



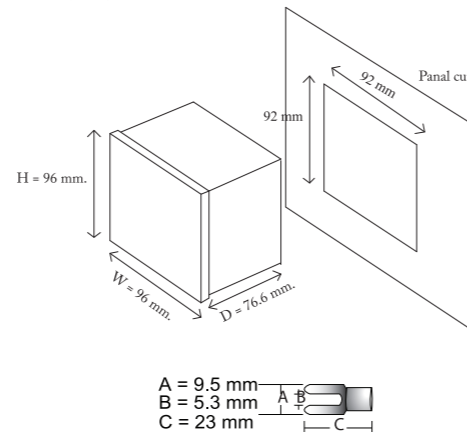
KM-06N



TECHNICAL SPECIFICATION

Power Supply	230 VAC ±15 % 50-60 Hz	
Power Consumption	2.5 VA	
Display	7-Segment, Size 0.56 Inch 5 Digit, 3 Rows	
Input	Type	Voltage (TRUE RMS)
	Direct Phase and Neutral	21 to 288 VAC
	Direct Between Phases	37 to 500 VAC
	Primary Voltage	Up to 48,000 VAC
	Secondary Voltage	100,110,173,190,240 VAC
	PT Ratio	1-200
	Accuracy	0.5 % (FS)
	Type	Current (TRUE RMS)
	Direct	20 mA to 5.00 A
	Primary Current	Up to 5,000 A
	Secondary Current	20 mA to 5.00 A
	Accuracy	0.5 % (FS)
		Power
	Accuracy	± 1.0 % (FS)
		Frequency
Accuracy	45 to 65 Hz ±0.1 Hz	
Energy	0.000 to 99,999,999.0 MWh	
Active Energy Accuracy	IEC 61036 Class 1	
	MD Period	
Fix	15 Minute	
Communication	Protocol	MODBUS RTU
	Baud Rate	2400, 4800, 9600, 19200 38400, 57600 bps
	Parity	None
	Data Bit	8 bit
	Stop Bit	1
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	Front Protection Rating	IP52
	Case Protection Rating	P30
Installation	Panel, Mounting	
Material	ABS-VO	
Size	96 x 96x 76.6 mm.	
Weight	355 g.	

DIMENSION

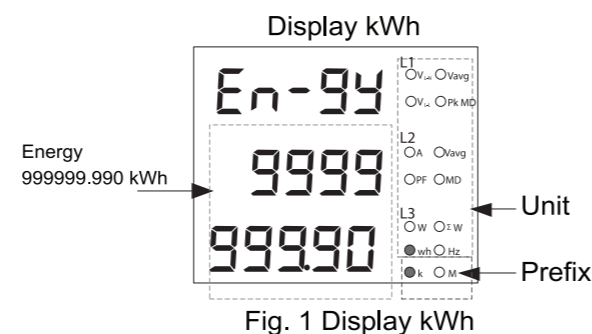


DESCRIPTION

- KM-06N is a device that measures kW, total kW, MD, kWh
- 7 - Segment display, 0.56", 5 digits, 3 rows
- PT Ratio and CT Ratio can be set from the program.
- LED status indicator and power unit.
- Can be recorded to computer via RS - 485 MODBUS RTU

OPERATION

When starting KM - 06N, the KiloWatt Hour (kWh) or at the press of a button The kWh display uses the 7 - Segment 2 and 3 segments together to show the kWh value. See Figure 1.



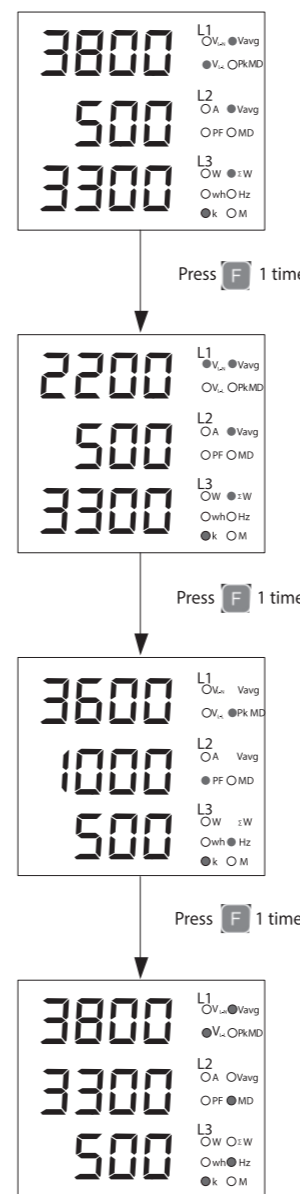
The display of the decimal point and the prefix (Kilo, Mega) of KM - 06N corresponds to the CTr x PTR

CTr * PTR	Display Energy
1 - 9	0.000 to 999,999.999 kilo
10 - 99	00.00 to 9,999,999.99 kilo
100 - 999	000.0 to 99,999,999.9 kilo
1,000 - 9,999	0000 to 999,999,999 kilo
10,000 - 99,999	00.00 to 9,999,999.99 Mega
100,000 - 200,000	000.0 to 99,999,999.0 Mega

$$\text{Volt (L-L) Avg} = \frac{V_{LL1} + V_{LL2} + V_{LL3}}{3}$$

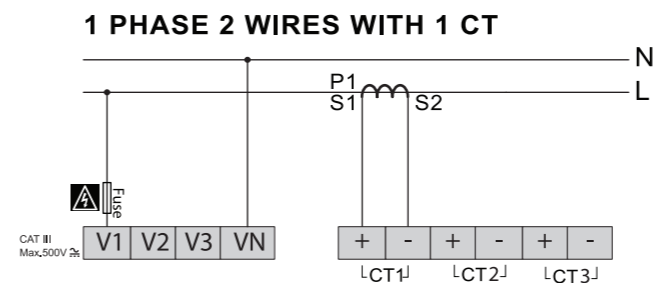
$$\text{Volt (Phase) Avg} = \frac{\text{Volt Phase1} + \text{Volt Phase2} + \text{Volt Phase3}}{3}$$

Average Value and Demand are displayed by pressing button The average value is shown as Fig 2.

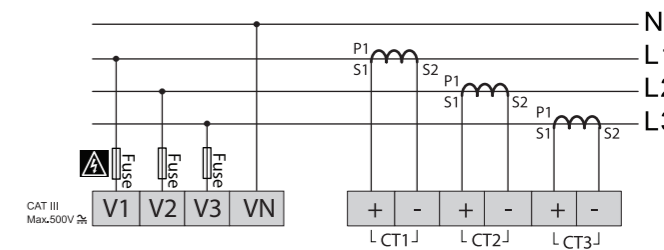


WIRING DIAGRAM

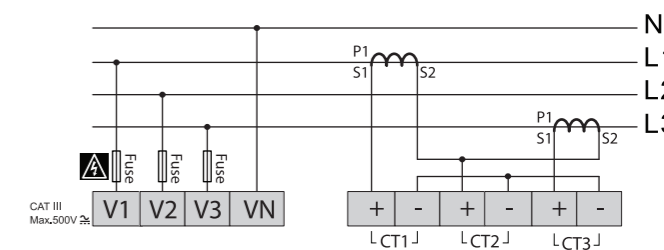
The circuit of KM - 06N can be connected according to the diagram below. When the current transformer (CT) was removed from the KM - 06N short - circuit on the secondary side of CT should be maintained to prevent CT damage.



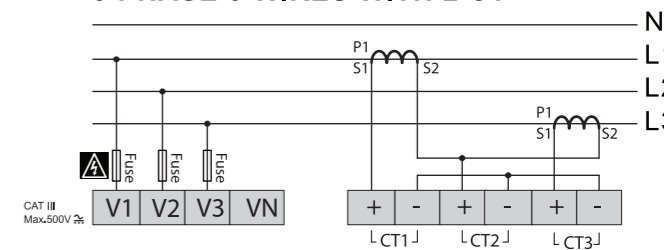
3 PHASE 4 WIRES WITH 3 CT



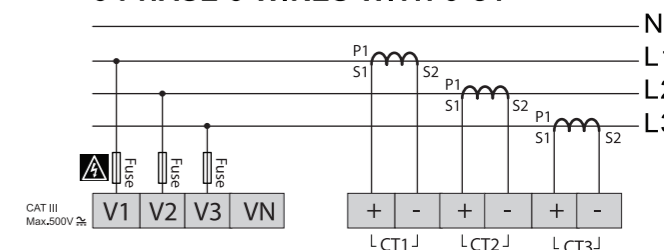
3 PHASE 4 WIRES WITH 2 CT



3 PHASE 3 WIRES WITH 2 CT



3 PHASE 3 WIRES WITH 3 CT



* Recommend Fuse 0.5 A

ORDERING CODE

KM-06N

Display VL - N, VL - L, Amp, PF (Positive PF means Load L and PF is negative, the load C) and Watt of each phase can be done by pressing the button . The values are shown in the figure.

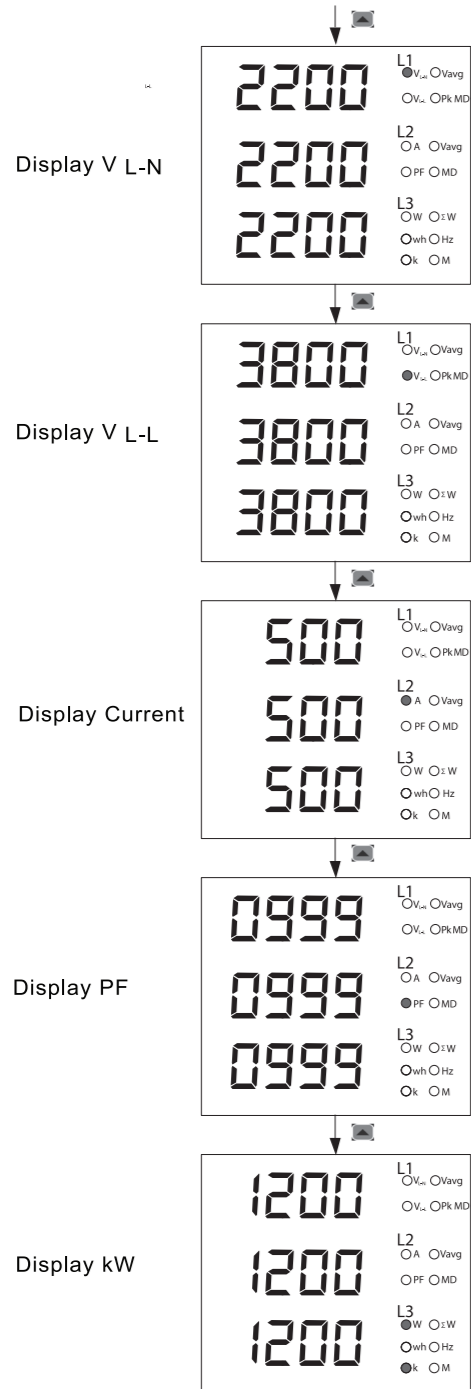


Fig. 3 Display Per Phase Information

SETTING MENU

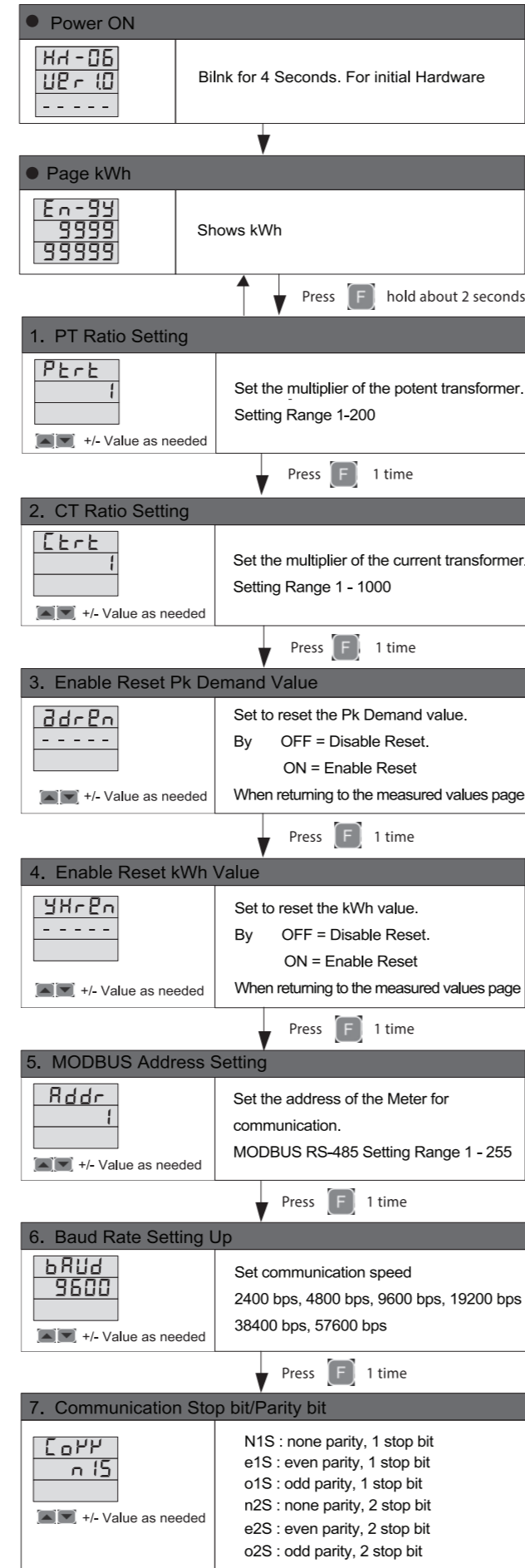
Set the setting used to calculate and communicate according to the Sequence in the button as Fig. 4. Calculate the CT value used. Use this formula.

$$PT \text{ Ratio} = \text{Primary Volt} / \text{Secondary Volt}$$

Calculate the CT value used. Use this formula.

$$CT \text{ Ratio} = \text{Primary Current} / \text{Secondary Current}$$

Fig. 4 Setting Meter Config



RESET ENERGY

1. Set Parameter in the Parameter menu to
2. Display the kWh page and press the button for 5 seconds

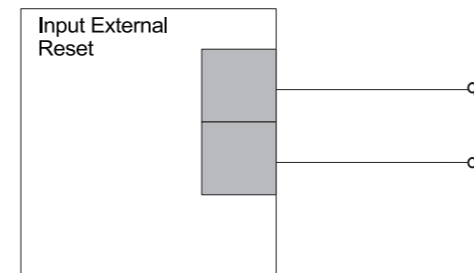
RESET PK DEMAND

1. Set Parameter in the Parameter menu to
2. Display the PkMD page and press the button for 5 seconds

RESET PK DEMAND & ENERGY BY EXTERNAL INPUT

1. Set Parameter and in Menu Parameter to
2. Connect the Input as shown in Figure 5. When the Switch Close Meter is reset kWh & Pk Demand and Open Open Switch for Meter to read kWh and Pk Demand As Usual

Fig. 5 External Input Reset Connection



COMMUNICATION MODBUS RTU

START	ADDRESS	FUNCTION	DATA	CRC	END
S.PERIOD	8 BIT	8 BIT	nx8 BIT	16 BIT	S.PERIOD

RTU Transmission Mode

FUNCTION CODE	OPERATE	BROADCAST
16	Write Multiple Register	YES
08	Loop Back Diagnostic	YES
06	Write Single Register	YES
04	Read Multiple Register	NO

Table of Register Value

ADDRESS	CONTENT	FORMAT	BYTE	WORD	ACCESS
0	Current Phase 1 Hi	UNSIGNED LONG	4	2	READ
1	Current Phase 1 Lo				
2	Current Phase 2 Hi	UNSIGNED LONG	4	2	READ
3	Current Phase 2 Lo				
4	Current Phase 3 Hi	UNSIGNED LONG	4	2	READ
5	Current Phase 3 Lo				
6	Volt Phase 1 Hi	UNSIGNED LONG	4	2	READ
7	Volt Phase 1 Lo				
8	Volt Phase 2 Hi	UNSIGNED LONG	4	2	READ
9	Volt Phase 2 Lo				
10	Volt Phase 3 Hi	UNSIGNED LONG	4	2	READ
11	Volt Phase 3 Lo				
12	VLL1 HI	UNSIGNED LONG	4	2	READ
13	VLL1 LO				
14	VLL2 HI	UNSIGNED LONG	4	2	READ
15	VLL2 LO				
16	VLL3 HI	UNSIGNED LONG	4	2	READ
17	VLL3 LO				

Table of Register Value

ADDRESS	CONTENT	FORMAT	BYTE	WORD	ACCESS
18	Watt HI	UNSIGNED LONG	4	2	READ
19	Watt LO				
20	VA HI	UNSIGNED LONG	4	2	READ
21	VA LO				
22	MD HI	UNSIGNED LONG	4	2	READ
23	MD LO				
24	PKMD HI	UNSIGNED LONG	4	2	READ
25	PKMD LO				
26	KWH HI	UNSIGNED LONG	4	2	READ
27	KWH LO				
28	Watt 1 HI	UNSIGNED LONG	4	2	READ
29	Watt 1 LO				
30	Watt 2 HI	UNSIGNED LONG	4	2	READ
31	Watt 2 LO				
32	Watt 3 HI	UNSIGNED LONG	4	2	READ
33	Watt 3 LO				

ADDRESS	CONTENT	FORMAT	BYTE	WORD	ACCESS
256	PF 1	INTEGER	2	1	READ
257	PF 2	INTEGER	2	1	READ
258	PF 3	INTEGER	2	1	READ
259	Hz	UNSIGNED INT	2	1	READ
260	Eneyg Unit	UNSIGNED INT	2	1	READ
261	Eneyg Exponetial	UNSIGNED INT	2	1	READ
262	Watt Unit	UNSIGNED INT	2	1	READ
263	Watt Exponetial	UNSIGNED INT	2	1	READ
264	VA Unit	UNSIGNED INT	2	1	READ
265	VA Exponetial	UNSIGNED INT	2	1	READ
266	Demand Unit	UNSIGNED INT	2	1	READ
267	Demand Exponetial	UNSIGNED INT	2	1	READ
268	Peak Demand Unit	UNSIGNED INT	2	1	READ
269	Peak Demand Exponetial	UNSIGNED INT	2	1	READ
270	PT Ratio	UNSIGNED INT	2	1	READ/WRITE
271	CT Ratio	UNSIGNED INT	2	1	READ/WRITE

How to calculate register

$$\text{Volt} = \frac{\text{Volt}_{reg}}{10} \quad \text{Hz} = \frac{\text{Hz}_{reg}}{10}$$

$$\text{Current} = \frac{\text{Current}_{reg}}{1000} \quad \text{PF} = \frac{\text{PF}_{reg}}{1000}$$

$$\text{Energy} = \frac{\text{Energy}_{reg}}{\text{Energy exponential} 10}$$

If Energy Unit equal 1 is kWh
If Energy Unit equal 2 is MWh

$$\text{Watt} = \frac{\text{Watt}_{reg}}{\text{Watt exponential} 10}$$

If Watt Unit equal 1 is kWatt
If Watt Unit equal 2 is MWatt

$$\text{VA} = \frac{\text{VA}_{reg}}{\text{VA exponential} 10}$$

If VA Unit equal 1 is kVA
If VA Unit equal 2 is MVA

$$\text{Demand} = \frac{\text{Demand}_{reg}}{\text{Demand exponential} 10}$$

If Demand Unit equal 1 is kWatt
If Demand Unit equal 2 is MWatt

$$\text{Peak Demand} = \frac{\text{Peak Demand}_{reg}}{\text{Peak Demand exponential} 10}$$

If Peak Demand Unit equal 1 is kWatt
If Peak Demand Unit equal 2 is MWatt