KM-23-P9

THREE PHASE VOLT-Amp-kW-kWh-PF METER WITH VOLTAGE PROTECTION RELAY

Primus
User Manual

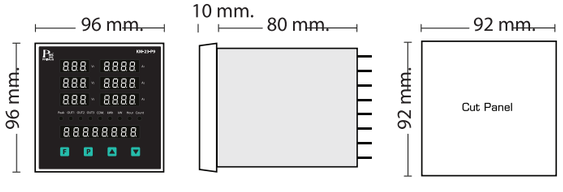
KM-23-P9

3Ø V A kWh TRUE RMS RS 485

TECHNICAL SPECIFICATION

Power Supply		110-240 VAC 15% 50-60 Hz
Power Consumption		2.5VA
Display		7-Segment, Size 0.39 Inch,
Input	Volt	3 Phase
	Volt Range	20-500 VAC
	Accuracy Volt	±0.5% FS.
	Current	Connection 3 CT, Direct
	Current Transformer Ratio	1-2000
	Primary	9999 AMP
	Secondary	0.02-5A
	Accuracy Current kWh	±0.5% FS. 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 bps
	Parity	None, Even, Odd
	Stop Bits	1, 2
	Data Bits	8 Bits
	Support Device Node	128
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		IP52,IP30
Installation		Panel Mounting
Material		ABS-V0
Size		96 x 96 x 76.6 mm.
Weigth		300 g.

SIZE AND DIMENSION



DESCRIPTION

- Three phase voltage measurement system for up to maximum 500 VAC
- Current measurement range 0.01-5 A, showing maximum current value 9999 A by passing C.T. Ratio Range 1-2000 (10000 / 5A)
- kW, kWh, hour counter, counter display with relay output
- Under and Over Voltage, Phase Sequence, Phase Lose, Asymmetry Protection Relay
- Under and Over Current Protection Relay
- Peak Hold for Maximum of voltage, current and kW
- Fault Display with Memory
- RS - 485 Modbus RTU
- LED displays the measured values for each phase, Output and Peak
- Manual / Auto Display Current and voltage values in each phase

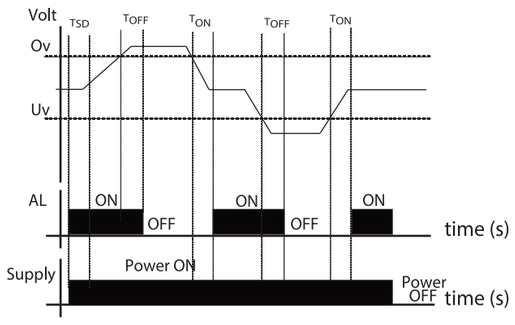
OPERATION

KM - 23 - P9 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 - 23 - P9 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.

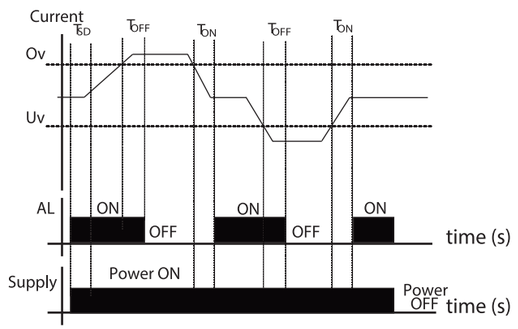
Graph 1 display the Voltage protection relay operation



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-23-P9 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 display the 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.

Manual and Auto Display

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Calculating% Unbalance Voltage

Function of this function will check that the voltage of each phase is compared with the average voltage of all 3 phases with different values han the Unbalance set or not. If the value is higher will delay OFF Delay and Output Relay will stop working. Calculate% (% UBL) according to equation 1 when the measured value is higher than Ub value The location will cause the Output Relay to stop (OFF) and the symbol display screen

$$\%UBL = 100 \quad X \frac{V_{MD}}{V_{avg}} \qquad (1)$$

$$V_{avg} = \left(\frac{V_a + V_b + V_c}{3} \right) \qquad (2)$$

V_{MD} is absolute maximum value of difference of each phase voltage and average voltage

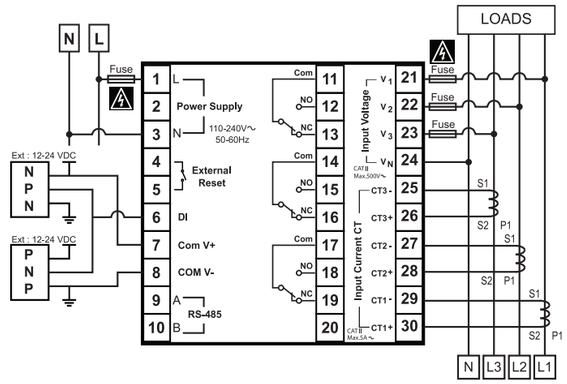
$$V_{MD} = \text{Max} \left(\left| V_a - V_{avg} \right|, \left| V_b - V_{avg} \right|, \left| V_c - V_{avg} \right| \right) \qquad (3)$$

Example if setting Ub = 20% and value $V_{avg} = 183$ V $V_a = 110$v, $V_b = V_c = 220$

$$\left| V_a - V_{avg} \right| = 73 \text{ V} \quad \left| V_b - V_{avg} \right| = 37 \text{ V} \quad \left| V_c - V_{avg} \right| = 39.8 \text{ V}$$

$$\%UBL = 100 \quad X \frac{73}{183} = 37\%$$

WIRING DIAGRAM



ORDERING

KM-23-P9 – A [ ] [ ] [ ] OPTION

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

First page

Display Volt each Phase, Current each Phase, kWh

Display Volt eachPhase, Current each Phase

Display Volt each Phase, Current each Phase, kWh | Display Volt(L-L) , kWh | Display Volt(L-L)Avg, Current Avg, kWh | Display Hz each Phase, kWh

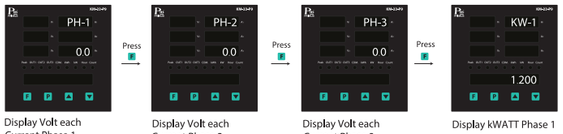
Display Volt each Phase, | Display Total PF

Display kWh, Total kW, Hour Counter, Digital Counter

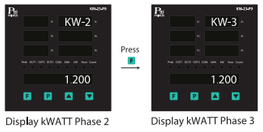
Display Volt each Phase, Current each Phase, kW | Display Volt each Phase, Current each Phase,Total PF | Display Volt each Phase, Current each Phase, Hour Counter | Display Volt each Phase, Current each Phase, Digital Counter

Display Volt each Phase, Volt(L-L), Current each Phase, Hz, PF, Total PF

Display Volt each Phase, Current each Phase, kWh | Display Previous Fault Output 1 | Display Previous Fault Output 2 | Display Previous Fault Output 3



Display Volt each Current Phase 1 | Display Volt each Current Phase 2 | Display Volt each Current Phase 3 | Display kWATT Phase 1



Display kWATT Phase 2 | Display kWATT Phase 3

Display Peak Volt each Phase, Peak Current each Phase, Demand kW

Display Volt each Phase, Current v Phase, kWh | Display Peak Volt v Phase, Peak Current each Phase, Demand kW

Volt Fault Alert and Current Protection Relay

Manual Reset Protection Relay Method

Press F hold 5 seconds start Time will start again. Start Time is used to delay the detection of Volt, Current and kWATT Protection. During this time, LED Out1, Out2, Out3 will flash until the Start Time period is checked and checked. Volt, Current, kWATT. In the event that one of the output functions is Disable Output, it will not work in the Start Time period. LED Out1, Out2, Out3 will not flash

CONFIGURATION

KM-23-P9

Measurement Display
0000 — Show Measurement Value
Press F hold 2 seconds

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

1 1	Type	Alarm Function
	Volt Protection : 1 Current Protection : 2 Inverse Current Protection : 3	Disable : 0 Over and Under limit : 1 Over limit : 2 Under limit : 3

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

1 1	type	Alarm Function
	Volt Protection : 1 Current Protection : 2 Inverse Current Protection : 3	Disable : 0 Over and Under limit : 1 Over limit : 2 Under limit : 3

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
Press F 1 time

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

1 1	Type	Alarm Function
	0 : Non Inverse 1 : Inverse	0 : Disable 1 : kWatt 2 : Hour 3 : Counter

Press F 1 time

14. kWatt setting for Output 3
SPKw → 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
SPCI → 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
CIF → 1
Press F 1 time

20. Unbalance Voltage Setting
Ub → 1
Press F 1 time

21. Clear Peak Volt,Current and kWatt
CL-P → -CLr — ---- : Disable
-CLr : Enable
Press F 1 time

22. Clear Previous Fault
CL-F → -CLr — ---- : Disable
-CLr : Enable
Press F 1 time

23. Clear kWh, Hour Counter, Counter Input
CL-- → CL-W

----	: Disable
CL-W	: Clear kWh
CL-H	: Clear Hour Counter
CL-C	: Clear Counter Input
CL-A	: Clear kWh, Hour Counter, Counter Input

Press F 1 time

24. RS-485 Address
Addr → 1 — Setting Device Address 1 to 255
Press F 1 time

25. 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

26. Communication Stop bit/Parity bit
Comm → n15

N1S : none parity, 1 stop bit
e1S : even parity, 1 stop bit
o1S : 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

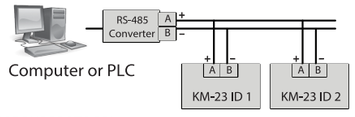
27. Auto Display
AUTO → 0
Press F 1 time

28. Edit kWh
kWh → 10

SERIAL COMMUNICATION

The KM-23 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-23 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		

Modbus Table 1

Reg. Address Decimal	Reg. Address Hex	Contents	Format	Word	Access	Comment
0	0x0	Volt (L-L) Avg	Unsignde int	1	Read Only	
1	0x1	Volt L1-L2	Unsignde int	1	Read Only	
2	0x2	Volt L2-L3	Unsignde int	1	Read Only	
3	0x3	Volt L3-L1	Unsignde int	1	Read Only	
4	0x4	Volt Phase 1	Unsignde int	1	Read Only	
5	0x5	Volt Phase 2	Unsignde int	1	Read Only	
6	0x6	Volt Phase 3	Unsignde int	1	Read Only	
7	0x7	Current Avg	Unsignde int	1	Read Only	
8	0x8	Current Phase 1	Unsignde int	1	Read Only	
9	0x9	Current Phase 2	Unsignde int	1	Read Only	
10	0xA	Current Phase 3	Unsignde int	1	Read Only	
11	0xB	Current Exponential	Unsignde int	1	Read Only	
12	0xC	PF Total	Int	1	Read Only	
13	0xD	PF Phase 1	Int	1	Read Only	
14	0xE	PF Phase 2	Int	1	Read Only	
15	0xF	PF Phase 3	Int	1	Read Only	
16	0x10	Hz Phase 1	Unsignde int	1	Read Only	
17	0x11	Hz Phase 2	Unsignde int	1	Read Only	
18	0x12	Hz Phase 3	Unsignde int	1	Read Only	
19	0x13	Peak Volt Phase 1	Unsignde int	1	Read Only	
20	0x14	Peak Volt Phase 2	Unsignde int	1	Read Only	
21	0x15	Peak Volt Phase 3	Unsignde int	1	Read Only	
22	0x16	Peak Current Phase 1	Unsignde int	1	Read Only	
23	0x17	Peak Current Phase 2	Unsignde int	1	Read Only	
24	0x18	Peak Current Phase 3	Unsignde int	1	Read Only	
25	0x19	Peak Current Exponential	Unsignde int	1	Read Only	
26	0x1A	Previous Fault Alarm 1	Unsignde int	1	Read Only	See Table 1
27	0x1B	Previous Fault Alarm 2	Unsignde int	1	Read Only	See Table 1
28	0x1C	Previous Fault Alarm 3	Unsignde int	1	Read Only	See Table 1
29	0x1D	Status Digital Counter	Unsignde int	1	Read Only	

Modbus Table 2

Reg. Address Decimal	Reg. Address Hex	Contents	Format	Word	Access	Comment
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	Write value from 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	Write value from 0-100,000
267	0x10B	Hour LSB				
268	0x10C	Counter MSB	Unsigned Long	2	R/W	Write value from 0-99999999
269	0x10D	Counter LSB				

Modbus Table 3

Reg. Address Decimal	Reg. Address Hex	Contents	Format	Word	Access	Comment
512	0x200	CT Ratio	Unsignde int	1	R/W	Set to 1-2000
513	0x201	Start Time	Unsignde int	1	R/W	Set to 1-3600
514	0x202	On Delay 1 Time	Unsignde int	1	R/W	Set to1-3600
515	0x203	Off Delay 1 Time	Unsignde int	1	R/W	Set to 0-3600
516	0x204	Function Alarm 1	Unsignde int	1	R/W	
517	0x205	On Delay 2 Time	Unsignde int	1	R/W	Set to 1-3600
518	0x206	Off Delay 2 Time	Unsignde int	1	R/W	Set to 0-3600
519	0x207	Function Alarm 2	Unsignde int	1	R/W	
520	0x208	On Delay 3 Time	Unsignde int	1	R/W	Set to 1-3600
521	0x209	Off Delay 3 Time	Unsignde int	1	R/W	Set to 0-3600
522	0x20A	Function Alarm 3	Unsignde int	1	R/W	
523	0x20B	Unbalance	Unsignde int	1	R/W	Set to 0-500
524	0x20C	Counter Filter	Unsignde int	1	R/W	Set to 0-2
525	0x20D	Over Limit Alarm 1 MSB	Unsigned Long	2	R/W	Volt : 50-500V Current : 1-999900A
526	0x20E	Over Limit Alarm 1 LSB				
527	0x20F	Under Limit Alarm 1 MSB	Unsigned Long	2	R/W	Volt : 50-500V Current : 1-999900A
528	0x210	Under Limit Alarm 1 LSB				
529	0x211	Over Limit Alarm 2 MSB	Unsigned Long	2	R/W	Volt : 50-500V Current : 1-999900A
530	0x212	Over Limit Alarm 2 LSB				
531	0x213	Under Limit Alarm 2 MSB	Unsigned Long	2	R/W	Volt : 50-500V Current : 1-999900A
532	0x214	Under Limit Alarm 2 LSB				
533	0x215	kWatt Set point MSB	Unsigned Long	2	R/W	Set to 1-3000000
534	0x216	kWatt Set point LSB				
535	0x217	Hour Set point MSB	Unsigned Long	2	R/W	Set to 1-100000
536	0x218	Hour Set point LSB				
537	0x219	Counter Set point MSB	Unsigned Long	2	R/W	Set to 1-99999999
538	0x21A	Counter Set point LSB				

Table 1

Symbol	Display	Comment
0	----	None
1	-PH-	Phase Sequence
2	LoSS L1--	Phase 1 Loss
3	LoSS L-2-	Phase 2 Loss
4	LoSS L--3	Phase 3 Loss
5	LoSS L12-	Phase 1, 2 Loss
6	LoSS L-23	Phase 2, 3 Loss
7	LoSS L1-3	Phase 3,1 Loss
8	LoSS L123	Phase 1,2,3 Loss
9	-ub-	Unbalance
10	0vv L1--	Over Volt Phase 1
11	0vv L-2-	Over Volt Phase 2
12	0vv L--3	Over Volt Phase 3
13	0vv L12-	Over Volt Phase 1, 2
14	0vv L-23	Over Volt Phase 2, 3
15	0vv L1-3	Over Volt Phase 1, 3
16	0vv L123	Over Volt Phase 1, 2, 3
17	Unv L1--	Under Volt Phase 1
18	Unv L-2-	Under Volt Phase 2
19	Unv L--3	Under Volt Phase 3
20	Unv L12-	Under Volt Phase 1, 2
21	Unv L-23	Under Volt Phase 2, 3
22	Unv L1-3	Under Volt Phase 1, 3
23	Unv L123	Under Volt Phase 1, 2, 3
24	0vC L1--	Over Current Phase 1
25	0vC L-2-	Over Current Phase 2
26	0vC L--3	Over Current Phase 3
27	0vC L12-	Over Current Phase 1, 2
28	0vC L-23	Over Current Phase 2, 3
29	0vC L1-3	Over Current Phase 1, 3
30	0vc L123	Over Current Phase 1, 2, 3
31	UnC L1--	Under Current Phase 1
32	UnC L-2-	Under Current Phase 2
33	UnC L--3	Under Current Phase 3
34	UnC L12-	Under Current Phase 1, 2
35	UnC L-23	Under Current Phase 2, 3
36	UnC L1-3	Under Current Phase 1, 3
37	UnC L123	Under Current Phase 1, 2, 3
38	-HW-	Over kWATT
39	-Hr-	Hour Counter
40	-Di-	Digital Counter

How to Reset Peak Volt, Current, Total kWatt

1. Set parameter CL-P to become -CLr
2. Must be on page display peak results on any one page and press button ▪ ▪ hold 5 seconds
3. When Reset parameter value CL-P to become ----

How to Reset Fault Alarm

1. Set parameter CL-F to become -CLr
2. Must be on page display Fault alarm on any one page and press button ▪ ▪ hold 5 seconds
3. When Reset parameter value CL-P to become ----

How to Reset kWh, Hour Counter, Counter Input

Reset kWh

1. Set parameter CL-- to become CL-W
2. Must be on kWh display page and press button ▪ ▪ hold 5 seconds
3. When Reset parameter value CL-- to become ----

Reset Hour counter

1. Set parameter CL-- to become CL-H
2. Must be on Hour counter display page and press button ▪ ▪ hold 5 seconds
3. When Reset parameter value CL-- to become ----

Reset counter input

1. Set parameter CL-- to become CL-C
2. Must be on Counter input display page and press button ▪ ▪ hold 5 seconds
3. When Reset parameter value CL-- to become ----

Reset kWh , Hour counter , Counter input

1. Set parameter CL-- to become CL-A
2. Must be on page display kWh , Hour counter , Counter input on any one page and press button ▪ ▪ hold 5 seconds
3. When Reset parameter value CL-- to become CL-A

How to Reset kWh, Hour Counter, External Input Counter

Reset kWh

1. Set parameter to become
2. Stay on any display page and continue to input according to Fig 5. Hold for 3 seconds.
3. When Reset parameter value to become

Reset Hour counter

1. Set parameter to become
2. Stay on any display page and continue to input according to Fig 5. Hold for 3 seconds.
3. When Reset parameter value to become

Reset counter input

1. Set parameter to become
2. Stay on any display page and continue to input according to Fig 5. Hold for 3 seconds.
3. When Reset parameter value to become

Reset kWh , Hour counter , Counter input

1. Set parameter to become
2. Stay on any display page and continue to input according to Fig 5. Hold for 3 seconds.
3. When Reset parameter value to become

Fig 5. External Input Reset Connection

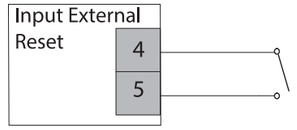


Table 2.

How to edit kWh

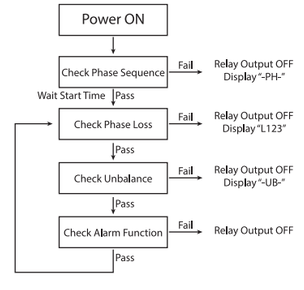
1. On the Menu Parameter kWh
2. Press button ▪ + ▪ hold 5 seconds until showing PASS and enter the code 5041 by pressing the P button to move decimal Press the F button to accept Press ▪ or ▪ to move desired value
3. When entering the code, press button ▪ until showing After that, press button ▪ or ▪ to move desired value When finished, press button ▪

How to calculate the value

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

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

Workflow of Output volt



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