TH2838 Series

Precision LCR Digital Bridge · 20 Hz – 2 MHz

A high-precision, four-terminal-pair auto-balancing-bridge LCR meter for component and material impedance testing up to 2 MHz, with a SCPI/MODBUS command set for automated test systems. Three voltage/power configurations cover everything from routine bench testing to high-DC-bias component evaluation.

Dimensions: 400(W) × 132(H) × 425(D) mm · Net weight: 15 kg



- **0.05% basic accuracy**, auto-balancing bridge, four-terminal-pair test configuration
- Up to **15 measurement ranges** for high stability and consistency
- Test speed as fast as **5.6 ms**
- 7" TFT colour display, 800×480 resolution
- 201-point multi-parameter list sweep, per-point OPEN/SHORT/LOAD correction
- Graphical sweep analysis: impedance curves, C–V curves, resonance search
- Math function, automatic polarity detection for varactor diode C-VDC testing
- One-touch screen capture and one-touch data logging
- 10-bin sorting with sound/light PASS-FAIL alarm
- Internal storage for 40 setups; USB expansion for 500 setups, images and log files

Three models, one platform

TH2838A

Standard-range bench model

Frequency	20 Hz – 1 MHz
AC voltage	5 mV – 2 Vrms
DC bias	0 – ±10 V

TH2838

Full 2 MHz range

Frequency	20 Hz – 2 MHz
AC voltage	5 mV – 2 Vrms
DC bias	0 – ±10 V

TH2838H

High-power, high-DC-bias testing

Frequency	20 Hz – 2 MHz
AC voltage	5 mV – 20 Vrms [1]
DC bias	0 – ±40 V

[1] TH2838H: 20 Vrms at F ≤ 1 MHz, 15 Vrms above; adds an independent ±10 V voltage source and external DC-bias-current control (up to 1×TH1778 + 5×TH1778S, 120 A max). All models share the 7" display, SCPI/MODBUS, and USB/LAN/RS232 interfaces (GPIB optional).

Applications

Passive & semiconductor components

Capacitors, inductors, cores, resistors, piezo devices, transformers, chip components; LED-driver IC parasitics; varactor C–VDC; transistor/IC parasitics.

Materials research

Dielectric constant/loss angle of plastics and ceramics (TH26077 fixture); permeability of ferrite/amorphous cores; semiconductor and liquid-crystal C–V.

Production & incoming inspection

Incoming inspection and bin-sorted production test with handler interface and SCPI/MODBUS remote control.

Technical specifications

Parameter	TH2838A	TH2838	TH2838H
Display	7" (diagonal) TFT LCD, 800×RGB×480, 16:9		
Reading resolution	6 digits		
Basic accuracy	0.05%		
Test frequency range	20 Hz – 1 MHz	20 Hz – 2 MHz	
— resolution	1 mHz – 100 Hz, six sub-ranges (finer at low end)		
Signal source impedance	100 Ω, ±1% @ 1 kHz		
AC signal — voltage	5 mVrms – 2 Vrms	5 mVrms – 2 Vrms	F≤1MHz: 5 mV–20 Vrms F>1MHz: 5 mV–15 Vrms
AC signal — current	50 µArms – 20 mArms	50 µArms – 20 mArms	50 µArms – 100 mArms
— signal mode	Rated (ALC OFF): open/short Hcur value · Constant (ALC ON): held at DUT		
RDC test signal	100 mV – 2 V, resolution 100 µV		
DC bias — voltage	0 – ±10 V	0 – ±10 V	0 – ±40 V
— current	0 – ±100 mA		
Independent V source / ext. DC bias control	—	—	±10V/±45mA source; ext. 1×TH1778+5×TH1778S (120A max)
Test parameters	Cp-D/Q/G/Rp, Cs-D/Q/Rs, Lp-D/Q/G/Rp/RDC, Ls-D/Q/Rs/RDC, R-X, Z-θd/θr, G-B, Y-θd/θr, VAC-IAC, VDC-IDC		
Math / equiv. circuit	A(X+B)+C user-defined math · Series or Parallel equivalent circuit		
Deviation / calibration	Absolute Δ / percentage Δ% vs. nominal · OPEN, SHORT, LOAD correction · AUTO/HOLD range		
Ranges — LCR / RDC	100 mΩ – 100 kΩ, 15 ranges (RDC: 1 Ω – 100 kΩ, 15 ranges)		
Trigger mode / delay	Internal, Manual, External, Bus · Delay 0 s – 60 s, resolution 100 µs		
Test terminal / cable	Four-terminal-pair · 0 m, 1 m standard (2 m, 4 m optional)		
Measurement time	Averaging 1–255 · FAST 5.6–330 ms · MED 88–380 ms · LONG 220–480 ms (frequency dependent)		
List sweep	Up to 201 points; per-point frequency, AC level, DC bias, speed and OPEN/SHORT/LOAD correction; SEQ or STEP trigger		
Graphical sweep analysis	51/101/201/401/801 points; primary or secondary trace; log or linear scale; sweep by frequency, ACV, ACI or DC bias		
Comparator / bin sorting	Primary 9 BIN + OUT_OF_BINS + AUX_BIN · Secondary HIGH/IN/LOW · Count to 999,999, PASS/FAIL with sound/light alarm		
Storage	Internal: 40 setup files · USB: 500 setup files, screen captures and data-log files		
Dimensions / weight	400(W) × 132(H) × 425(D) mm · 15 kg		
Power supply	~115 V / ~230 V AC, 50/60 Hz, 80 VA (see rear-panel rating label; fuse T4AL250V / T10AL250V)		

Interfaces

RS232	USB Host	USB Device	Handler	LAN	SCPI / MODBUS	GPIB
standard	standard	standard	standard	standard	standard	optional

USB Host: type A, FAT16/FAT32, for USB-drive storage or barcode scanning. USB Device: USBTMC-USB488 / USB 2.0, type B. LAN: 10/100BaseT Ethernet. GPIB: 24-pin D-Sub, IEEE488.1/.2 compatible.

Standard accessories

Item	Description
—	EU power cable (Schuko, CEE 7/7)
TH26010	Gold-plated short-circuit board
TH26011BS	Four-terminal-pair test fixture
TH26005C	Four-terminal-pair test box

Optional test fixtures

Item	Description
TH26007A	Magnetic-ring (toroidal-core) test fixture, DC–120 MHz
TH26008A	SMD component test fixture, DC–120 MHz
TH26009B	SMD component test tweezers, DC–15 MHz
TH26108C	Four-terminal-pair patch test fixture, DC–40 MHz
TH26047/ TH26048	Leaded / axial-radial component fixtures, DC–120 / DC–13 MHz
TH26062A/ TH26063	Four-terminal-pair fixtures for DC-link / screw-terminal capacitors, DC–100 kHz
TH26077	Dielectric test fixture, DC–120 MHz, DUT ø10–56 mm

More fixtures available on request, including custom designs — ask your Techmize contact or authorized distributor.

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