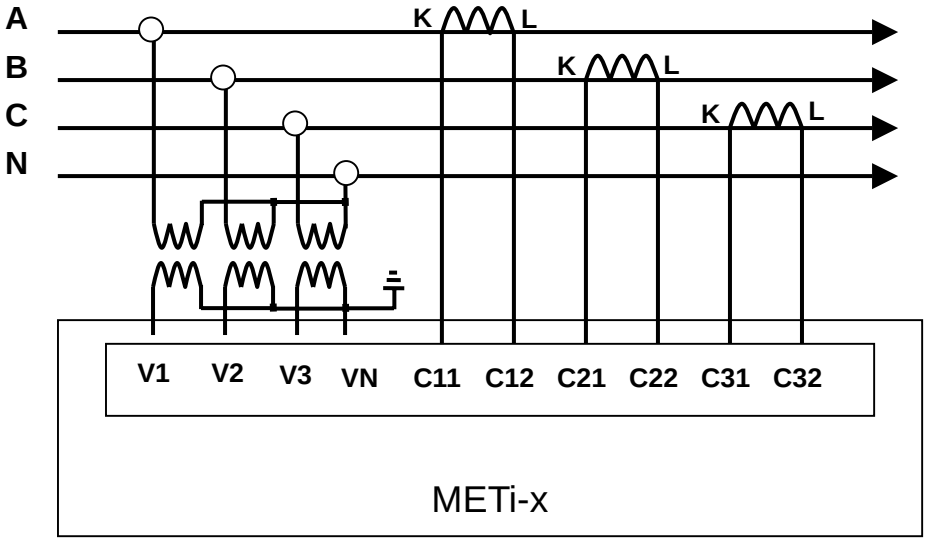


Figure 5) the drawing of the three-phase and four-wire PT connection

- Three-phase and four-wire direct connection

  Connect the voltage and current input circuits to the lines of the three-phase and four-wire type and to a phase voltage of below 300V, without using PT. The connection mode setting should be No. 2 (CONN: 2).

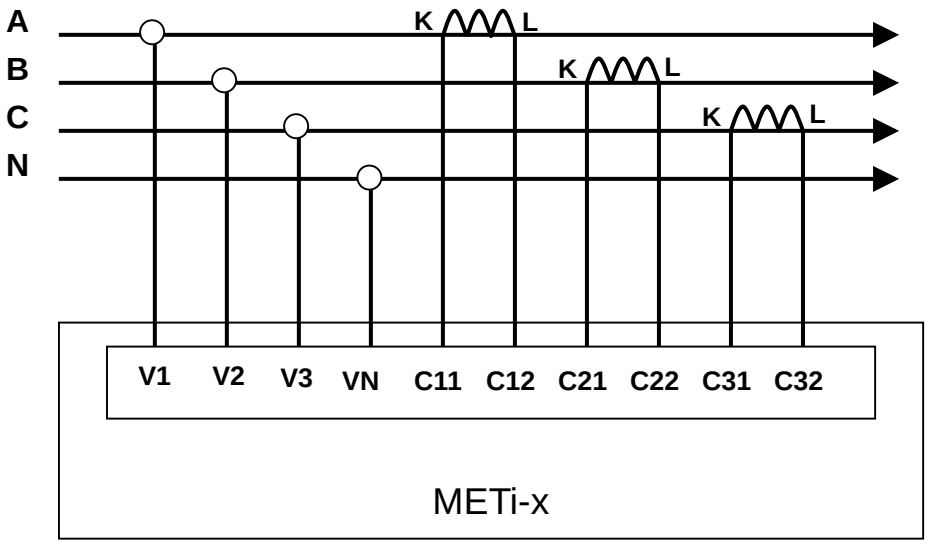


Figure 6) The drawing of three-phase and four-wire direct connection

- The three-phase and three-wire PT connection

  Connect the voltage and current circuits to the lines of the three-phase and three-wire type in an open delta method, using PT. The connection mode setting should be No. 3 (CONN: 3).

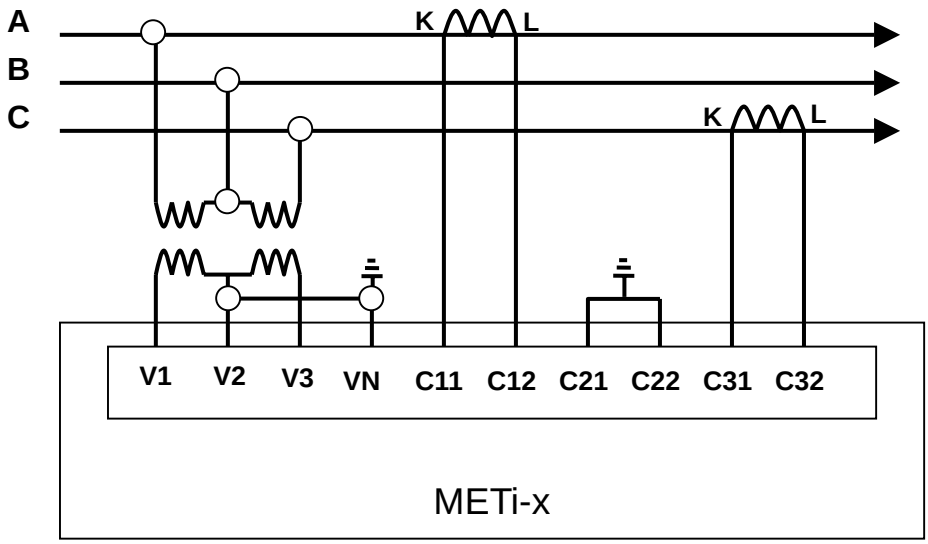


Figure 7) The drawing of the three-phase and three-wire PT connection

- The three-phase and three-wire direct connection

  Connect the voltage and current circuits to the lines of the three-phase and three-wire type. The connection mode setting should be No. 4 (CONN: 4).

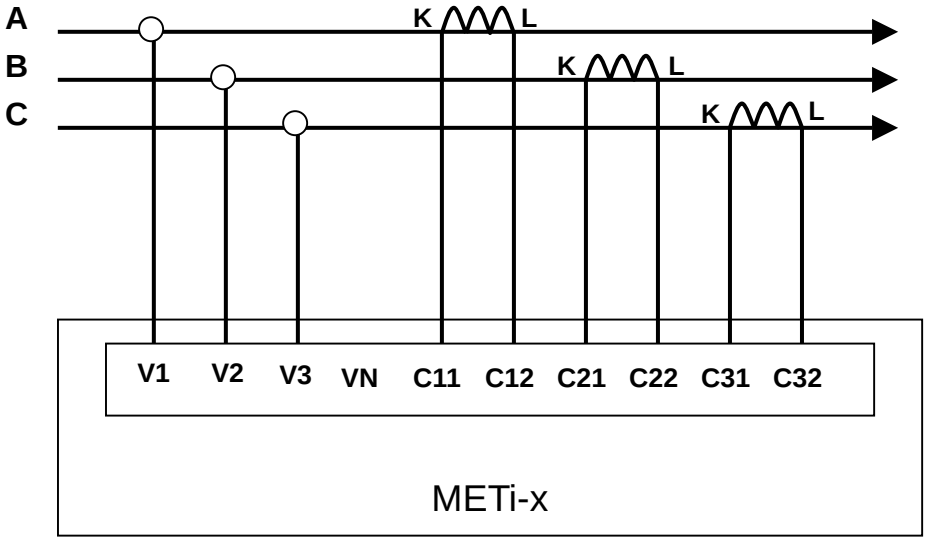


Figure 8) The drawing of the three-phase and three-wire direct connection

[Note]
In the three-phase and three-wire PT connection, the B phase voltage and current are assumed to be under a balanced load condition and therefore, the values are metered from the voltage and current of the A and C phases. Hence, if the B phase voltage and current is not under a balanced condition, the unit cannot satisfy its precision standard.

- The single-phase and three-wire direct connection

  Connect the voltage and current to the lines of the single-phase and three-wire type and to a phase voltage of below 300V. The connection mode setting should be No. 5 (CONN: 5).

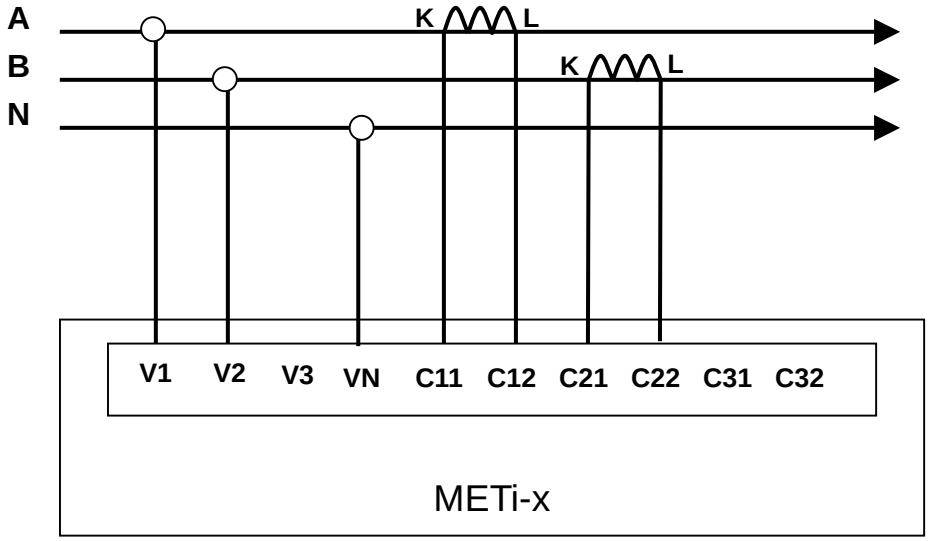


Figure 9) The drawing of the single-phase and three-wire direct connection.

- The single-phase and two- wire direct connection

  Connect the voltage and current to the lines of the single-phase and two-wire type and to a phase voltage of 300V. The connection mode setting should be No. 6 (CONN: 6).

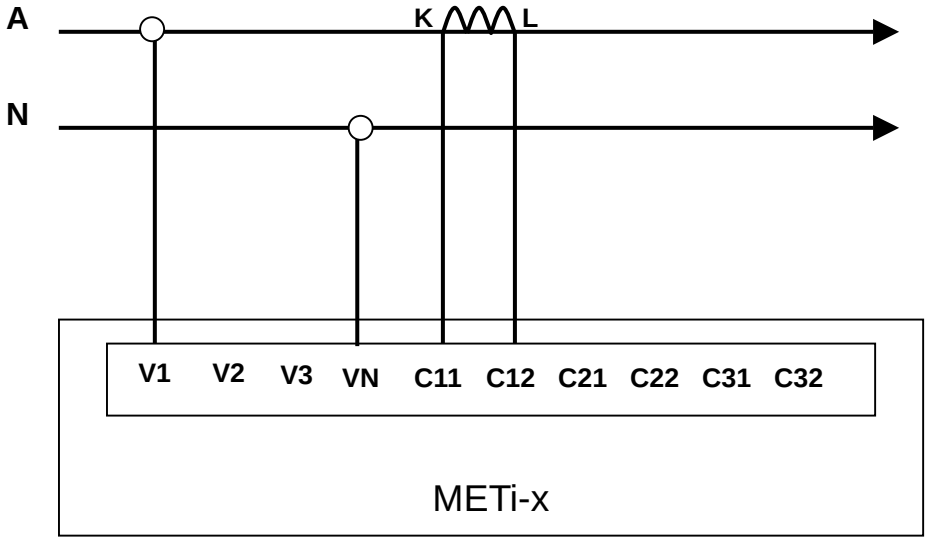


Figure 10) The drawing of the single-phase and two-wire direct connection.

3 Menu

a) The Configurations of the Front Panel

The Figure 11 represents the configurations of the front panel of METi-X. The front panel is composed of 7-Segments, with four units per each of three lines, which indicate measuring values, an LED that indicates the measuring unit, and a x1000 LED that lights up when a measuring value exceeds the indication range. In addition, it includes the load factor indicator that displays the use ratio of the load and four operational keys as follows:

- Up: To raise a setting value or move to the previous measuring value
- Down: To lower a setup value or move to the next measuring value
- Enter: To select a setup value or save it
- ESC: To exit the current menu

For details, refer to the instructions of the corresponding article.

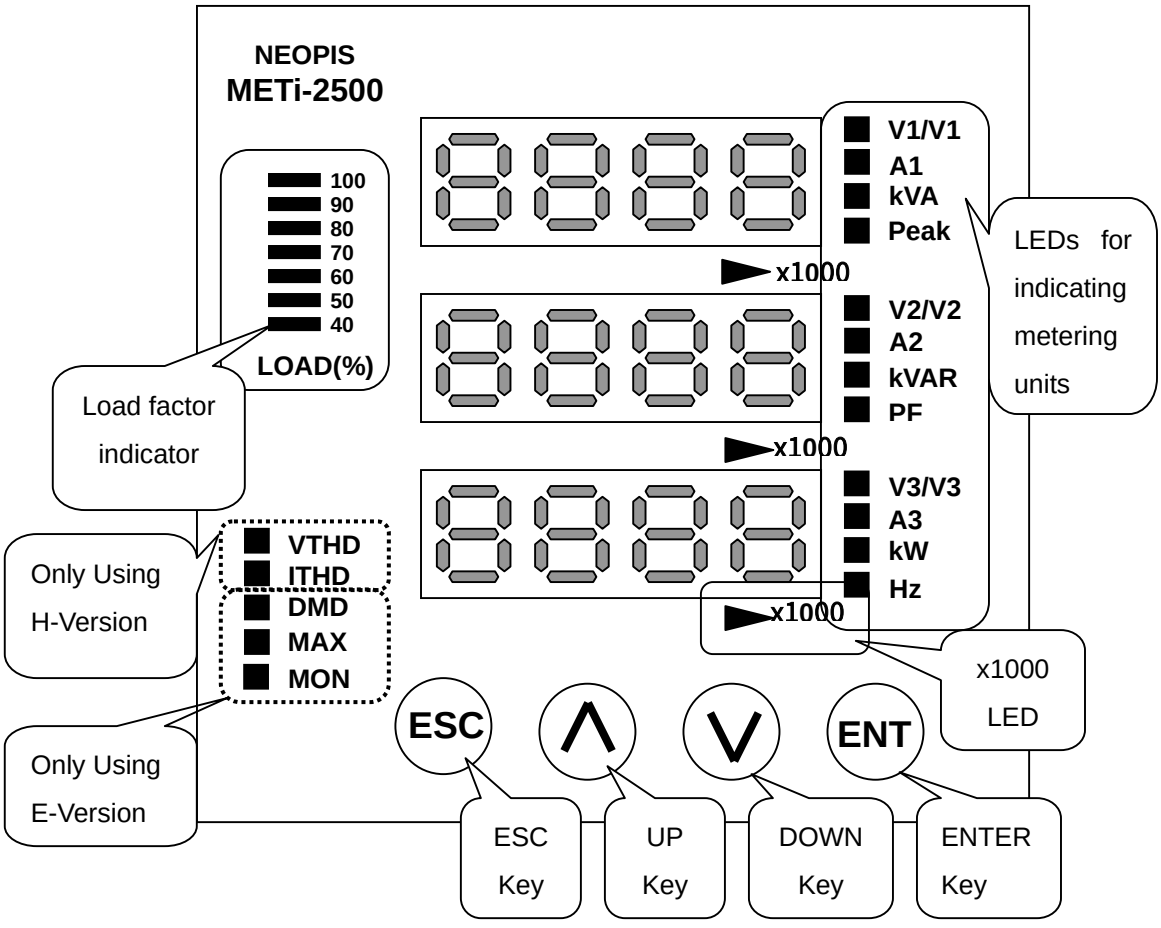


Figure 11) The drawing of configurations of the front panel

b) The Method of Setting

① To enter the setting mode

Press the Down (V) and Enter (ENT) keys simultaneously for three seconds, referring to figure 12. Then, as is shown in figure 13, the first item of the setting menu, the setting of the connection mode will appear.

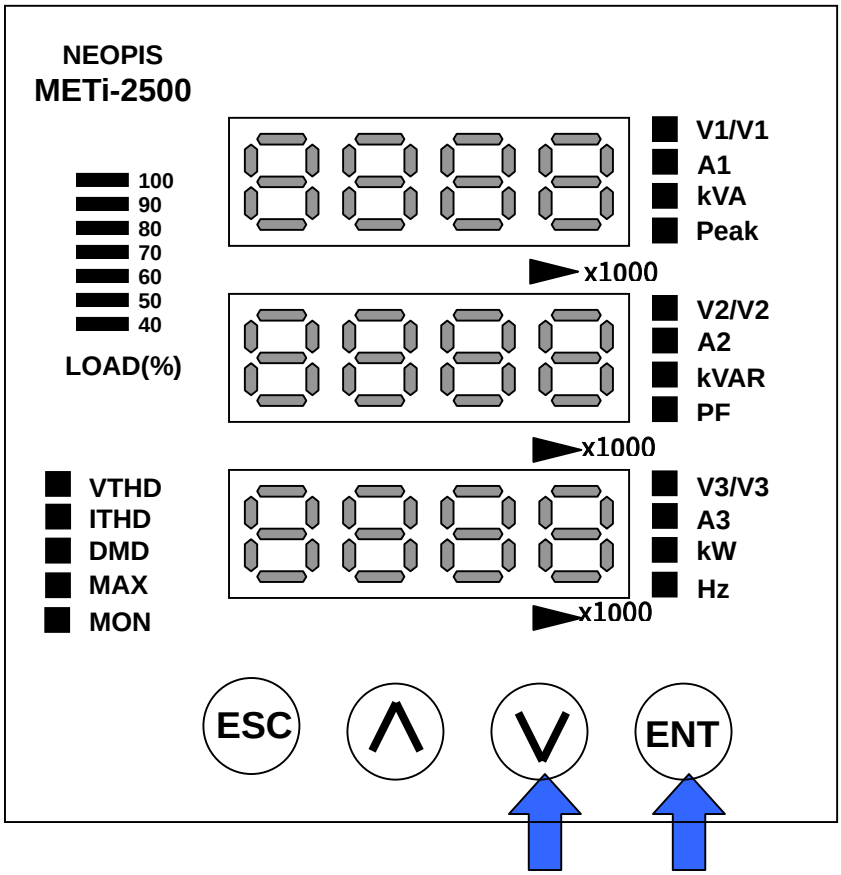


Figure 12) To enter the setup mode

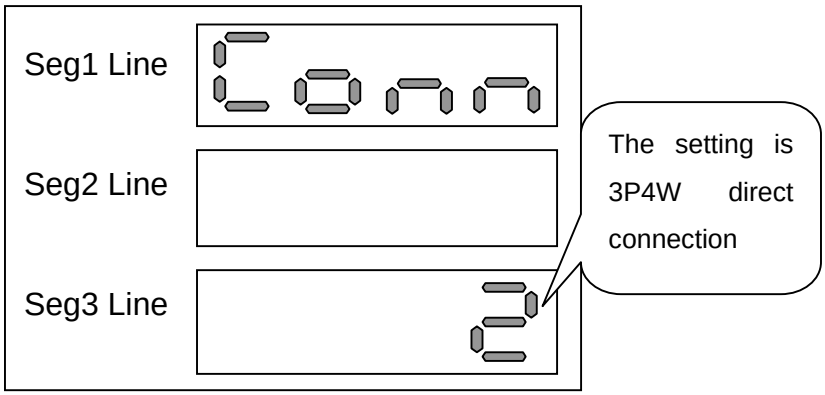


Figure 13) The initial screen of setting

② To scroll and select a setting menu

Use the Up and Down keys to scroll and select a setting menu. Press the Down key to move down through the setting menu in the order as is shown in figure 14. Press the Up key to move to the previous menu. Press the Enter key to select a menu. When a menu is selected, the setting menu on the first line of the Segment flickers.

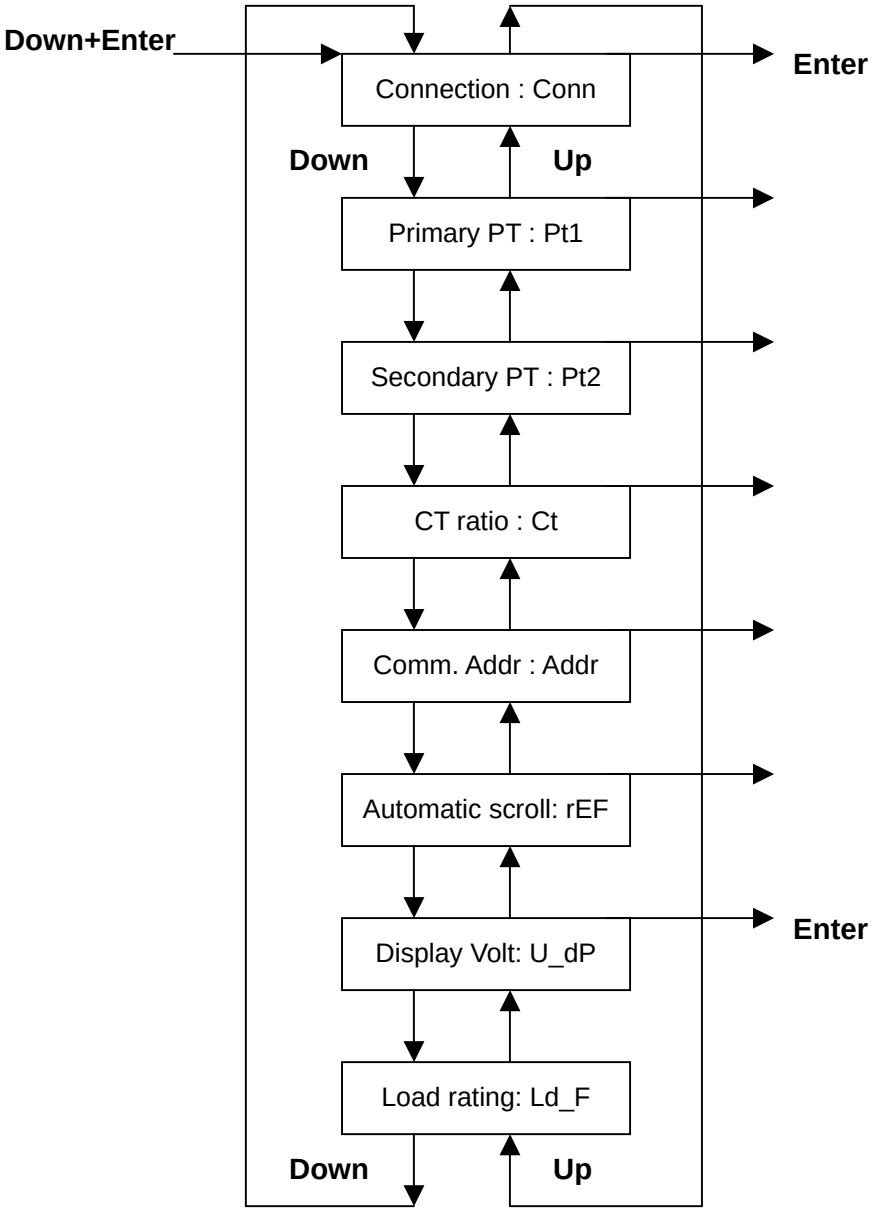


Figure 14) The scrolling order of the setting menu

③ To change and save a setting value

Press the Up or down keys to increase or decrease a setting value while the setting item on the first line of the Segment flickers. Then, press the Enter key to save the changed value, which will stop the flickering of the setting menu. The below table represents the range of the setting values of each menu and corresponding Segment displays. In order to make it easy to set the first phase voltage and CT ratio, which have wide ranges of setting values, follow these instructions: Press the Up or Down key for three seconds and then, the long key to increase or decrease the value to ten times higher that of the basic setting value.

Table 2) The range of the setting value by each menu and the displays of the segments (*: an initial setting value)

Setting menu	Segment display	Setting range	Setting Step	Remark
Connection mode	'Conn'	1:3P4W:three phase-four wire using PT 2:3P4WD*:three phase-four wire direct 3:3P3W:three phase-three wire using PT 4:3P3WD:three phase-three wire direct 5:1P3W :one phase-three wire direct 6:1P2W:one phase-two wire direct	1	
Primary Voltage	'Pt1'	0*/110 ~ 99990	10/100	Only Conn :1,3
Secondary Voltage	'Pt2'	110 ~ 300*	10	
CT Ratio	'Ct'	1 ~ 9999(10*)	1/10	
Communication Address	'Addr'	1*~ 255	1	Applied communication
Automatic scroll	'rEF'	0 ~ 10*	1	[sec]
Voltage display	'U_dP'	Phase voltage (L-n)/ Line voltage (L-L*)	Voltage display selection	
Load rating	Ld_F	1~100*%	1	

④ To exit the setup mode

Press the ESC key to exit the setting mode and go back to the measuring display mode

c) Measuring Indication

When provided with the power, the unit will initially display the voltage measuring indication screen. In order to move to other measuring indication screens, use the Automatic scroll (between 1 and 10 sec./ 0 none scrolling) or Up and Down keys. To activate the Automatic scroll, do not press any key and wait for two minutes and thirty seconds. Then, the screen will be automatically switched to the next metering indication menu according to a setup scrolling time (between 1 and 10 sec.).

If set of scrolling time is 0, the screen isn't switched.(none scrolling mode)

① The range and precision of measuring

The range and precision of measuring by METi-2500 are as follows:

Table 3) the range and precision of measuring items

Measure Items	Range of measuring	Precision (%)
Voltage	0 ~ 99,999V (x1000 LED lights up when it exceeds a number of four digits)	0.2%
Current	0 ~ 99,999A (x1000 LED lights up when it exceeds a number of four digits)	0.2%
Active power	0 ~ 99,999kW (x1000 LED lights up when it exceeds a number of four digits)	0.5%
Reactive power	0 ~ 99,999kWar (x1000 LED lights up when it exceeds a number of four digits)	0.5%
Power-factor	-1 ~ 1	0.5%
Frequency	45-65Hz	0.5%
Maximum power	0 ~ 99,999kW (x1000 LED lights up if when exceeds a number of four digits)	0.5%
Active energy	0 ~ 99999999kWh	0.5%
Reactive energy	0 ~ 99999999kVarh	0.5%
Current demand	0 ~ 99,999A (x1000 LED lights up when it exceeds a number of four digits)	0.2%
Power demand	0 ~ 99,999kW (x1000 LED lights up when it exceeds a number of four digits)	0.5%
Max current demand	0 ~ 99,999A (x1000 LED lights up when it exceeds a number of four digits)	0.2%
Max power demand	0 ~ 99,999kW (x1000 LED lights up when it exceeds a number of four digits)	0.5%
Monthly max demand	0 ~ 99,999kW (x1000 LED lights up when it exceeds a number of four digits)	0.5%
Monthly active energy	0 ~ 99999999kWh	0.5%
Monthly power factor	0 ~ 1	0.5%
Reverse power	0 ~ 99,999kW (x1000 LED lights up when it exceeds a number of four digits)	0.5%
Reverse active energy	0 ~ 99999999kWh	0.5%

② The voltage indication mode

Enables the instant indication of values of the three-phase voltage as is shown in figure 15. In this case, a corresponding voltage unit indication LED lights up. When a voltage value exceeds 9,999V, the x1000LED lights up, indicating a change of digits. If a voltage is set as a three-phase/ four-wire for type and L-L for indication, the screen will display the value of the line voltage.

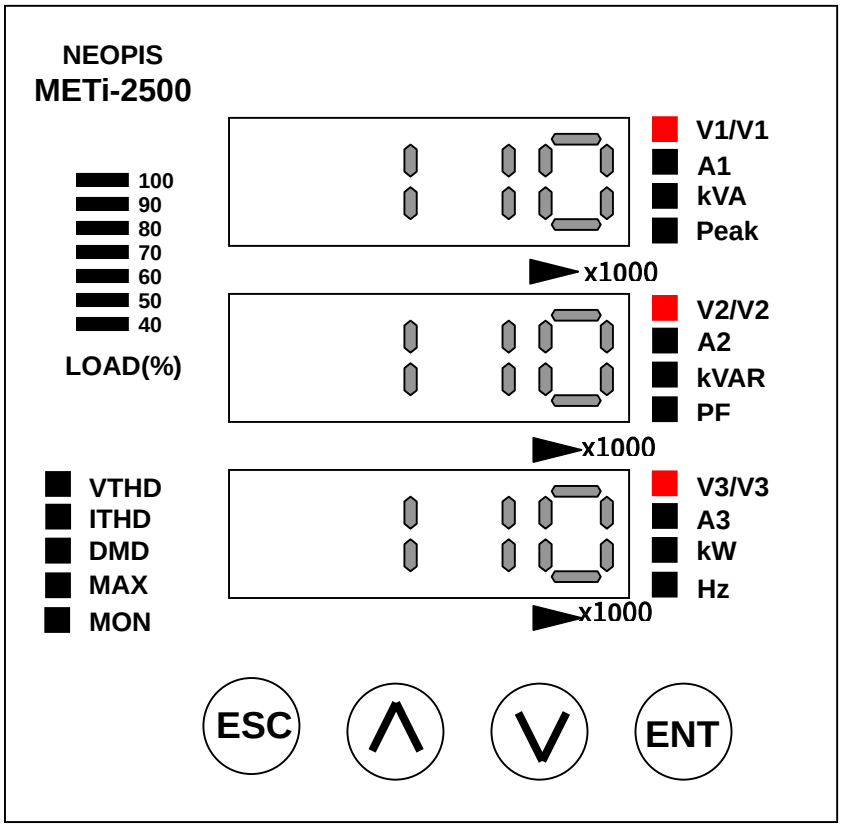


Figure 15) Voltage indication mode

③ The current indication mode

Enables the instant indication of the three-phase current as is shown in figure 16. In this case, a corresponding current unit indication LED lights up. When a current value exceeds 9,999A, the x1000LED lights up, indicating that the digits has been changed to the unit of Kilo..

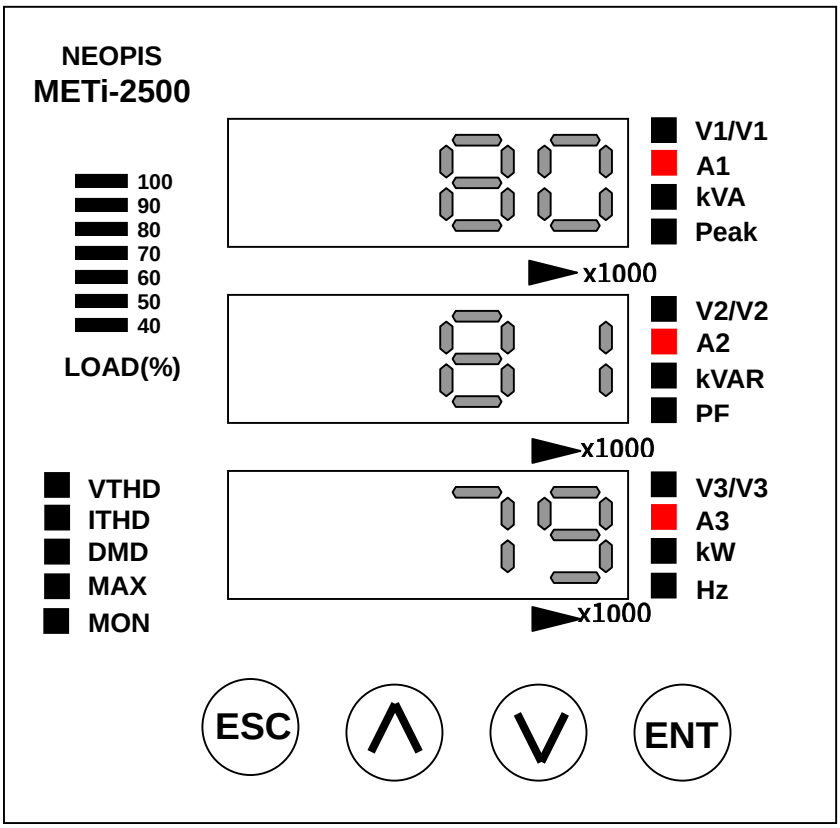


Figure 16) Current indication mode

④ The electric power indication mode

Enables the instant to indicate the values of phase total apparent power, active and reactive power as is shown in figure 17. In this case, a corresponding current unit indication LED lights up. When a value of electric power exceeds 9,999kVA, 9,999kVAR or 9,999kW, the x1000LED lights up, indicating that the digits has been changed to a unit of Mega

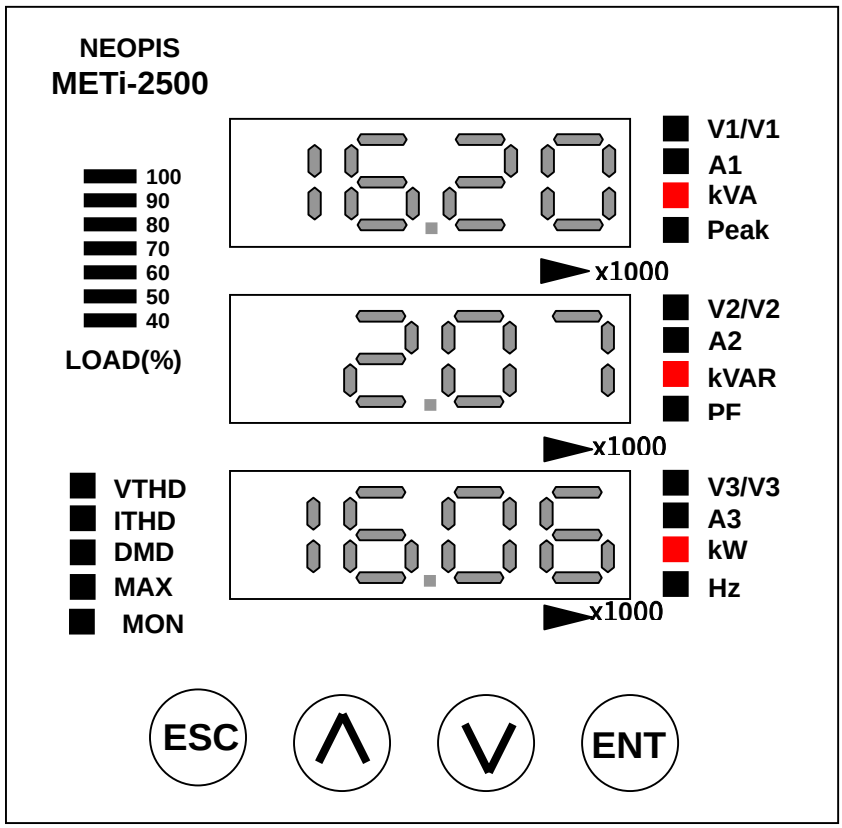


Figure 17) Power indication mode

⑤ The peak power, power-factor and frequency indication mode

Enables the instant indication of the values of peak electric power, power-factor and frequency as is shown in figure 18. As for the peak electric power, the highest value of momentary power, after the reset is executed. When a value of peak power exceeds 9,999kW, the x1000LED lights up, indicating that the digits has been changed to a unit of Mega. The power-factor is the represented as a value between –1 and +1, among which conductive power-factor has a negative value and inductive power-factor, a positive value. Frequency is represented as a value between 45 and 65Hz.

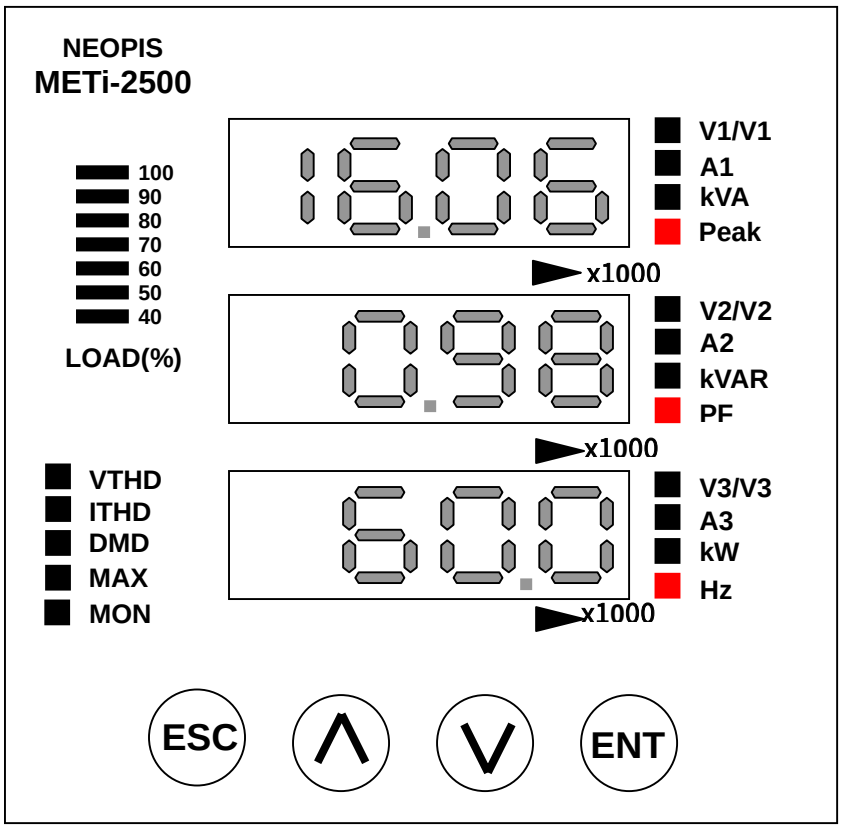


Figure 18) The peak power, power-factor and frequency indication mode

⑥ The active energy indication mode

Indicates the values of active energy in eight digits as is shown in figure 19. Since electric energy is a cumulative value, this unit is employed with a value indicating system in eight digits to enhance precision. Hence, it is enabled to indicate a value of up to 9,999,999kWh and goes back to 0 to cumulate from there if a value exceeds its maximum indicative value. In figure 19, the electric energy can be read as 152, 379kWh, which is being displayed even when the power is disconnected by applying a non-volatile EEPROM.

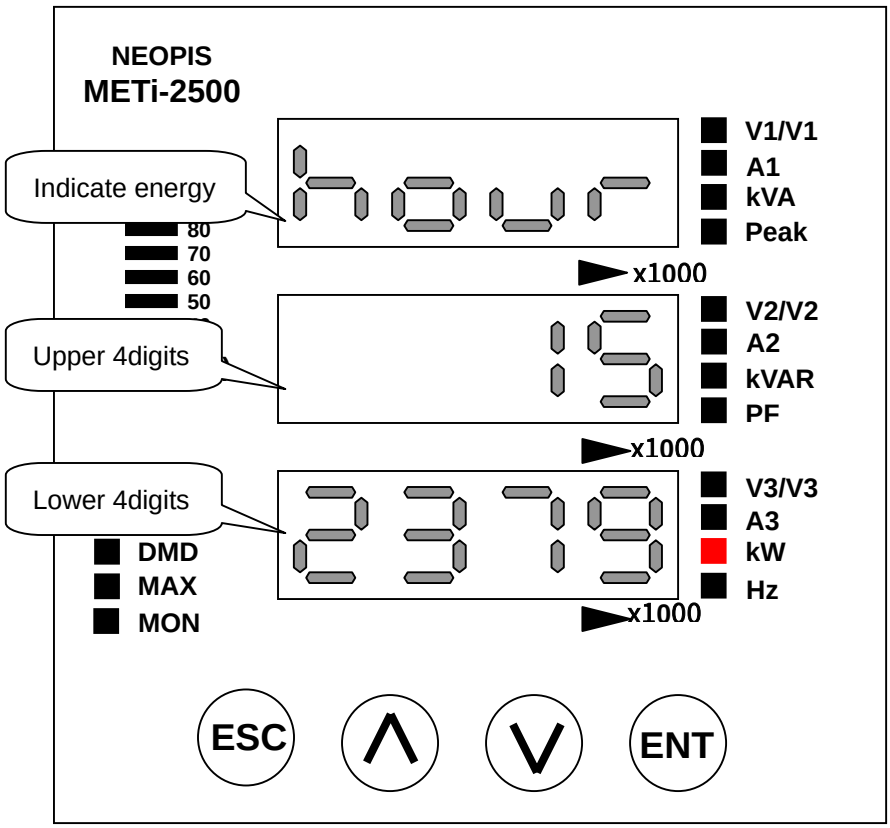


Figure 19) Active energy indication mode

⑦ The reactive energy indication mode

Indicates the values of reactive energy in eight digits as is shown in figure 20. Since an energy is a cumulative value, this unit is employed with a value indicating system in eight digits to enhance precision. Hence, it is enable to indicate a value of up to 99,999,999kWh and goes back to 0 to cumulate from there if a value exceeds this maximum indicative value. In figure 20, the electric energy can be read as 52, 117kVARh, which is being displayed even when the power is disconnected by applying a non-volatile EEPROM.

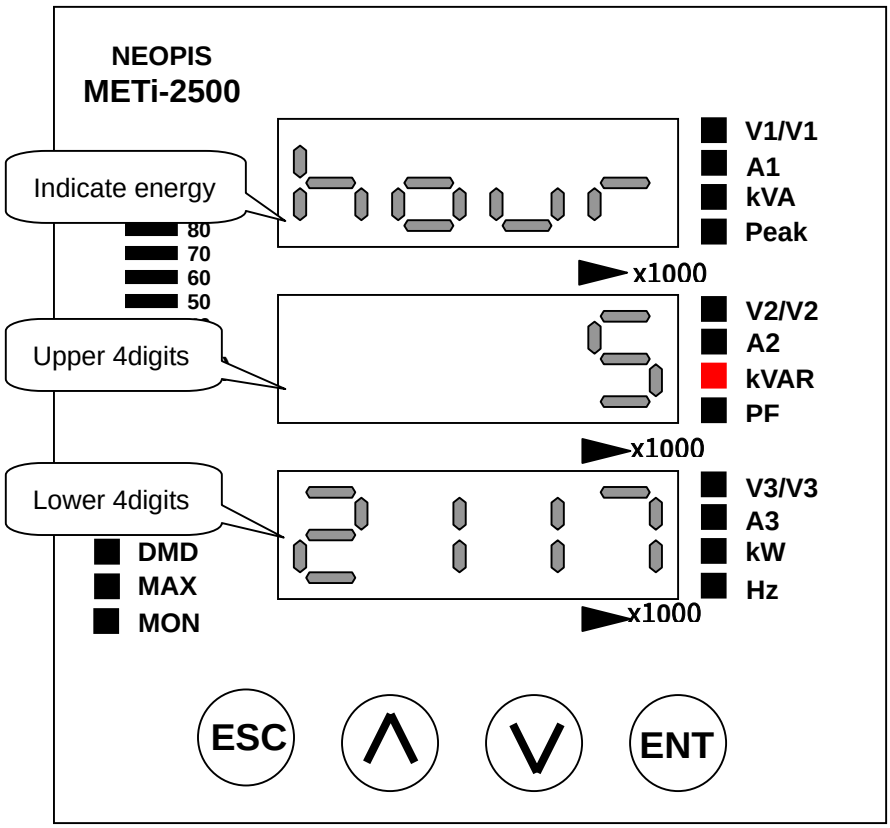


Figure 20) Reactive energy indication mode

⑧ The demand current and power indication mode(only E-version)

The METi E-version indicates the values of demand current and power in eight digits as is shown in figure 21.

The demand current is a three phase average current supplied during the demand time(15minute).

When a value of demand current exceeds 9,999A, the x1000LED lights up, indicating that the digits has been changed to a unit of kA.

The demand power is a three phase average power supplied during the emand time(15minute).

When a value of demand power exceeds 9,999kW, the x1000LED lights up, indicating that the digits has been changed to a unit of Mega.

To indicate the demand mode, the DMD LED lights up.

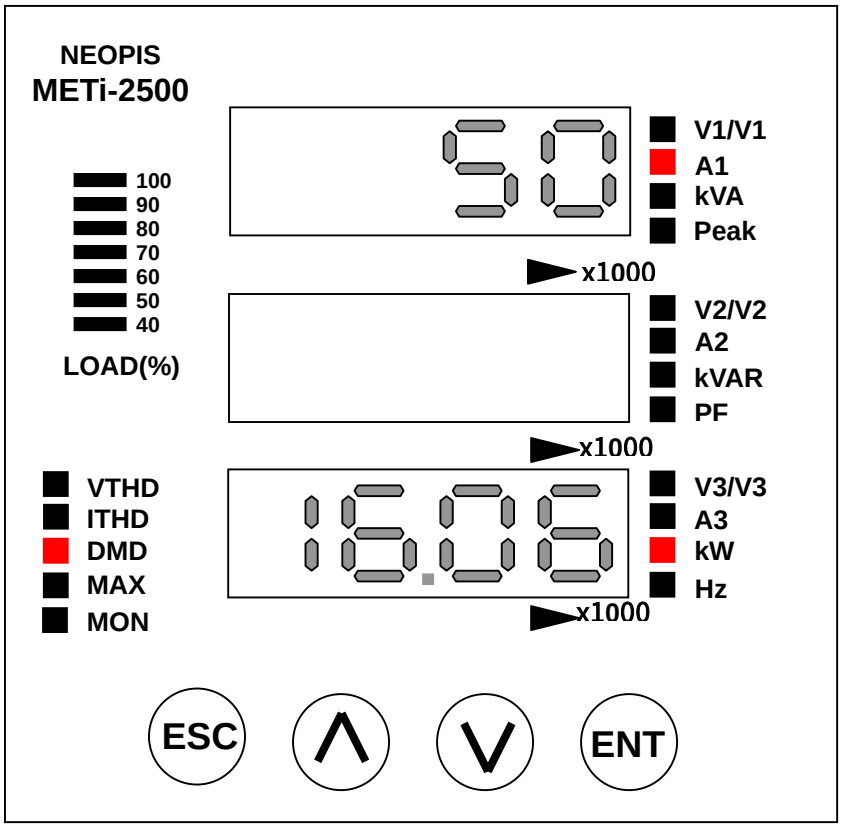


Figure 21) The demand current and power indication mode

⑨ The max demand current and power indication mode(only E-version)

The METi E-version indicates the values of max demand current and power in eight digits as is shown in figure 22.

A max demand current is a max value among the demand currents, is occurred during a month.

When a value of max demand current exceeds 9,999A, the x1000LED lights up, indicating that the digits has been changed to a unit of kA.

A max demand power is a max value among the demand powers, is occurred during a month.

When a value of max demand power exceeds 9,999kW, the x1000LED lights up, indicating that the digits has been changed to a unit of Mega.

To indicate the max demand mode, the DMD led and MAX led light up.

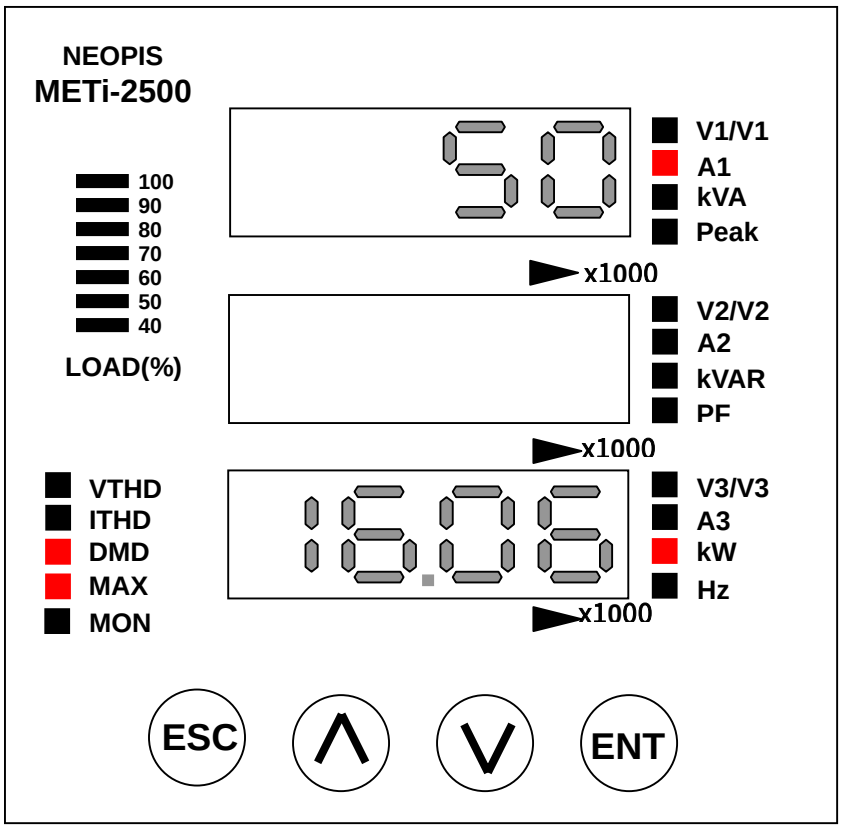


Figure 22) The max demand current and power indication mode

⑩ The monthly max demand and power factor indication mode
(only E-version)

The METi E-version indicates the values of monthly max demand and power factor in eight digits as is shown in figure 22.

A monthly max demand is a max value, is occurred at the last month.

When a value of monthly max demand exceeds 9,999kW, the x1000LED lights up, indicating that the digits has been changed to a unit of Mega.

A monthly power factor is the average power factor occurred at the last month.

The display range for power factor is from zero to one.

To indicate the monthly max demand mode, the DMD led lights up and the 'Mon' characters is displayed at the first segments

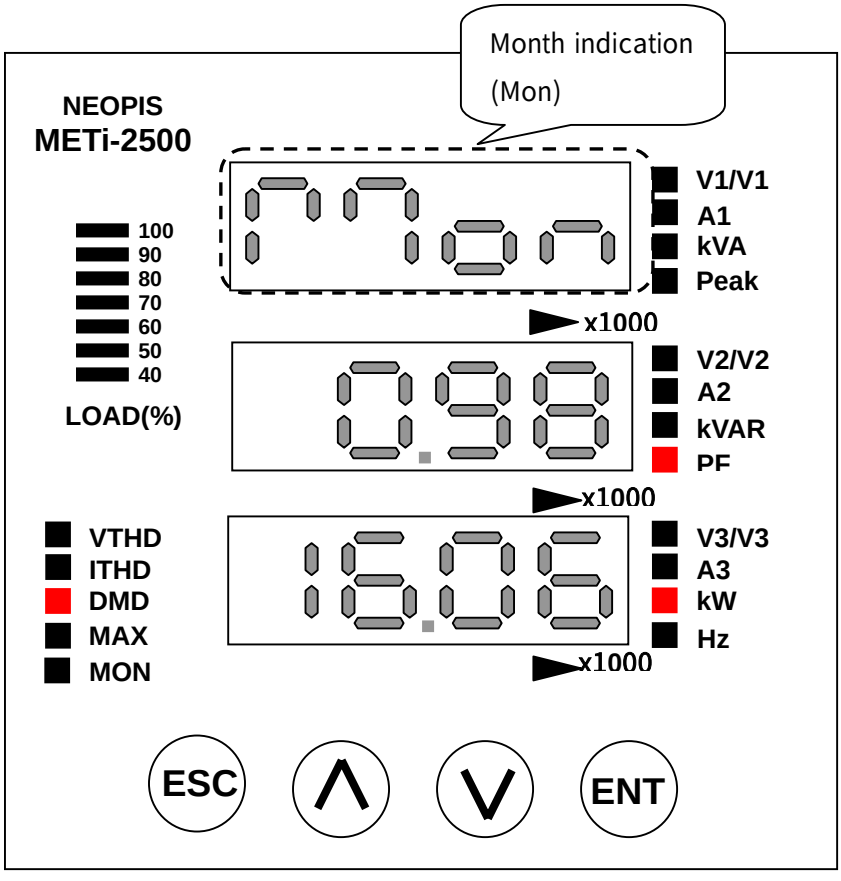


Figure 23) The monthly max demand and power factor indication mode

⑪ The monthly active energy mode (only E-version)

The METi E-version indicates the values of monthly active energy accumulated in eight digits as is shown in figure 22.

A monthly active energy is accumulated energy data, is occurred at the last month.

Since electric energy is a cumulative value, this unit is employed with a value indicating system in eight digits to enhance precision. Hence, it is enabled to indicate a value of up to 9,999,999kWh and goes back to 0 to cumulate from there if a value exceeds its maximum indicative value.

In figure 24, the electric energy can be read as 152, 379kWh, which is being displayed even when the power is disconnected by applying a non-volatile EEPROM.

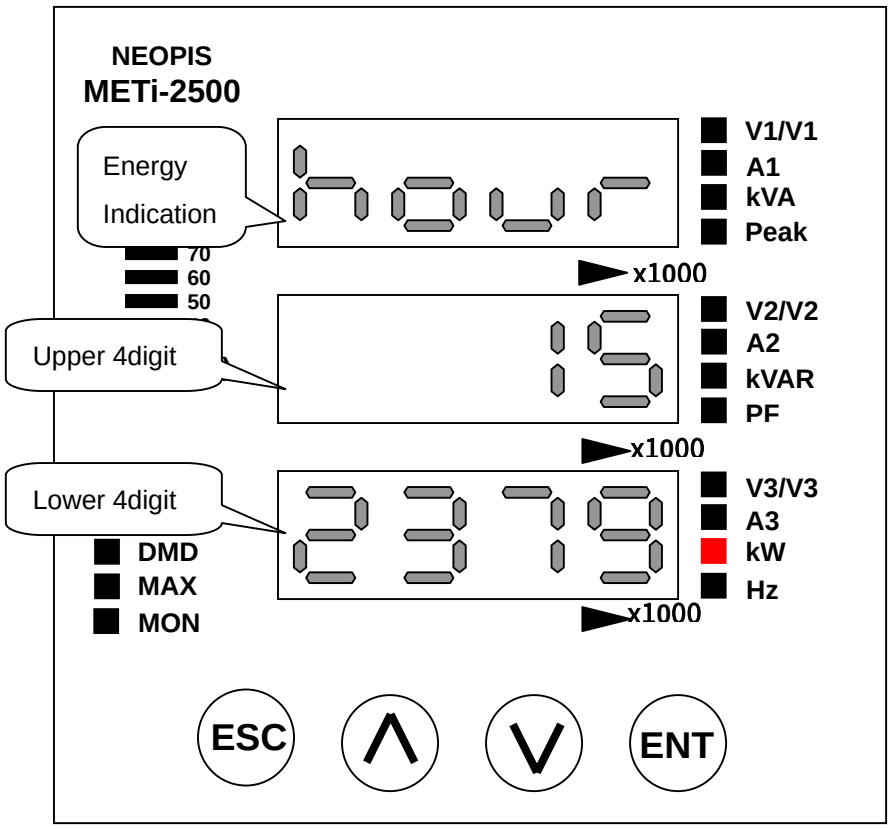


Figure 24) The monthly active energy mode

⑫ The reverse power indication mode(only E-version)

The METi E-version indicates the values of reverse power in four digits as is shown in figure 25.

The reverse power is occurred power when the current direction is reverse.

When a value of reverse power exceeds 9,999kW, the x1000LED lights up, indicating that the digits has been changed to a unit of Mega.

To indicate the reverse power mode, the ‘rE -’ characters is displayed at the first segments

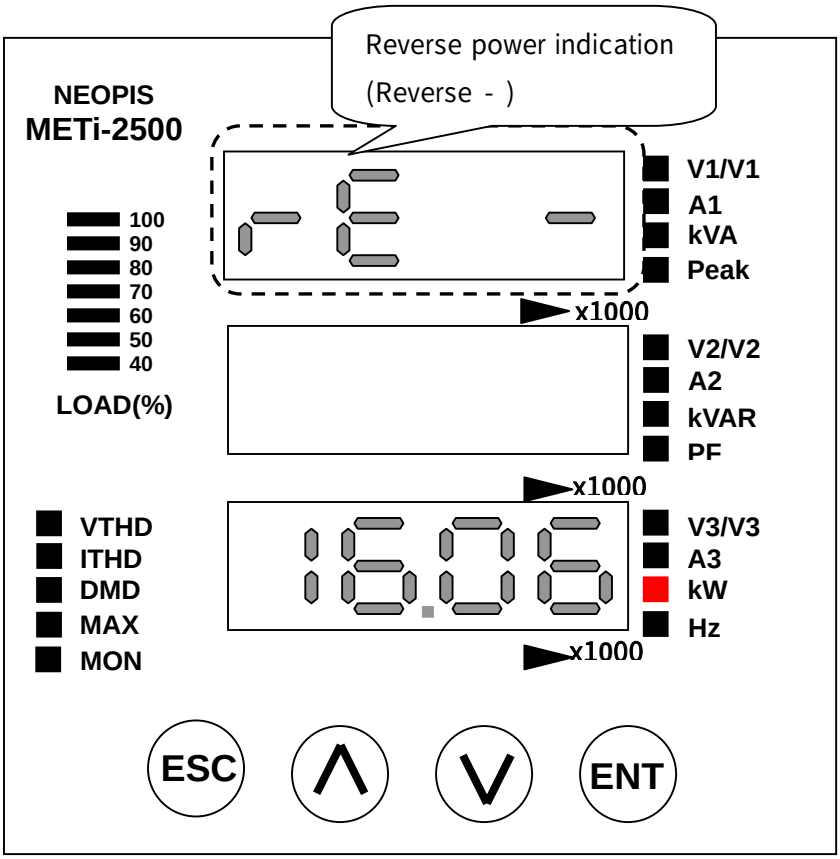


Figure 25) The reverse power indication mode

⑬ The reverse active energy indication mode(only E-version)

The METi E-version indicates the values of reverse active energy accumulated in eight digits as is shown in figure 26.

A reverse active energy is accumulated an active energy, is occurred at the reverse current.

Since a reverse active energy is a cumulative value, this unit is employed with a value indicating system in eight digits to enhance precision. Hence, it is enabled to indicate a value of up to 9,999,999kWh and goes back to 0 to cumulate from there if a value exceeds its maximum indicative value.

In figure 26, the reverse active energy can be read as 52,379kWh, which is being displayed even when the power is disconnected by applying a non-volatile EEPROM.

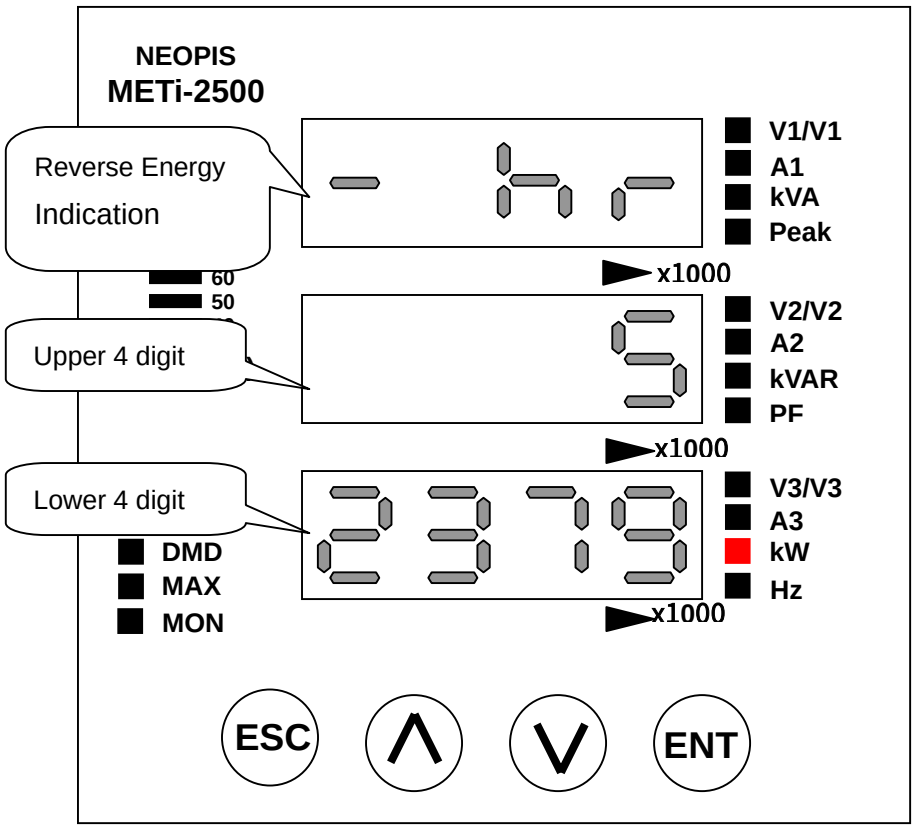


Figure 26) The reverse active energy indication mode

⑭ The load factor indication

Indicates a ratio of currently applied electric current based on the rated current. A value is indicated by a total of seven LEDs, of which three are in green, two in yellow and two in red, representing light, medium and overload, respectively.

Table 4) The indicative LEDs by load factor

Load factor (%)	Type of LED
Below 0 to 40%	One green LED
Below 40 to 50%	Two green LEDs
Below 50 to 60%	Three green LEDs
Below 60 to 70%	Three green LEDs and one yellow LED
Below 70 to 80%	Three green LEDs and two yellow EDs
Below 80 to 90%	Three green LEDs, two yellow LEDs and one red LED
Over 90%	Three green LEDs, one yellow LED and two red LEDs

⑮ Diagnosis information and program version

Indicates the results of diagnosis of METi-X. Table 5 shows the items for diagnosis. If there are some problems detected in more than two items, a combined value of these two items is indicated on the third line of the Segment. In case of an electric connection error, make sure that the indicative value is displayed as 0 after the power is applied. If the power is not applied, the detected value of an electric connection error is displayed as 1. The figure 21 represents the indication of diagnosis information and program version

Table 5) The items for diagnosis

Items for diagnosis	Indicative values
Electric connection error	1
Watch dog reset	2
Memory fail	4
EEPROFM fail	8
Setup value fail	16
Abnormal reset	32
Metering fail	64

The Segment 1 line displays a program version

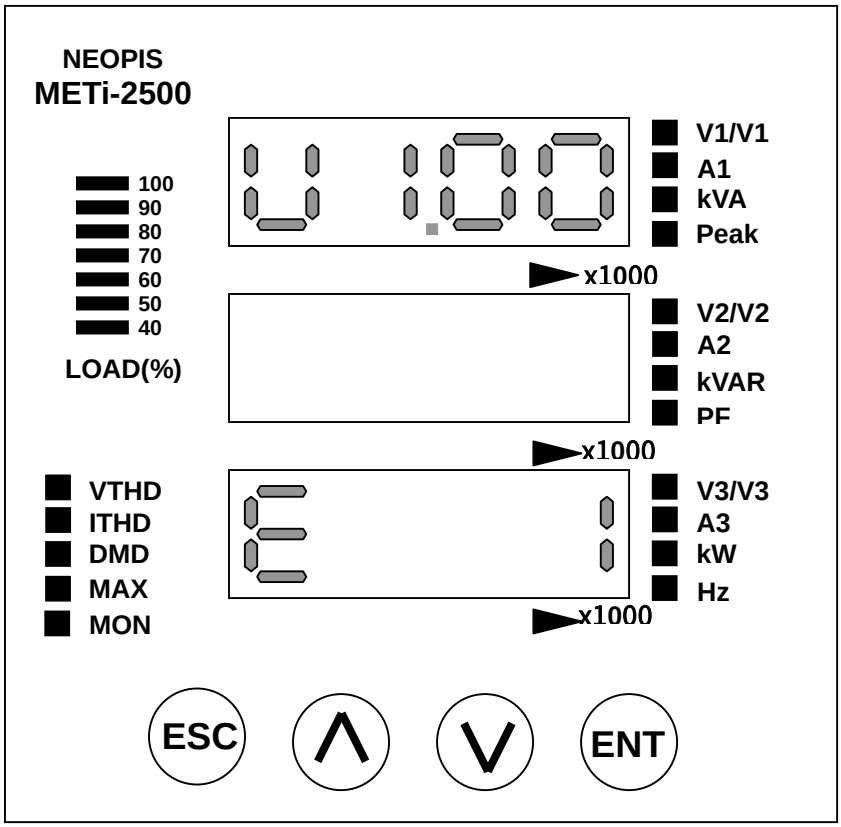


Figure 21) The diagnosis item display window

d) The Methods of Resets of Energy, Peak Power

The methods of resets of some data including effective/unavailable energy, peak power and diagnosis information that are saved in the EEPROM are as follows:

① Go to the desired measuring indicative window by using the UP and Down keys.

② Press the ESC and ENTER keys simultaneously for three seconds, referring to figure 22. As for the diagnosis information, if an error prolongs, it cannot be reset.

③ In the E-version, the backup data is reset as same method with upper.

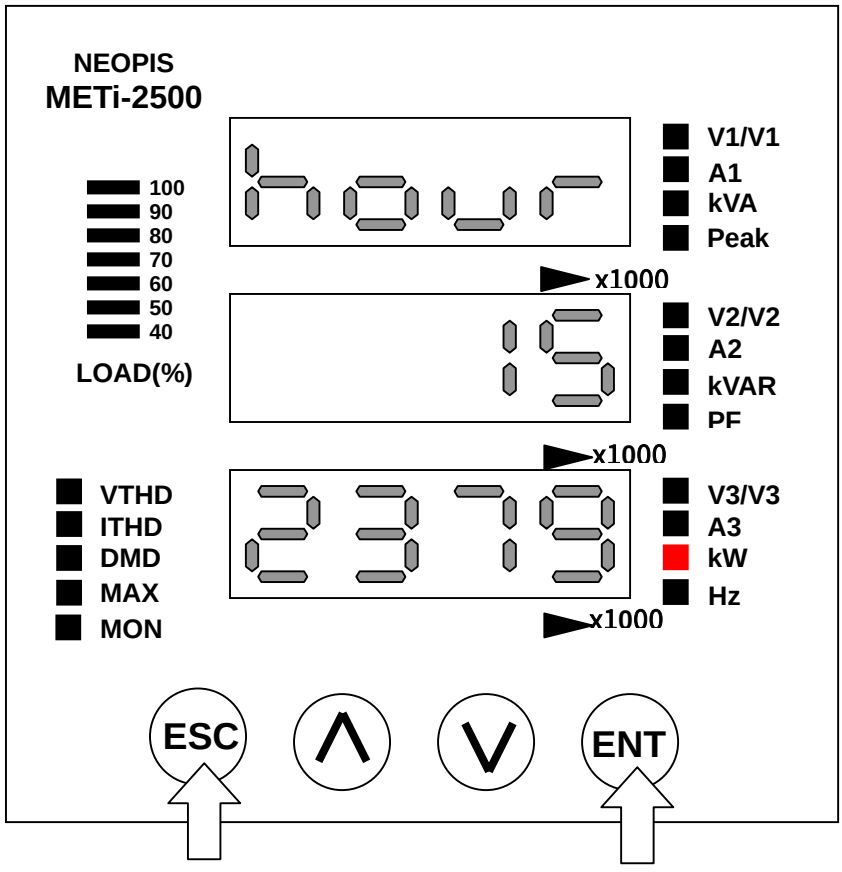


Figure 22) The screen for reset of energy, peak power and diagnosis information

e) The time setting mode(only E-version)

① Entering time setting mode

Press the ESC and Down keys simultaneously for three seconds, referring to figure 29. Then, as is shown in figure 30, the first item of the time setting menu, the setting of the year will appear and the dot of year will be blinking.

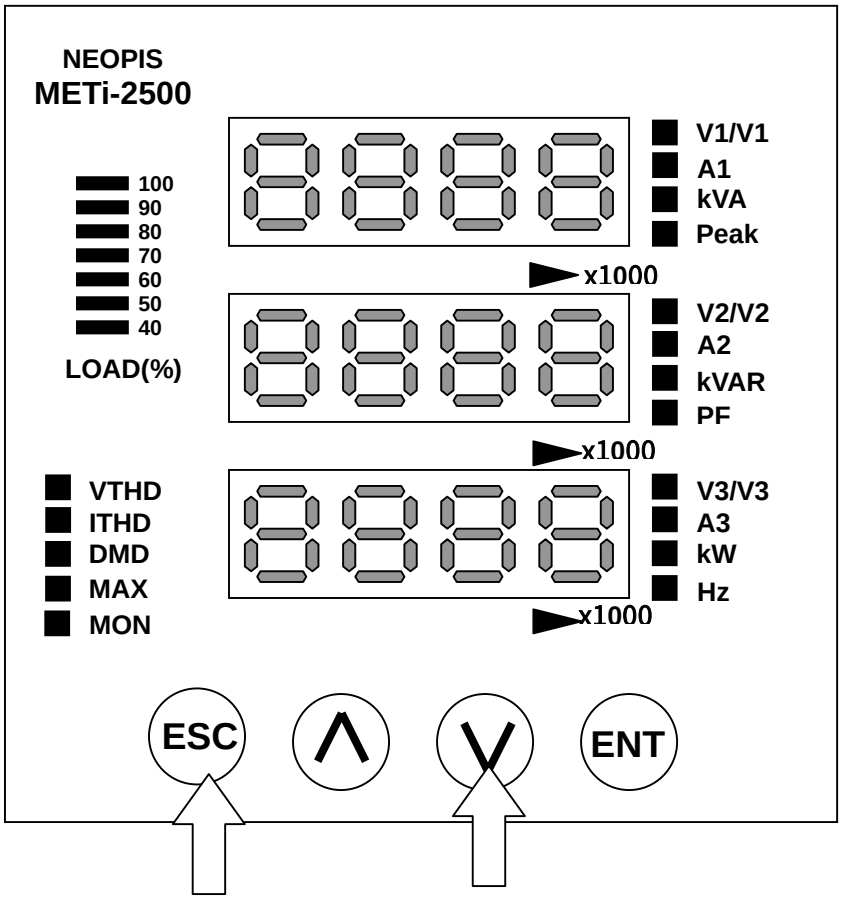


Figure 29) Entering time setting mode

② Change time setting

To change time setting, use the Up and Down keys and select a setting menu.

Press Ent key and the dot and time item will be blinking

Press the Up or down keys to increase or decrease a time setting value while the time setting item on the line of the Segment flickers.

Press enter key to save the changed value, which will stop the flickering of the setting menu.

Press the ESC key to exit the setting mode and go back to the measuring display mode

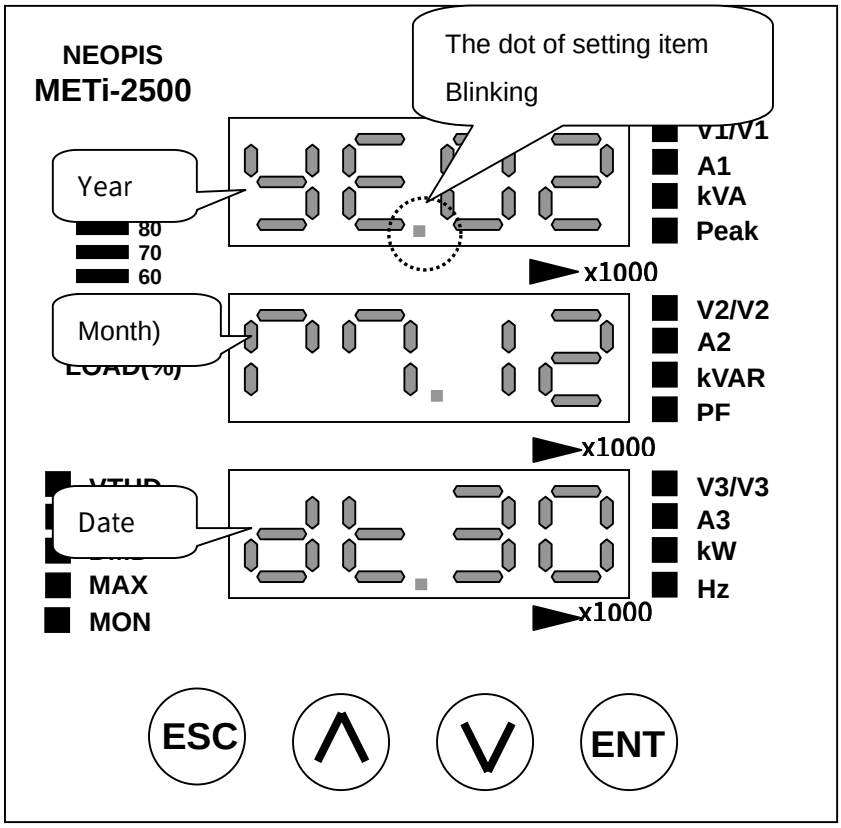


Figure 30) Year/Month/Date setting mode

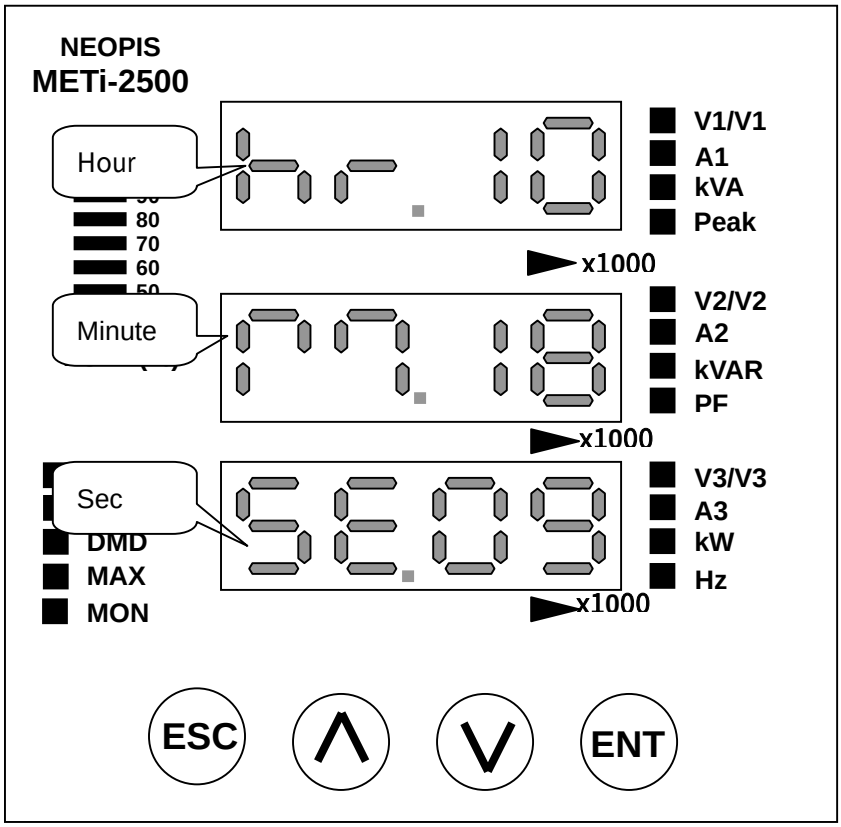
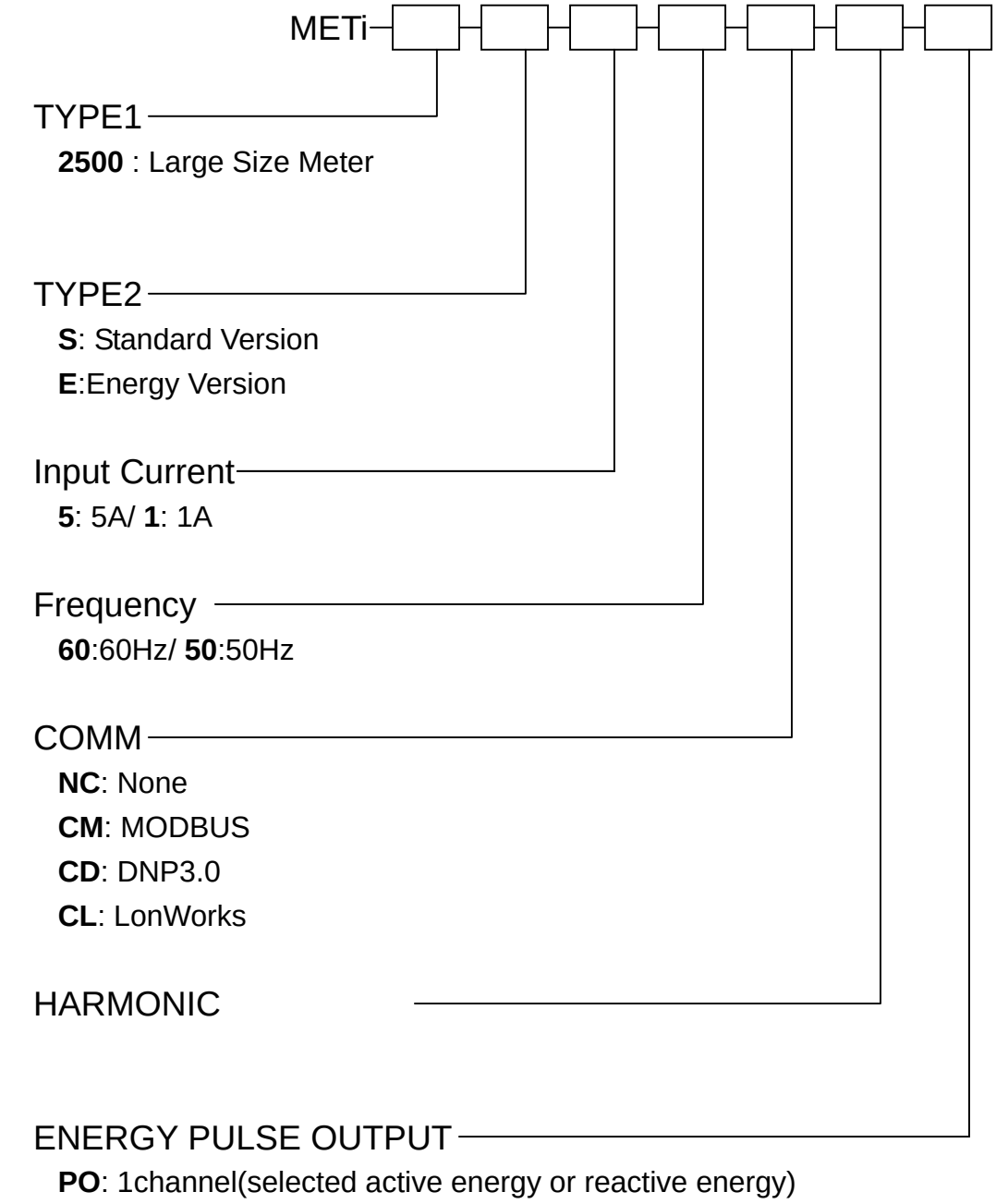


Figure 31) Hour/Minute/Sec setting mode

4 Order Information



NEOPIS Co,. Ltd

World Wide Web

www.neopis.com

E-Mail

neopisweb@neopis.com

Headquarter

623, U-Chun Factopia Bd, 196 Anyang-7dong,
Manan-gu, Anyang City, Kyonggi-do, Korea
430-017

Tel : +82-31-467-2700
FAx: +82-31-467-2711

Printed in Korea
Revision Date : Nov 25, 2004