TH6430 Series

Multi-Channel Programmable Linear Source-Load Integrated Power Supply

A family of linear, multi-channel programmable DC power supplies with source-load integration: CH1 and CH2 double as a DC electronic load (CC/CV/CR/CW), so one instrument can both power and sink a device under test. Four models — TH6431 to TH6434 — scale from a single high-current output to a four-channel bench platform, all sharing the same 4.3" colour display, programmable sequence engine and communication interfaces.

215(W) × 125(H) × 290(D) mm · approx. 8 kg · all four models



- 4.3" 480×272 dot-matrix graphic LCD display
- Up to four DC power outputs; CH1 and CH2 double as a **DC electronic load** (CC/CV/CR/CW)
- CH1+CH2 **series/parallel** output — up to 64 V or 6 A combined
- 1 mV / 0.1 mA setting resolution, 0.1 mV / 0.1 mA readback resolution
- Programmable sequence (LIST): 100 steps, sine/triangle/step/exponential/logarithmic/custom templates
- Per-channel sequential output with independent start/stop delay and working-time timer
- Real-time voltage/current/power data logging to USB, CSV export
- OVP, OCP and OPP protection on every channel
- RS232, GPIB, LAN, USB Host, USB Device and 5-group Control I/O
- SCPI remote-control command set

Four models, one platform

TH6431

Single channel, high current

Outputs	1
CH1	0–32V / 0–6A
Load mode	CC/CV/CR/CW
CW range	0–100W

TH6432

Two channels, series/parallel

Outputs	2
CH1 / CH2	0–32V / 0–3A
Series	0–64V / 0–3A
Parallel	0–32V / 0–6A

TH6433

Adds a fixed-rail USB-output channel

Outputs	3
CH1 / CH2	0–32V / 0–3A
CH3	1.8/2.5/3.3/5.0V
CH3 current	0–5A (term.)

TH6434

Full four-channel bench platform

Outputs	4
CH1 / CH2	0–32V / 0–3A
CH3	0–5V / 0–1A
CH4	0–15V / 0–1A

CH1 and CH2 are the source-load channels on every model that has them; CH3/CH4 (TH6433/TH6434) are power-output-only auxiliary rails. Series and parallel operation is available on CH1+CH2 only. TH6433's CH3 is also brought out on a front-panel USB Type-A connector (0–3A on the USB port vs. 0–5A on the terminals).

Applications

R&D & design verification

General-purpose bench source/load for design validation and characterization testing.

Production & repair

Production-line bench testing, rework and repair stations.

Automation integration

SCPI-programmable source-load for automated test-equipment integration.

Teaching laboratory

Combined power supply and electronic load for lab and classroom use.

Power mode — output ratings

Channel	TH6431	TH6432	TH6433	TH6434
CH1	0–32V / 0–6A	0–32V / 0–3A	0–32V / 0–3A	0–32V / 0–3A
CH2	—	0–32V / 0–3A	0–32V / 0–3A	0–32V / 0–3A
CH3	—	—	1.8/2.5/3.3/5.0V — 0–5A (terminal) / 0–3A (USB port)	0–5V / 0–1A
CH4	—	—	—	0–15V / 0–1A
CH1+CH2 series	—	0–64V / 0–3A	0–64V / 0–3A	0–64V / 0–3A
CH1+CH2 parallel	—	0–32V / 0–6A	0–32V / 0–6A	0–32V / 0–6A

Rated at 0–40°C ambient. Series/parallel switching is internal to CH1/CH2; output is taken from CH1 "+" and CH2 "−" (series) or CH1's own terminals (parallel).

Power mode — general specifications (CH1/CH2, and CH1 on TH6431)

Parameter	All models — CH1/CH2 (main channels)
Setting resolution	Voltage 1mV · Current 0.1mA
Readback resolution	Voltage 0.1mV · Current 0.1mA
Accuracy (25°C±5°C)	Voltage 0.03%+10mV · Current 0.3%+10mA
Load regulation	Voltage 0.01%+3mV · Current 0.01%+3mA
Line (power) regulation	Voltage 0.006%+3mV · Current 0.01%+3mA
Ripple & noise (20Hz–20MHz)	Voltage 1mVrms · Current 2mArms
Series regulation (CH1+CH2)	Linear 0.01%+5mV · Load 100mV
Parallel regulation (CH1+CH2)	Linear 0.01%+3mV · Load 0.01%+3mV
Transient recovery time	50µs (50%–100% load step, recovery to within 75mV)

TH6433 CH3 differs from the above: Accuracy (voltage) 5% · Load regulation (voltage) 5mV · Line regulation (voltage) 3mV · Ripple & noise (voltage) 2mVrms. CH3 has no current-mode accuracy/regulation spec (fixed voltage rail). TH6434's CH3/CH4 auxiliary outputs share the same setting/readback resolution, accuracy, regulation and ripple figures as CH1/CH2 above.

Additional functions

Sequence (LIST)	CH1/CH2 (CH1 on TH6431) · 100 steps · sine / triangle / step / exponential / logarithmic / custom templates · 1–100 cycles or infinite
Sequential/delay output	All channels · turn-on delay 0.1–100s · turn-off delay 0.1–100s · working-time timer 0.1s–360000s
Data recording	All channels · interval 0.1–100s · 100–1000 groups per run · single or continuous · CSV export to USB
Setup storage	10 internal setup files · USB drive for setup files and recorded data

Load (DC electronic load) mode — CH1/CH2, and CH1 on TH6431

Parameter	Range	Resolution	Accuracy
CC (constant current)	0–3A (TH6431: 0–6A)	1mA	0.3%+10mA
CV (constant voltage)	1–32V	10mV	0.1%+30mV
CR (constant resistance)	1–1000Ω	1Ω	3%+1Ω
CW (constant power)	0–50W (TH6431: 0–100W)	0.01W	0.3%+1W

Figures apply uniformly across TH6431/TH6432/TH6433/TH6434. Load mode input power is limited to 50W (100W on TH6431) and supports OCP/OVP/OPP protection.

Interfaces, environment & general

RS232	GPIB	LAN	USB Host	USB Device	Control I/O	SCPI
standard	standard	standard	standard	standard	5 groups	standard

Control I/O: 5 independently configurable input/output ports for external triggering and status signalling.

Operating environment	0–40℃ · ≤75%RH (operating) · ≤85%RH (storage)
Power supply	110/220V AC (±10%) · 50/60Hz · ≤130VA
Dimensions (W×H×D)	215 × 125 × 290 mm
Weight	approx. 8kg

Standard accessories

Item	Description
—	EU power cable (Schuko, CEE 7/7)
YT3008	Test cable

Optional accessories

Item	Description
TH26035D	High-current test lead
TH26035E	High-current test lead

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

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