

EPM-07S DIGITAL POWERMETER

EPM-07S is a 3-phase digital powermeter and energymeter which measures:
 -Phase-Neutral voltage (VL-N) -Active Power (W) -Active Energy (kWh)
 -Phase-Phase voltage (VL-L) -Reactive Power (VAr) -Reactive Energy (kVArh)
 -Current (A) -Apparent Power (VA) -Cosφ

These values are displayed by using "SET" button (⊕). First 3 displays show L1, L2 and L3 phase values and the 4th display shows total value of each selected measured value (VL-N, VL-L, A, W, VAr, VA, kWh, kVArh or Cosφ). EPM-07S also measures Maximum Demand, Demand, maximum and minimum values of power. EPM-07S has MODBUS serial interface.

When :

- | | | |
|---------------------|---|----------------------------------|
| 1. VL-N led lights | : | Phase-Neutral Voltage |
| 2. VL-L led lights | : | Phase-Phase Voltage |
| 3. A led lights | : | Current |
| 4. W led lights | : | Active Power |
| 5. VAr led lights | : | Reactive Power |
| 6. VA led lights | : | Apparent Power |
| 7. kWh led lights | : | |
| a-) A-I | : | Imported Active Energy |
| b-) A-E | : | Exported Active Energy |
| 8. kVArh led lights | : | |
| a-) r-L | : | Reactive-Inductive Energy |
| b-) r-C | : | Reactive-Capacitive Energy |
| 9. Cosφ led lights | : | Cosφ of the network is measured. |

Operating Principle:

EPM-07S displays the energy and power values by multiplying voltage and current ratios by values read from input. So, the displayed values are the real values of the system.

Energy Pulse Outputs

EPM-07S has 2 Energy Pulse Outputs; Pul1, Pul2.
 Pul1 (Reactive Energy Pulse Output): A 400msec. pulse output is given, if measured energymeter value increases 1 KVAh. Pul1 is used for Reactive Inductive energy values.
 Pul2 (Active Energy Pulse Output): A 400msec. pulse output is given, if measured energy meter value increases 1KWh. Pul2 is used for both (Active Import) and (Active Export) energy values. Min. pulse period is 1.6 sec.

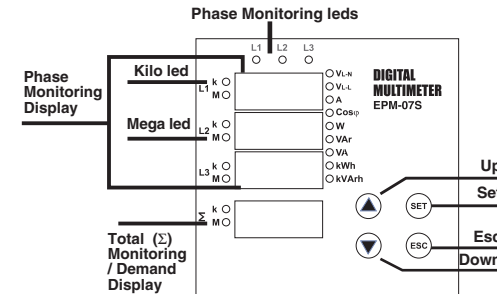
Demand and Maximum Demand
 Demand is average of power for the demand time. Demand time can be changed between 1-60 minutes.
 Maximum demand is the max. value of the average power values measured during demand time. If the new average value exceeds the maximum demand value, the new demand value is recorded as maximum demand.

Watching of Min.,Max. and Demand Values:

Min. and Max. values are defined for Active Power (W), reactive power (VAr) and apparent power (VA). Demand values are defined for total active power (ΣW), total reactive power (ΣVAr) and total apparent power (ΣVA). When these power values are displayed, if "UP" button is pressed, maximum demand values for total active / reactive / apparent power are displayed. If "DOWN" button is pressed demand values for total active / reactive / apparent power are displayed.

If measured instant value is smaller than min. value which was stored before, it is stored as new min. value. If measured instant value is greater than max. value which was stored before, it is stored as new max. value.
 Demand value is the smallest value of the measured values in demand time. If the smallest value of the measured values (for example 15 minutes) in demand time is greater than the demand value which was stored before, it is stored as new demand value.

When one of defined parameters is displayed, if "UP/DOWN" button is pressed, min., max or demand values are displayed. When an undefined parameter is displayed, if "UP/DOWN" button is pressed, instant value is continued to display. For example when power factor is displayed, instant values are continued to display because min., max. and demand values are undefined for this parameter.



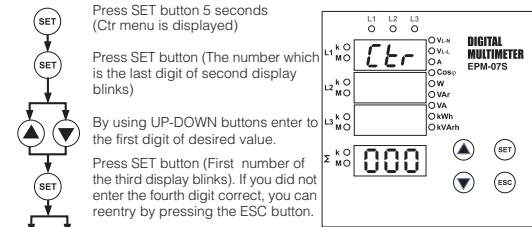
FUNCTIONS OF BUTTONS

- ▲ Press SET button for 5 seconds (Ctr menu is displayed)
- ▼ Press SET button (The number which is the last digit of second display blinks)
- ⊕ By using UP-DOWN buttons enter to the first digit of desired value. Press SET button (First number of the third display blinks). If you did not enter the fourth digit correct, you can reentry by pressing the ESC button.
- ⊖ By using UP-DOWN buttons, enter to the third digit of desired value. Press SET button (The number which is in the middle of the third display blinks). If you did not enter the third digit correct, you can reentry by pressing the ESC button.
- ▲ By using UP-DOWN buttons, enter to the second digit of desired value. Press SET button (The number which is the last digit of third display blinks). If you did not enter the second digit correct, you can reentry by pressing the ESC button.
- ▼ By using UP-DOWN buttons, enter to the last digit of desired value. Press set button, Ctr is displayed. (Data is entered but is not activated yet. For activating the new data, please follow the below steps).
- ⊕ Press ESC button one by one until (SAU Set yES) appears at the display. Press SET button when (SAU Set yES) appears at the display. When SAU Set yES appears at the display, if you push ESC button or choose "no" option instead of "yES" option by using UP-DOWN buttons, new data will be cancelled and previous value will be activated.

Current Transformer Ratio Setup

Ctr In this menu, current transformer ratio is adjusted.

Note: If the current transformer is not used between the system and EPM-07S, current transformer ratio is entered as "1".
Example: If a current transformer which has a ratio of 250/5A is used between the system and EPM-07S; Current transformer ratio is entered as
 = 250/5
 = 50



- ▲ Press SET button for 5 seconds (Ctr menu is displayed)
- ▼ Press SET button (The number which is the last digit of second display blinks)
- ⊕ By using UP-DOWN buttons, enter to the first digit of desired value. Press SET button (First number of the third display blinks). If you did not enter the fourth digit correct, you can reentry by pressing the ESC button.
- ⊖ By using UP-DOWN buttons, enter to the third digit of desired value. Press SET button (The number which is in the middle of the third display blinks). If you did not enter the third digit correct, you can reentry by pressing the ESC button.
- ▲ By using UP-DOWN buttons, enter to the second digit of desired value. Press SET button (The number which is the last digit of third display blinks). If you did not enter the second digit correct, you can reentry by pressing the ESC button.
- ▼ By using UP-DOWN buttons, enter to the last digit of desired value. Press set button, Ctr is displayed. (Data is entered but is not activated yet. For activating the new data, please follow the below steps).
- ⊕ Press ESC button one by one until (SAU Set yES) appears at the display. Press SET button when (SAU Set yES) appears at the display. When SAU Set yES appears at the display, if you push ESC button or choose "no" option instead of "yES" option by using UP-DOWN buttons, new data will be cancelled and previous value will be activated.

Voltage Transformer Ratio Setup

Utr In this menu, voltage transformer ratio is adjusted.

Note: If the voltage transformer is not used between the system and EPM-07S, voltage transformer ratio is entered as "1".
Example: If a voltage transformer which has a ratio of 34.5KV/100V is used between the system and EPM-07S; Voltage transformer ratio is entered as
 = 34500/100
 = 345

- ▲ Press SET button for 5 seconds (Ctr menu is displayed)
- ▼ By using UP-DOWN buttons, find the Utr menu. Press SET button (The number which is the last digit of second display blinks)



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By using UP-DOWN buttons, enter to the fourth digit of desired value.

Press SET button (First number of the third display blinks). If you did not enter the fourth digit correct, you can reenter by pressing the ESC button.

By using UP-DOWN buttons, enter to the third digit of desired value.

Press SET button (The number which is in the middle of the third display blinks). If you did not enter the third digit correct, you can reenter by pressing the ESC button.

By using UP-DOWN buttons, enter to the second digit of desired value.

Press SET button (The number which is the last digit of third display blinks). If you did not enter the second digit correct, you can reenter by pressing the ESC button.

By using UP-DOWN buttons, enter to the last digit of desired value.

Press SET button, Utr is displayed. (Data is entered but is not activated yet. For activating the new data, please follow the below steps.)

Press ESC button one by one until (SAU SET yES) appears at the display.

Press SET button when (SAU SET yES) appears at the display. When SAU SET yES appears at the display, if you press ESC button or choose "no" option instead of "yES" option by using UP-DOWN buttons, new data will be cancelled and previous value will be activated.

Demand Time Setup:

dt In this menu, demand time is adjusted.

Press SET button for 5 seconds (Ctr menu is displayed).

By using UP-DOWN buttons, find the dt menu.

Press SET button (The number which is in the middle of the third display blinks.)

By using UP-DOWN buttons, enter to the first digit of desired value.

Press SET button (The number which is the last digit of third display blinks). If you did not enter the second digit correct, you can reenter by pressing the ESC button.

By using UP-DOWN buttons, enter to the second digit of desired value.

Press set button, dt is displayed. (Data is entered but is not activated yet. For activating the new data, please follow the below steps.)

Press ESC button one by one until (SAU SET yES) appears at the display.

Press SET button when (SAU SET yES) appears at the display. When SAU SET yES appears at the display, if you press ESC button or choose "no" option instead of "yES" option by using UP-DOWN buttons, you quit from adjustment menu without saving new settings and device continues to work with previous settings.

Monitoring and Resetting of minimum and maximum values:

CLr In this menu, min. values, max. value or energy counters are reset. It saves the instantaneously measured min. and max. values of EPM-07S into its memory. Please kindly look at to the section of **FUNCTIONS OF BUTTONS** for min. and max. values.

dE **En** **Note:** Informations which are saved to the memory are not affected from the electricity interruptions.

In the CLr dE or En menu ; when you choose and quit from all menus, if you confirm the changes, min. and max. values of all parameters or values of energy counters are reset at the same time. **For resetting the values of min. and max. or energy counter:** In the measurement mode.

Press SET button for 5 seconds (Ctr menu is displayed)

By using the UP-DOWN buttons find the CLr dE or En menu.

Press SET button (CLr dE no menu is displayed)

By using the UP-DOWN buttons ; If you want to delete the values choose yES, if not choose no.

Press SET button. (CLr dE is displayed)

Press ESC button.

User password Setup:

In this menu user password is defined and activated. You must define and activate a 4 digit user password for preventing device settings from the illegal usage. There are 2 sub menus under the Pin menu.

Changing of User Password:

This menu is used for changing the user password . **Note:** Factory default value for user password is "1234" For changing the user password; In the measurement mode ;

Press SET button for 5 seconds (Ctr menu is displayed)

By using UP-DOWN buttons, find Pin menu.

Press SET button (Pin Act menu is displayed.)

By using the UP-DOWN buttons, find Pin Chg menu.

Press SET button

By using UP-DOWN-SET button, enter the old password

By using UP-DOWN-SET button, enter the new password

By using UP-DOWN-SET button, reenter the new password.

Press SET button, Pin Chg is displayed. (Data is entered but is not activated yet. For activating the new data, please follow the below steps.)

Press ESC button one by one until (SAU SET yES) appears at the display.

Press SET button when (SAU SET yES) appears at the display. When SAU SET yES appears at the display, if you push ESC button or choose "no" option instead of "yES" option by using UP-DOWN buttons, you quit from adjustment menu without saving new settings and device continues to work with previous settings.

Activating the user password:

This menu is used for activating the user password. After the user password is activated for entering to the menus; while the instant values are observed, user password is required. When the (P) button is pressed for 5 seconds. If the wrong user password is entered user can not enter to the menus.

Note: Factory default value of user password is "1234" For activating the user password, In the measurement mode ;

Press SET button for 5 seconds.

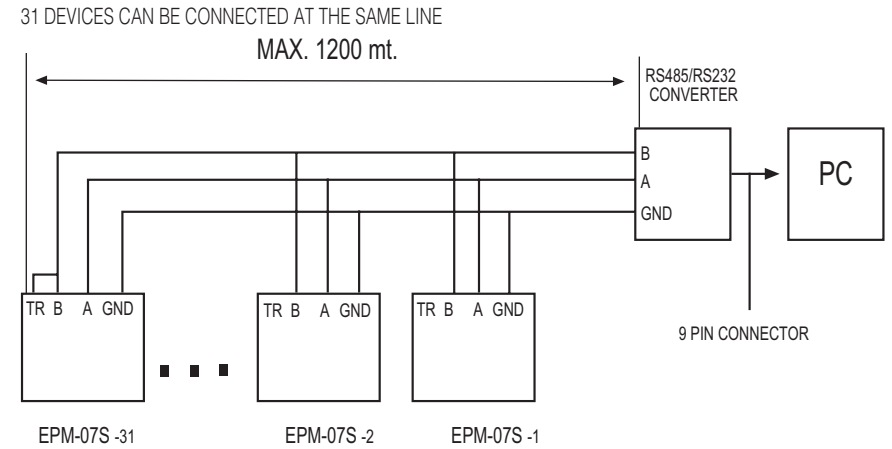
By using UP-DOWN buttons, find Pin menu.

Press SET button (Pin Act menu is displayed.)

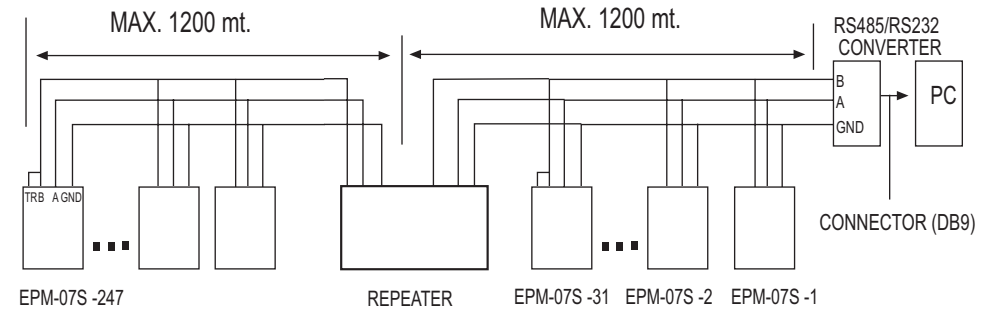
Press SET button (The number which is the last digit of second display blinks)

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EPM-07S PC CONNECTION

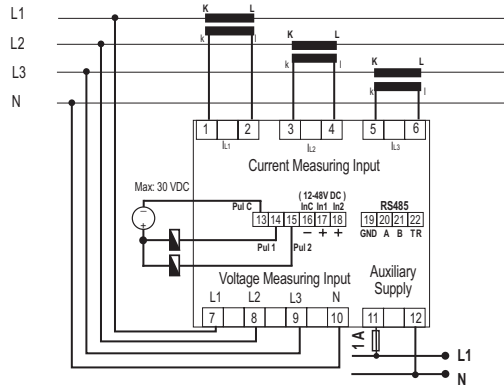


UP TO 247 DEVICES CAN BE CONNECTED AT THE SAME LINE BY USING REPEATER.

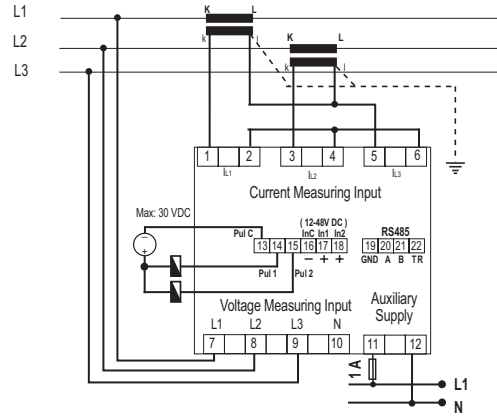


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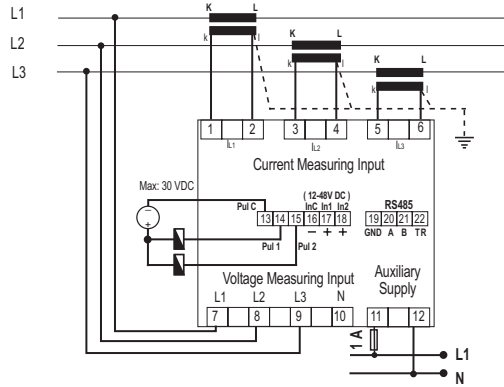
PR 19 Box Connection Diagram



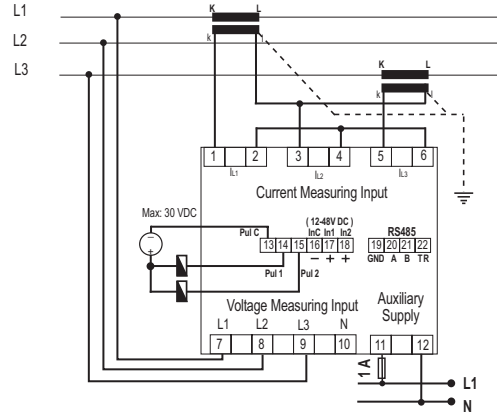
3 Phase neutral



3 Phase without neutral current input with Aron wiring configuration



3 Phase without neutral



3 Phase without neutral current input with Aron wiring configuration

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By using UP-DOWN buttons, enter to the first digit of desired value.

Press SET button (First number of the third display blinks). If you did not enter the first digit correct, you can reenter by pressing the ESC button

By using UP-DOWN buttons, enter to the second digit of desired value.

Press SET button (The number which is in the middle of the third display blinks. If you did not enter the third digit correct, you can reenter by pressing the ESC button)

By using UP-DOWN buttons, enter to the third digit of desired value

Press SET button (The number which is the last digit of third display blinks). If you did not enter the third digit correct, you can reenter by pressing the ESC button)

By using UP-DOWN buttons, enter to the last digit of desired value.

Press SET button, Pin AC1 of I is displayed (Data is entered but is not activated yet. For activating the new data, please follow the below steps)

Press ESC button one by one until (SAU SET yES) appears at the display.

Press SET button when (SAU SET yES) appears at the display. When SAU SET yES appears at the display, if you press ESC button or choose "no" option instead of "yES" option by using UP-DOWN buttons, new data will be cancelled and previous value will be activated.

Serial Communication

EPM-07S has MODBUS RTU communication protocol which is optical isolated. All measured parameters can be saved to the computer. Transformer ratios and communication parameters can be set. Saved demand and energy values can be reset.

Parameter Settings Device Address Setting

Press SET button for 5 seconds

By using UP-DOWN buttons, find *Addr* menu.

Press SET button again.

By using UP-DOWN buttons adjust the desired value.

Press SET button for saving the new value.

Press ESC button one by one until (SAU SET yES) appears

Press SET button when (SAU SET yES) appears at the display. When SAU SET yES appears at the display, if you press ESC button or choose "no" option instead of "yES" option by using UP-DOWN buttons, you quit from adjustment menu without saving new settings and device continues to work with previous settings.

Baud Rate Setting

Baud Rate can be set as a value of 1200,2400,4800,9600,19200, 38400 bps

Press SET button for 5 sec.

By using UP-DOWN buttons, find *bRU* menu

Press SET button again.

By using UP-DOWN buttons, adjust the desired value.

Press SET button for saving the new value.

Press ESC button one by one until (SAU SET yES) appears

Press SET button when (SAU SET yES) appears at the display. When SAU SET yES appears at the display, if you press ESC button or choose "no" option instead of "yES" option by using UP-DOWN buttons, you quit from adjustment menu without saving new settings and device continues to work with previous settings.

Parity Setting:
Parity can be set as NO, ODD or EVEN.

Press SET button for 5 seconds

By using UP-DOWN buttons, find *PRr* menu.

Press SET button again.

By using UP-DOWN buttons adjust the desired value.

Press SET button for saving the new value.

Press ESC button one by one until (SAU SET yES) appears

Press SET button when (SAU SET yES) appears at the display. When SAU SET yES appears at the display, if you press ESC button or choose "no" option instead of "yES" option by using UP-DOWN buttons, you quit from adjustment menu without saving new settings and device continues to work with previous settings.

IMPORTANT NOTE : In order communicate with ENTES MPR-SWsoftware baudrate value must be set as 38400 bps and parity must be selected as "no"

MODBUS RTU PROTOCOL

Standart MODBUS RTU message is shown below.

T	ADDRESS 8 BIT	FUNCTION 8 BIT	DATA NX8BIT	CRCH	CRCL	T
---	------------------	-------------------	----------------	------	------	---

The T times corresponds to a time in which data must not be exchanged on the communication bus to allow the connected devices to recognize the end of one message and the beginning of another. This time must be at least 3.5 characters at the selected baud rate. Address range (1-247) is address of the connected device. The data field contains data sent to the slave by master or data sent to master by slave.

CRC is a error check method by using MODBUS RTU protocol and consists of 2 bytes.

Available Modbus Function:

03H	READ HOLD REGISTERS
06H	PRESET SINGLE REGISTER
10H	PRESET MULTIPLE REGISTERS

Read Hold (03) function is used for reading measured values and transformers ratio. Registers can be read are between 0-49. For example to read phase1 voltage;

01 03 00 00 00 01 84 0A

- 01 Device adress
- 03 Function
- 00 MSB adress
- 00 LSB adress
- 00 Register number MSB
- 01 Register number LSB
- 84 CRC MSB
- 0A CRC LSB

Preset Single Register (06) function is used to set transformer ratio or for clearing one of min.,max., Demand values.

Current transformers ratio can be set 1-2000, voltage transformer ratio can be set 1-2000 min.,Max. and Demand values can be only clear. If sent value is outside of this range device responds with an error message.

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Setting CT to 100;

Setting CT to 100, Ut to 20.0 ;

01 06 00 42 00 64 D8 35

01 Device Address
06 Function
00 MSB adres
42 LSB adres
00 Data MSB
64 Data LSB
D8 CRC MSB
35 CRC LSB

01 10 00 41 01 00 02 04 00 C8 00 64 84 8F

01 Device Address
10 Function
00 MSB adres
41 LSB adres
00 Register number MSB
02 Register number LSB
04 Byte count
00 Data MSB
C8 Data LSB
00 Data MSB
64 Data LSB
84 CRC MSB
8F CRC LSB

Preset Multiple Register(10H) is used to set more then one register at same time.

NO	ADDRESS(HEX)	FORMAT	UNIT	DESCRIPTION
0	00	int	V	L1 VOLTAGE
1	01	int	V	L2 VOLTAGE
2	02	int	V	L3 VOLTAGE
3	03	int	V	L1-2 VOLTAGE
4	04	int	V	L2-3 VOLTAGE
5	05	int	V	L3-1 VOLTAGE
6	06	int	A	L1 CURRENT
7	07	int	A	L2 CURRENT
8	08	int	A	L3 CURRENT
9	09	int	W	L1 ACTIVE POWER
10	0A	int	W	L2 ACTIVE POWER
11	0B	int	W	L3 ACTIVE POWER
12	0C	int	W	TOTAL ACTIVE POWER
13	0D	int	VAR	L1 REACTIVE POWER
14	0E	int	VAR	L2 REACTIVE POWER
15	0F	int	VAR	L3 REACTIVE POWER
16	10	int	VAR	TOTAL REACTIVE POWER
17	11	int	VA	L1 APPARENT POWER
18	12	int	VA	L2 APPARENT POWER
19	13	int	VA	L3 APPARENT POWER
20	14	int	VA	TOTAL APPARENT POWER
21	15			L1 COS
22	16			L2 COS
23	17			L3 COS
24	18			AVERAGE COS
25	19	int	W	ACTIVE DEMAND
26	1A	int	VAR	REACTIVE DEMAND
27	1B	int	VA	APPARENT DEMAND
28	1C	int	W	ACTIVE MAX. DEMAND
29	1D	int	VAR	REACTIVE MAX. DEMAND
30	1E	int	VA	APPARENT MAX. DEMAND
31	1F	int	W	L1 MAX. ACTIVE POWER
32	20	int	W	L1 MIN. ACTIVE POWER
33	21	int	W	L2 MAX. ACTIVE POWER
34	22	int	W	L2 MIN. ACTIVE POWER
35	23	int	W	L3 MAX. ACTIVE POWER
36	24	int	W	L3 MIN. ACTIVE POWER
37	25	int	VAR	L1 MAX. REACTIVE POWER
38	26	int	VAR	L1 MIN. REACTIVE POWER
39	27	int	VAR	L2 MAX. REACTIVE POWER
40	28	int	VAR	L2 MIN. REACTIVE POWER
41	29	int	VAR	L3 MAX. REACTIVE POWER
42	2A	int	VAR	L3 MIN. REACTIVE POWER
43	2B	int	VA	L1 MAX. APPARENT POWER
44	2C	int	VA	L1 MIN. APPARENT POWER
45	2D	int	VA	L2 MAX. APPARENT POWER
46	2E	int	VA	L2 MIN. APPARENT POWER
47	2F	int	VA	L3 MAX. APPARENT POWER
48	30	int	VA	L3 MIN. APPARENT POWER
49	31			
50	32			IMPORT ACTIVE ENERGY
51	33			
52	34		kWh	
53	35		kWh	EXPORT ACTIVE ENERGY
54	36		kWh	
55	37		kWh	
56	38		kWh	
57	39		kVAh	IMPORT REACTIVE ENERGY
58	3A		kVAh	
59	3B		kVAh	
60	3C		kVAh	
61	3D		kVAh	EXPORT REACTIVE ENERGY
62	3E		kVAh	
63	3F		kVAh	
64	40		kVAh	
65	41			VOLTAGE TRANSFORMER RATIO
66	42			CURRENT TRANSFORMER RATIO
67	43		sec.	DEMAND TIME
68	44			DIGITAL INPUTS
69	45			ADDRESS
70	46		bps	BAUD
71	47			PARITY
72	48			PASSWORD
73	49			PASSWORD ACTIVATION

The Parameters are sent in 16bit Hexadecimal format. For Example, 230V voltage will be sent as 00E6H. Cosφ values shall be divided to 100. 0.98 Cosφ will be sent as 0062H. While Cosφ is a negative value the MSB bit will be sent as '1'. Energy values are sent in 8 bytes (in decimal). 1234567891234,567 kWh = 12 34 56 78 91 23 45 67 / 1000

Specifications for data cable ;
- 24 AWG or thicker
- Less than 100 ohm/ km
- Nominal characteristic impedance at 100 kHz of 100 ohms
- Less than 60 pF/m mutual capacitance (between two wires in a pair)
- Less than 120 pF/m mutual pair capacitance (the capacitance between one wire and all others connected to earth).
- Twisted Pair

ERROR CODES

Slave device (EPM-07S) sends error message when receive any missing query. Error codes are given below.

01 ILLEGAL FUNCTION : If any message except given above is used, then 01 error messages will be sent.

02 ILLEGAL DATA ADDRESS : EPM-07S uses registers between 0 and 57. If any message is been sent out of this range, then 02 error message will be sent.

03 ILLEGAL DATA VALUE : If any different value is been set for dedicated Transformer values and nonzero for demand value, then error message 03 will be sent.

MPR-SW serial Interface Software

MPR-SW Software is designed for use with EPM-07S device and analyze its measurement values. MPR-SW is able to view realtime measurements and parameters on a PC screen. The software records all parameters and values into a database for future graphical analysis. The Graphical Analysis is designed flexible for view past records in hour, day and month periods. Inductive/Reactive and Capacitive/Reactive values can be viewed on the main window. Energy reports can also be viewed between specific dates.

You may change setup parameters using the MPR-SW Software: Set Transformer ratios, Reset Energy and Demand values and change the device address up to 247. MPR-SW can communicate with multiple (max. 247) EPM-07S devices.

MPR-SW Software Setup

Insert the Setup CD into the CD-ROM drive. Browse the CD by double clicking "My Computer" and "CD-Rom" icons. Run "Setup.EXE by double clicking its icon or use the "START" menu button and choose "Run". Write "d:\setup.exe" into the text box opened below. The setup program will install the software to your computer.

Run The MPR-SW Program :

The setup software will install the MPR-SW-1/SW-2 Software under C:\Program files\Entes directory. You may browse and run it



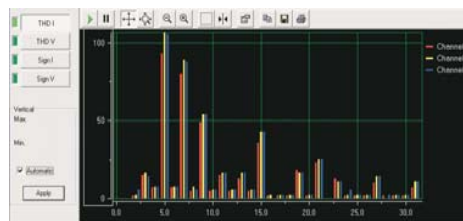
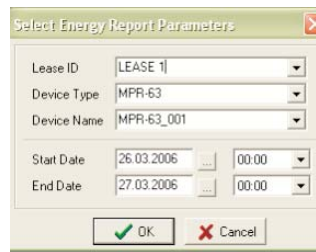
Clicking the "START" button on the main window, starts the real time analysis of EPM-07S device values. "SETTINGS" button is for setting up communication parameters (Address, Parity, Baud Rate) between the PC and EPM-07S device. Both side parameters should be the same for correct data transmission. There are "CLEAR ENERGY" and "CLEAR DEMAND" buttons for resetting those values. Transformer ratio is able to setup with the "TRANS.RATIOS" button on the main menu.



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Graphic Button and Statistics :

The Graphic menu, shows records and values for past 1 year period on a graphical interface. Users are able to choose the statistics period, hourly, daily and monthly from the window shown below.



IMPORTANT NOTICE:

Please use the software's own EXIT buttons while quitting the menu or the Main Window.

PRECAUTIONS FOR INSTALLATION AND SAFE USE

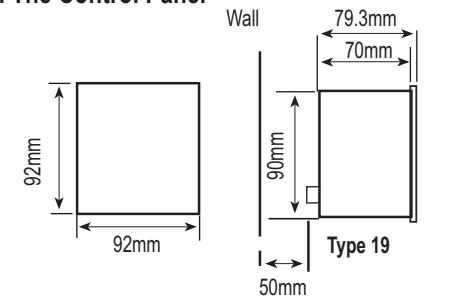
- Failure to follow those instructions will result in death or serious injury.
- Disconnect all power before working on equipment..
- When the device is connected to the network, do not remove the front panel.
- Do not try to clean the device with solvent or the like. Only clean with dry cloth.
- Verify correct terminal connections when wiring.
- Electrical equipment should be serviced only by your component seller.
- No responsibility is assured by manufacturer or any of its subsidiaries for any consequences arising out of the use of this material.
- Only for rack panel mounting.

TECHNICAL DATA

- Operating Voltage (Un) : Please look at the back labels on the device
- Operating frequency (f) : 50/60 Hz
- Auxiliary supply Power Consumption : < 4 VA
- Measuring Input Power Consumption : < 1VA
- V_{in} : 10-300VAC 50/60Hz. (L-N)
: 10-500VAC 50/60Hz. (L-L)
- I_{in} : 0.05 - 5.5 A-
- Measuring Range : 0...999 M(W,VAR,VA)
: 999999999.999 kWh,kVAh
- Measuring Category : CAT III
- Class : 1±1 digit [(%10-%110) xFull Scale]
- Voltage Transformer Ratio : 1 ... 2000
- Current Transformer Ratio : 1 ... 2000
- Demand Time : 1-60 min. (programmable)
- Serial Interface : MODBUS RTU (RS 485)
: Optically Isolated, programmable
: Baud Rate 1200-38400 bps
: Address 1-247

- Pulse Output : NPN Transistor
- Switch Period : Min. 1.6 Sec. (400 msec pulse width)
- Operation Current : Max. 50 mA
- Operation Voltage : 5...24 V DC, max. 30 VDC
- Input : 12...48 V DC
- Ambient Temperature : -5°C; +50°C
- Display : Red LED Display
- Dimensions : PR-19
- Equipment Protection Class : Double Insulation-Class II (□)
- Box Protection Class : IP 40
- Box Material : Non-flammable
- Installation : Panel Mounted (PR-16, PR-19)
: Rail Mounted (PK-26)
- Wire Thickness(for terminal block) : 2.5 mm²
- Weight : 0.45 kg (PR-19, PK-26)
: 0.8 kg (PR-16)
- Installation Category : Class III

The area Measurements on The Control Panel



Dimensions

