ST-VA VOLT / Current CONDITIONER WITH RS485, A/O & RELAY

FEATURE

- Measuring Voltage or Current for DC / AC / TRMS
- Accuracy: ± 0.04% or ± 0.1%; Display range: -19999~29999
- User function, easily programmable via the top panel
- 1 Analogue output, 1 RS 485 port and 3 Relay output available for multi-cross selection in 3 outputs
- Design by CE standard

ORDERING INFORMATION

ST-VA- [DC/AC/TRMS] [Input Signal] – [Relay Output] – [Analogue Output] – [RS 485 port] – [Aux. Powered] – [*Optional Function] OPTION

OPTION 1 | OPTION 2 | OPTION 3

CODE	DC/AC/TRMS
D	DC
A	AC
T	TRMS measuring

CODE	VOLTAGE INPUT
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 ~ 500 V(±20%)
VA	0 ~ 50mV
VB	0 ~ 60mV
VO	Specify V input

CODE	CURRENT INPUT
A1	0 ~ 199.99 uA
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
AO	Specify A input

CODE	RELAY O/P
N	None
R1	1 Relay
R2	2 Relay
R3	3 Relay

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

CODE	RS485
N	None
8	RS 485

CODE	AXU. POWER
A1	AC115V
A2	AC230V
OPTION 4	
ADL	DC 20~56 V
ADH	AC 85~265V DC 100~300V

3 outputs can be specified at most for Analogue, RS485 & 3 Relay
For Example: Specify 2 Relay and 1 RS485 output (3 outputs)
The ordering code: ST-VA-xx-R2-N-8-xx

TECHNICAL SPECIFICATION

Input

Measuring Range DC / AC / TRMS		Input Impedance	Measuring Range DC / AC / TRMS		Input Impedance
Voltage	0~50/~100 mV	≥5M ohm	Current	0~199.99μA	1K ohm
	0~199.99 mV	≥5M ohm		0~1.9999 mA	100 ohm
	0~1.9999 V	≥1M ohm		0~19.999 mA	10 ohm
	0~19.999 V	≥1M ohm		0~199.99 mA	1 ohm
	0~199.99 V	≥1M ohm		0~1.9999 A	0.05 ohm
	0~300.0 V	≥2M ohm		0~5.000 A	0.02 ohm
	0~500.0 V(±20%)	≥2M ohm			

Calibration: Digital calibration by front key
A/D converter: **16 bits resolution**
Accuracy: **DC:** ≤± 0.04% of FS ± 1C
AC: ≤± 0.1% of FS ± 1C
Sampling rate: 15 cycles/sec
Response time: ≤ 100 msec.(when the AvG = "1") in standard
Input range: Input High and Low programmable
Ai.Hi: Settable range: 0.00~100.00% of input range
Ai.Lo: Settable range: 0.00~100.00% of input range
AC frequency input range 45~65Hz

Display & Functions

LED: **Numeric:** 5 digits, 0.28"H green high-brightness LED
Relay output indication: 1 square red LED
RS 485 communication: 1 square red LED
Max/Mini Hold indication: 2 square red LED
Display range: -19999~29999;
Scaling function: **Lo.SC:** Low Scale; Settable range: -19999~+29999
Hi.SC: High Scale; Settable range: -19999~+29999
Decimal point: Programmable from 0 / 0.0 / 0.00 / 0.000 / 0.0000
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
Max / Mini recording: Maximum and Minimum value storage during power on.
Display functions: ***PV / Max(Mini) Hold / RS 485 Programmable***
Low cut: Settable range: -19999~29999 counts
Digital fine adjust: **Pv.Zro:** Settable range: -19999~+29999
Pv.SPn: Settable range: -19999~+29999

Reading Stable Function

Average: Settable range: 1~99 times
Moving average: Settable range: 1(None)~10 times
Digital filter: Settable range: 0(None)/1~99 times

Control Functions(option)

Set-points: Three set-points
Control relay: Three relays(Maximum); FORM-A, 1A/230Vac, 3A/115V
Relay energized mode: Energized levels compare with set-points:
Hi / Lo / ***Hi.HLd*** */* ***Lo.HLd*** *programmable*
DO function: Energized by RS485 command of master.
Energizing functions: Start delay / Energized & De-energized delay / Hysteresis / Energized Latch
Start band(Minimum level for Energizing): 0~9999counts
Start delay time: *0:00.0~9(Minutes):59.9(Second)*
Energized delay time: *0.00.0~9(Minutes):59.9(Second)*
De-energized delay time: *0.00.0~9(Minutes):59.9(Second)*
Hysteresis: 0~5000 counts

Analogue output(option)

Accuracy: ***≤± 0.1% of F.S.; 16 bits DA converter***
Ripple: ≤± 0.1% of F.S.
Response time: ≤100 msec. (10~90% of input)
Isolation: AC 2.0 KV between input and output
Output range: Specify either Voltage or Current output in ordering
Voltage: 0~5V / 0~10V / 1~5V programmable
Current: 0~10mA / 0~20mA / 4~20mA programmable
Output capability: **Voltage: 0~10V: ≥ 1000Ω;**
Current: 4(0)~20mA: ≤ 600Ω max
Functions: ***Ao.HS****(output range high): Settable range: -19999~29999*
Ao.LS*(output range Low): Settable range: -19999~29999*
Ao.LMt*(output High Limit): 0.00~110.00% of output High*
Digital fine adjust: **Ao.Zro:** Settable range: -38011~+27524
Ao.SPn: Settable range: -38011~+27524

RS 485 Communication(option)

Protocol: Modbus RTU mode
Baud rate: 1200/2400/4800/9600/19200/38400 programmable
Data bits: 8 bits
Parity: Even, odd or none (with 1 or 2 stop bit) programmable
Address: 1 ~ 255 programmable
Remote display: ***to show the value from RS485 command of master***
Distance: 1200M
Terminate resistor: 150Ω at last unit.

Electrical Safety

Dielectric strength: AC 2.0 KV for 1 min, Between Power / Input / Output / Case
Insulation resistance: ≥100M ohm at 500Vdc, Between Power / Input / Output
Isolation: Between Power / Input / Relay / Analogue / RS485
EMC: EN 55011:2002; EN 61326:2003
Safety(LVD): EN 61010-1:2001

Environmental

Operating temp.:	0~60 ˚C
Operating humidity:	20~95 %RH, Non-condensing
Temp. coefficient:	≤100 PPM/˚C
Storage temp.:	-10~70 ˚C

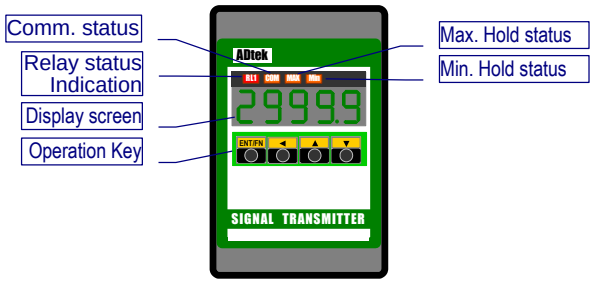
Mechanical

Dimensions:	50mm(W) x 131mm(H) x 80mm(D) with socket
Case materiel:	ABS fire-resistance (UL 94V-0)
Mounting:	DIN rail mounting (35mm standard)
Terminal block:	11 pin Socket, 10A/500Vac, M2.6, 16~22AWG
Weight:	Under 480g(without socket)

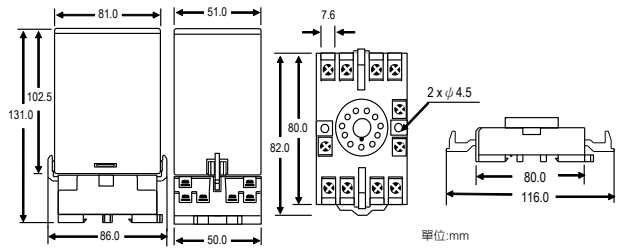
Power

Power supply:	AC 115 or 230V ± 15%, 50/60Hz; **Optional ADL:DC 20~56V, ADH:AC 85~265V,DC 100~300V**
Power consumption:	5.0VA maximum
Back up memory:	By EEPROM

■ FRONT PANEL

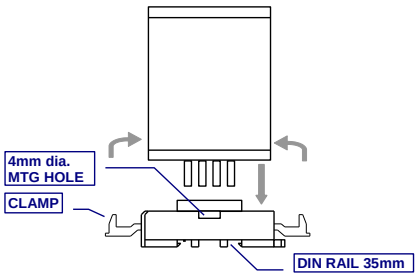


■ DIMENSIONS



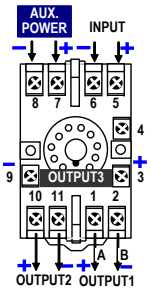
■ INSTALLATION

The meter should be installed in a location that dose not exceed the maximum operating temperature and provides good air circulation.



DO NOT UNPLUG IF LIVE

■ CONNECTION DIAGRAM(11 PIN)



Remark: ST series has been designed in multi-output with limited terminals. Please check the output functions and specify terminals as label on product before wiring.

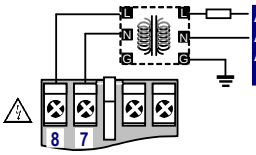
	OUTPUT 1	OUTPUT 2	OUTPUT 3
	TERMINAL 1+ & 2-	TERMINAL 10+ & 11-	TERMINAL 3+ & 9-
3 O/P	RS485	ANALOGUE	RELAY
3 O/P	ANALOGUE	RELAY	RELAY
3 O/P	RS485	RELAY	RELAY
3 O/P	RELAY	RELAY	RELAY
2 O/P	RS485	ANALOGUE	
2 O/P	RS485	RELAY	
2 O/P	ANALOGUE	RELAY	
1 O/P	ANALOGUE		
1 O/P	RS485		
1 O/P	RELAY		

DO NOT UNPLUG IF LIVE

Please check the voltage of power supplied first, and then connect to the specified terminals. It is recommended that power supplied to the meter be protected by a fuse or circuit breaker.

Power Supply

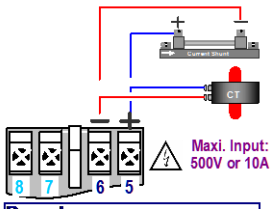
Filter or Transformer **1A Fuse**



AC115/230V
ADL: DC 20~56V
ADH: AC 85~265V
DC 100~300V

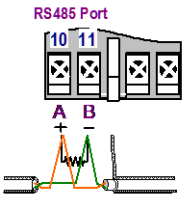
Due to the limited terminals for three outputs(Analogue, RS485, Relay), the outputs will be assigned as label on the product and above table. Please check it out before wiring.

Input connection



Remark:
PT can not short in secondary.
CT can not open in secondary.

RS485 Communication Port



Max. Distance: 1200M Terminate Resistor (at latest unit): 120~300ohm/0.25W; (typical: 150ohm)