

3 PHASE PROTECTION METER RELAY

VAP

VAP

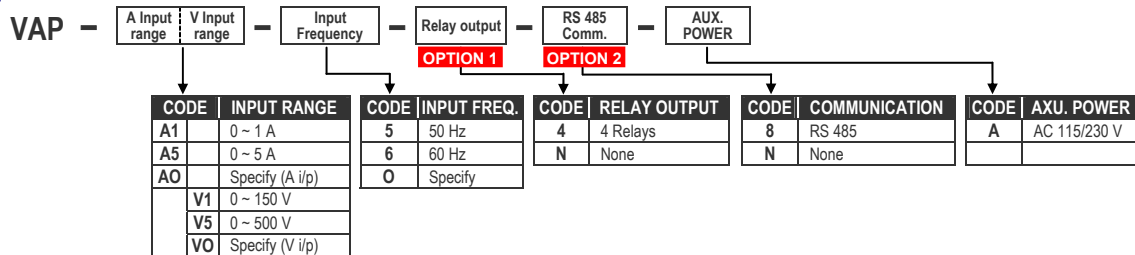
FEATURE

- TRMS measuring 3Phase Voltage & Current with six display screen
- Easily programmable parameter by front panel
- 4 relay with flexible trip functions for Over Voltage / Under Voltage / Over Current / Under Current / Un-balanced / Sequence reverse / Voltage Hi(Lo) Alarm / Current Hi(Lo) Alarm / DO / AD Error....
- 3 external control input for Reset for Relay latch / PV hold / Reset for Max. (Mini.) memorize / DI..
- Maximum & minimum measuring storage
- Build-in RS 485 communication port
- Outside dimensions is 1/4 DIN standard (96 x 96 mm)



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ORDERING INFORMATION



TECHNICAL DATA

Input & Accuracy

Measuring	Input Range	Input Burden	Display	Accuracy
TRMS V _{Line-Line} x 3 (Vab, Vbc, Vca)	0~150/500V _{eff} 50 or 60Hz	≤ 0.15 VA	0 ~ 9999	±0.2%FS
TRMS I x 3 (Ia, Ib, Ic)	0~1/5A 50 or 60Hz	≤ 0.10 VA	0 ~ 9999	±0.2%FS

- Connection: 3P3W with 3 voltage & 3 current
- Sampling: 20 samples/second
- Max. input over capability: Voltage: 1.5 x rated continuous
2 x rated for 10 seconds
4 x rated for 2 seconds
Current: 3 x rated continuous
10 x rated for 10 seconds (at 5A input)
50 x rated for 1 second (at 5A input)

Calibration

- Calibration: Digital calibration by front key
- PV compensation: **Front key adjustment to compensate PV for each phase voltage & current.**

Operating

- Programming: Four key for Enter (Function) / Shift / Up / Down
Up: increase the number / return back previous fun.
Down: decrease the number / go to next functions
Shift: move the flash digit position
Enter/Function: To enter functions & save parameter it is to be set
- Security function: 4 digits Password

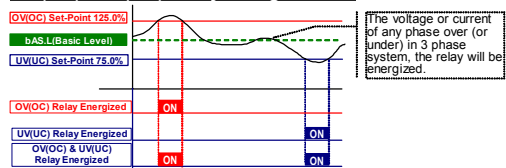
Display functions

- LED: Metering Value: 0.36" red high bright LED, 4 digits: 0~9999 for 6 screen
Relay trip indication: Square red LED
External control input indication: Square green LED
Communication: Square red LED
- Display update: 10 times/second (AvG = 1)
- Average function: AvG: 1~255 time average from sampling
- Moving Average function: M.AVG: 1~50 reading average from sampling
- Over-range indication: Showing "oFL"
- Ratio setting: PT or CT ratio: Primary & secondary are settable
Range of primary settable: 0~9999
Unit of primary selectable in KV / V & KA / A
- Display function: PV Hd: PV will be latched until reset

Control functions (optional)

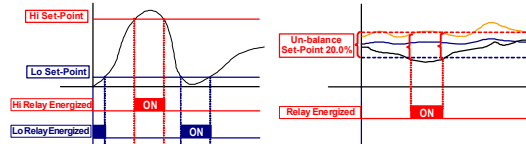
- Relay: 4 relay, 3A/230Vac, 5A/115V
Relay 2 & 3: SPDT, Relay 1 & 4: SPST
- Relay trip mode: Settable: OV / UV / OV & UV / OC / UC / Unbalance
Sequence reverse / Voltage Hi(Lo) alarm
Current Hi(Lo) alarm / DO / AD error
- OV(Over Voltage): Setting range: 100.0~125.0%
- UV(Under Voltage): Setting range: 75.0~100.0%
- OV & UV (Over & Under Voltage): Setting range: 0.0~25.0%
- OC(Over Current): Setting range: 100.0~125.0%
- OV(Over Current): Setting range: 75.0~100.0%

OV(OC) / UV(UC) Relay Energized



- Un-balance: Setting range: 0.0~+20.0%
Formula: (I_{phase-highest} - I_{phase-lowest}) / I_{phase-lowest}
- Voltage Hi(Lo) alarm: Setting range: 0~9999
- Current Hi(Lo) alarm: Setting range: 0~9999

Hi / Lo Relay Energized



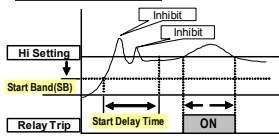
- DO(digit output): Relay can be trip by Modbus command directly
- AD Error: Relay can be trip when analog to digit converter fail
- Trip function: Start Delay / Trip delay(latch) / off delay / Hysteresis
Start delay band: setting range: 0~2000counts
Start delay time: setting range: 0:00.0~9(M):59.9(S)
setting range: 0:00.0~9(M):59.9(S)
- Trip delay: setting range: 0:00.0~9(M):59.9(S);
If it's to be set 9(M):60.0(S), the relay will be latched until force to reset by E.C.I. or reset function in user level
- OFF delay: Setting range: 0~2000counts
- Hysteresis: Setting range: 0~2000counts

A-11

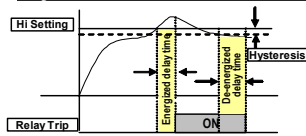
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Start Delay



Trip Delay / OFF Delay & Hysteresis



External control input (ECI)

- External control point: 3 DI points; Contact or Open collect input
- Function: **Reset for Relays latching / DI / PV Hold / Reset for Max. (Mini) memorize**
- Input mode: Normal open / normal close settable
- Input time: To avoid noise, setting range: 0:00.0~9(M):59.9(S)

RS 485 communication (optional)

- Protocol: Modbus RTU mode
- Baud rate: 2400/4800/9600/19200/38400
- Data bits: 8 bits
- Parity: Even, odd or none
- Stop bits: Even & odd = 1; none = 2
- Device no: 1~255

Power

- Power supply: AC 115/230V ±15%, 50/60 Hz
AC 380 or 415V ±15%, 50/60 Hz
Option: DC 24V, 48V, 110V, 220V ±10%
- Power effect: ≤0.05% F.S.
- Power consumption: ≤6VA
- Back up memory: By EEPROM

Environmental

- Operating temperature: 0~60 °C
- Operating relative humidity: 20~95 %RH, non-condensing
- Temperature coefficient: ≤100 PPM/°C
- Storage temperature: -10~70 °C
- Enclosure: IEC 529 (IP52)

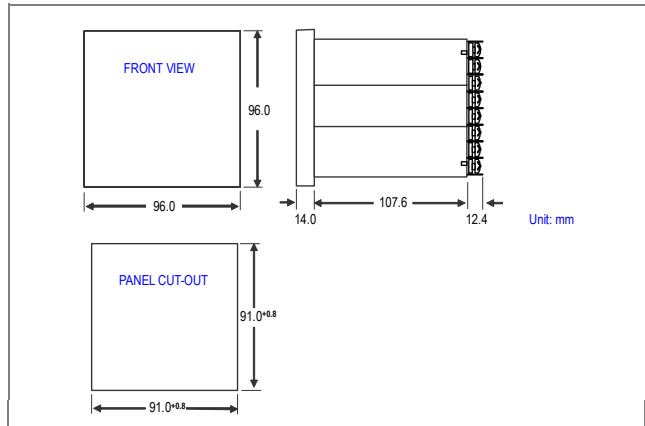
Electrical safety

- Dielectric Strength: AC 2KV, 50/60Hz, 1 min.
Between Input / Output / Power / Case
- Surge test: 3KV, 1.2 x 50 μsec.
Common mode & differential mode
- Insulation resistance: ≥100m ohm, DC 500V
Input / Output / Power / Case
- Isolation: EN 55011:2002; EN 61326:2003
- EMC: EN 61010-1:2001

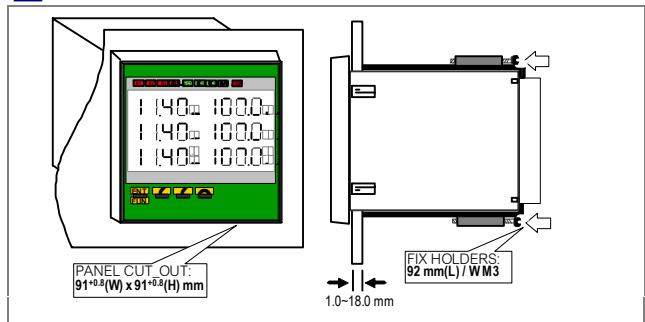
Mechanical

- Dimension: 96mm(W) x 96mm(H) x 134mm(D)
- Panel cutout: 91mm(W) x 91mm(H)
- Case material: Black ABS fire-protection
- Mounting: Panel flush mounting
- Connection: Screw terminal, up to 2 x 2.5mm² wire
- Weight: Under 650g

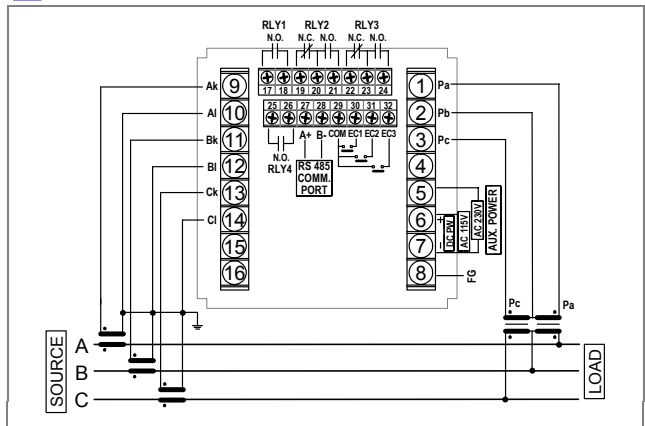
DIMENSIONS



PANEL MOUNTING HOLES



CONNECTION DIAGRAM



FRONT PANEL

