



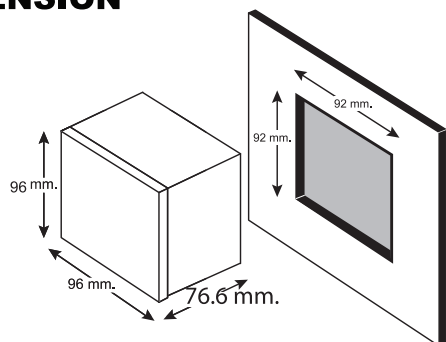
KM-09-A



TECHNICAL SPECIFICATION

Power Supply		230 VAC ±15 % 50-60 Hz 115 VAC ±15 % 50-60 Hz
Power Consumption		2.5 VA
Display		7-Segment, Size 0.56 Inch 4 Digit, 1 Row
Input	Current	Connection 1 CT, Direct
	Current (Direct)	0.02 - 10 A.
	Ib(Base Current)	5 A.
	Current Ratio	1-2000
	Primary	9999 A.
	Secondary	0.2-5 A.
Output		1 Alarm 5A/250 VAC
Communication	Protocol	MODBUS RTU
	Baud Rate	1200, 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	Front Protection Rating	IP52
	Case Protection Rating	IP30
Installation		Panel Mounting
Material		ABS-V0
Size		96 x 96 x 76.6 mm.
Weigth		465 g.

DIMENSION



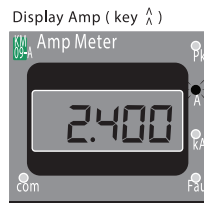
DESCRIPTION

- KM-09-A is a one-phase power meter that connects to CT.
- Measurement area
: Electricity 0.02-10 A (in case of direct connection)
: Maximum current of 9999 A (in case of joining with CT)
- Current Transformer Ratio (CT) can be set from the program.
- Display as 7-Segment, 0.56 inch, 4 digits, 1 row
- High accuracy TRUE RMS measurement.
- LED display status and power unit.
- Data can be recorded on the computer via RS-485 MODBUS RTU PROTOCOL.
- Peak Hold to see the maximum current in the system

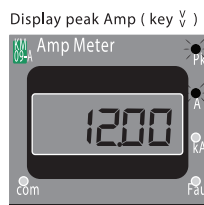
OPERATION

The display will have 2 Page, which shows current measured current and Peak Amp. Peak Amp calculates the average value in 15 minutes, with the up arrow indicating the current value. When you press the down arrow, the Peak Amp value is displayed. On the Peak Amp display, the LED flashes while displaying.

KM - 09 - A has optional RS - 485 and Alarm Fault. The alarm can be set Up to 4 functions, depending on ordering conditions.

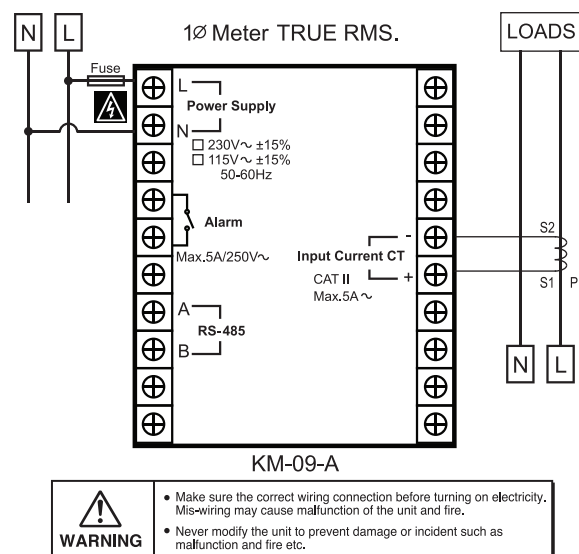


Display current Amp



Display peak Amp

WIRING DIAGRAM



How to Reset PK - Demand Amp

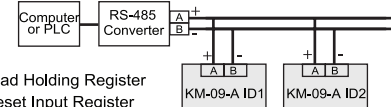
- Set PH-d to CLR-
 - Scroll down the Meter display on the Pk-Demand Amp page, then press
- Hold for 5 seconds until Pk-Demand Amp equals 0

SERIAL COMMUNICATION

KM - 09 - A can read parameter values measured in real time with the system BUS RS - 485 by PROTOCOL. Communication is MODBUS RTU Mode.

A set of commands that can be used with the Meter

Wiring Diagram



0x03 : Read Holding Register
0x04 : Preset Input Register
0x06 : Preset Single Register
0x10 : Preset Multi Register

Modbus table of km - 09 - A is shown in following

Address		Contents	Format	Word	Access
Decimal	Hex				
0-1	00-01	Current Register	Unsignde long	2	Read Only
2-3	02-03				
4	04				
5	05				
6	06				
7	07				
8-9	08-09				
10	0A	Pk-Demand Current Unit Register	Unsignde long	1	R/W
11	0B	Pk-Demand Current Exponential	Unsignde int	1	R/W
12-13	0C-0D	Pk-Demand Current Register	Unsignde long	2	R/W

Address		Contents	Format	Word	Access
Decimal	Hex				
256	0x100	CT Ratio Redigter	Unsignde int	1	R/W
257	0x101	PT Ratio Register	Unsignde int	1	R/W
258	0x102	Meter ID	Unsignde int	1	Read Only
259	0x103	Baud Rate	Unsignde int	1	Read Only
260	0x104	Comm (Parity, Stop Bit)	Unsignde int	1	Read Only
261	0x105	ALF	Unsignde int	1	R/W
262	0x106	ALH	Unsignde int	1	R/W
263	0x107	ALL	Unsignde int	1	R/W
264	0x108	ALC	Unsignde int	1	R/W
265	0x109	Clear Pk Demand	Unsignde int	1	R/W

Example of sending command reads the register volt value

Slave ID	Fun	Hi Order Address	Low Order Address	Hi Order Word	Low Order Word	CRC Hi Order	CRC Low Order
01	03	00	00	00	02	C4	0B

Note

Sample data displayed as All Hex

PROTOCOL uses MODBUS RTU with PLC / HMI

PROTOCOL of KM - 09 - A is designed according to MODBUS standard. RTU if used with PLC / HMI. Read values for the register table for the Holding Register (03) must start at Address 40001 and for Input Register (04) must start at Address 30001

Sample Meter KM-09-A

To read the current register value must set the address used to read at 30001

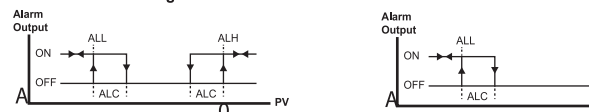
Readable Register Values

Calculating Pk-Demand Current

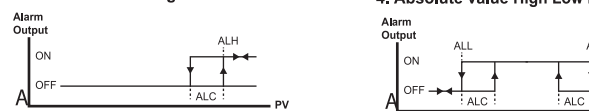
Peak Current = Peak Current Register / 10
When Pk - Demand Current Unit reg. = 0 --> Unit is A Current = $\frac{\text{Current_reg}}{1000}$
Pk - Demand Current Unit reg. = 1 --> Unit is kA

ALARM FUNCTION

1. Absolute value High Low Band Alarm



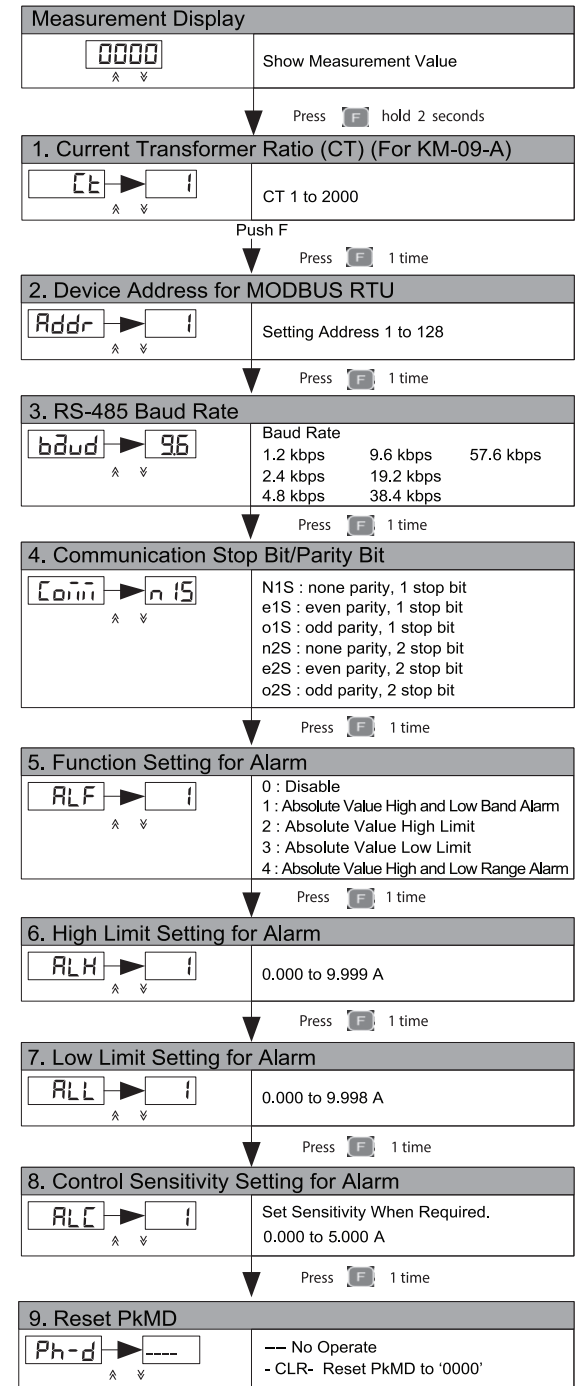
2. Absolute value High Alarm



Measurement used in the alarm condition is Direct, without the CT Ratio. Example for Model KM - 09 - A Current Transformer Ratio is 10 input measurement is 5 A. But will display 50 A. The value used in the Alarm condition is 5

CONFIGURATION

KM-09-A



ORDERING CODE

OPTION 1		OPTION 2		POWER SUPPLY	
R		M		NONE	
Alarm Relay		RS-485		230 VAC	
NONE		None RS-485		115	
				115 VAC	

Example: KM - 09 - A - R - M means electrical current with alarm fault and RS - 485.

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