

OPERATING INSTRUCTIONS

VAF39



96 x 96

FEATURES

- Display : 3 lines, 3 digits per line.
- Auto / manual page scrolling.
- Programmable CT primary current.

SPECIFICATIONS

Display

3 lines, 3 digits per line, 7 Segment Red LED display, Digit height 0.5".

Display update time

2 sec

Electrical input type

3 phase 4 wire and Single phase.

Rated input voltage

Line to Neutral : 90 to 270 VAC max.

Rated input current

Nominal 5 A max. (0.1A min.)

Frequency

50 Hz

CT Current

Programmable from 5 to 5000 A

Burden

0.2 VA max. per phase.

Resolution

| Parameters | CT Primary | Resolution |
|------------|-------------------------|------------|
| Current | ≤ 10 | 0.01A |
| | > 10 and ≤ 100 | 0.1A |
| | > 100 and ≤ 1000 | 1A |
| | > 1000 | 0.01 kA |

Parameter measured/displayed:

| Parameters | Phase | Unit |
|------------|--|------|
| Voltage | V_{L-N} , V_{L-L} V_{avg} , V_{L-N} , V_{avg} , V_{L-L} | V |
| Current | I_1 , I_2 , I_3 , I_{avg} | I |
| Frequency | Hz | Hz |

Accuracy Table:

| Parameters | Accuracy |
|---------------------------|--|
| Voltage V_{L-N} | $\pm 0.5\%$ of F.S. + ± 2 digit |
| Voltage V_{L-L} | $\pm 0.5\%$ of F.S. + ± 2 digit |
| Average Voltage V_{L-N} | $\pm 0.5\%$ of F.S. + ± 2 digit |
| Average Voltage V_{L-L} | $\pm 0.5\%$ of F.S. + ± 2 digit |
| Phase current I | $\pm 1\%$ of F.S. + ± 2 digit @ 50 Hz |
| Average current I_{avg} | $\pm 1\%$ of F.S. + ± 2 digit @ 50 Hz |
| Frequency | ± 0.1 Hz |

Temperature

Operating: 0 to 50 °C
Storage: -20 to 75 °C

Humidity

85% non condensing.

Mounting

Panel mounting.

Weight

210 gms

SAFETY SUMMARY

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

CAUTION: Read complete instruction prior to installation and operation of the unit.

CAUTION: Risk of electric shock.

WIRING GUIDELINES

CAUTION:

1. To prevent the risk of electric shock power supply to the equipment must be kept OFF while doing the wiring arrangement.
2. Wiring shall be done strictly according to the terminal layout. Confirm that all connections are correct.
3. Use lugged terminals.
4. To eliminate electromagnetic interference use of wires with adequate ratings and twists of the same in equal size shall be made.
5. Cable used for connection to power source, must have a cross section of 1.5mm². These wires shall have current carrying capacity of 5A.

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.

INSTALLATION GUIDELINES

CAUTION:

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. Conductors must not come in contact with the internal circuitry of the equipment or else it may lead to a safety hazard that may in turn endanger life or cause electrical shock to the operator.

3. Before disconnecting the secondary of the external current transformer from the equipment, make sure that the current transformer is short circuited to avoid risk of electrical shock and injury.

CAUTION:

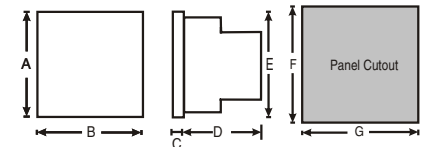
1. The equipment shall not be installed in environmental conditions other than those mentioned in this manual.
2. Thermal dissipation of equipment is met through ventilation holes provided on chassis of equipment. Such ventilation holes shall not be obstructed else it can lead to a safety hazard.
3. Connector screws must be tightened after installation.

MECHANICAL INSTALLATION:

For installing the meter follow the instructions given below.

1. Prepare the panel cutout with proper dimensions as shown below :

OVERALL DIMENSIONS (All dimensions in mm)



| MODEL | DIM | A | B | C | D | E | F | G |
|-------|-----|----|----|---|----|----|----|----|
| VAF39 | | 99 | 99 | 5 | 46 | 91 | 92 | 92 |

2. Push the meter into the panel cutout. Secure the meter in its place by pushing the clamp on the rear side. The screws of the panel of the clamp must be in the farthest forward slot.
3. For proper sealing, tighten the screws evenly with required torque.

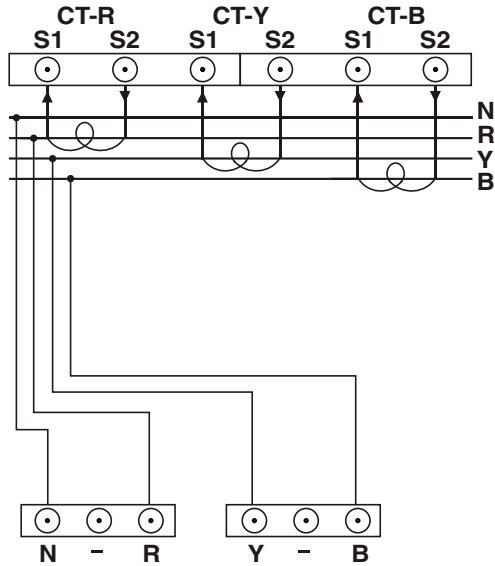
CAUTION:

The equipment in its installed state must not come in close proximity to any heating sources, caustic vapors, oils, steam, or other unwanted process by-products.

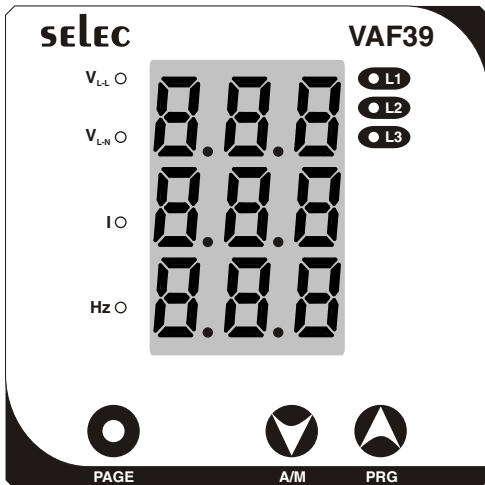
EMC Guidelines:

1. Use proper input power cables with shortest connections.
2. Layout of connecting cables shall be away from any internal EMI source.

TERMINAL CONNECTIONS:



FRONT PANEL DESCRIPTION



Keys Description

| Sr No | Functions | Key press |
|-------|--|--------------------------------------|
| 1 | To scroll through the pages in forward direction in manual mode. | ⬇️ + ⬆️ to next pages |
| 2 | To scroll through the pages in reverse direction in manual mode. | ⬆️ + ⬇️ to previous pages |
| 3 | To toggle between auto/manual scrolling. | ⬇️ (A/M) for three second |
| 4 | To enter in configuration mode. | ⬆️ (PRG) + ⬇️ (A/M) for three second |
| 5 | To increase and decrease the CT Primary value. | ⬆️ + ⬆️ Increase ⬆️ + ⬇️ Decrease |

CONFIGURATION SCHEME

- Continuous pressing ⬆️ (PRG) + ⬇️ (A/M) key for 3 seconds initiates the programming mode.
- Program settings are as given below:

| Key press | Display | Description |
|---|-----------------------------------|--------------------|
| 2. To configure CT primary Default setting: <input type="text" value="5"/> | | |
| | | CT Primary |
| Press ⬆️ + ⬇️ / ⬆️ | <input type="text" value="5"/> | Range: 5 to 5000 A |
| Display shows | <input type="text" value="1.00"/> | When CT is 1000 |

NOTE :

- Continuous operation of ⬆️ + ⬇️ / ⬆️ makes update speed faster in 3 stage after 7 seconds.
- CT updates in steps of 5 after CT setting has reached to 100, in steps of 10 after CT setting has reached 1000. Eg : After 1000, the display increments to 1.01 i.e. 1010. Hence, to set CT primary as 1600, program CT as 1.60

NOTE :

- Press ⬆️ (PRG) + ⬇️ (A/M) Key for 3 seconds to exit programming mode.
- The unit will auto exit programming mode if no key pressed for 60 sec.

Display Parameter Page Description

- There are two methods to scroll through the different parameter pages on the display.
- Auto mode.
 - Manual mode.

Auto mode:

In auto mode, it allows you to monitor all pages sequentially at an interval of 5 seconds without any key press . Each page contains 3 parameters. The parameter pages are shown below.
NOTE : By default the unit works in auto mode.

Manual mode:

In manual mode, using the ⬆️ + ⬇️ / ⬆️ keys different parameter pages can be viewed. The displayed page is seen until you manually change the page.

NOTE 1 :

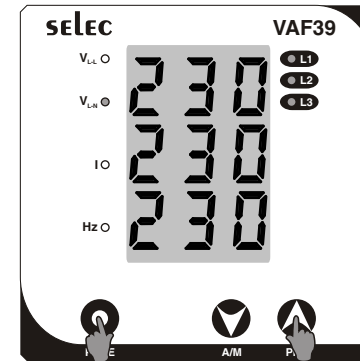
When meter turns to manual mode display shows momentarily.

When meter turns to auto mode display shows momentarily.

NOTE 2 :

- Shows LED ON or Blinks.
Blinking rate is 1.7 sec ON and 0.3 sec OFF.
- Shows LED OFF

PAGE 1:

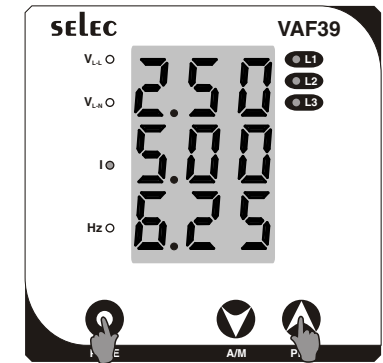


Display shows Line to Neutral Voltage (V_{L-N})

- V_{1-N} (V_{RN})
- V_{2-N} (V_{YN})
- V_{3-N} (V_{BN})

Press ⬆️ + ⬆️ to go in to next page

PAGE 2:



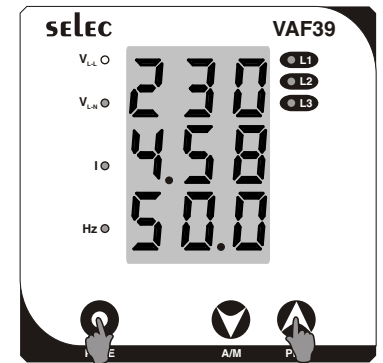
Display shows Current of each Phase.

- A1
- A2
- A3

*CT primary set at 5.

Press ⬆️ + ⬆️ to go in to next page

PAGE 3:



Display shows Av, Ac & Frequency

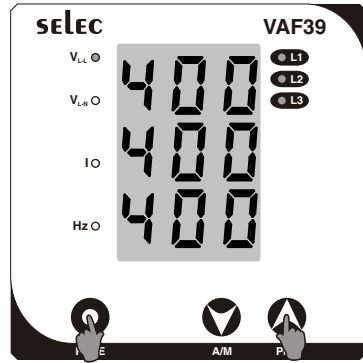
- Average voltage V_{L-N}
- Average Current
- Frequency

*CT primary set at 5

Press ⬆️ + ⬆️ to go in to next page

PAGE DESCRIPTION (CONTINUED)

PAGE 4:

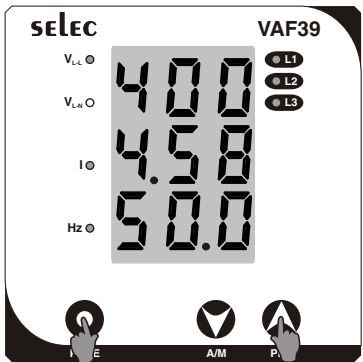


Display shows Line to Line Voltage (VL-L)

- 1) V_{12} (V_{RY})
- 2) V_{23} (V_{YB})
- 3) V_{31} (V_{BR})

Press + to go in to next page

PAGE 5:



Display shows Av, Ac & Frequency

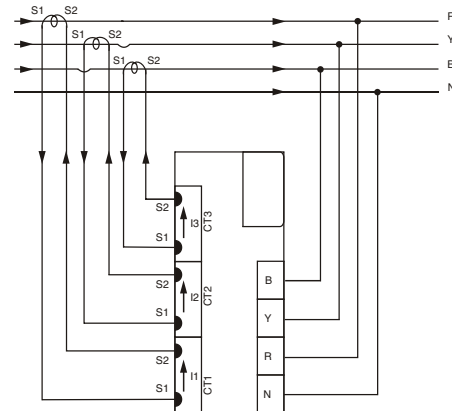
- 1) Average Voltage V_{L-L}
- 2) Average Current
- 3) Frequency

**CT primary set at 5.

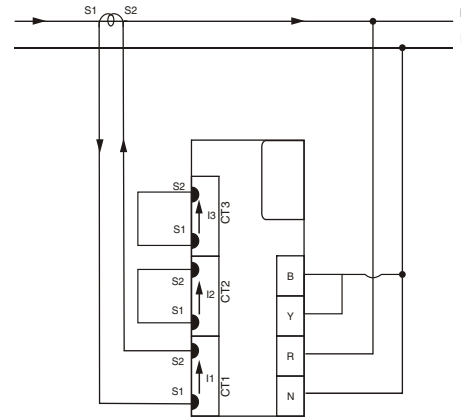
Press + to go in to first page

WIRING DIAGRAM

3 PHASE 4-WIRE WIRING DIAGRAM



SINGLE PHASE WIRING DIAGRAM



(Specifications subject to change as development is a continuous process.)

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