

# STA9951 Series Digital Multimeter

## Features

- STA9951 5 1/2 digit display(119,999 counts)  
STA9961 6 1/2 digit display(1,199,999 counts)
- 12 different measurement capabilities: DCV/ACV, DCI/ACI, Ω2W/Ω4W, Frequency/Period, Diode Test, Continuity, dB/dBm
- High brightness vacuum fluorescent display
- True-rms AC voltage and current measurement, bandwidth up to 100kHz(STA9951)/300kHz(STA9961)
- DCV measurement accuracy up to 0.0035%, resolution up to 0.1uV
- Max. measurement rate: 1000 meas/sec
- Equal accuracy frequency measurement up to 1.1MHz
- Relative mode(REL) to eliminate residual reading
- 2 W, 4W resistance measurement mode selectable
- Built-in mX +b,%, dB, dBm etc. mathematics calculation function
- 512 readings storage and MAX/MIN/AVER/STD statistics
- Up to 30,000 readings storage(without statistics)
- HI/IN/LO comparator function
- USB, GPIB and RS-232 Interfaces provide easy system communication
- Calibration without opening the case
- 10 sets of multimeter setup can be stored and loaded



## STA9951/STA9961

The STA9951/STA9961 5 1/2, 6 1/2 digit multimeter can test voltage/current/resistance fast and accurately. Its outstanding performance, such as max.1,200,000 counts, high reading rate 1000 meas/sec as well as DC voltage accuracy of 0.0035% provides an ideal cost-effective option for customer. The concise design of front panel of STA9951/STA9961 makes it easier to locate and select the measurement function. High brightness VFD display allows the user to view clearly. Its 12 different measurement functions, including DCV/ACV, DCI/ACI, Ω 2W/Ω 4W, Frequency/Period, Diode Test, Continuity, dB/dBm, cover all basic measurement needs. Many new technologies have been adopted in STA9951/STA9961, such as high speed low noise 26 bits A/D converter which gives the good linear and low noise performances. Fast response servo amplifier, floating power source and low offset buffer amplifier constitute front end of servo so as to remove the traditional attenuation, reduce offset drifting as well as to increase measurement rate. The SMD in the multimeter reduces the system density and volume. STA9951/STA9961 adopts special input overload protect circuit which can stand 1500V voltage between input and ground. When overloaded, it can recover fast so as to ensure the safety and reliability of the equipment. Standard GPIB, USB(or RS-232) interface with universal communication software is used with STA9951/STA9961 for easy

communication, data analysis and statistics as well as construction of an automatic measurement system. The system accepts SCPI (standard commands for programmable instrument) command sets. It is compatible in communication software

Test function	
Test parameter	DCV, ACV, DCI, ACI, Ω2W, Ω4W, FREQ, PERI DIODE, CONT
Mathematics function	mX+b, %, dB, dBm, REL
Range	Auto, Manual
Display	VFD
Trigger Mode	INT/MAN/BUS/EXT
Programmable Time Delay	0 - 6000mS
Reading storage and statistics	2 to 512 readings can be stored, loaded and counted Type of statistics: MAX, MIN, AVER, STD
Reading Hold	To find out best stable reading for each data block of the given reading number according to the given accuracy.
Limitation measurement	To judge HI, IN, LO and display, with ALARM for HI/LO
Setup storage	10 setup files can be stored and loaded
Calibration	Recommend Fluke5520A with TH1951 /TH1961 Accuracy Calibration software ( option )
Communication interface	SCPI command support for GPIB(optional), RS232(optional) and USB(standard) interface

## Specifications

### Measurement condition

Calibration interval: one year  
Operation Humidity: 18°C-28°C, ≤90%RH;  
When resistor range is 10M and 100M, ≤70%RH  
Warming up time: 30 min  
Accuracy is expressed as: +/-(% of reading +% of range)  
Temperature coefficient: 0°C--18°C & 28°C--40°C, +0.1%\*accuracy /°C

Following is the specification at slow mode, others please refer the operation manual .

Full Scale Reading digits and Reading Rate (meas/sec)					
Rate	Slow		Med	Fast	
	STA9951	STA9961			
Full scale reading (digits)	119,999	1,199,999	119,999	11,999	
Reading rate (meas/sec)	DC V, DC I	4	2	16	
	AC V, AC I	3	1.5	4	
	Ω 2W	4	2	16	
	Ω 4W	3	1.5	10	
<b>DC V</b>					
Range	Max. reading	Resolution	Accuracy	Input impedance	
STA9951	100mV	119.999	1μV	0.02+0.008	>10GΩ
	1V	1.19999	10μV	0.01+0.004	>10GΩ
	10V	11.9999	100μV	0.01+0.004	>10GΩ
	100V	119.999	1mV	0.01+0.004	10MΩ
	1000V	1010.00	10mV	0.01+0.004	10MΩ
STA9961	100mV	119.9999	0.1μV	0.0065+0.0045	>10GΩ
	1V	1.199999	1μV	0.0040+0.0009	>10GΩ
	10V	11.99999	10μV	0.0035+0.0005	>10GΩ
	100V	119.9999	100μV	0.0045+0.0006	10MΩ
	1000V	1010.000	1mV	0.0055+0.0015	10MΩ

DC I						
Range		Max. reading	Resolution	Accuracy	Burden voltage/ shunt resistor	
STA9951	10mA	11.9999	0.1µA	0.05+0.008	<0.15V/10.1Ω	
	100mA	119.999	1µA	0.05+0.004	<1.5V / 10.1Ω	
	1A	1.19999	10µA	0.10+0.004	<0.3V / 0.1Ω	
	10A	11.9999	100µA	0.25+0.004	<0.15V/10mΩ	
STA9961	10mA	11.99999	10nA	0.05+0.004	<0.15V/10.1Ω	
	100mA	119.9999	0.1µA	0.05+0.004	<1.5V / 10.1Ω	
	1A	1.199999	1µA	0.08+0.004	<0.3V / 0.1Ω	
	10A	11.99999	10µA	0.25+0.004	<0.15V / 10mΩ	
AC V						
Range		100mV	1V	10V	100V	750V
STA9951	Max. reading	119.999	1.19999	11.9999	119.999	757.5
	Resolution	1µV	10µV	100µV	1mV	10mV
	10~20 Hz	1.5+0.1				
	20~50 Hz	0.5+0.1				
	50Hz~20 kHz	0.1+0.1				
	20~50 kHz	0.3+0.15	0.3+0.1			
	50~100kHz	1+0.15	1+0.1			
STA9961	Max. reading	119.9999	1.199999	11.99999	119.9999	757.50
	Resolution	0.1µV	1µV	10µV	100µV	1mV
	10~20 Hz	1.50+0.20				
	20~50 Hz	0.50+0.10				
	50Hz~100 Hz	0.10+0.03				
	100~20kHz	0.05+0.03		0.08+0.03		
	20~50 kHz	0.15+0.05	0.11+0.05		0.18+0.05	-----
	50~100kHz	0.60+0.08				
100~300kHz	4.00+0.05					

AC I				
STA9951	Range	10mA	1A	10A
	Max. reading	11.9999	1.19999	11.9999
	Resolution	0.1µA	10µA	100µA
	10Hz~20 Hz	1+0.08		
	20Hz~50 Hz	0.5+0.08		
	50Hz~2 kHz	0.25+0.08		
	2 kHz~10 kHz	2+0.08		
	Burden voltage/ shunt Resistor	<0.15V/10Ω	<0.3V/0.1Ω	<0.15V/10mΩ
STA9961	Range	10mA	1A	10A
	Max. reading	11.99999	1.199999	11.99999
	Resolution	10nA	1µA	10µA
	10Hz~20 Hz	1.50+0.10		1.60+0.10
	20Hz~50 Hz	0.50+0.03		0.60+0.30
	50Hz~100Hz	0.10+0.3	0.12+0.03	0.15+0.03
	100Hz~2 kHz	0.05+0.03	0.10+0.04	0.12+0.04
	2kHz~5 kHz	0.10+0.03	0.50+0.03	0.60+0.05
5kHz~10 kHz	0.20+0.03	2.00+0.10	2.50+0.10	
Burden voltage/ shunt Resistor	<0.15V/10Ω	<0.3V/0.1Ω	<0.15V/10mΩ	

Ω 2W/Ω 4W						
Range		Max. reading	Resolution	Measurement current	Accuracy	
STA9951	100 Ω	119.999	1mΩ	1 mA	0.05+0.008	
	1 kΩ	1.19999	10mΩ	1 mA	0.03+0.004	
	10 kΩ	11.9999	100mΩ	100µA	0.03+0.004	
	100 kΩ	119.999	1Ω	10µA	0.03+0.004	
	1 MΩ	1.19999	10Ω	10µA	0.03+0.004	
STA9961	10 MΩ	11.9999	100Ω	7.0×Rx/ (10M+Rx)	0.1+0.004	
	100 MΩ	119.999	1KΩ	7.0×Rx/ (10M+Rx)	0.5+0.008	
	100 Ω	119.9999	100µΩ	1 mA	0.010+0.004	
STA9951	1 kΩ	1.199999	1mΩ	1 mA	0.010+0.001	
	10 kΩ	11.99999	10mΩ	100µA	0.010+0.001	
	100 kΩ	119.9999	100mΩ	10µA	0.010+0.001	
	1 MΩ	1.199999	1Ω	10µA	0.010+0.001	
	10 MΩ	11.99999	10Ω	7.0×Rx/ (10M+Rx)	0.040+0.001	
	100 MΩ	119.9999	100Ω	7.0×Rx/ (10M+Rx)	0.800+0.010	
	STA9951	5Hz~10 Hz	9.99999	10µHz	0.05+0.1	200mV rms
		10Hz~100Hz	99.9999	100µHz	0.01+0.01	40mV rms
		100Hz~100 kHz	999.999	1mHz	0.005+0.002	40mV rms
		100k~1.1MHz	1099.99	1Hz	0.005+0.002	100mV rms
STA9961		5Hz~10 Hz	9.999999	1µHz	0.05+0.1	200mV rms
	10Hz~100Hz	99.99999	10µHz	0.01+0.01	40mV rms	
	100Hz ~100 kHz	999.9999	10mHz	0.005+0.002	40mV rms	
	100k~1.1MHz	1099.999	0.1Hz	0.005+0.002	100mV rms	

## General Specifications

Operating Temperature and Humidity		0°C~40°C, ≤90%RH
Power Requirements	Voltage	99V~121V AC , 198V~242V AC
	Frequency	47.5Hz~63Hz
Power Consumption	20 VA max.	
Dimensions (W×H×D)	277mmx115mmx365mm	
Weight	2.5 kg Approx.	

## Ordering Information

STA9951 5 1/2 Digit Multimeter  
STA9961 6 1/2 Digit Multimeter

## Instrument Accessories

SBF0036 test leads one pair (black and red)  
Power cord

## Options

SAX0003 GPIB interface board  
SAB0023 RS232C control software  
SBF0041 Glided shorting plate  
SBF0039 4 terminal Kelvin test clip  
SBF0040 SMD component test clip  
SAB0022 Accuracy Calibration software