

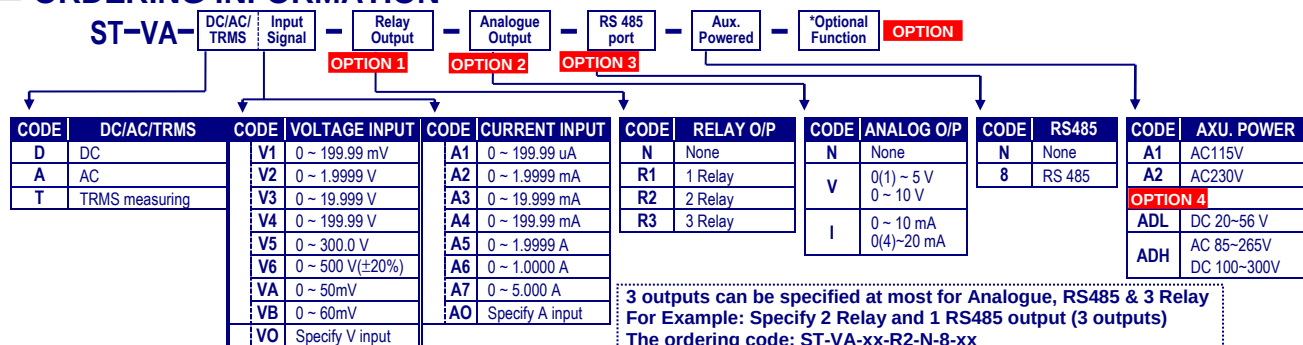
ST-VA VOLT / Current CONDITIONER WITH RS485, A/O & RELAY

■ FEATURE

- Measuring Voltage or Current for DC / AC / TRMS
- Accuracy: $\pm 0.04\%$ or $\pm 0.1\%$; 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



■ TECHNICAL SPECIFICATION

Input

Measuring Range DC / AC / TRMS	Input Impedance	Measuring Range DC / AC / TRMS	Input Impedance
Voltage		Current	
0~50/~100 mV	$\geq 5M \text{ ohm}$	0~199.99 μ A	1K ohm
0~199.99 mV	$\geq 5M \text{ ohm}$	0~1.9999 mA	100 ohm
0~1.9999 V	$\geq 1M \text{ ohm}$	0~19.999 mA	10 ohm
0~19.999 V	$\geq 1M \text{ ohm}$	0~199.99 mA	1 ohm
0~199.99 V	$\geq 1M \text{ ohm}$	0~1.9999 A	0.05 ohm
0~300.0 V	$\geq 2M \text{ ohm}$	0~5.000 A	0.02 ohm
0~500.0 V($\pm 20\%$)	$\geq 2M \text{ ohm}$		

Calibration:

Digital calibration by front key

A/D converter:

16 bits resolution

Accuracy:

DC: $\leq \pm 0.04\%$ of FS $\pm 1C$

AC: $\leq \pm 0.1\%$ of FS $\pm 1C$

Sampling rate:

15 cycles/sec

Response time:

$\leq 100 \text{ msec.}$ (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

45~65Hz

AC frequency input range

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

-19999~29999;

Display range:

Scaling function:

Lo.SC: Low Scale; Settable range: -19999~+29999

Hi.SC: High Scale; Settable range: -19999~+29999

Programmable from 0 / 0.0 / 0.00 / 0.000 / 0.0000

ovFL, when input is over 120% of input range Hi

-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(No)~10 times

Digital filter:

Settable range: 0(No)~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:

$\leq \pm 0.1\%$ of F.S.; 16 bits DA converter

Ripple:

$\leq \pm 0.1\%$ of F.S.

Response time:

$\leq 100 \text{ msec.}$ (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: $\geq 1000\Omega$;

Current: 4(0)~20mA: $\leq 600\Omega \text{ max}$

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:

150 Ω at last unit.

Electrical Safety

Dielectric strength:

AC 2.0 KV for 1 min, Between Power / Input / Output / Case

Insulation resistance:

$\geq 100M \text{ ohm}$ 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

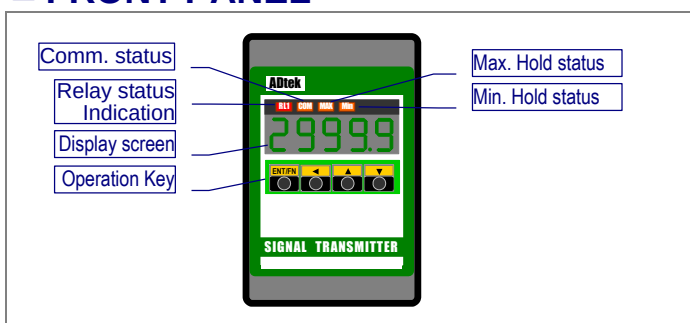
Mechanical

Dimensions: 50mm(W) x 131mm(H) x 80mm(D) with socket
 Case material: 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)

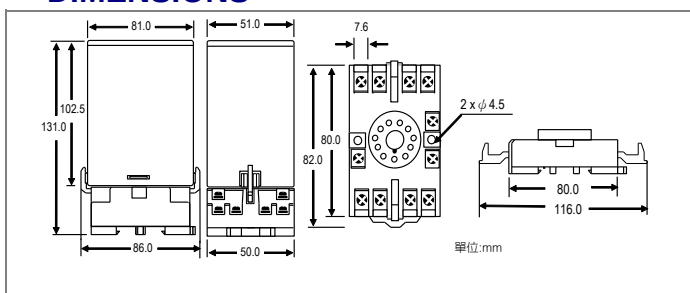
Power

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

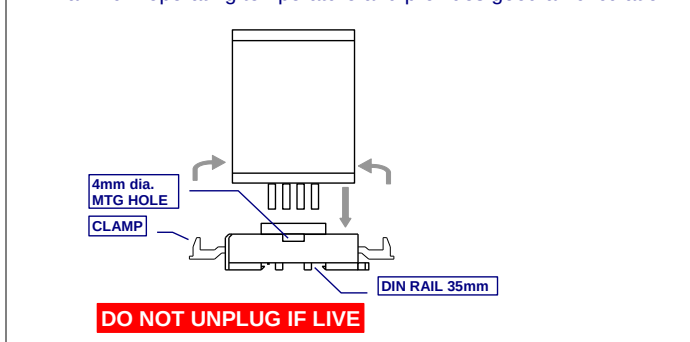


DIMENSIONS

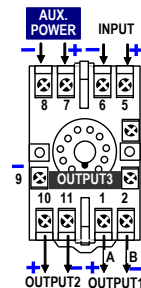


INSTALLATION

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



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.

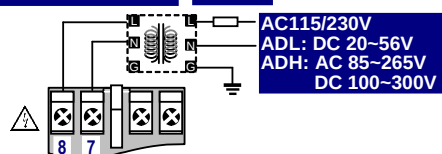
	OUTPUT 1	OUTPUT 2	OUTPUT 3
TERMINAL 1+ & 2-	TERMINAL 10+ & 11-	TERMINAL 3+ & 5-	
3 O/P	RS485	ANALOGUE	RELAY
3 O/P	ANALOGUE	RELAY	RELAY
3 O/P	RS485	RELAY	RELAY
3 O/P	RELAY	RELAY	RELAY
2 O/P	RS485	ANALOGUE	
2 O/P	RS485	RELAY	
2 O/P	ANALOGUE	RELAY	
1 O/P	ANALOGUE		
1 O/P	RS485		
1 O/P	RELAY		

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.

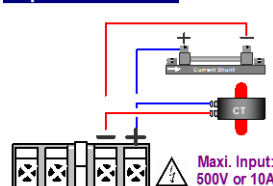
Power Supply

Filter or Transformer 1A Fuse



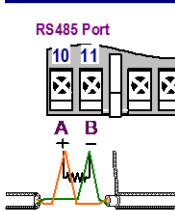
Due to the limited terminals for three outputs(Analogue, RS485, Relay), the outputs will be assigned as label on the product and above table. Please check it out before wiring.

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)