Johannesburg Branch
MIMIC COMPONENTS
Cape Town Branch
Mimic Cape

CE

MULTISPAN

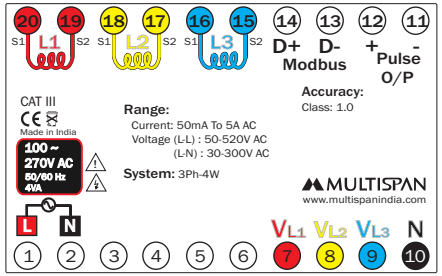
User Manual

EPM-14-M1

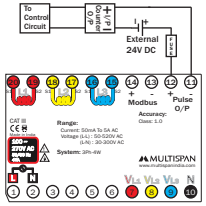
Technical Specification

Model	EPM-14-M1
Display	UPPER: 7 Seg, 8digit,0.39", RED LED display for KWH LOWER: 7 Seg, 4digit,0.39", GREEN LED display for KW
Size (mm)	96(H) X 96 (W) X 54 (D) mm
Panel Cutout	92 X 92 mm
Voltage Input	50 To 520V AC L-L 30 To 300V AC L-N CAT III
Current Input	50mA To 5Amp AC direct or C.T Selectable up to 6000/5 ratio
Active Power (KW)	0000-9999 KW
Active Energy (KWh)	0-99999999 KWH
Power Supply	100 to 270V AC,50/60Hz,Approx 4VA
Output	Pulse Output : Voltage range 24V DC Max (External) Pulse Width : 10 to 500ms Selectable & With Modbus
Frequency	45 To 65 Hz
Wiring System	3Ph-4W
Protection Level (As per request)	IP-65 (Front side) As per IS/IEC 60529 : 2001
Operating Temperature	0°C To 50°C
Relative Humidity	Up to 95% RH Non Condensing

Terminal Diagram



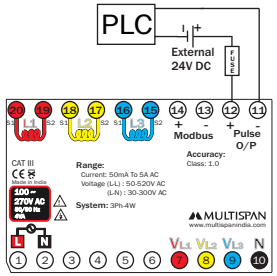
ENERGY CONTROLLER



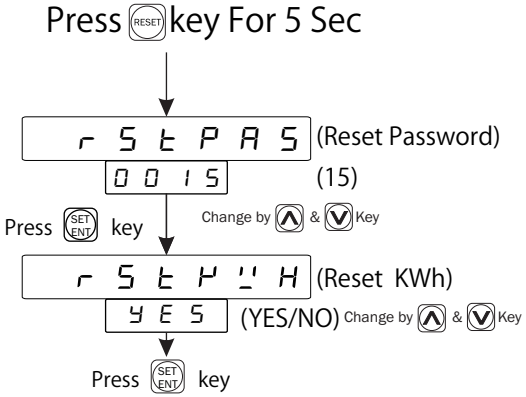
Pulse output from meter can be used alarm generator or total energy controller by interfacing it with pre settable counter and control circuits (Contactors, Relay, trip Circuit). The counter is loaded with the maximum energy consumption. When count is reaches setpoint it provides output to control Circuit to take action.

PULSE OUTPUT

It is an optically isolated solid state pulse output which drives the remote counter, PLC, DCS stations etc.
It does not require multiplication factor.
Pulse output settings
(like Energy per Pulse and Pulse on Time) are user programmable in the field.



Pulse output from meter can be interfaced into a process through a PLC for on line control of energy content in the process.
If the PLC has a self Excited digital input, external DC supply is not needed.
The kwh pulse is also used to derive average kwh information at the PLC.



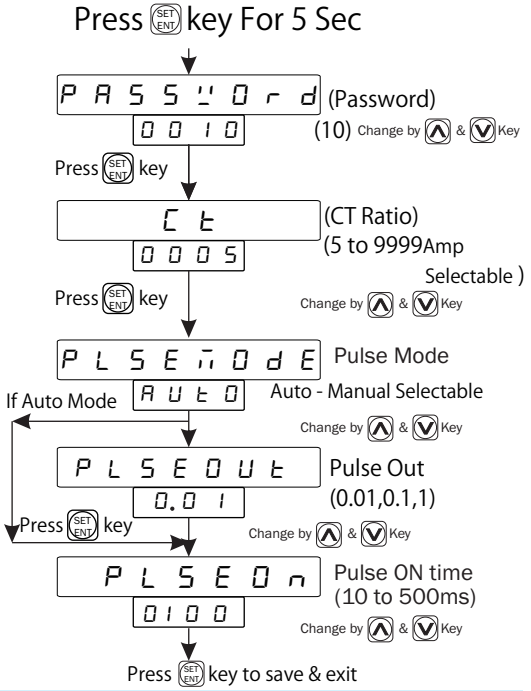
APPLICATION:

- Power Management
- Energy Audit
- Control Panels
- Plant Maintence
- Gensets
- Quality Control System
- Power Distribution Switchboards
- Building Management System
- Quality Control System

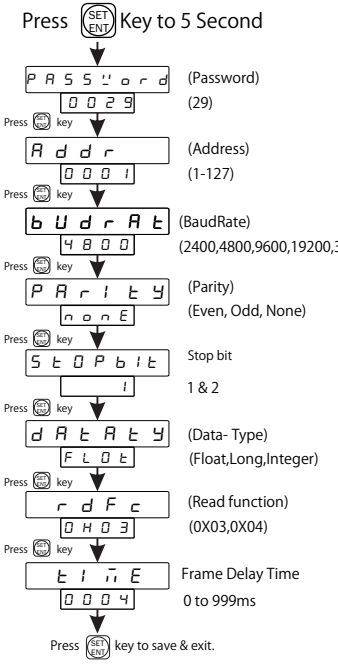
Resolution

CT Primary	Energy Rate Pulse Output
5 to 75	0.01 KWH
76 to 750	0.1 KWH
751 to 7500	1 KWH
7501 to 9999	1 KWH

CT PRIMARY SELECTION:



To select MODBUS Parameter :



- Range of parameters can be changed by pressing ∧ & ∨ key.

MODBUS

Modbus Setting:

1). Device Address 1 to 127
2). Baudrate 2400, 4800, 9600,19200, 38400 (bps)
3). Parity None,Even,Odd
4). Stop bit 1 , 2
5). Data Type Int, Long, Float
6). Read Function Register 0x03 and 0x04
7). Frame delay Time 0 to 999ms
8).Pulse mode Auto- 0 , Manual-1

Sr.No	Access Type	Parameter	Register Data Type Float	Register Data Type Long
1	R	Kwh	0	0
2	R	NA	NA	NA
3	R	Kw	4	4
4	R	Kwh DP	NA	6
5	R	Kw DP	NA	8
6	R/W	CT Ratio	10	10
7	R/W	Pulse mode : Auto 0 / Manual 1	12	12
8	R/W	Energy Rate 0.01 0 / 0.1 1 / 1 2 / 10 3	14	14
9	R/W	Pulse on time	16	16
10	R/W	Address	18	18

11	R/W	Baudrete : Selection / Value: 2400 0, 4800 1, 9600 2, 19200 3, 38400 4	20	20
12	R/W	Parity : NONE 0, Even 1, Odd 2	22	22
13	R/W	Stop bit : Stop bit 0, Stop bit 1	24	24
14	R/W	Data type : Integer 0, Long 1, Float 2	26	26
15	R/W	RDFC : 0 x 03 0, 0 x 04 1	28	28
16	R/W	Frame delay Time	30	30
17	R/W	Kwh Reset	32	32

Note : To reset energy write 15 value in sr.17 parameter :

For Integer :

Sr.No	Access Type	Parameter	Register Data Type Integer :
1	R	Kwh (fist 4 digit)	0
2	R	Kwh (last 4 digit)	1
3	R	Kw	2
4	R	Kwh DP	3
5	R	Kw DP	4
6	R/W	CT Ratio	5
7	R/W	Pulse mode Auto 0 / Manual 1	6
8	R/W	Energy Rate 0.01 0 / 0.1 1 / 1 2 / 10 3	7
9	R/W	Pulse ON Time	8
10	R/W	Address	9

11	R/W	Baudrate Selection / Value: 2400 0, 4800 1, 9600 2, 19200 3, 38400 4	10
12	R/W	Parity NONE 0, Even 1, Odd 2	11
13	R/W	Stop Bit Stop bit 0, Stop bit 1	12
14	R/W	Datatype Integer 0, Long 1, Float 2	13
15	R/W	RDFC 0 x 03 0, 0 x 04 1	14
16	R/W	Time	15
17	R/W	Kwh Reset	16

Note : To reset energy write 15 value in sr.17 parameter:

if datatype is long or integer :

if KWh dp = 1
actual value of KWh = KWh/10

if KW dp = 1
actual value of KW = KW /10

if KWh dp = 2
actual value of KWh = KWh/100

if KW dp = 2
actual value of KW = KW/100

if KWh dp = 3
actual value of KWh = KWh/1000

if KW dp = 3
actual value of KW = KW/1000

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SAFETY PRECAUTION

All safety related codifications, symbols and instructions that appear in this operating manual or on the equipment must be strictly followed to ensure the safety of the operating personnel as well as the instrument.

If all the equipment is not handled in a manner specified by the manufacturer, it might impair the protection provided by the equipment.

Read complete instructions prior to installation and operation of the unit.

WARNING : Risk of electric shock.

WARNING GUIDELINES

WARNING : Risk of electric shock.

1. To prevent the risk of electric shock, power supply to the equipment must be kept OFF while doing the wiring arrangement. Do not touch the terminals while power is being supplied.
2. To reduce electro magnetic interference, use wire with adequate rating and twists of the same of equal size shall be made with shortest connection.
3. Cable used for connection to power source, must have a cross section of 1mm or greater. These wires should have insulations capacity made of at least 1.5kV.

4. When extending the thermocouple lead wires, always use thermocouple compensation wires for wiring for the RTD type, use a wiring material with a small lead resistance (5 Ωmax per line) and no resistance differentials among three wires should be present.
5. A better anti-noise effect can be expected by using standard power supply cable for the instrument.

INSTALLATION GUIDELINES

1. This equipment, being built-in-type, normally becomes a part of main control panel and in such case the terminals do not remain accessible to the end user after installation and internal wiring.
2. Do not allow pieces of metal, wire clippings, or fine metallic fillings from installation to enter the product or else it may lead to a safety hazard that may in turn endanger life or cause electrical shock to the operator.
3. Circuit breaker or mains switch must be installed between power source and supply terminal to facilitate power 'ON' or 'OFF' function. However this mains switch or circuit breaker must be installed at convenient place normally accessible to the operator.
4. Use and store the instrument within the specified ambient temperature and humidity ranges as mentioned in this manual.

MECHANICAL INSTALLATION GUIDELINES

1. Prepare the panel cutout with proper dimensions as shown above.
2. Fit the unit into the panel with the help of clamp given.
3. The equipment in its installed state must not come in close proximity to any heating source, caustic vapors, oil steam, or other unwanted process Byproducts.
4. Use the specified size of crimp terminal (M3.5 screws) to wire the terminal block. Tightening the screws on the terminal block using the tightening torque of the range of 1.2 N.m.
5. Do not connect anything to unused terminals.

MAINTENANCE

1. The equipment should be cleaned regularly to avoid blockage of ventilating parts.
2. Clean the equipment with a clean soft cloth. Do not use isopropyl alcohol or any other cleaning agent.
3. Fusible resistor must not be replaced by operator.

MIMIC COMPONENTS sales@mimic.co.za www.mimic.co.za TEL: +27(0)11 689-5700
5 Ramsay Street, Booysens 2091, Johannesburg P.O. Box 38493, Booysens 2016, Johannesburg, South Africa

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