Power Meter
DM38
User Manual

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HAZARD CATAGORIES AND SPECIAL SYMBOL

Read all the instructions carefully and check the device before installing or service it. The following safety alert symbol may appear throughout this manual or on the device to warn of potential hazards or to call for attention.

PLEASE NOTE

The power meter should be installed, operated, serviced and maintained only by qualified personnel. No responsibility is assumed by the manufacturer for any consequences arising out of the use of this material.

BEFORE YOU BEGIN

- Apply appropriate personal protective equipment and follow safe electrical work practices.
- NEVER work alone.
- Turn-off all power supplying the power meter and the equipment in which it is installed before working on it.
- Always use a properly rated voltage sensing device to confirm that all power is off.
- Before closing all covers and doors, carefully inspect the work area for tools and objects that may have been left inside the equipment.
- NEVER bypass external fusing.
- NEVER open circuit a CT; use the shorting block to short circuit the leads of the CT before removing the connection from the power meter.
- Before performing hi-pot testing on any equipment in which the power meter is installed, disconnect all input and output wires to the power meter. High voltage testing may damage electronic components contained in the power meter.
- The power meter should be installed in a suitable electrical enclosure.

Failure to follow this instruction may result in serious injury

1. Installation Guide

1.1. Wiring

Voltage inputs and control power are for distribution systems up to 265V L-N.
Polarity marks must be followed as shown for CTs (S1 and S2).

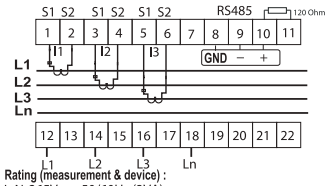
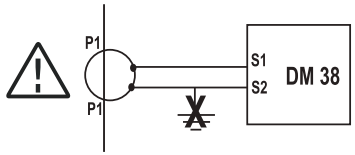
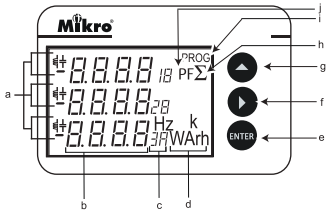


Figure 1: Wiring diagram



Note:
Current transformer secondary terminal must NOT be earthed.

2. Display and Button



a. Inductive/capacitive indicator
b. 4-digit display
c. Phase indicator
d. Unit indicator
e. 'ENTER' button
f. 'NEXT' button
g. 'UP' button
h. Total indicator
i. Programming mode indicator
j. Power factor indicator

3. Specification

DM38 Specifications	
Electrical Characteristic	
System	3-phase 4-wire
Current measurement	
Display	Three phase current
CT Primary	5-8000A
CT Secondary	5A
Accuracy	0.5% (from 1A to 6A secondary)
Sustained overload	6A
Voltage measurement	
Line Voltage	120~415VAC
Phase Voltage	70~265VAC
Accuracy	0.50%
Power (kW,kVAR,kVA) measurement	
Display	each phase & total
Accuracy	1.00%
Power factor measurement	
Display	each phase & total
Accuracy	1%
Frequency measurement	
Range	45~65Hz
Accuracy	0.50%
Energy measurement	
Active	IEC62053-21:Class 1
Reactive	IEC62053-23:Class 2
Communication	
Hardware Interface	Isolated RS485
Protocol	Modbus-RTU
ID	1 to 127
Baudrate	2400, 4800, 9600, 19200, 38400
Parity	None, even, odd

Operating Condition	
Auxiliary input	Self-supplied 100~240VAC
Operating Temperature	-10C~+55C
Storage Temperature	-20C~+70C
Data update rate	1 second
Operating time	Up to 9999 days, 23 hours, 59 minutes
Mechanical Characteristic	
Dimension	
Case	L65mm x W85mm x H65.5mm
Mounting type	DIN rail
LCD	39mm x 27mm viewing area (3 lines display)
Weight	200g
Electromagnetic Compatibility (EMC)	
Part 6-2: Generic Standards IEC61000-6-2	Immunity for industrial environments
Part 6-4: Generic Standards IEC61000-6-4	Emission standard for industrial environments

4. Modbus Register

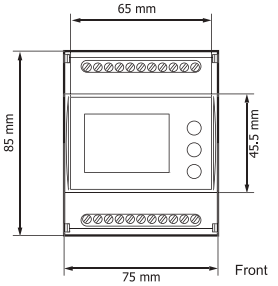
Read Only (Function 0x03 or 0x04)		
Register	**Description**	**Min Value**
4000-4001	Negative real energy	1kWh
4002-4003	Positive real energy	1kWh
4004-4005	Reserved, always return 0	
4006-4007	Apparent energy	1kVAh
4008-4009	Negative reactive energy	1kVArh
4010-4011	Positive reactive energy	1kVArh
4012-4013	total real power	1W
4014-4015	total apparent power	1VA
4016-4017	total reactive power	1VAR
4018	total power factor	0.001
4019	Frequency	0.01Hz
4020-4021	Instantaneous Current L1	0.001A
4022-4023	Instantaneous Current L2	0.001A
4024-4025	Instantaneous Current L3	0.001A
4026-4027	Reserved, always return 0	
4028-4029	Voltage Phase L12	0.1V
4030-4031	Voltage Phase L23	0.1V
4032-4033	Voltage Phase L31	0.1V
4034-4035	Voltage Phase L1	0.1V
4036-4037	Voltage Phase L2	0.1V
4038-4039	Voltage Phase L3	0.1V
4040-4041	Real Power L1	1W
4042-4043	Real Power L2	1W
4044-4045	Real Power L3	1W
4046-4047	Apparent Power L1	1VA
4048-4049	Apparent Power L2	1VA
4050-4051	Apparent Power L3	1VA
4052-4053	Reactive Power L1	1VAR

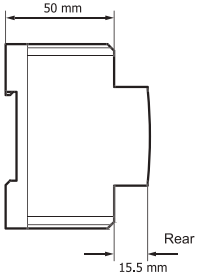
Read Only (Function 0x03 or 0x04)		
Register	**Description**	**Min Value**
4054-4055	Reactive Power L2	1VAR
4056-4057	Reactive Power L3	1VAR
4058-4081	Reserved, always return 0	
4082	THD Current L1	0.1%
4083	THD Current L2	0.1%
4084	THD Current L3	0.1%
4085	THD Voltage L1	0.1%
4086	THD Voltage L2	0.1%
4087	THD Voltage L3	0.1%
4088	*Energy full flag bit 7 to 5 = reserved bit 4 = negative kVARh bit 3 = negative kWh bit 2 = kVAh bit 1 = positive kVARh bit 0 = positive kWh	
1000	Device ID	0-127
1001	Parity	1 = none 2 = even 3 = odd
1002	Baudrate	1 =2400 2 = 4800 3 = 9600 4 = 19200 5= 38400
0-1	reserved	
2-3	Device type	300'
4-5	Version	2.0'
Read or write (Function 0x03, 0x04 or 0x06)		
Register	**Description**	**Range**
100-101	Reserved, always return 0	
102	CT ratio primary	5-8000
103-108	Reserved, always return 0	
109	System scroll	0 or 1
110	Reserved, always return 0	
111	Minutes	0-59
112	Hours	0-23
113	Days	0-9999

*if the energy is full, the bit is set to 1 else bit is 0.

NOTE: Register list is based on virmware version 2.0

5. Dimension

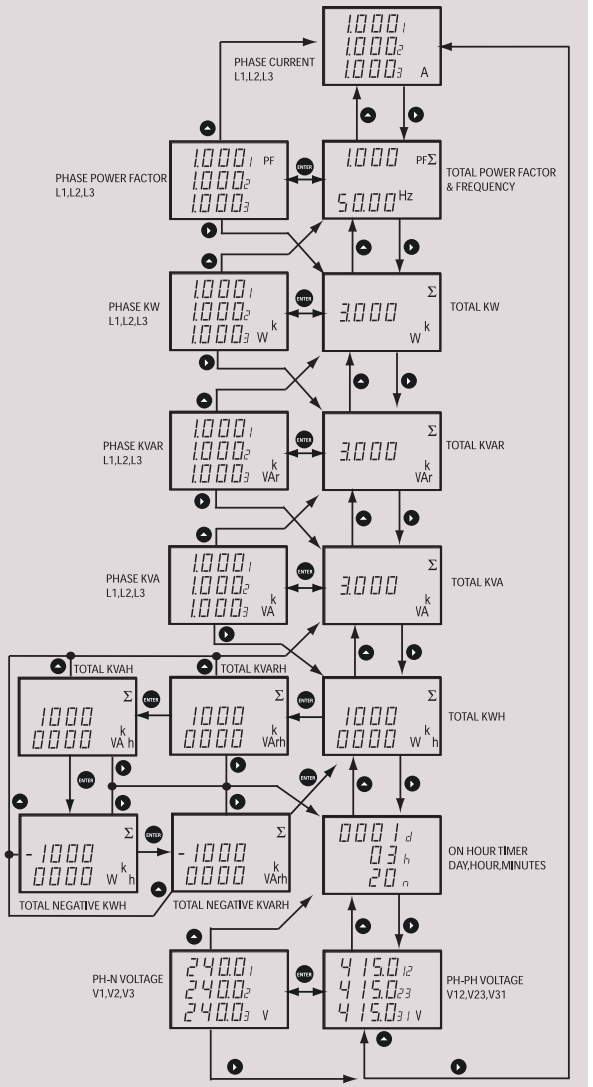




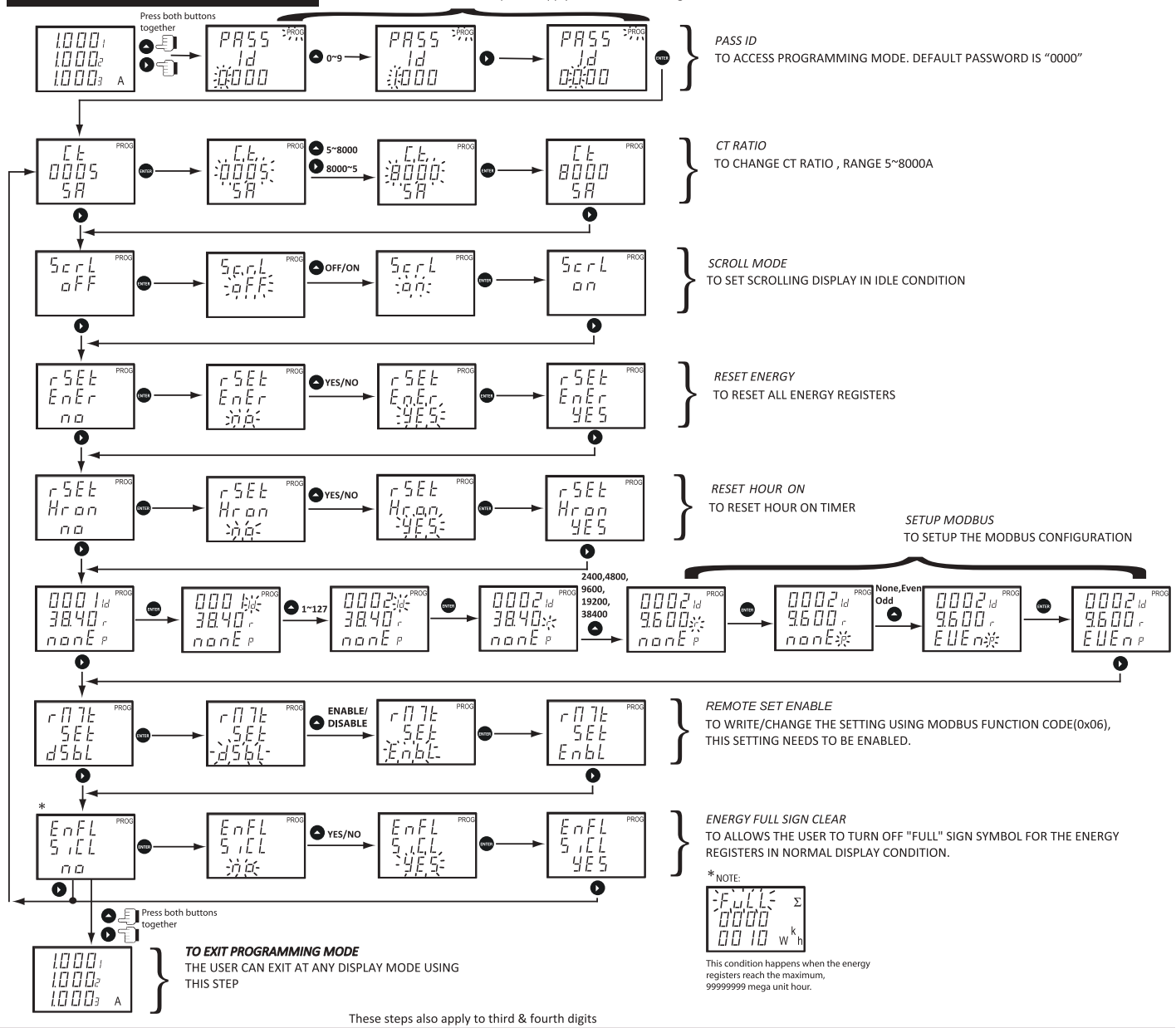
NOTE:

We reserve the right to alter or modify the information contained herein at any time in line with our product development without prior notification. We also reserve the right to discontinue production & delivery of product.

6. Normal display



7. Programming mode display



8. Change the password