VOLT & AMP METER-DUAL INPUT & DISPLAY

VAM(1.0)

FEATURE

The Newest

- Measuring 2 channels Voltage and Current for DC / AC / TRMS with dual display screen for ***dual isolated input***
- Accuracy: ± 0.04%; Display range: -19999~99999 with ***Mathematic function Addition / Subtraction / Multiplication / Division / high or low selector in 2 channels input***
- User function, Easily programmable via the front panel
- ***4 relay for Hi / Lo / Go / DO energized with Start Delay / Hysteresis / Energized & De-energized Delay / Relay Energized Latch….. functions***
- Analogue output, RS 485 communication port available in optional
- Complies with CE standard

ORDERING INFORMATION

VAM– [DC/AC/TRMS] [Input 1 Signal] / [DC/AC/TRMS] [Input 2 Signal] – [Relay Output] OPTION 1 – [Analog Output] OPTION 2 – [RS 485 Port] OPTION 3 – [Aux. Powered]

CODE	VOLT INPUT
D	DC measuring
A	AC measuring
T	TRMS measuring
V1	0 ~ 199.99 mV
V2	0 ~ 1.9999 V
V3	0 ~ 19.999 V
V4	0 ~ 199.99 V
V5	0 ~ 300.0 V
V6	0 ~ 600 V
VA	0~50 mV
VB	0~60 mV
VC	0~100 mV
VO	Specify V input

CODE	CURRENT INPUT
D	DC measuring
A	AC measuring
T	TRMS measuring
A1	0 ~ 199.99 µA
A2	0 ~ 1.9999 mA
A3	0 ~ 19.999 mA
A4	0 ~ 199.99 mA
A5	0 ~ 1.9999 A
A6	0 ~ 1.0000 A
A7	0 ~ 5.000 A
A8	0 ~ 10.000 A
AO	Specify A input

* Input 2: Max current input will be under 199.99mA.

CODE	RELAY O/P
N	None
R2	2 Relay
R4	4 Relay

CODE	ANALOG O/P
N	None
V	0(1) ~ 5 V 0 ~ 10V
I	0 ~ 10 mA 0(4)~20mA

CODE	RS485 PORT
N	None
8	RS 485

CODE	AXU. POWER
A	AC 115/230 V
OPTION 4	
D25	DC 20~56 v

SPECIFICATION

Measuring Range DC / AC / TRMS		Input Impedance	Measuring Range DC / AC / TRMS		Input Impedance
Voltage	0~199.99 mV	≧5M ohm	Current	0~199.99µA	1K ohm
	0~1.9999 V	≧1M ohm		0~1.9999 mA	100 ohm
	0~19.999 V	≧1M ohm		0~19.999 mA	10 ohm
	0~199.99 V	≧1M ohm		0~199.99 mA	1 ohm
	0~300.0 V	≧1M ohm		0~1.9999 A	0.05 ohm
	0~600.0 V	≧1M ohm		0~5.000 A	0.02 ohm
				0~10.000 A	0.01 ohm

*** Dual input cab be selected individual in Voltage & Current for DC, AC or TRMS**

- **Calibration:** System calibration by front key
- **Accuracy:** DC: ≦± 0.04% of FS ± 1C;
  AC: ≦± 0.1% of FS ± 1C;
- **Response time:** ≦100 msec.(when the AvG = "1")

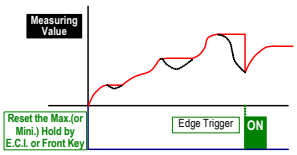
Operating

- **Operation key:** 4 keys for Enter(Function) / Shift(Escape) / Up / Down
  Up key: increase the number / back to previous function
  Down key: decrease the number / go to next function
  Shift key: move the flash digit position / Return back to upper level
  Enter/Fun key: enter the parameters you set or function select
- **Security function:** 4 digits password
- **Lock function:** 3 function group lock level for None/User Level/ Engineer Level / All(Engineer Level & User Level)

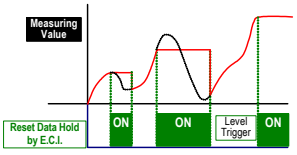
Display functions

- **LED:** ***Measuring value: Dual screen,***
  0.39" red high-brightness LED
  Relay output indication: square red LED
  RS 485 communication: square green LED
  Max. / Mini. Hold: square red LED
- **Low Cut function[Lo.Ct.1(2)]:** Settable range: -19999~19999 counts
- **Average function:** **AvG** :Settable range: 1~99 times
- **Moving Average function:** **M.AvG :** Settable range: 0(None)/1~10 times
- **Digital Filter:** **d.FiLt :** Settable range: 0(None)/1~99 times
- **Display Range:** -19999~99999 by mathematic
- **Over range indication:** **ovFL,** when input is over 120% of input range Hi
- **Under range indication:** **-ovFL,** when input is under -120% of input range Lo
- **Mathematic[MAtH.1(2)]:** ***Selectable Addition / Subtraction / Multiplication / Division / High or Low selector***
- ***Display functions:*** ***Present Value / Maximum Hold / Minimum Hold / Write to display by RS485 command***
  [dPLY.1(2)]

Max. (or Mini.) Hold & Reset

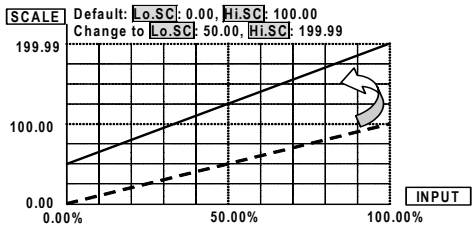


Data Hold & Reset



Scaling

- **Input range function:** **[Ai1(2).Lo]:** 0~100% of input
  [Ai1(2).Hi]: 0~100% of input
- **Scaling function:** **[Hi.SC.1(2)]** (High scale): -19999~29999
  [Lo.SC.1(2)] (Low scale): -19999~29999



- **Decimal point[Pv1(2).dP]:** Settable from 0 / 0.0 / 0.00 / 0.000 / 0.0000

Control functions(optional)

- **Control relay:** 2 Relays SPDT, 1A/230Vac, 3A/115V
  2 Relays SPST, 1A/230Vac, 3A/115V
- ***Relay Output:*** ***Multi-Cross selection with display 1 & display 2***
  Energized levels compare with set-points:

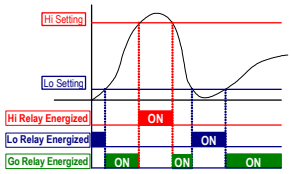
2006/07/24 Amend; add code 0~50mV / 0~60mV / 0~100mV in order information

VOLT & AMP METER-DUAL INPUT & DISPLAY

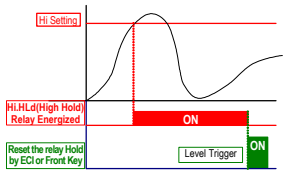
VAM(1.0)

*Hi / Lo / **Hi.HLd / Lo.HLd / do / Go-1.2 / Go-2.3***
***DO function**: Energized by RS485 command*
***Relay Energized Latch** : Selectable Low or High Latch*

Hi / Lo / Go Relay Energized

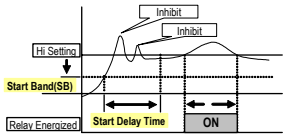


Hi(Lo) Energized Hold & Reset

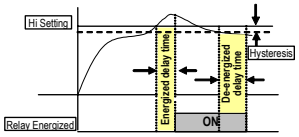


- **Functions:** Start delay / Energized & De-energized delay / Hysteresis
  Relay Trip Selection[r1(2).SEL]: Multi-Cross selection
  Start band[rY.Sb.1(2)]: 0~9999 counts
  Start delay time[rY.Sb.1(2)]: 0:00.0~9(M):59.9(S)
  Energized & De-energized delay time: 0:00.0~9:59.9
  Hysteresis: 0~5000 counts

Start Delay

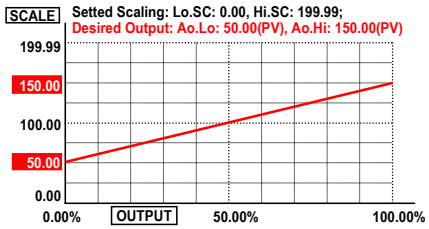


Energized / De-energized Delay & Hysteresis



Analogue output(option)

- **Accuracy:** ≦± 0.1% of F.S.; 16 bits DA converter
- **Ripple:** ≦± 0.1% of F.S.
- **Response time:** ≦200 msec. (10~90% of input)
- **Isolation:** AC 2.0 KV between input and output
- **Output range:** Specify Voltage or Current
  Voltage: 0~5V / 0~10V / 1~5V selectable
  Current: 0~10mA / 0~20mA / 4~20mA selectable
- **Functions:** ***Multi-Cross selection relative display 1 & display 2***
  ***Ao.Hi**(output range high): PV Hi vs. output range Hi*
  ***Ao.Lo**(output range Low): PV Low vs. output range Lo*
  ***Ao.LMt**(output High Limit):*
  0.00~110.00% of output High



RS 485 communication(optional)

- **Protocol:** Modbus RTU mode
- **Baud rate:** Selectable 1200/2400/4800/9600/19200/38400
- **Data bits:** Selectable 7 or 8 bit
- **Parity:** Selectable Even, odd or none (with 1 or 2 stop bit)
- **Device no:** Setable 1 ~ 255
- **Write function:** Write to display value from PC's RS485 command

Power

- **Power Supply:** AC 115/230V ± 15%, 50/60Hz; **Optional: DC 20~56 V**
- **Power consumption:** 5VA
- **Back up memory:** By EEPROM

Environmental

- **Operating temperature:** 0~60 ˚C
- **Operating relative humi.** 20~95 %RH, Non-condensing
- **Temperature coefficient:** ≦100 PPM/˚C
- **Storage temperature:** -10~70 ˚C
- **Enclosure:** Front panel: IEC 549 (IP54)

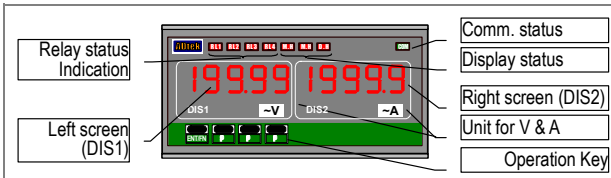
Electrical safety

- **Dielectric Strength:** AC 2.0 KV for 1 min
  Between Power / Input 1 / Input 2 / Output / Case
- **Insulation resistance:** ≧100M ohm at 500Vdc
- **Isolation:** Between Power / Input / Output
- **EMC:** EN 55011:2002; EN 61326:2003
- **Safety(LVD):** EN 61010-1:2001

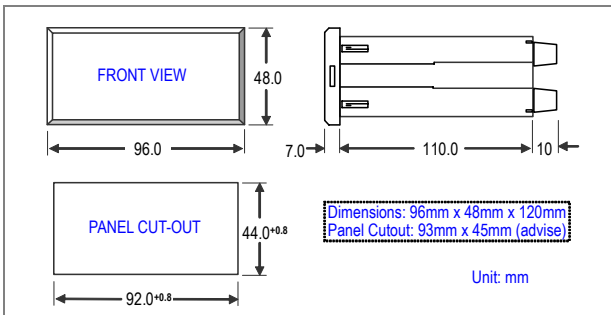
Mechanical

- **Dimensions:** 96mm(W) x 48mm(H) x 120mm(D)
- **Panel cutout:** 92mm(W) x 44mm(H)
- **Case Materiel:** ABS fire-protection (UL 94V-0)
- **Mounting:** Panel flush mounting
- **Terminal block:** Plastic NYLON 66 (UL 94V-0)
  #A1~A3: 20A/300Vac, M3.5, 12~22AWG
  Others: 10A 300Vac, M2.6, 16~22AWG
- **Weight:** 550g

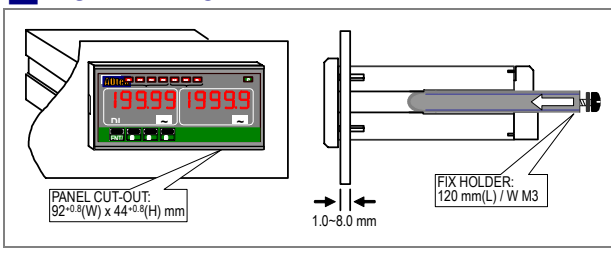
FRONT PANEL



DIMENSIONS



INSTALLATION



CONNECTION DIAGRAM