TH1779A

DC Bias Current Source

A high-power DC bias current source for AC/DC-superposition testing on magnetic components. A single unit delivers 50 mA–50 A of constant current and can run as a master or a slave; chain up to eight units for a combined output of 50 mA–400 A. Purpose-built for inductor, choke and transformer bias testing and for saturation analysis of iron-core and ferrite materials, with a direct interface for connecting to a compatible digital LCR meter.

Dimensions: 430(W) × 177(H) × 585(D) mm · Weight: 29 kg (single unit)



- **50 mA–50 A** constant current output per unit, configurable as master or slave
- Up to **8 units in parallel** — 400 A maximum combined output
- Master/slave control mode with flexible scalability
- Fine current-step resolution down to **1 mA**
- **1 kHz–2 MHz** frequency response for AC/DC superposition testing
- Single-current and step-sweep current output modes
- Physical START/STOP keys and foot-switch control for operator safety
- Direct interface for connection to a compatible digital LCR meter, incl. pass-through DCR testing

LCR meter compatibility

TH1779A works as a controlled bias source alongside a digital LCR meter

Recommended: TH2840BL — developed specifically for use with an external DC bias current source

All Techmize benchtop digital LCR meters and impedance analyzers are compatible

Any other brand of LCR meter — manual operation via the front-panel keys or foot switch

Applications

Inductor / reactor testing

DC characteristics analysis of inductors and reactors under real bias-current conditions.

Core saturation analysis

Saturation-characteristics analysis of iron-core and ferrite materials.

General DC characterisation

DC characteristics analysis of other magnetic and passive materials.

Technical specifications

Parameter	TH1779A
Master/Slave	Master or slave — one master, up to 7 slaves, max. 8 units in parallel
Display	7" 800×480 RGB TFT LCD, full graphical interface, English UI
Operation	Physical buttons + foot switch
Current range	50 A (single unit) — 400 A combined (8-unit parallel)
Current output accuracy	1% ± 10 mA
Current step	Range 0.05 A–50 A · Resolution 1 mA
Supported measurement frequency	1 kHz–2 MHz
Current rise time	1 A/s–20 A/s
Current fall time	1 A/s–20 A/s
Minimum step for scan adjustment	1 mA
Maximum output voltage	16 V
Maximum allowable DC resistance	$R_{max} = V_{max} / I$ (Ω) — see user manual for the calculation
Start/Stop control mode	Physical START/STOP key, bus command, foot switch
Max. continuous current loading duration	60 minutes
Function	Instrument self-diagnosis; English UI; real-time operation; SCPI command set
DCR function	Direct DCR testing supported when connected to a compatible LCR meter
Interface	RS-232C; USB (front panel); DEVICE USB (rear panel); SINGLE IN / SINGLE OUT (master/slave chain); FOOT.C (foot switch)
Temperature	Normal operation 0–55℃ · Reference 23(±5)℃ · Transport 0–55℃
Humidity	Normal <90%RH · Reference <80%RH · Transport <93%RH
Power supply	AC 100–242 V, 47–63 Hz · Standby ≤100 VA, full load 1.5 kVA
Dimensions	430(W) × 177(H) × 585(D) mm (single unit, excl. cabinet)
Weight	29 kg (single unit, excl. cabinet)

Interfaces

RS-232C	USB	DEVICE (USB)	SINGLE IN	SINGLE OUT	FOOT.C
standard	front panel	rear panel	standard	standard	foot switch

SINGLE IN / SINGLE OUT chain up to 8 units for master/slave operation. Port names as marked on the instrument.

Standard accessories

Item	Description
TH1779A-1	DB15 male-to-female connecting cable
TH1778AS-A19	Bias current connection board
TH26023B	BNC four-terminal-pair connecting cable
TH1779-01	50 A bias current cable
TH26034B	RS232 connecting cable (for TH10101)

Optional test fixtures

Item	Description
TH26061A	Axial-lead component bias test fixture
TH26061B	Bottom-electrode component bias test fixture
TH26061C	Bottom-electrode test fixture
TH26061D	Bottom-electrode test fixture

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

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