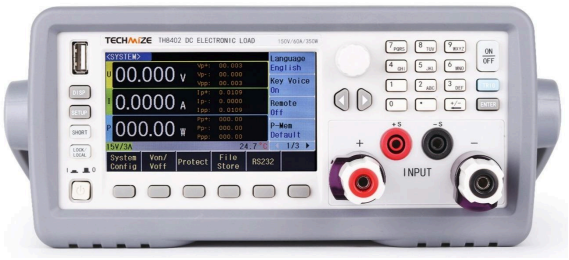
TH8400 Series

Programmable DC Electronic Load

An 8-model, dual-platform family of high-precision programmable DC electronic loads for power-supply, battery and DC/DC converter test — from 175 W bench-top units up to 2000 W full-rack systems. 500 kHz synchronous sampling, 1 mV / 0.1 mA resolution and a 4.3" colour TFT display with real-time voltage/current waveform capture support both fast production-line testing and high-accuracy lab characterisation.

Compact / Half-Rack platform — TH8401, TH8402A, TH8402, TH8411, TH8412 · 215×88×390 mm, 3.0–4.8 kg

Full-Rack platform — TH8403, TH8404, TH8405 · 430×88×529 mm, 13.0–18.0 kg



TH8402 (Compact / Half-Rack platform shown)

- **500 kHz** synchronous sampling, **1 mV / 0.1 mA** resolution
- Voltage/current ripple, peak (Vp+/Ip+) and valley (Vp-/Ip-) measurement
- 4.3" 480×272 colour TFT display with real-time V/I waveform view
- 16 operating modes: CC, CV, CR, CP plus 12 advanced test modes
- Dynamic (DYN) load switching up to 25 kHz; frequency sweep (SWP) mode
- Programmable current slew rate and soft start (10 µs–500 ms)
- Remote sense (+S/−S) compensation for high-current test leads
- OVP / OCP / OPP protection with automated OCPT / OVPT / OPPT test routines
- Intelligent fan control, USB data logging, screen capture, firmware update
- RS232C and SCPI standard; LAN interface on TH8403/04/05

Eight models, two chassis platforms

TH8401

Entry compact model

V	0–15/150V
I	0–3/30A
P	175W

TH8402A

Compact, higher power

V	0–15/150V
I	0–3/30A
P	350W

TH8402

Compact, higher current

V	0–15/150V
I	0–6/60A
P	350W

TH8411

Compact, high voltage

V	0–50/500V
I	0–1.5/15A
P	175W

TH8412

Compact, high voltage

V	0–50/500V
I	0–3/30A
P	350W

TH8403

Full-rack, 1000W

Voltage	0–15V / 0–150V
Current	0–12A / 0–120A
Power	1000W

TH8404

Full-rack, 1500W

Voltage	0–15V / 0–150V
Current	0–18A / 0–180A
Power	1500W

TH8405

Full-rack, 2000W

Voltage	0–15V / 0–150V
Current	0–24A / 0–240A
Power	2000W

Full specifications for all eight models on page 2.

Applications

Power supplies

Chargers, switch-mode power supplies, telecom power, LED drivers, mobile phone batteries, power banks.

New energy

Solar cells, EV traction batteries and chargers, electric bicycles.

Electronic power components

Fuses, connectors, relays, sensors.

Production & automation

AUTO-mode multi-step PASS/FAIL sequencing for automated test-line integration.

Technical specifications — Compact / Half-Rack models

Parameter	TH8401	TH8402A	TH8402	TH8411	TH8412
Rated power	175W	350W	350W	175W	350W
Voltage range	0–15V / 0–150V		0–15V / 0–150V	0–50V / 0–500V	
Current range	0–3A / 0–30A	0–3A / 0–30A	0–6A / 0–60A	0–1.5A / 0–15A	0–3A / 0–30A
Min. operating voltage	1.5V@30A	1.2V@30A	1.5V@60A	1.8V@15A	3V@30A
Min. rise time	20 µs				
CV accuracy	0.05% + 0.05% FS (resolution 1mV / 10mV, low/high range)				
CC accuracy	0.05% + 0.05% FS (resolution 0.1mA / 1mA, low/high range)				
CR range	0.05Ω–50kΩ	0.05Ω–50kΩ	0.05Ω–25kΩ	0.2Ω–50kΩ	0.1Ω–50kΩ
CR accuracy	1% (resolution 0.01Ω)				
CP range	0–175W	0–350W	0–350W	0–175W	0–350W
CP accuracy	0.5% + 0.1% FS (resolution 10mW)				
Dynamic mode range	20 µs – 60 s, resolution 2 µs, accuracy 2 µs + 100 ppm				
Dynamic current slew rate	0.6A/ms–1.5A/µs	0.6A/ms–1.5A/µs	1.2A/ms–3A/µs	0.3A/ms–0.75A/µs	0.6A/ms–1.5A/µs
V / I measurement accuracy	0.08% + 0.05% FS				
Ripple measurement	Bandwidth 250kHz, accuracy 0.1%				
Protection	OVP, OCP, OPP				
Internal storage	40 setting groups				
Dimensions (shelf / exterior)	215×88×390 mm / 236×111×454 mm				
Weight	3.0 kg	4.8 kg	4.8 kg	3.0 kg	4.8 kg
Safety & EMC	LVD: EN 61010-1:2010+A1:2019 (2014/35/EU), Cert. No. MTZS23023905 · EMC: EN IEC 61326-1:2021, EN IEC 61000-3-2:2019+A1:2021, EN 61000-3-3:2013+A1:2019+A2:2021 (2014/30/EU), Cert. No. MTZS23023906 — see Compliance note, page 3				

Technical specifications — Full-Rack models

Parameter	TH8403	TH8404	TH8405
Rated power	1000W	1500W	2000W
Voltage range	0–15V / 0–150V		
Current range	0–12A / 0–120A	0–18A / 0–180A	0–24A / 0–240A
Min. operating voltage	1.5V@120A	1.5V@180A	1.5V@240A
Min. rise time	20 µs		
CV accuracy	0.05% + 0.05% FS (resolution 1mV / 10mV, low/high range)		
CC accuracy	0.05% + 0.05% FS (resolution 0.1mA / 1mA, low/high range)		
CR range	0.05Ω–50kΩ	0.02Ω–50kΩ	0.01Ω–25kΩ
CR accuracy	1% (resolution 0.01Ω)		
CP range	0–1000W	0–1500W	0–2000W
CP accuracy	0.5% + 0.1% FS (resolution 10mW)		
Dynamic mode range	20 µs – 60 s, resolution 2 µs, accuracy 2 µs + 100 ppm		
Dynamic current slew rate	2.4A/ms–6A/µs	3.6A/ms–9A/µs	4.8A/ms–12A/µs
V / I measurement accuracy	0.08% + 0.05% FS		
Ripple measurement	Bandwidth 250kHz, accuracy 0.1%		
Protection	OVP, OCP, OPP		
Internal storage	40 setting groups		
Dimensions (exterior)	430×88×529 mm		
Weight	13.0 kg	15.5 kg	18.0 kg
Safety & EMC	LVD: EN 61010-1:2010+A1:2019 (2014/35/EU), Cert. No. MTZS23023905 · EMC: EN IEC 61326-1:2021, EN IEC 61000-3-2:2019+A1:2021, EN 61000-3-3:2013+A1:2019+A2:2021 (2014/30/EU), Cert. No. MTZS23023906 — see Compliance note, page 3		

Operating conditions (both platforms): power supply 220 V AC (±10%), 50/60 Hz (±5%), <50 VA; temperature 0–40 °C, humidity <90% RH. Warm-up ≥20 minutes for rated accuracy.

Advanced test modes

DYN / SWP

Dynamic load switching between two current levels up to 25kHz; frequency sweep captures worst-case Vp+/Vp- across a frequency range.

LIST / AUTO

Up to 100-step programmable current sequences (10 files); AUTO mode runs multi-step PASS/FAIL production tests (10 files, 50 steps each).

BATT / CR-LED / OCPT / OVPT / OPPT / Load Effect / TIME

Battery discharge testing, LED I-V simulation, automated OCP/OVP/OPP trigger-point detection, load regulation and internal-resistance calculation, and interval timing.

Interfaces

Compact / Half-Rack — TH8401, TH8402A, TH8402, TH8411, TH8412

RS232C	USB Host	I-MONITOR	HANDLER	SCPI
standard	standard	std.*	standard	standard

* I-MONITOR is not fitted on TH8401. No LAN interface on this platform.

Full-Rack — TH8403, TH8404, TH8405

RS232C	USB Host	I-MONITOR	HANDLER	LAN	SCPI
standard	standard	standard	standard	standard	standard

LAN uses the same SCPI command set as RS232C. Input terminals: banana-jack + binding-post on the Compact/Half-Rack platform (20A max. per banana jack); heavy-duty screw terminals on the Full-Rack platform.

Compliance

TH8400 series — TH8401, TH8402A, TH8402, TH8411, TH8412, TH8403, TH8404, TH8405

Tested and certified compliant by Shenzhen Most Technology Service Co., Ltd. (Shenzhen, China):
· **LVD** (2014/35/EU): EN 61010-1:2010+A1:2019 — Certificate No. MTZS23023905, Report No. MTAB23020021, issued 29 March 2023
· **EMC** (2014/30/EU): EN IEC 61326-1:2021, EN IEC 61000-3-2:2019+A1:2021, EN 61000-3-3:2013+A1:2019+A2:2021 — Certificate No. MTZS23023906, Report No. MTEB23020060, issued 30 March 2023
CE marking is physically applied to the product rear panel.

Standard accessories

Item	Description
—	EU power cable (Schuko, CEE 7/7) × 1
YT3008	Test cable × 1 (TH8401/8402A/8402/8411/8412 only — not supplied with TH8403/8404/8405)

Optional test cables

Item	Description
TH26035D	Test cable
TH26035E	Test cable
TH26035K	Test cable
TH26035L	Test cable

More cables/fixtures available on request — ask your Techmize contact or authorized distributor. Front-panel USB port accepts a USB flash drive for firmware updates, screen capture (GIF) and STA/CSV data logging.

Techmize Electronic GmbH

Office 125–126, Regus
Carl-Zeiss-Ring 15a, 85737 Ismaning, Germany
An international subsidiary of Changzhou Tonghui Electronic Co., Ltd. (China)

Contact

Mobile: +49 171 4981898
Email: dx.han@tonghui.com.cn
Web: en.tonghui.com.cn

Registration

Managing Director: Haohua Zhao
Register Court: Amtsgericht München
HRB 312530
VAT ID DE463170824

Website LinkedIn YouTube

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