# KM-22-1-P9 THREE PHASE kWh-METER WITH VOLTAGE PROTECTION RELAY

Primus
User Manual

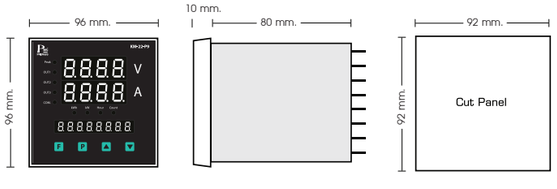

KM-22-1-P9

1Ø V A kWh TRUE RMS RS 485 PF Hz

## TECHNICAL SPECIFICATION

| | | |
|---|---|---|
| Power Supply | | 110-240 VAC 50-60 Hz |
| Power Consumption | | 3.5VA |
| Display | | 7-Segment, Size 0.56 Inch |
| Input | Volt | 1 Phase |
| | Volt Range | 10-400 VAC |
| | Accuracy Volt | ±0.5% FS. |
| | Current | Connection 1 CT, Direct |
| | Current Transformer Ratio | 1-2000 |
| | Primary | 9999 AMP |
| | Secondary | 0.01-5A |
| | Accuracy Current | ±0.5% FS. |
| | kWh | Class 1 |
| | Counter Input | Dry Contact Max 1k Hz |
| | Reset Input | Dry Contact |
| Output | Relay Output | SPDT 5A 250VAC / 5A 30VDC |
| Communication | Protocol | MODBUS RTU |
| | Baud Rate | 2400, 4800, 9600, 19200, 38400, 57600, 115200 bps |
| | Parity | None, Even, Odd |
| | Stop Bits | 1, 2 |
| | Data Bits | 8 Bits |
| | Support Device Node | 255 |
| Ambient Operation | Temperature | -10 °C to 60 °C |
| | Humidity | 85 % RH Non-Condensing |
| Ambient Storage | Temperature | -20 °C to 80 °C |
| | Humidity | 85 % RH Non-Condensing |
| Protection Degree | | IP30 |
| Installation | | Panel Mounting |
| Material | | ABS-V0 |
| Size | | 96 x 96 x 80 mm. |
| Weigth | | 320 g. |

## DIMENSION




## DESCRIPTION

- Voltage range in 1 phase maximum 400 VAC
- Current measure range 0.01-5A show maximum 9999 A by C.T. Ratio Range 1-2000 (10000/5A)
- kw, kWh, Hour Counter, Counter Display with Relay Output
- Under and Over Voltage and Current Protection Relay
- Peak Hold for Maximum voltage, current and kW
- Fault Display with Memory
- RS-485 Modbus RTU
- LED shows measured value of Phase, Output and Peak
- Manual / Auto Display current and voltage of that phase.

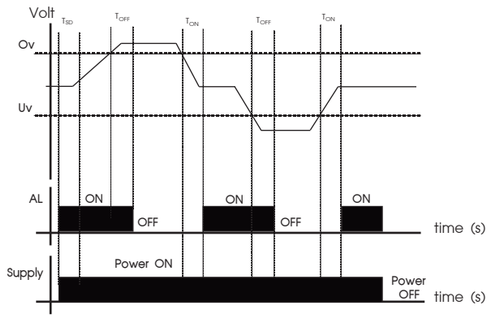
## OPERATION

KM-22 is a measurement and display device for both voltage and current values in 3 phases. It also displays the values of kW, kWh, Hour and Counter. Hour values are the measurement of the working hours of the electrical system or machines to schedule maintenance. Counter is the number of products produced. To compare with the electrical energy (kWh) used to measure energy efficiency In addition, the peak value of voltage (V), current (A), and power (kW), can be remembered that can happen To analyze the feasibility of the electrical system

Voltage Protection Relay can set the voltage to fall or exceed between 50 to 500 VAC by setting the delay before starting from 1-3600 seconds (ON Delay Time), but if the phase sequence is incorrect, the Relay will not work and do not delay. When starting to work, it will capture the possibility of voltage if the voltage is lower or higher than the set value. Or the unbalance phase exceeds the set value or the missing phase. Relay will order OFF within 0-3600 seconds, which can be set to cut fast or slow as needed and display the reason Display. When the voltage level returns to the set voltage range, the Relay will return ON again within the set time (ON Delay Time).

After the KM-22 circuit breaker or Relay OFF, can view the cause of the Relay OFF from the Display. The graph showing the operation of the Volt Protection is shown in graph 1.

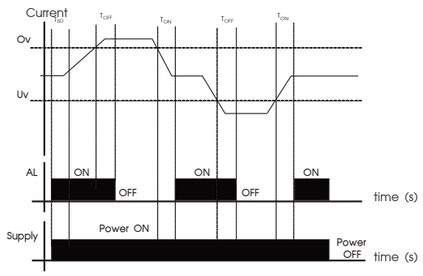
Graph1 shows Voltage Protection Relay operation




Current Protection Relay can set low current or can be between 0.1 to 9999A. Set the delay time before starting to run from 1-3600 seconds (ON delay time). When starting, it will catch the possibility of electricity. If the electricity is higher than that set, the Relay will order OFF within 0-3600 seconds, which can be set to cut fast or slow as needed and display the cause at Display. When the current level returns to the level below the set, Relay will return. ON again within 1-3600 seconds

After the KM-22 circuit breaker or Relay OFF, can see the cause of the Relay OFF from the Display or reverse function. The current protection relay operation graph is shown in graph 2.

Graph 2 show Current Protection Relay operation




### Relay Output for kW, Hour and Counter

Alarm Relay for kW, Hour, Counter. This can be selected to act on load contact Which one is

kW Function can set kW 0-100% of Range and set the delay time before starting from 1-3600 seconds (ON Delay Time) when starting and then capturing the possibility of kW being used if the kW value is higher The relay set will order OFF within 0-3600 seconds, which can be set to cut fast or slow as needed. And display the reason that the Display when the kW level returns to the lower level than the Relay will return ON again within 1-3600 seconds or to work in the reverse (Inverse Function) is Relay will ON when the kW value is higher set

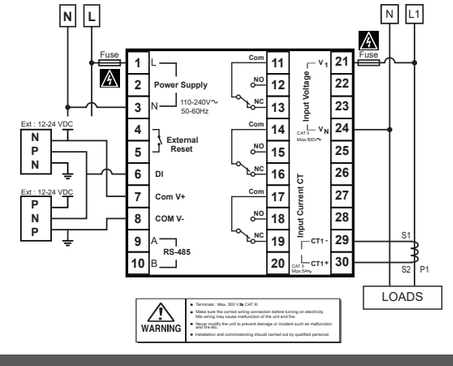
Hour Counter Function can set the desired working hours at the end of the time. Relay sends ON and can be reset to OFF by pressing the button or using the Terminal Reset PIN.

Counter Function can set the desired amount when the number is set. Relay will order ON and can reset to OFF by pressing the button or using Terminal Reset PIN.

### Manual and Auto Display

Display of Volt, Amp, kW, kWh, Hour and Counter values that can be measured in Manual mode, ie Volt, Amp, kW, kWh, Hour and Counter by pressing Key pad on the device or Auto is Displays Volt, Amp, kW, kWh, Hour and Counter values. Each phase rotates all the time. Which can be set to display values from 10 seconds to 60 seconds per phase If you do not want to display Auto, you can do so by setting the time to 0.

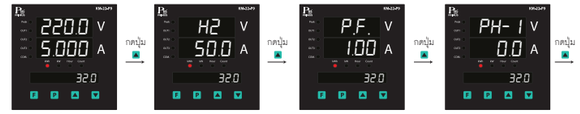
## WIRING DIAGRAM




หน้าแรก

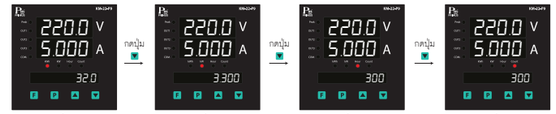

แสดงค่า Volt, Current, kWh

แสดงค่า Hz,PF,มุม volt ระหว่าง current




แสดงค่า Volt, Current, kWh | แสดงค่า Hz, kWh | แสดงค่า PF, kWh | แสดงค่า มุม volt ระหว่าง current, kWh

แสดงค่าkWh, kW, Hour Counter, Digital Counter




แสดงค่า Volt, Current , kWh | แสดงค่า Volt, Current , Total kW | แสดงค่า Volt, Current, Hour Counter | แสดงค่า Volt, Current , Digital Counter

แสดงค่าPrevious Fault ของ Protection Relay


แสดงค่า Volt, Current, kWh | แสดงค่า Previous Fault Output 1 | แสดงค่า Previous Fault Output 2 | แสดงค่า Previous Fault Output 3

แสดงค่า Peak Volt, Peak Current, Demand kW


แสดงค่า Volt, Current, kWh | แสดงค่า Peak Volt, Peak Current Demand kW

การแจ้งเตือนFault ของ Volt และ Current Protection Relay


### How to Manual Reset Protection Relay

Press P hold for 5 second Start Time will back to start again in Start Time phase use for delay detect time of voltage, current and kWATT Protection in this time LED Out1, Out2, Out3 will flash until Start Time run out and check Volt, current, kWATT in case Output Function in one of relay equal to Disable Output that relay will not operate in Start Time. It made LED Out1, Out2, Out3 will not flash

## ORDERING CODE

KM-22-1-P9 – A [ ] [ ] [ ]

OPTION

| OPTION | |
|---|---|
| | None |
| B | Alarm Relay 2 |
| C | Alarm Relay 3 |
| M | RS-485 |

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## CONFIGURATION

KM-22-1-P9

**Measurement Display**
0000 (▲ ▼) — Show Measurement Value
Press F hold 2 second

**1. CT Ratio (For KM-21)**
CT → 1 (▲ ▼) — CTratio range 1 to 2000
Press F 1 time

**2. Start Delay Time**
St → 003 (▲ ▼) — 1 to 3600 Sec
Press F 1 time

**3. Function Setting for Output1**
oPF1 → 11 (▲ ▼) — Select Type and Function of Alarm Relay

| 11 | Type | Alarm Function |
|---|---|---|
| | 1 : Volt Protection<br>2 : Current Protection<br>3 : Inverse Current Protection | 0 : Disable<br>1 : Over and Under limit<br>2 : Over limit<br>3 : Under limit |

Press F 1 time

**4. Over limit setting for Output 1**
SPH1 → 250 (▲ ▼)
Volt Protection : 50 to 500V
Current Protection : 0.1 to 9999 A
Press F 1 time

**5. Under limit setting for Output 1**
SPL1 → 190 (▲ ▼)
Volt Protection : 50 to 500V
Current Protection : 0.1 to 9999 A
Press F 1 time

**6. ON Delay Time setting for Output 1**
ond1 → 3 (▲ ▼) — 1 to 3600 Sec
Press F 1 time

**7. OFF Delay Time setting for Output 1**
oFd1 → 3 (▲ ▼) — 0 to 3600 Sec
Press F 1 time

**8. Function Setting for Output 2**
oPF2 → 11 (▲ ▼) — Select Type and Function of Alarm Relay

| 11 | type | Alarm Function |
|---|---|---|
| | 1 : Volt Protection<br>2 : Current Protection<br>3 : Inverse Current Protection | 0 : Disable<br>1 : Over and Under limit<br>2 : Over limit<br>3 : Under limit |

Press F 1 time

**9. Over limit setting for Output 2**
SPH2 → 5.0 (▲ ▼)
Volt Protection : 50 to 500V
Current Protection : 0.1 to 9999 A
Press F 1 time

**10. Under limit setting for Output 2**
SPL2 → 0.1 (▲ ▼)
Volt Protection : 50 to 500V
Current Protection : 0.1 to 9999 A
Press F 1 time

**11. ON Delay Time setting for Output 2**
ond2 → 3 (▲ ▼) — 1 to 3600 Sec

**12. OFF Delay Time setting for Output 2**
oFd2 → 3 (▲ ▼) — 0 to 3600 Sec
Press F 1 time

**13. Function Setting for Output 3**
oPF3 → 11 (▲ ▼) — Select Type and Function of Alarm Relay

| 11 | Type | Alarm Function |
|---|---|---|
| | 0 : Non Inverse<br>1 : Inverse | 0 : Disable<br>1 : kWatt<br>2 : Hour<br>3 : Counter |

Press F 1 time

**14. kWatt setting for Output 3**
SPR1 → 50 (▲ ▼) — kWatt Protection : 1 to 3,000 kWatt
Press F 1 time

**15. Hour setting for Alarm 3**
SPHr → 1 (▲ ▼) — Hour Set point : 1 to 100,000
Press F 1 time

**16. Counter setting for Alarm 3**
SPC1 → 1 (▲ ▼) — Counter Set point : 1 to 99999999
Press F 1 time

**17. ON Delay Time setting for Output 3**
ond3 → 3 (▲ ▼) — 1 to 3600 Sec
Press F 1 time

**18. OFF Delay Time setting for Output 3**
oFd3 → 3 (▲ ▼) — 0 to 3600 Sec
Press F 1 time

**19. Counter Input Filter**
C iF → 1 (▲ ▼)
0 : Disable
1 : Min. frequency < 10 Hz ( Contact, Proximity )
2 : Max. frequency 1kHz ( Proximity )
Press F 1 time

**20. Counter Input Delay Time**
C.idt → 1 (▲ ▼) — Delay input : 0 to 60 sec. ( C iF = 1 )
Press F 1 time

**21. Decimal Point**
C.dP → 0 (▲ ▼)
0 = No Decimal
0.0 = Decimal 1 position
0.00 = Decimal 2 position
0.000 = Decimal 3 position
0.0000 = Decimal 4 position
0.00000 = Decimal 5 position
0.000000 = Decimal 6 position
Press F 1 time

**22. Counter Multiply**
C.MUL → 1 (▲ ▼) — Multiply : 1 to 9999999
Press F 1 time

**23. Counter Divisor**
C.div → 1 (▲ ▼) — Divisor : 1 to 9999999
Press F 1 time

**24. Counter Reset Value**
C.ru → 1 (▲ ▼) — Reset Value : 0 to 9999999
Press F 1 time

**25. Clear Peak Volt,Current and kWatt**
CL-P → -CLr (▲ ▼)
---- : Disable
-CLr : Enable
Press F 1 time

**26. Clear Previous Fault**
CL-F → -CLr (▲ ▼)
---- : Disable
-CLr : Enable
Press F 1 time

**27. Clear kWh, Hour Counter, Counter Input**
CL-- → CL-1 (▲ ▼)
---- : Disable
CL-1 : Clear kWh
CL-H : Clear Hour Counter
CL-C : Clear Counter Input
CL-A : Clear kWh, Hour Counter, Counter Input
Press F 1 time

**28. RS-485 Address**
Addr → 1 (▲ ▼) — Setting Device Address 1 to 255
Press F 1 time

**29. RS-485 Baud Rate**
bAUd → 9600 (▲ ▼)
Baud rate
2400 bps 19200 bps 115200 bps
4800 bps 38400 bps
9600 bps 57600 bps
Press F 1 time

**30. Communication Stop bit/Parity bit**
Comm → n 1S (▲ ▼)
n 1S : none parity, 1 stop bit
E 1S : even parity, 1 stop bit
o 1S : odd parity, 1 stop bit
n2S : none parity, 2 stop bit
E2S : even parity, 2 stop bit
o2S : odd parity, 2 stop bit
Press F 1 time

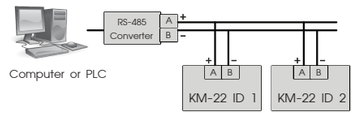
**31. Auto Display**
AUtO → 0 (▲ ▼)
Set time 10 to 60 second for change show Volt and Amp from measured by sort
If set to 0 : Disable
Press F 1 time

**32. Edit kWh**
A_H → 10 (▲ ▼) — Set kWh as required as Table 2.

## SERIAL COMMUNICATION

The KM-22 are Equipped With a RS-485 Series Communication Interface to Allow Connection to Computer or PLCs. MODBUS PROTOCOL is Provided as Standard Communication. The User Can Connect KM-22 as Network Up to 128 Meters.

Wiring Diagram




MODBUS PROTOCOL

This MODBUS PROTOCOL Has Been Implement In Accordance With MODBUS.ORG MODBUS Application PROTOCOL Specification V1.1 With The Following Conditions Applying. The Following Conditions Apply Baudrate Can Selected Refer 22. Speed Setting The Format Is MODBUS RTU Refer 22. Speed Setting The Format Is MODBUS RTU UART Data Can Selected Refer 23. Communication Setting Data Is Considered To Be Half Duplex Using 2 Wire.

### Modbus Function code

| Function code | Operation | Brodcast |
|---|---|---|
| 0x03 | Read Holding Registers | No |
| 0x04 | Read Multiple Registers | No |
| 0x06 | Preset Single Registers | Yes |
| 0x10 | Preset Multiple Registers | Yes |

### Modbus Exception code

| Code | Name | Meaning |
|---|---|---|
| 01 | ILLEGAL FUNCTION | The function code received in the query is not an allowable action for the server (or slave). |
| 02 | ILLEGAL DATA ADDRESS | The data address received in the data field is not an allowable value for server (or slave). |
| 03 | ILLEGAL DATA VALUE | A value contained in the query data field is not an allowable value for server (or slave). |

Example of a client request and server exception response

| Request | | Response | |
|---|---|---|---|
| Field Name | (Hex) | Field Name | (Hex) |
| Slave Address | 01 | Slave Address | 01 |
| Function | 04 | Function | 84 |
| Starting Address Hi | 00 | Exception Code | 02 |
| Starting Address Lo | 00 | CRC Hi | C2 |
| Quantity of Input Reg. Hi | 00 | CRC Lo | C1 |
| Quantity of Input Reg. Lo | 1E | | |
| CRC Hi | 70 | | |
| CRC Lo | 02 | | |

# KM-22-1-P9 THREE PHASE kWh-METER WITH VOLTAGE PROTECTION RELAY



MODBUS table of KM-22 from as follow

Modbus Table 1

| Reg. Address | | Contents | Format | Word | Access | Comment |
|---|---|---|---|---|---|---|
| Decimal | Hex | | | | | |
| 0 | 0x0 | Volt | Unsignde int | 1 | Read Only | |
| 1 | 0x1 | Current | Unsignde int | 1 | Read Only | |
| 2 | 0x2 | Current Exponential | Unsignde int | 1 | Read Only | |
| 3 | 0x3 | PF | Unsignde int | 1 | Read Only | |
| 4 | 0x4 | Hz | Unsignde int | 1 | Read Only | |
| 5 | 0x5 | Peak Volt | Unsignde int | 1 | Read Only | |
| 6 | 0x6 | Peak Current | Unsignde int | 1 | Read Only | |
| 7 | 0x7 | Peak Current Exponential | Unsignde int | 1 | Read Only | |
| 8 | 0x8 | Previous Fault Alarm 1 | Unsignde int | 1 | Read Only | |
| 9 | 0x9 | Previous Fault Alarm 2 | Unsignde int | 1 | Read Only | |
| 10 | 0xA | Previous Fault Alarm 3 | Unsignde int | 1 | Read Only | |
| 11 | 0xB | Status Digital Counter | Unsignde int | 1 | Read Only | |

Modbus Table 2

| Reg. Address | | Contents | Format | Word | Access | Comment |
|---|---|---|---|---|---|---|
| Decimal | Hex | | | | | |
| 256 | 0x100 | Watt MSB | Long | 2 | Read Only | |
| 257 | 0x101 | Watt LSB | | | | |
| 258 | 0x102 | VA MSB | Long | 2 | Read Only | |
| 259 | 0x103 | VA LSB | | | | |
| 260 | 0x104 | kWh MSB | Unsigned Long | 2 | R/W | เขียนค่าได้ตั้งแต่ 0-99999999 |
| 261 | 0x105 | kWh LSB | | | | |
| 262 | 0x106 | kWh Exponential MSB | Unsigned Long | 2 | Read Only | 0 : kWh Reg/1 1 : kWh Reg/10 |
| 263 | 0x107 | kWh Exponential LSB | | | | |
| 264 | 0x108 | Peak Watt MSB | Unsigned Long | 2 | Read Only | |
| 265 | 0x109 | Peak Watt LSB | | | | |
| 266 | 0x10A | Hour MSB | Unsigned Long | 2 | R/W | เขียนค่าได้ตั้งแต่ 0-100,000 |
| 267 | 0x10B | Hour LSB | | | | |
| 268 | 0x10C | Counter MSB | Unsigned Long | 2 | R/W | เขียนค่าได้ตั้งแต่ 0-99999999 |
| 269 | 0x10D | Counter LSB | | | | |

Modbus Table 3

| Reg. Address | | Contents | Format | Word | Access | Comment |
|---|---|---|---|---|---|---|
| Decimal | Hex | | | | | |
| 512 | 0x200 | CT Ratio | Unsignde int | 1 | R/W | ตั้งค่า 1-2000 |
| 513 | 0x201 | Start Time | Unsignde int | 1 | R/W | ตั้งค่า 1-3600 |
| 514 | 0x202 | On Delay 1 Time | Unsignde int | 1 | R/W | ตั้งค่า 0-3600 |
| 515 | 0x203 | Off Delay 1 Time | Unsignde int | 1 | R/W | ตั้งค่า 0-3600 |
| 516 | 0x204 | Function Alarm 1 | Unsignde int | 1 | R/W | |
| 517 | 0x205 | On Delay 2 Time | Unsignde int | 1 | R/W | ตั้งค่า 1-3600 |
| 518 | 0x206 | Off Delay 2 Time | Unsignde int | 1 | R/W | ตั้งค่า 0-3600 |
| 519 | 0x207 | Function Alarm 2 | Unsignde int | 1 | R/W | |
| 520 | 0x208 | On Delay 3 Time | Unsignde int | 1 | R/W | ตั้งค่า 1-3600 |
| 521 | 0x209 | Off Delay 3 Time | Unsignde int | 1 | R/W | ตั้งค่า 0-3600 |
| 522 | 0x20A | Function Alarm 3 | Unsignde int | 1 | R/W | |
| 523 | 0x20B | Counter Filter | Unsignde int | 1 | R/W | ตั้งค่า 0-2 |
| 524 | 0x20C | Input Delay Time | Unsignde int | 1 | R/W | ตั้งค่า 0-60 |
| 525 | 0x20D | Decimal Point | Unsignde int | 1 | R/W | ตั้งค่า 0-7 |
| 526 | 0x20E | Over Limit Alarm 1 MSB | Unsigned Long | 2 | R/W | Volt : 50-500V Current : 1-999900A |
| 527 | 0x20F | Over Limit Alarm 1 LSB | | | | |
| 528 | 0x210 | Under Limit Alarm 1 MSB | Unsigned Long | 2 | R/W | Volt : 50-500V Current : 1-999900A |
| 529 | 0x211 | Under Limit Alarm 1 LSB | | | | |
| 530 | 0x212 | Over Limit Alarm 2 MSB | Unsigned Long | 2 | R/W | Volt : 50-500V Current : 1-999900A |
| 531 | 0x213 | Over Limit Alarm 2 LSB | | | | |
| 532 | 0x214 | Under Limit Alarm 2 MSB | Unsigned Long | 2 | R/W | Volt : 50-500V Current : 1-999900A |
| 533 | 0x215 | Under Limit Alarm 2 LSB | | | | |
| 534 | 0x216 | kWatt Set point MSB | Unsigned Long | 2 | R/W | ตั้งค่า 1-3000000 |
| 535 | 0x217 | kWatt Set point LSB | | | | |
| 536 | 0x218 | Hour Set point MSB | Unsigned Long | 2 | R/W | ตั้งค่า 1-100000 |
| 537 | 0x219 | Hour Set point LSB | | | | |
| 538 | 0x21A | Counter Set point MSB | Unsigned Long | 2 | R/W | ตั้งค่า 1-99999999 |
| 539 | 0x21B | Counter Set point LSB | | | | |
| 540 | 0x21C | Counter Multiply MSB | Unsigned Long | 2 | R/W | สัมประสิทธิ์ 1-99999999 |
| 541 | 0x21D | Counter Multiply LSB | | | | |
| 545 | 0x21E | Counter Divisor MSB | Unsigned Long | 2 | R/W | สัมประสิทธิ์ 1-99999999 |
| 546 | 0x21F | Counter Divisor LSB | | | | |
| 547 | 0x220 | Counter Reset Value MSB | Unsigned Long | 2 | R/W | Counter Reeset 0-99999999 |
| 548 | 0x221 | Counter Reset Value LSB | | | | |

Table 1

| Symbol | Display | Comment |
|---|---|---|
| 0 | ---- | None |
| 1 | OuU | Over Volt |
| 2 | UnU | Under Volt |
| 3 | OuC | Over Current |
| 4 | UnC | Under Current |
| 5 | -H'- | Over kWATT |
| 6 | -Hr- | Hour Counter |
| 7 | -d i- | Digital Counter |

How to Reset Peak volt, Current, Total kWatt value

1. Set Parameter CL-P to be -CLr
2. Stay page shows Peak some of page then press ■ + ▼ hold for 5 seconds
3. When Reset then Parameter CL-P will be ----

How to Reset Fault Alarm

1. Set Parameter CL-F to be -CLr
2. Stay Page show Fault Alarm some of page then press ■ + ▼ hold for 5 seconds
3. When Reset then Parameter CL-P will be ----

How to Reset kWh, Hour Counter, Counter Input

Reset kWh

1. Set Parameter CL-- to be CL-H'
2. Stay Page show kWh then press ■ + ▼ hold for 5 seconds
3. When Reset then Parameter CL-- will be ----

Reset Hour Counter

1. Set Parameter CL-- to be CL-H
2. Stay Page show Hour Counter then press ■ + ▼ hold for 5 seconds
3. When Reset then Parameter CL-- will be ----

Reset Counter Input

1. Set Parameter CL-- to be CL-C
2. Stay Page show Counter Input then press ■ + ▼ hold for 5 seconds
3. When Reset then Parameter CL-- will be ----

Reset kWh, Hour Counter, Counter Input

1. Set Parameter CL-- to be CL-A
2. Stay Page show kWh, Hour Counter, Counter Input some of page then press ■ + ▼ hold for 5 seconds
3. When Reset then Parameter CL-- still be CL-A

How to Reset kWh, Hour Counter, Counter Input by External Input

Reset kWh

1. Set Parameter CL-- to be CL-H'
2. Stay in any Page connect Input follow Fig 5. hold for 3 second
3. When Reset then Parameter CL-- will be ----

Reset Hour Counter

1. Set Parameter CL-- to be CL-H
2. Stay in any Page connect Input follow Fig 5. hold for 3 second
3. When Reset then Parameter CL-- will be ----

Reset Counter Input

1. Set Parameter CL-- to be CL-C
2. Stay in any Page connect Input follow Fig 5. hold for 3 second
3. When Reset then Parameter CL-- will be ----

Reset kWh ,Hour Counter ,Counter Input

1. Set Parameter CL-- to be CL-A
2. Stay in any Page connect Input follow Fig 5. hold for 3 second
3. When Reset then Parameter CL-- still be CL-A

Fig 5. External Input Reset Connection

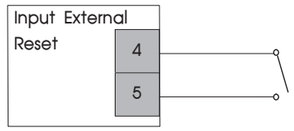



Table 2.

How to Edit kWh

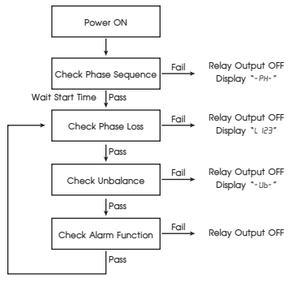
1. Stay in Menu Parameter page H'h
2. Press ■ + ▼ hold for 5 second until PASS fill code 5041 press P to slide digits position.
   Press F to comfirm press ■ or ▼ for slide requires value
3. When fill code then press ▼ until show H'h Edit for slide requires value when finished press ▼ then press ■ or ▼


How to calcution

$$\text{Volt} = \frac{\text{Volt Reg}}{10} \qquad \text{Current} = \frac{\text{Current reg}}{10^{\text{Current Exponential}}}$$

$$\text{Hz} = \frac{\text{Hz Reg}}{10} \qquad \text{Power Factor} = \frac{\text{Power Factor Reg}}{1000}$$

Operation Process Output Volt




Counter Setting

How to set

Define Meter 1000 pulse : 1 unit request decimal 1 position delay time to count input Pulse 2 second

Counter Input Filter ( C IF ) = 1 ( frequency less than ⩽ 10 Hz. for use Function delay )

Delay input ( C. Idt ) = 2 ( Delay input 2 second )

Decimal (C.dP ) = 0.0 ( Decimal 1 position )

Multiply (C.MUL ) = 10 ( Decimal 1 position multiply value by 10 )

Divisor ( C.d IU ) = 1000 ( Meter 1000 Pulse )

How to calculate

When Input 100 Pulse KM-22-1-Series will count 0.1/time if Input 1800 Pulse will show at 1.8

Pulse = 1800

Process Value = ( Pulse x multiply ) / divisor

= ( 1800 x 10) / 1000

= 18 set decimal 1 position = 1.8 unit

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