

# STB8838 Series Precision LCR Meter



## Features

- High accuracy: Adopt Auto-balance bridge technology, 4-terminal pair
- High stability and consistency: Up to 15 ranges
- High speed: Up to 5.6ms
- High resolution: 7-inch, 800×600
- High power:
  - Signal source: Voltage up to 20Vrms(only STB8838H)  
Current up to 100mA(only STB8838H)
  - DC bias: Voltage up to ± 40V(only STB8838H)  
Current up to 100mA  
Up to 120A when controlling 6 sets of TH1778 series DC Bias Current Source by external DC Bias interface
  - Independent Voltage Source: ±10V programmable output (only STB8838H)
- Multi-parameter Graphic Sweep Function
- Arithmetical operation
- 10 bins sorting, sorting result with sound and light alarm
- Huge storage space:
  - Internal: 40 groups of setting files, 10 groups of gif image files
  - External: 500 groups of setting files through USB storage
- High compatibility: Support SCPI commands, compatible with KEYSIGHT E4980A, E4980AL, HP4284A etc.



RS232	USB HOST	USB DEVICE	HANDER	LAN	GPIB
standard	standard	standard	standard	standard	option

## STB8838 Series

Dimension (mm): 400(W) x 132(H) x 425(D)  
Net weight : 15kg

## Application

1. Passive component
  - Impedance parameter estimation and performance analysis of capacitor, inductor, magnetic core, resistor, piezoelectric devices, transformers, chip components and network components
2. Semiconductor component
  - Parasitic parameter test and analysis of LED driver integrated circuit C-VDC features of varactors Parasitic parameter analysis of transistors or integrated circuit
3. Other components
  - Impedance assessment of printed circuit boards, relays, switches, cables, batteries
4. Dielectric material
  - Dielectric constant and loss angle evaluation of plastics, ceramics and other materials
5. Magnetic materials
  - Magnetic permeability and loss angle assessment of ferrite, amorphous body and other magnetic materials
6. Semiconductor materials
  - Dielectric constant, electric conductivity and C-V characteristics of semiconductor materials Liquid crystal cell of dielectric constant, elastic constant and C-V characteristics of liquid crystal cell

## Specifications

Model	STB8838	STB8838H	STB8838A
Test Signal Source			
Output impedance	100Ω, ±1% @1kHz		
Frequency	Range	20Hz-2MHz	20Hz-1MHz
	Resolution	20.0000Hz - 99.9999Hz	
		100.000Hz - 999.999Hz	
		1.00000kHz - 9.99999kHz	
		10.0000kHz - 99.9999kHz	0.1Hz
		100.000kHz - 999.999kHz	
1.00000MHz - 2.00000MHz	10Hz		

AC test signal		Rated value(ALC OFF): Set the voltage as the Hcur voltage when the test terminal is open Set the current as the Hcur current when the test terminal is short Constant value(ALC ON): Keep the voltage in DUT is the same as the set value Keep the current in DUT is the same as the set value		
AC signal	Voltage range	5mVrms -- 2Vrms	F≤1MHz 5mVrms-- 20Vrms F >1MHz 5mVrms -- 15Vrms	5mVrms -- 2Vrms
	Resolution	5mVrms -- 0.2Vrms	100μVrms	
		0.2Vrms -- 0.5Vrms	200μVrms	
		0.5Vrms -- 1Vrms	500μVrms	
		1Vrms -- 2Vrms	1mVrms	
		2Vrms -- 5Vrms	2mVrms	
		5Vrms -- 10Vrms	5mVrms	
		10Vrms -- 20Vrms	1 rms	
	Current range	50μArms -- 20mArms	50μArms --100mArms	50μArms -- 20mArms
	Resolution	50μArms -- 2mArms	1 μArms	
2mArms -- 5mArms		2 μArms		
5mArms -- 10mArms		μArms		
10mArms -- 20mArms		μArms		
20mArms -- 50mArms		μArms		
50mArms--100mArms		μArms		
Rdc test	Voltage range	100mV 2V		
	Resolution	100μV		
	Current range	0mA 20mA		
	Resolution	1μA		
DC Bias	Voltage range	0V ± 10V	0V ± 40V	0V ± 10V
	Resolution	0V -- 5V	100μV	
		5V -- 10V	1mV	
		10V -- 20V	2mV	
		20V -- 40V	5mV	
	Current range	0mA ± 100mA		
Resolution	0 A -- 50mA	1μA		
		50mA -- 100mA	10μA	
Voltage source	Voltage range	-----	-10V -- 10V	-----
	Resolution	-----	1mV	-----
	Current range	-----	-45mA -- +45mA	-----
	Output impedance	-----	100Ω	-----
Display				
Dimensions /typ		7-inch (diagonal)TFT LCD display		
Proportion		16:9		
Resolution		800×RGB×480		
Test function				

Test parameter	Cp-D, Cp-Q, Cp-G, Cp-Rp Cs-D, Cs-Q, Cs-Rs Lp-D, Lp-Q, Lp-G, Lp-Rp, Lp-Rdc Ls-D, Ls-Q, Ls-Rs, Ls-Rdc, Rdc R-X, Z-θd, Z-θr G-B, Y-θd, Y-θr Vdc-Idc							
Mathematics function	A(X+B)+C, X is test parameter, A, B,C is input parameter							
Equivalent circuit	Series, parallel							
Deviation measurement	Absolute deviation Δ compared with the nominal value Percentage deviation Δ% compared with the nominal value							
Calibration function	OPEN, SHORT, LOAD							
Range selection	AUTO, HOLD							
Range	LCR	100mΩ, 1Ω, 10Ω, 20Ω, 50Ω, 100Ω, 200Ω, 500Ω, 1kΩ, 2kΩ, 5kΩ, 10kΩ, 20kΩ, 50kΩ, 100kΩ, total 15 ranges						
	Rdc	1Ω, 10Ω, 20Ω, 50Ω, 100Ω, 200Ω, 500Ω, 1kΩ, 2kΩ, 5kΩ, 10kΩ, 20kΩ, 50kΩ, 100kΩ, total 15 ranges						
Trigger mode	INT, MAN, EXT, BUS							
Trigger delay	0 s -- 999 s, resolution 100us							
Test terminal configuration	Four-pair							
Test cable length	0m, 1m							
Test average	1-255 times							
Test time (ms)	Speed mode	20Hz	100Hz	1kHz	10kHz	100kHz	1MHz	2MHz
	FAST	330	100	20	7.7	5.7	5.6	5.6
	MED	380	180	110	92	89	88	88
	LONG	480	300	240	230	220	220	220
Test display range	$\times 10^{-18}$ ; E $1 \times 10^{18}$							
Cs, Cp	$\pm 1.000000$ aF -- 999.9999 EF							
Ls, Lp	$\pm 1.000000$ aH -- 999.9999 EH							
D	$\pm 0.000001$ -- 9.999999							
Q	$\pm 0.01$ -- 99999.99							
R, Rs, Rp, X, Z, Rdc	$\pm 1.000000$ aΩ -- 999.9999 EΩ							
G,B,Y	$\pm 1.000000$ aS -- 999.9999 ES							
Vdc	$\pm 1.000000$ aV -- 999.9999 EV							
Idc	$\pm 1.000000$ aA -- 999.9999 EA							
θ r	$\pm 1.000000$ a rad -- 3.141593 rad							
θ d	$\pm 0.0001$ deg -- 180.0000 deg							
Δ%	$\pm 0.0001\%$ -- 999.9999%							
t	-99.99°C -- 1000.00°C							
Turn Ratio (extension pending)	$\pm 0.000000$ -- 1000.000							
Basic test accuracy	0.05% (the details refer to the instruction)							
List sweep								
Sweep points	Up to 201 points							
Sweep Parameters	Test frequency, AC voltage, AC current, DC BIAS voltage, DC BIAS current							
Trigger mode	SEQ	Once triggered, test at the sweep points. /EOM/INDEX will be output one time.						
	STEP	Once triggered, test at one sweep point. /EOM/INDEX will be output at each point, but the list sweep comparator results only be output at the last /EOM.						

List sweep comparator	Set one pair of lower limit and upper limit for each sweep point. Optional: judge through the first sweep parameter / judge through the second sweep parameter / not used in each limit.	
List sweep time tag	In SEQ mode, set the trigger point to 0, by defining the time, the test start time can be recorded at each measurement point.	
Graph sweep analysis		
Sweep points	51, 101, 201, 401 or 801	-----
Sweep trace	Primary or secondary parameters	-----
Display range	AUTO, HOLD	-----
Coordinate scale	Logarithm, linearity	-----
Sweep parameters	Test frequency, ACV, ACI, DCV BIAS/DCI BIAS, DC voltage source	-----
Sweep result display	Maximum value/ minimum value of primary/secondary parameter, primary/secondary value of the setting point	-----
Sweep graph storage	Sweep graphs can be saved to the interior FLASH, external USB storage or uploaded to the upper computer.	-----
Comparator		
Bin sorting	Primary parameter	9 BIN, OUT_OF_BINS, AUX_BIN, LOW_C_REJECT
	Secondary parameter	HIGH, IN, LOW
Bin limit setup	Absolute value, deviation value, percentage deviation value	
Bin count	0 -- 999999	
PASS/FAIL indication	When the primary parameter is one of the 9 BINS and the secondary parameter is IN, the PASS light on the front panel is ON, or FAIL light is ON.	
Test auxiliary function		
Data buffer storage function	201 test results can be read in batches	
Storage/Calling function	100 groups of test setting files in the internal nonvolatile memory 0--99 100 groups of test setting files in the USB storage 0—99	
Keyboard lockout function	Front panel keys can be locked	
USB HOST port	Universal Serial Bus socket, A class; FAT16/FAT32 format. USB flash disk storage or barcode scanning	
USB DEVICE port	Universal Serial Bus socket, small size B class (4 contact position); Correspond to USBTMC-USB488 and USB 2.0 The female joint is used for connecting the external control unit.	
LAN	10/100BaseT Ethernet, 8pins, two selectable speed mode	
HANDLER interface	Be used for bin sorting signal output	
External DC BIAS control	Control TH1778A/TH1778AS Bias current source, at most 1 set of TH1778+5 sets of TH1778S (120A MAX)	
RS232		
GPIB (option)	24 pin D-Sub port (D-24 class), the female joint is compatible with IEEE488.1, 2 and SCPI.	

## Standard Accessories

Three core power cord	SBF0011BS	4 terminal pair Kelvin test clip leads
SBF0010 Gold-plated short circuit board	SBF0005C	Four-terminal test fixture

## Options

SBF1108C	Four-terminal-pair patch test fixt	SBF0008A	SMD component test fixture
SBF0007A	Magnetic ring test fixture	SBF0009B	SMD Kelvin test tweezers
SBF0047	Four-terminal test fixture	SBF0048	Four-terminal test fixture
SBF0063	Four-terminal test fixture	SBF0062A	Four-terminal test fixture
SBF8838-GPIB	GPIB Interface board	SBF0033	GPIB Control cable