

3 PHASE *PROTECTION METER RELAY*

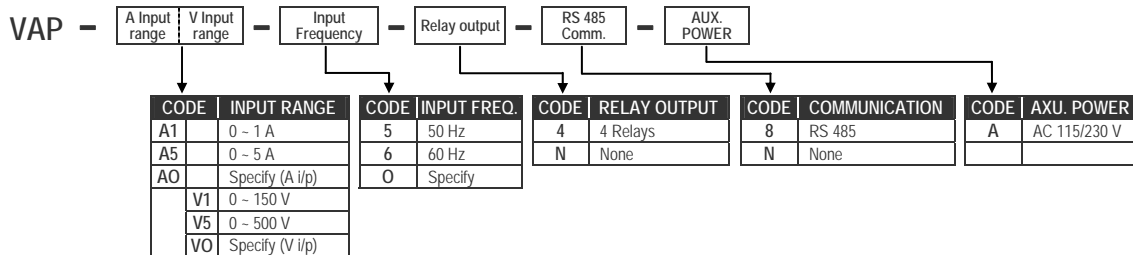
VAP

FEATURES

- TRMS measuring 3Phase Voltage & Current with six display screen
- Easily programmable from front
- 4 relays with flexible trip functions for Over Voltage / Under Voltage / Over Current / Under Current / Un-balanced / Reverse Sequence / Voltage Hi(Lo) Alarm / Current Hi(Lo) Alarm
- 3 external control inputs for Reset for Relay latching / PV hold / Reset for Max. (Mini.) memory / DI..
- Maximum & minimum value storage
- RS 485 communication port



ORDERING INFORMATION



TECHNICAL DATA

Input & Accuracy

Measuring	Input Range	Input Burden	Display	Accuracy
TRMS V _{Line-Line} X 3 (V _{ab} , V _{bc} , V _{ca})	0-150/500V _{eff} 50 or 60Hz	≤ 0.15 VA	0 - 9999	±0.2%FS
TRMS I x 3 (I _a , I _b , I _c)	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 keys for Enter (Function) / Shift / Up / Down
 Up: increases the number / return back to previous
 Down: decreases the number / go to next function
 Shift: move the flashing digit position
 Enter/Function: To enter functions & save set parameters

Security function: 4 digit 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

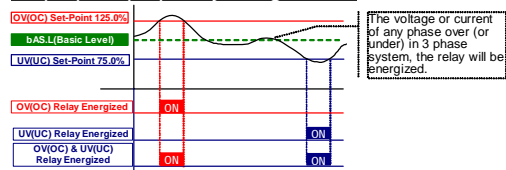
Display update: 10 times/second (AvG = 1)
 Average function: AvG: 1-255 time average from sampling
 Moving Average function: M.AvG: 1-50 reading average from sampling
 Over-range indication: Showing "oFL"
 Ratio setting: PT or CT ratio: Primary & secondary are settable
 Range of primary settable: 0-9999
 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

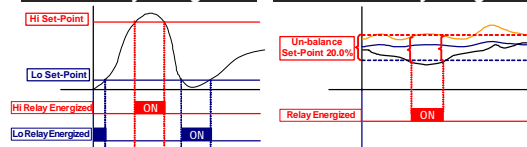
OV(Over Voltage): Setting range: 100.0-125.0%
 UV(Under Voltage): Setting range: 75.0-100.0%
 OV & UV (Over & Under Voltage): Setting range: 0.0-25.0%
 OC(Over Current): Setting range: 100.0-125.0%
 OV(Over Current): Setting range: 75.0-100.0%

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

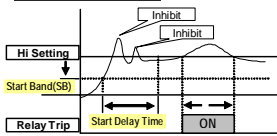


DO(digit output): Relay can be tripped by Modbus command
 AD Error: Relay can be tripped when a/d converter fails
 Trip function: Start Delay / Trip delay(latch) / off delay / Hysteresis
 Start delay: Start delay band: setting range: 0-2000counts
 Start delay time: setting range: 0:00.0-9(M):59.9(S)
 Trip delay: setting range: 0:00.0-9(M):59.9(S)
 OFF delay: setting range: 0:00.0-9(M):59.9(S);
 If set 9(M):60.0(S), the relay will be latched until forced to reset by E.C.I. or reset function in Program level
 Hysteresis: Setting range: 0-2000counts

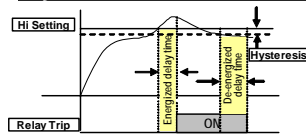
3 PHASE PROTECTION METER RELAY

VAP

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

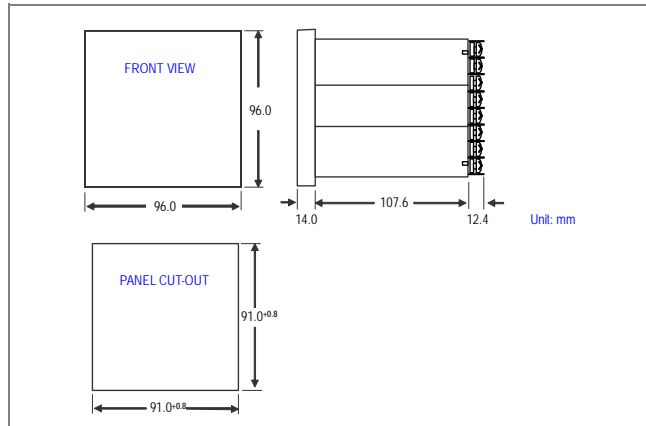
Dielectric Strength: AC 2KV, 50/60Hz, 1 min.
 Between Input / Output / Power / Case
 Surge test: 3KV, 1.2 x 50 μsec.
 Common mode & differential mode

Insulation resistance: ≥100M ohm, DC 500V
 Isolation: Input / Output / Power / Case
 EMC: EN 55011:2002; EN 61326:2003
 Safety(LVD): EN 61010-1:2001

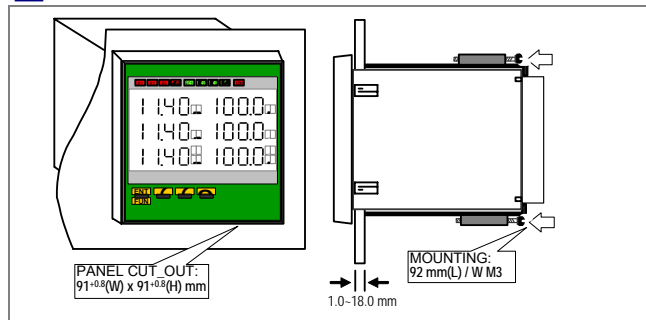
Mechanical

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

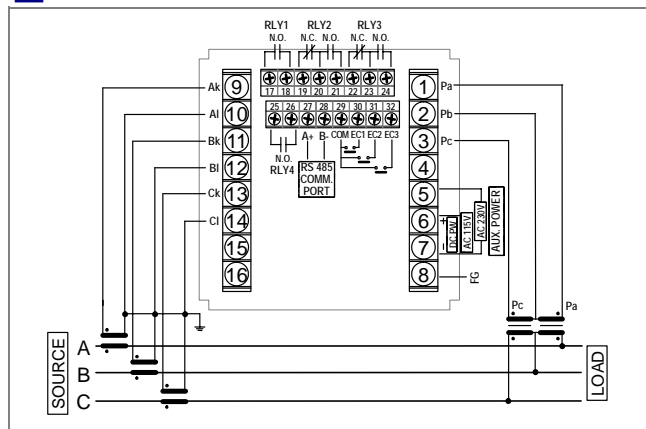
DIMENSIONS



PANEL MOUNTING HOLES



CONNECTION DIAGRAM



FRONT PANEL

