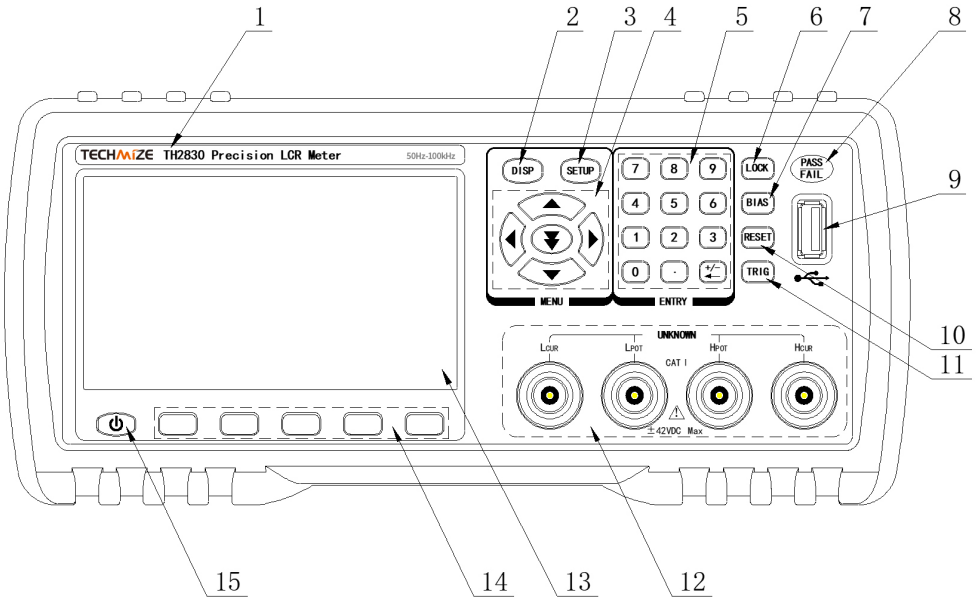
TH283X Series

Compact Digital LCR Meters — Quick Start Guide

This guide gets a TH283X-series bench LCR meter running in a few minutes: what is on the front and rear panel, how to connect a device under test, how to zero the instrument, and three short worked examples (a measurement, a bin-sorting setup and a list sweep). For full menu-by-menu detail, accuracy tables and remote-control commands, see the TH283X Series Operation Manual.

Model	Frequency range	Basic accuracy (LCRZ)	DC bias	Power
TH2830	50 Hz – 100 kHz	0.05%	— (DCR only)	220 V AC
TH2832	20 Hz – 200 kHz	0.05%	0–±5 V / ±50 mA	220 V AC
TH2832D	20 Hz – 300 kHz	0.05%	0–±5 V / ±50 mA	24 V DC

Front panel at a glance



1 **Trademark & model** — instrument brand and model designation.

2 DISP — opens the measurement display pages.

3 SETUP — alternates between the measurement setup pages and the system setup page.

4 **Cursor keys** (MENU) — move between fields on screen; the active field is highlighted. Press and hold ▼ to jump straight to another region.

5 **Numeric keypad** (ENTRY) — digits, decimal point and +/−, which toggles sign or, once a value is started, acts as backspace. Hold the decimal-point key for a screen-capture shortcut.

6 LOCK — locks/unlocks the front-panel keys (password-protected if a password is set).

7 BIAS — enables/disables the DC bias output. Not fitted on TH2830; inactive while measuring DCR, Lp-Rd or Ls-Rd.

8 **PASS / FAIL LEDs** — show the comparator (bin-sorting) result.

9 **USB HOST port** — for a USB drive: save/recall setups, screen captures, logged data.

10 RESET — stops an automatic transformer sweep in progress; no effect on other pages.

11 TRIG — manually triggers a reading when the trigger mode is set to MAN.

12 **UNKNOWN terminals** — four-terminal-pair connections: Hcur, Hpot, Lpot, Lcur.

13 **LCD display** — 480×272 colour TFT; shows readings, test conditions and status.

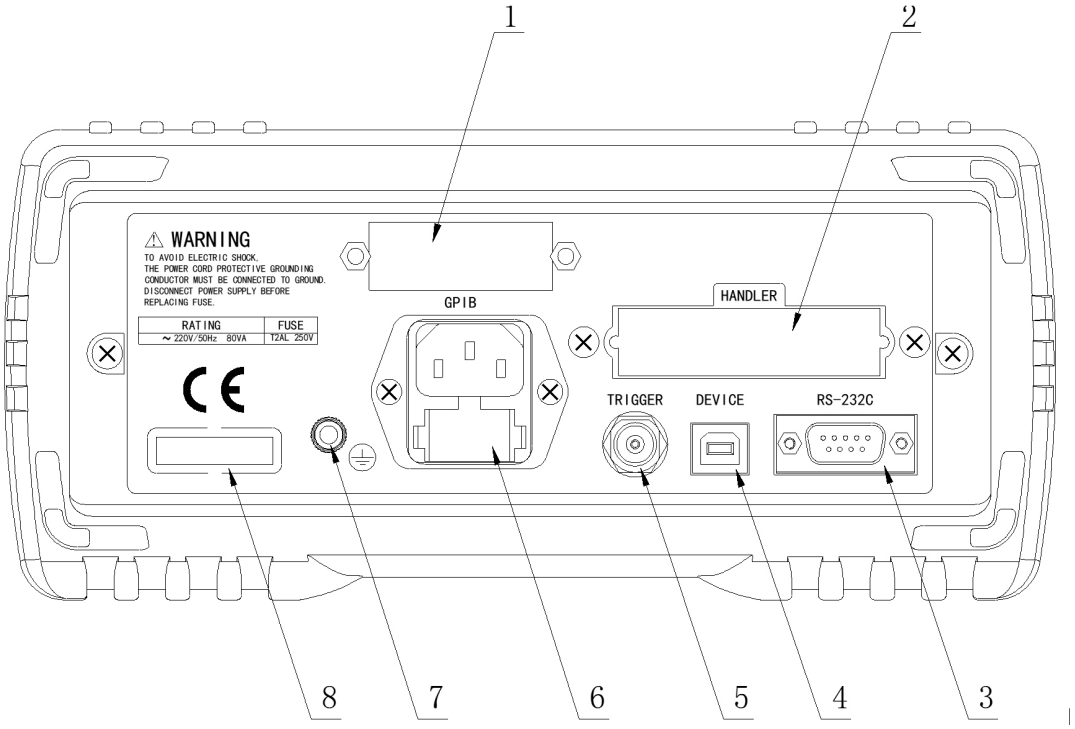
14 **Softkeys** — five context-sensitive keys; each one's function is shown on screen directly above it.

15 **POWER switch.**

First power-up

1. Connect the supplied EU power cable (Schuko, CEE 7/7) — or, on TH2832D, a 24 V DC supply — and confirm the fuse rating printed on the rear panel matches your local supply.
2. Press the POWER switch at the bottom-left of the front panel. The splash screen shows the model, firmware version and company logo while the instrument loads, then opens on the <Measurement Display> page.
3. Allow about 15 minutes of warm-up before relying on the rated accuracy, and zero the instrument as described overleaf.

Rear panel at a glance



1 **GPIB** (IEEE-488) interface — optional; PC communication.

2 **HANDLER** interface — outputs the bin/sorting result to automatic handling equipment.

3 **RS-232C** interface — PC communication.

4 **USB DEVICE** port — PC communication.

5 **TRIGGER** input — connect a foot switch or other external trigger source.

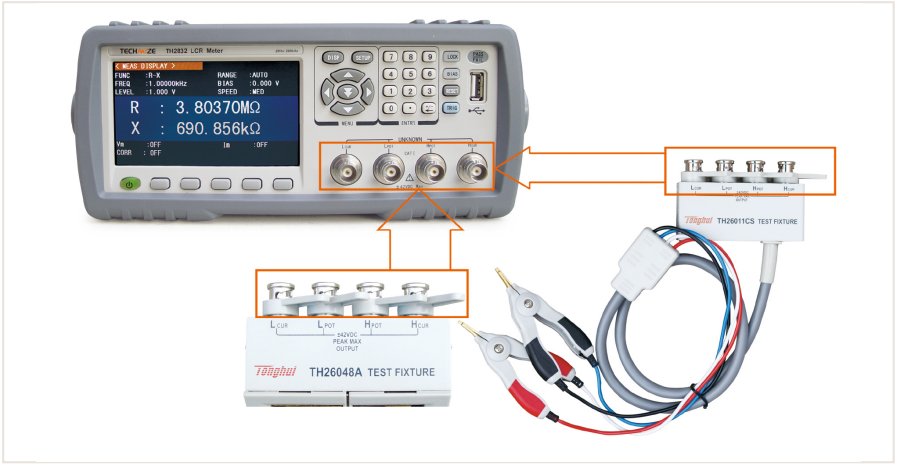
6 **AC power inlet.**

7 **Chassis ground terminal** — for protective or shield grounding.

8 **Rating label** — production date, serial number, manufacturer information.

Before switching on: confirm the fuse rating shown on the rear panel matches your supply voltage and frequency.

Connecting the device under test



Kelvin clip lead (TH26011CS) and four-terminal-pair fixture (TH26048A), standard accessories

The UNKNOWN terminals provide four independent connections — Hcur, Hpot, Lpot, Lcur — each with its own shield. Keep the shields connected: this reduces stray capacitance to ground and picks up less interference. Connect Hcur/Hpot and Lcur/Lpot as close to the device under test as practical, so the reading reflects the part rather than the leads.

- **Leaded / through-hole parts** — Kelvin clip test lead (TH26011CS) or a four-terminal-pair fixture such as TH26048A (both standard accessories).
- **SMD / chip components** — an SMD fixture or SMD test tweezers (optional; see the datasheet for the full accessory list).

Polarised components: connect the high side to Hcur/Hpot (marked "+" on the front panel) and the low side to Lcur/Lpot (marked "–"), and discharge the part before connecting it — otherwise the instrument can be damaged.

Zeroing the instrument (open / short correction)

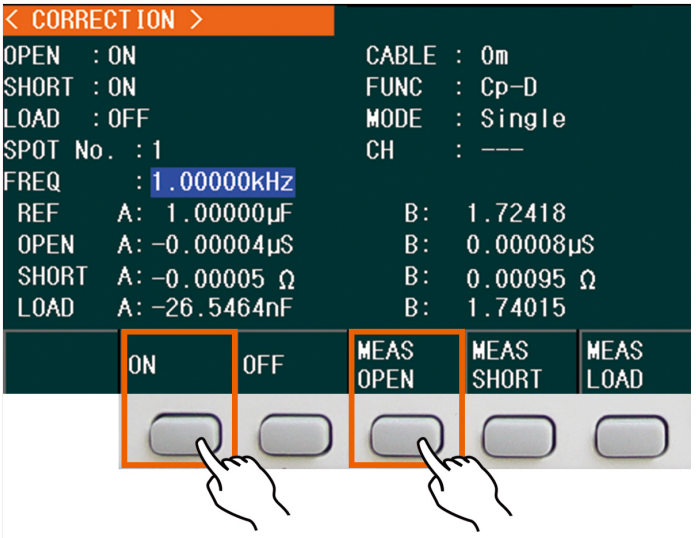
Stray impedance in the fixture and cabling affects accuracy, especially on small or high-impedance parts. Zero the instrument at your test frequency whenever you change fixture, cable or test frequency. The steps below zero a single frequency — the most practical routine for everyday bench use; to sweep the correction across every frequency point instead, use **Open All-Freq** / **Short All-Freq** in place of the single-frequency softkeys.

1. Press SETUP, then the **User Correction** softkey to open the <User Correction> page.
2. Move the cursor to *Open* and press **On**.
3. With the fixture connected and nothing inserted (left open), press **Open Single-Freq** and wait for the status line to confirm completion.



Leave the fixture open for the open correction

1. Insert the shorting plate (TH26010) into the fixture.
2. Move the cursor to *Short*, press **On**, then press **Short Single-Freq** and wait for completion.
3. Remove the shorting plate. The instrument is now zeroed at this frequency and ready to measure.

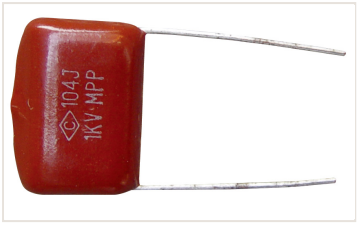


Short-circuit board TH26010, for the short correction

Worked example 1 — measuring a capacitor

A CBB film capacitor, read as parallel capacitance and dissipation factor (Cp-D) at 10 kHz, 1 Vrms.

1. Press DISP to open the <Measurement Display> page.
2. Move the cursor to *Function*. Press **More ▶** until the parameter list appears, then select **Cp-D**.
3. Move the cursor to *Frequency*, key in **10**, then press the **kHz** softkey.
4. Move the cursor to *Level*, key in **1**, then press the **V** softkey.
5. Connect the capacitor to the test fixture (see "Connecting the device under test", overleaf).
6. Read **Cp** and **D** in large digits; the reading updates continuously while the part stays connected.



Example device under test

Tip: the same five steps apply to any parameter pair (Ls-Q, Cs-D, Lp-Rd, Z-θ …) and to any frequency, level or DC bias within the model's range — only the values in steps 2–4 change.

Worked example 2 — bin sorting (comparator)

The same capacitor sorted into two capacitance bins with a loss (D) cut-off, using the built-in comparator — the front-panel PASS/FAIL LEDs and the HANDLER interface both follow the same result, so this setup is what drives an automated go/no-go test cell.

Test condition	10 kHz, 1 Vrms · nominal 100 nF
Bin 1 (primary, Cp)	−5% … +5% of nominal
Bin 2 (primary, Cp)	−10% … +10% of nominal
Secondary limit (D)	fail if D ≥ 0.001

1. Set up the measurement as in Example 1 (Cp-D, 10 kHz, 1 Vrms).
2. Press SETUP → **Limit List Setup** to open the <Limit List Setup> page.
3. Set the primary-parameter tolerance mode to **%TOL**, enter the *Nominal* value (100 nF), then enter the Bin 1 and Bin 2 low/high limits from the table above.
4. Turn on the secondary-parameter (AUX) limit and enter the D low/high limits, so a part that is in-tolerance on Cp but too lossy is still failed.
5. Press DISP → **Bin No. Display** to see the live BIN / PASS / FAIL result in large digits as each part is connected.

Worked example 3 — list sweep

Sweeping the same capacitor's Cp-D reading across frequency — up to 201 points, in frequency, AC level or DC bias — is a fast way to see how a part's characteristics change over its working range.

1. Set up the measurement as in Example 1 (function **Cp-D**, level 1 Vrms).
2. Press [SETUP] → **List Setup** to open the <List Sweep Setup> page, and set *Mode* to **SEQ** (sequential) or **STEP**, as preferred.
3. Enter the frequency for each sweep point in the *No.* column — e.g. 10 points, linearly spaced from 100 Hz to 100 kHz — or step the spacing between points and let the instrument fill in the rest.
4. Press [DISP] → **List Sweep Display**, then trigger the sweep ([TRIG], or the configured trigger source). The reading and the comparator result (if limits are set) are listed for every point as the sweep completes.

> **Tip:** list sweep and bin sorting can be combined — set limits per sweep point in the same <List Sweep Setup> page to flag out-of-tolerance points as the sweep runs.

Interfaces

RS232	USB Host	USB Device	Handler	SCPI / MODBUS	GPIB	RS485	Scanner
standard	standard	standard	std.*	standard	optional	optional[1]	optional

* Handler is optional on TH2832D (standard on TH2830/TH2832). [1] RS485 requires an RS232-to-RS485 converter.

Where to go next

This guide covers the everyday bench workflow. For the full menu reference, accuracy tables versus frequency, list-sweep and comparator details, file management, and SCPI/MODBUS remote-control commands, see the **TH283X Series Operation Manual** and the **TH283X Series datasheet**, or contact Techmize or your authorized distributor using the details below.

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