TH2851 Series

Ultra-High-Frequency Precision Impedance Analyzer

The TH2851 Series extends precision impedance analysis up to 130 MHz on an automatic-balancing-bridge platform with four-terminal-pair test configuration. A 10.1" touch interface brings point measurement, list sweep, graphic sweep, equivalent-circuit analysis and crystal-oscillator (piezoelectric) analysis together on one screen, while optional dielectric-constant and magnetic-permeability packages extend the platform into materials characterization. Five models share the same 0.08% accuracy core and differ only in maximum test frequency.

Dimensions: 428(W) × 220(H) × 325(D) mm · Weight: 14.5 kg



- **10Hz – 130MHz** test frequency across the series, 1 mHz resolution
- Automatic-balancing-bridge technology, four-terminal-pair configuration, **0.08% basic accuracy**
- Impedance test range **25mΩ – 40MΩ** (±10% accuracy)
- Fastest test speed of **2.5 ms** per point, five selectable speed/accuracy levels
- 10.1" capacitive touch screen, 1280×800, English UI with mouse/keyboard/LAN/VGA/HDMI support
- Five test modes: point, list sweep, graphic sweep, equivalent-circuit and crystal-oscillator analysis
- **1,601-point** multi-parameter list sweep with independent per-point averaging and sorting
- 4-channel graphic sweep, 4 curves per channel, 14 split-screen layouts (16 curves total)
- 10-bin LCR sorting; independent pass/fail sorting on every scanned curve
- SCPI command set and LabVIEW compatibility for automated test integration

Five models, one platform

TH2851-015	TH2851-030	TH2851-050	TH2851-080	TH2851-130
Test frequency	Test frequency	Test frequency	Test frequency	Test frequency — flagship
10Hz–15MHz	**10Hz–30MHz**	**10Hz–50MHz**	**10Hz–80MHz**	**10Hz–130MHz**

All five models share the same 0.08% basic-accuracy core, four-terminal-pair test configuration and Windows-based touch UI, differing only in maximum test frequency. Optional dielectric-constant and magnetic-permeability analysis packages (test fixture + software) are available across the series.

Applications

Passive & semiconductor components

Capacitors, inductors, magnetic cores, resistors, piezoelectric devices, transformers, chip and network components; LED-driver IC parasitics, varactor C-V, transistor/IC parasitic analysis.

Other components

Printed circuit boards, relays, switches, cables and batteries.

Materials characterization

Dielectric constant/loss of plastics and ceramics, permeability of ferrite and amorphous materials, semiconductor material C-V and conductivity, liquid-crystal-cell dielectric/elastic constants.

Technical specifications

Parameter	TH2851-015	TH2851-030	TH2851-050	TH2851-080	TH2851-130
Display	10.1" TFT LCD, 1280×800, capacitive touch screen, Windows-based UI				
Reading resolution	6 digits				
AC parameters	Cp/Cs, Lp/Ls, Rp/Rs, |Z|, |Y|, R, X, G, B, θ, D, Q, VAC, IAC				
DC parameters	VDC, IDC, DCR				
Test frequency range	10Hz–15MHz	10Hz–30MHz	10Hz–50MHz	10Hz–80MHz	10Hz–130MHz
Frequency resolution	1 mHz				
Frequency tolerance	±0.0005% (typical, 5–40°C)				
AC voltage	5mV – 2Vrms (1mV resolution)				
AC current	50μA – 20mArms (10μA resolution)				
DC bias voltage	0 – ±40V (1mV resolution)				
DC bias current	0 – ±100mA (40μA resolution)				
Test terminal configuration	Four-terminal pair				
Output impedance	25Ω / 100Ω				
Impedance range	25mΩ – 40MΩ (±10% accuracy)				
Test speed (5 levels)	1: 2.5ms · 2: 10ms · 3: 40ms · 4: 80ms · 5: 400ms				
Peak accuracy	0.08% typical (≤ ±0.045%) at 1kHz–1MHz · 0.5% at 2MHz · 1% at 10MHz · 5.0% at 130MHz				
List sweep	Up to 1,601 points, independently averaged and sorted per point — frequency, AC voltage/current, DC bias voltage/current				
Graphic sweep	4 channels × 4 curves (16 curves total), 14 split-screen layouts; logarithmic, linear or segmented sweep, 2–1,601 points				
Equivalent circuit analysis	7 models — 4× three-element, 3× four-element; exportable as TXT				
Crystal oscillator analysis	Resonant/anti-resonant frequency, quality factor, static capacitance and loss (piezoelectric devices)				
Cursor analysis	Up to 10 cursors per curve incl. reference cursor; max/min, peak/valley and target search				
Sorting	10-bin LCR sorting; each scan-mode curve sorted independently				
Interface	RS232C, USB Host, USB Device, LAN, GPIB, HANDLER, VGA, HDMI				
Power-on warm-up	60 minutes				
Input voltage	100–120VAC / 198–242VAC selectable, 47–63Hz				
Power consumption	Max 150VA				
Dimensions (W×H×D)	428 × 220 × 325 mm				
Weight	14.5 kg				

Interfaces

RS232C	USB Host	USB Device	LAN	GPIB	HANDLER	VGA	HDMI
standard	standard	standard	standard	standard	standard	standard	standard

All interfaces are standard across the TH2851 Series. SCPI command set and LabVIEW compatibility included on every model.

Optional analysis modules

Dielectric constant analysis

- TH26077 test fixture + dielectric-constant analysis software
- Test frequency DC – 30MHz, parallel-plate measurement method
- Measures capacitance (C), dissipation factor (D) and dielectric constant (εr', εr'')
- Electrode diameter 10–56mm, sample thickness ≤10mm
- Single measurement, list sweep and curve sweep, selectable on-screen

Magnetic permeability analysis

- TH26086 adapter base + TH26088 test fixture + permeability software
- TH26086 adapter: DC – 130MHz · TH26088 fixture: 1kHz – 1GHz
- Single-turn toroidal coil fixture — no winding required, wide frequency coverage
- Small and large sample kits cover a wide range of core sizes
- TH26086_CAL calibration kit required for accurate measurement

Every TH2851 ships fully calibrated with the fixtures and reference standards below, ready to connect to its four-terminal-pair test port. For material-analysis work or high-volume production fixturing, the optional fixtures on this page extend the same platform — talk to your Techmize contact or authorized distributor about fixture selection or custom mounting requirements.

Standard accessories

Item	Description
—	EU power cable (Schuko, CEE 7/7)
TH26047A	Four-terminal-pair test fixture
TH26005D	Four-terminal-pair test fixture
TH26082A	100Ω standard component (calibration reference)
TH26010	Gold-plated short-circuit board
TH26061D_P1	Calibration kit
AR05TTS1000N	Chip resistor (calibration reference)

Optional test fixtures & software

Item	Description
TH26007A	Magnetic-ring (toroidal) test fixture — DC–120MHz
TH26008A	SMD component test fixture — DC–120MHz
TH26009B	SMD component test clamp — DC–15MHz
TH26048B	Four-terminal-pair test fixture, axial/radial leaded parts — DC–13MHz
TH26062A	Four-terminal-pair test fixture, large DC-link film capacitors — DC–100kHz
TH26063	Four-terminal-pair test fixture, bolt & DC-link capacitors — DC–100kHz
TH26108C	Four-terminal-pair chip test fixture — DC–40MHz
TH26077	Dielectric test fixture — DC–30MHz
TH26086	Four-terminal-pair to 7mm adapter base — DC–130MHz
TH26088	Magnetic-permeability test fixture — 1kHz–1GHz
TH26086_CAL	7mm-fixture calibration kit

More fixtures available on request — ask your Techmize contact or authorized distributor.

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