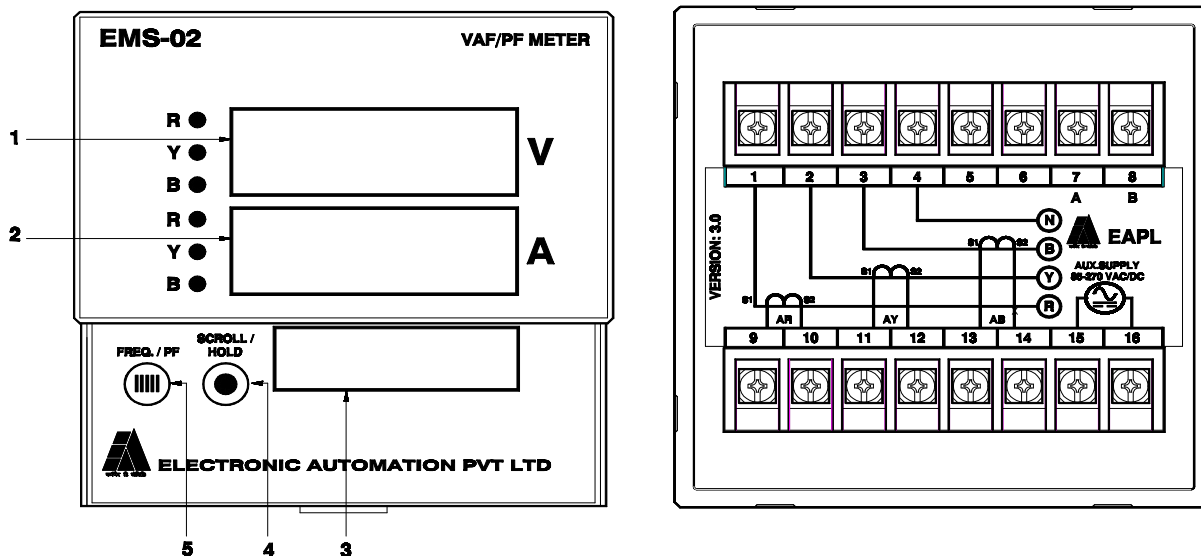


FUNCTION: Energy Management System acts as a monitoring system & can cater to various industries like cement plants, power plants, steel plants, individual machineries, commercial establishments, small & large scale industries etc., which helps to understand, evaluate & correct their existing energy deficiencies to a better and proper energy usage. It helps the user to have statistics like energy used, the major loads and when power is used to the maximum. These EMS instruments' being microcontroller based, provides excellent centralized power monitoring and control facility, thus facilitating timing in machinery, precision in other readings.

DESCRIPTION :



- 1) **Display 1(Top Display):** Scrolls through all individual phases (L-N) and (L-L)of voltage values.
- 2) **Display 2 (Middle Display):** Scrolls through all individual phases (L-N) of current values
- 3) **Display 3 (Bottom Display):** Displays the numerical values of the Average Frequency or Total Power Factor (as selected).
- 4) **Scroll / Hold :** This button is used to scroll through all the parameters one by one or hold the display in any one parameter in window 1&2.
- 5) **Frequency / PF (Only for EMS 02):** This button is used for selecting either frequency or PF values in the bottom window.

| | | | |
|-------------|--------------|-------------|--------------|
| SIGN & DATE | PREPARED BY: | CHECKED BY: | APPROVED BY: |
|-------------|--------------|-------------|--------------|



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- 6) **SELECT (EMS 18 only):** This button is used to select the values during programming:
7) **LED:** Indicates the respective voltage and current.

HOW TO INSTALL...?

- 1) Connect all 3 phases and Neutral voltage wires to 1, 2, 3, and 4 terminals respectively and S1 and S2 of each phase (R Phase- S1-9, S2-10, Y Phase – S1-11, S2-12, B Phase- S1-13, S2-14) to the respective S1 and S2 terminals of similar phase current transformers as shown in the diagram given on the back panel (Fig.2)
IMPORTANT: Do not connect R Phase current transformers terminals to S1, S2 of Y or B phase on meter. Similar precaution should be taken for other phases also.
- 2) Connect rated (85 to 270 VAC/DC) auxiliary supply at terminal point 15 & 16.
- 3) When voltage is applied on auxiliary terminal, display starts showing parameters one by one in auto scrolling mode. Following are the parameters displayed.

| PARAMETERS | | EMS-02 | EMS-18 |
|------------|-----------------------|--------|--------|
| BASIC | V L-N (R, Y, B) | ✓ | ✓ |
| | V L-L (R-Y, Y-B, B-R) | ✓ | ✓ |
| | Ampere (R,Y,B) | ✓ | ✓ |
| | Frequency | ✓ | ✓ |
| | Total PF | ✓ | |

- 4) Scroll button can be pressed to select either scrolling of parameters or holding on to any one of the parameters.

HOW TO PROGRAM...?**For EMS 02:**

- Press simultaneously both “**Freq. / PF button**” & “**Scroll / hold**” buttons to enter into programming.
- The top window displays CT-PRI & middle window displays previous set value with “MSD2” blinking.
- Press “**Scroll/Hold**” button to change the value of the blinking digit.
- Press “**Freq./PF**” button to select the next digit. Second digit will start blinking on selection.
- CT- PRI value can be set from 1- 6000.
- CT-SEC value can be set from 1- 5.
- Device Id can be set from 1 to 247
- Baud rate can be set for 2400, 4800 and 9600

For EMS 18:

- Press “**SELECT**” buttons to enter into programming.
- The top window displays CT-PRI & middle window displays previous set value with “MSD2” blinking.
- Press “**Scroll/Hold**” button to change the value of the blinking digit.
- Press “**SELECT**” button to select the next digit. Second digit will start blinking on selection.
- CT- PRI value can be set from 1- 6000.
- CT-SEC value can be set from 1- 5.
- Device Id can be set from 1 to 247
- Baud rate can be set for 2400, 4800 and 9600

SIGN & DATE

PREPARED BY:

CHECKED BY:

APPROVED BY:



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OPERATING INSTRUCTIONS
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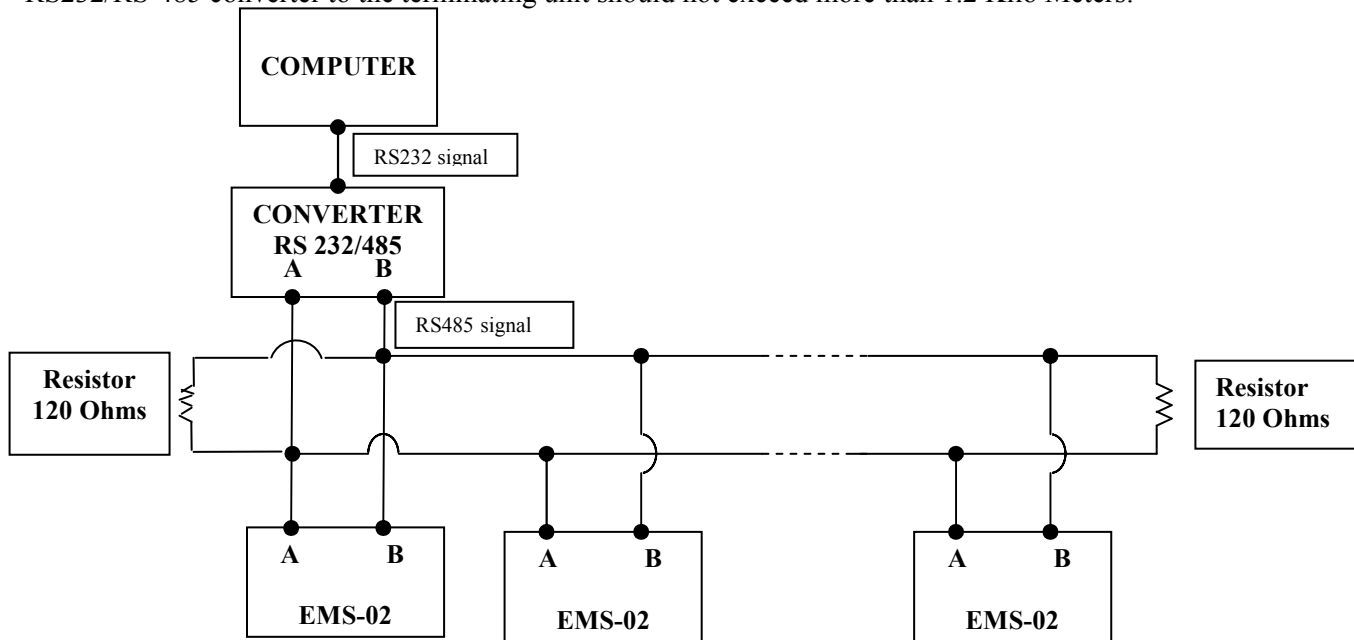
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Communication Port:

RS-485: Connect terminals '7' & '8' from the unit ('A' & 'B' terminals from the unit) to the converter terminals 'A' & 'B'. And connect the other end of the converter having DB-9 pin serial port to the computer (distance should be less than 5 meters). Multiple units that can be connected in daisy chain fashion as shown in Fig.3. Maximum units that can be connected will be up to 32 units & terminate the network with 120 ohms resistor. Transmission distance between RS232/RS-485 converter to the terminating unit should not exceed more than 1.2 Kilo Meters.



NOTE:

- Ensure that MCB protection is available between input bus bar and the unit.
- Ensure that PT ratio is inline with the PT name plate provided on the PT used.
- Ensure that CT ratio is inline with the CT name plate provided on the CT used.
- Ensure that in 3 phase 4 wire system CT's that are not connected to the unit should be shorted. S1 & S2 of the unused phase in the unit need not be shorted.
- Ensure that all terminals are tightened securely.
- Clear the energy as soon as meter is installed.
- Blinking of display could indicate over voltage cut off. Switch off the unit for 20 seconds to reset the resettable fuse and switch on the unit.
- Since it is a high voltage device, while connecting and operating, precautions are must and only licensed people should handle it.
- For any operation including taking it out, the power should also completely switched off.
- EAPL is not responsible for any consequential damages arising out of use of our products, though the technology is cautiously chosen & implemented like any other well designed good electric meter.
- For forgotten password, please feel free to contact EAPL (080-42802345) with product batch number as well as serial number.

SIGN & DATE

PREPARED BY:

CHECKED BY:

APPROVED BY: