TECHMIZE by TONGHUI

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CATEGORY CATALOG

Power Electronics

AC/DC power supplies, DC electronic loads, bidirectional power systems and power meters for characterizing and stressing power devices and systems under test.

In this catalog

Ten product families, grouped by function — DC power supplies, AC/AC-DC power sources, DC electronic loads, and power meters — ordered from highest-end to lowest-end within each group.

DC POWER SUPPLIES

TH66000 Series Family 03
Bidirectional Regenerative DC Power System / Load / Supply · up to 1500 V / 15 kW

TH6900 Series 07
Wide-Range Programmable DC Power Supply · 0–1000 V, 21 models, 750 W/1.5 kW/3 kW

TH6430 Series 10
Multi-Channel Programmable Linear Source-Load Integrated Power Supply

TH6400 Series 13
Linear Multi-Channel Programmable DC Power Supply · 5–180 W per channel

AC / AC-DC POWER SOURCES

TH7100 Series 15
Programmable AC Power Source · 500–2000 W, 0–300 V, 45–500 Hz

TH7200 Series 17
Programmable AC/DC Power Source · combined AC+DC, arbitrary waveform

DC ELECTRONIC LOADS

TH8300 Series 20
Modular Programmable DC Electronic Load · up to 2500 W, 10 channels

TH8400 Series 24
Programmable DC Electronic Load · 175–2000 W, 8 models

POWER METERS

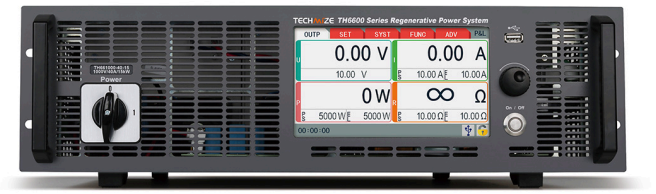
TH343X / TH344X Series 27
Wideband Digital Power Meter · 6 models

TH342X Series 29
Digital Power Meter · fixed 4-channel, DC/45–420 Hz mains frequency

TH66000 Series Family

Bidirectional Regenerative DC Power System (TH66000) · Regenerative DC Electronic Load (TH66000L) · Programmable DC Power Supply (TH66000P)

One 3U / 19" hardware platform, three product series. TH66000, TH66000L and TH66000P share the same chassis, the same voltage/current/power ratings and the same 7" capacitive touchscreen user interface — they differ only in which direction they operate. **TH66000** is a bidirectional unit that combines a source and a regenerative electronic load in one enclosure; **TH66000L** is a load-only regenerative electronic load; **TH66000P** is a source-only programmable DC power supply. Every class from 80 V/5 kW up to 1500 V/15 kW is available across all three series (see the model matrix on page 2), so a project can standardise on one enclosure design and pick the direction it needs per test station.



Enclosure: 430(W) × 133(H) × 703.5(D) mm · Full 3U/19" rack unit: 483(W) × 133(H) × 793.5(D) mm · Weight: 22 kg (5 kW) / 31 kg (10 kW) / 38 kg (15 kW)

- **3U high-power density**: 5 kW / 10 kW / 15 kW in a single 3U chassis
- **Master/slave paralleling**, expandable to 480 kW (1 master + up to 15 slaves)
- High accuracy, high resolution, low ripple and low noise
- Built-in function generator: sine, triangle, square, trapezoid, arbitrary waveform; USB LIST import
- 7" 24-bit colour TFT capacitive touchscreen, 800×480, English UI
- Data logging: real-time voltage/current/power/resistance log to USB, CSV format
- Timer function to time or schedule output/input on/off
- Intelligent fan control for lower noise and energy saving
- Protections: hardware OVP/OCP/OPP, user-configurable alarm events
- **SCPI and MODBUS** protocols standard across the platform

Three series, one platform

TH66000

Bidirectional — source + regenerative load in one unit; CV/CC/CR/CP in both directions

Mode	Source ⇄ Load
Energy feedback	up to 93%
Battery / PV / MPPT test	Yes
Typical use	Battery charge/discharge, EV drivetrain

TH66000L

Load only — regenerative DC electronic load, CV/CC/CR/CP

Mode	Load (absorb) only
Energy feedback	up to 93%
Battery / PV / MPPT test	Yes
Typical use	Battery/supercap discharge test, PV/MPPT emulation

TH66000P

Source only — programmable DC power supply, CV/CC/CR/CP

Mode	Source (output) only
Energy feedback	n/a (not regenerative)
Battery / PV / MPPT test	No — needs load stage*
Typical use	Bench/ATE power source, supercap charging

* Battery, PV-simulation and MPPT tests require a load stage to sink the power being tested, so they are not available on TH66000P, a source-only power supply. They are available on TH66000 (bidirectional) and TH66000L (load).

Model & ratings matrix

Voltage, current, power and internal-resistance ratings are identical across the three series for a given class — only the source/load direction and the model suffix (plain / "L" / "P") differ. The three model numbers for each class are grouped in one row below.

Voltage class	Power	Voltage range	Current range	Int. resistance	TH66000 (bidirectional)	TH66000L (load)	TH66000P (source)
80 V	5 kW	0–80 V	0–120 A	0.02–25 Ω	TH6680-120-05	TH6680L-120-05	TH6680P-120-05
	10 kW	0–80 V	0–240 A	0.01–13 Ω	TH6680-240-10	TH6680L-240-10	TH6680P-240-10
	15 kW	0–80 V	0–360 A	0.006–10 Ω	TH6680-360-15	TH6680L-360-15	TH6680P-360-15
200 V	5 kW	0–200 V	0–70 A	0.1–150 Ω	TH66200-70-05	TH66200L-70-05	TH66200P-70-05
	10 kW	0–200 V	0–140 A	0.05–75 Ω	TH66200-140-10	TH66200L-140-10	TH66200P-140-10
	15 kW	0–200 V	0–210 A	0.033–50 Ω	TH66200-210-15	TH66200L-210-15	TH66200P-210-15
360 V	5 kW	0–360 V	0–40 A	0.3–520 Ω	TH66360-40-05	TH66360L-40-05	TH66360P-40-05
	10 kW	0–360 V	0–80 A	0.15–260 Ω	TH66360-80-10	TH66360L-80-10	TH66360P-80-10
	15 kW	0–360 V	0–120 A	0.1–180 Ω	TH66360-120-15	TH66360L-120-15	TH66360P-120-15
500 V	5 kW	0–500 V	0–30 A	0.5–1000 Ω	TH66500-30-05	TH66500L-30-05	TH66500P-30-05
	10 kW	0–500 V	0–60 A	0.25–500 Ω	TH66500-60-10	TH66500L-60-10	TH66500P-60-10
	15 kW	0–500 V	0–90 A	0.16–340 Ω	TH66500-90-15	TH66500L-90-15	TH66500P-90-15
750 V	5 kW	0–750 V	0–20 A	1.2–2200 Ω	TH66750-20-05	TH66750L-20-05	TH66750P-20-05
	10 kW	0–750 V	0–40 A	0.6–1100 Ω	TH66750-40-10	TH66750L-40-10	TH66750P-40-10
	15 kW	0–750 V	0–60 A	0.4–740 Ω	TH66750-60-15	TH66750L-60-15	TH66750P-60-15
1000 V	15 kW	0–1000 V	0–40 A	0.8–1300 Ω	TH661000-40-15	TH661000L-40-15	TH661000P-40-15
1500 V	15 kW	0–1500 V	0–30 A	2.5–3000 Ω	TH661500-30-15	TH661500L-30-15	TH661500P-30-15

The model list above is the current ordering list. The series is continuously expanded with new models; please contact Techmize or an authorized distributor for the latest availability.

Function availability by series

Function	TH66000 (bidirectional)	TH66000L (load)	TH66000P (source)
List / sequence test (up to 99 steps)	Yes	Yes	Yes
Built-in function generator (sine/triangle/square/trapezoid/arbitrary)	Yes	Yes	Yes
Data logging to USB (CSV) + timer	Yes	Yes	Yes
Master/slave paralleling (1 master + up to 15 slaves, to 480 kW)	Yes	Yes	Yes
Battery / supercapacitor test (static & dynamic charge/discharge)	Yes (charge & discharge)	Yes (discharge only)	No — needs load stage
Simple PV simulation test	Yes	Yes	No — needs load stage
MPPT maximum-power-point tracking test	Yes	Yes	No — needs load stage
Energy feedback to grid (regenerative)	Yes, up to 93%	Yes, up to 93%	No — not regenerative
Wide-range output (auto V/I trade-off within rated power)	Yes	n/a (load)	Yes

Battery, PV-simulation and MPPT tests require a load stage to sink the power under test, so none of the three are available on TH66000P (source-only). On TH66000P, "PV panel simulation" refers to using it as the source half of a test setup alongside a separate load, not a self-contained PV-emulation function.

Common accuracy & resolution, by voltage family

Identical across TH66000 / TH66000L / TH66000P for a matching class; setting and readback accuracy are expressed as % of full scale (FS) of that class's rated voltage/current/power.

Parameter	80 V	200 V	360 V	500 V	750 V	1000 V	1500 V
Voltage resolution (set/readback)	10 mV						
Current resolution (set/readback)	0.1 A	0.01 A					
Power resolution	1 W						
Resistance resolution (set)	0.001 Ω	0.01 Ω					
Resistance resolution (readback)	0.001 Ω	0.0001 Ω					
Setting accuracy — V / I / P	≤0.1%FS / ≤0.2%FS / ≤1%FS						
Setting accuracy — resistance	≤1% of max. resistance value ±1% of max. current						
Readback accuracy — V	≤0.2%FS	≤0.1%FS					
Readback accuracy — I / P	≤0.2%FS / ≤1%FS						
Remote sense compensation	≤0.5%FS	≤5%FS					
Dynamic recovery time (50–100% load)	≤1.5 ms						
Power conversion efficiency (source mode)	≤93%						
Energy feedback efficiency (TH66000 / TH66000L only)	≤93%						

Setting and readback accuracy are specified for 12 months at 25 °C ± 5 °C.

Ripple & noise, by class (20 Hz–2 MHz)

Differential voltage ripple applies to TH66000 and TH66000P in source mode. Differential current ripple is identical for all three series.

Class	Differential voltage ripple (TH66000 / TH66000P, source mode)	Differential current ripple (all series)
80 V / 5 kW	≤200 mVp-p and 16 mVrms	≤80 mArms
80 V / 10 kW	≤320 mVp-p and 25 mVrms	≤160 mArms
80 V / 15 kW	≤320 mVp-p and 25 mVrms	≤240 mArms
200 V / 5 kW	≤320 mVp-p and 45 mVrms	≤22 mArms
200 V / 10 kW	≤320 mVp-p and 45 mVrms	≤44 mArms
200 V / 15 kW	≤320 mVp-p and 45 mVrms	≤66 mArms
360 V / 5 kW	≤320 mVp-p and 55 mVrms	≤18 mArms
360 V / 10 kW	≤320 mVp-p and 55 mVrms	≤35 mArms
360 V / 15 kW	≤320 mVp-p and 55 mVrms	≤50 mArms
500 V / 5 kW	≤350 mVp-p and 70 mVrms	≤16 mArms
500 V / 10 kW	≤350 mVp-p and 70 mVrms	≤32 mArms
500 V / 15 kW	≤350 mVp-p and 70 mVrms	≤48 mArms
750 V / 5 kW	≤800 mVp-p and 200 mVrms	≤16 mArms
750 V / 10 kW	≤800 mVp-p and 200 mVrms	≤32 mArms
750 V / 15 kW	≤800 mVp-p and 200 mVrms	≤48 mArms
1000 V / 15 kW	≤1600 mVp-p and 300 mVrms	≤16 mArms
1500 V / 15 kW	≤2400 mVp-p and 400 mVrms	≤26 mArms

TH66000L (load-only) has no source/output mode; differential voltage ripple is therefore not specified for it.

Applications by series

TH66000 — bidirectional

- R&D and design-verification bench testing
- New energy: solar cells, EV/e-bike power trains
- Production-line functional test, maintenance
- Automated test-cell integration
- PV panel simulation
- Teaching laboratories
- LED test
- Automotive wiring-harness reliability test
- Battery / supercapacitor charge–discharge & capacity test

TH66000L — load only

- R&D and design-verification bench testing
- New energy: solar cells, EV/e-bike power trains
- Production-line functional test, maintenance
- Automated test-cell integration
- PV panel simulation
- Teaching laboratories
- LED test
- Supercapacitor discharge & capacity test

TH66000P — source only

- R&D and design-verification bench testing
- New energy: solar cells, EV/e-bike power trains
- Production-line functional test, maintenance
- Automated test-cell integration
- PV panel simulation
- Teaching laboratories
- LED test
- Supercapacitor charging test

Interfaces

RS232	GPIB	LAN	USB Host	USB Device	Analog control	SCPI / MODBUS
standard	standard	standard	standard	standard	standard	standard

Same interface set on TH66000, TH66000L and TH66000P. AC mains input: 342–528 VAC, 44–66 Hz, three-phase, across all classes and series.

User interface

Item	Description
User interface	English UI, 7" 24-bit colour TFT capacitive touchscreen, 800×480

Compliance & certification

CE: CE certification for this product family is currently in progress.

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TH6900 Series

Wide-Range Programmable DC Power Supply

A constant-power, wide-voltage-range programmable DC power supply for R&D, production-line test and new-energy applications. 21 models across three power classes (750 W, 1.5 kW, 3 kW) cover output voltages from 35 V to 1000 V — each model delivers up to three times the voltage/current range of an equal-power fixed-rectangle supply, so fewer models are needed to cover a broad test-voltage window. CV / CC / CP operation, up to 10-unit true master-slave parallel operation, built-in sequence test and function generator, and a solar-array simulation mode are standard across the series.



Standard 2U rack chassis: 482(W) × 88(H) × 455(D) mm · Net weight 9.6 kg (750 W) / 10.8 kg (1.5 kW) / 13.5 kg (3 kW)

- **0–1000 V** output, 21 models across three power ratings (750 W / 1.5 kW / 3 kW)
- High-frequency LLC multi-resonant inverter; efficiency up to **93%**, active PFC up to 0.99
- CV, CC and CP operating modes with independently adjustable rise/fall edge speed (0.01–999.99 s)
- True master-slave parallel operation, active current sharing, up to **10 units** of the same model
- OVP, OCP, OPP, OTP, input under-voltage and SENSE reverse-connection protection
- Built-in function generator (sine, square, triangle, trapezoid) and 50-sequence / 20-step sequence test engine
- Built-in solar-array simulation mode, plus CC / CV / EN50530 output via PC software
- Discharge circuit brings output below 10 V within 1 s at no-load / light load, for operator safety
- 4.0" high-brightness colour LCD, English UI, remote-sense (S+/S–) output-voltage compensation
- SCPI command support; RS232 standard (RS485 or CAN available as a factory-fitted alternative)

Applications

New energy & e-mobility

Solar-cell and PV-array simulation, new-energy vehicle and e-bike component test, battery-pack charging and burn-in.

R&D and production test

General R&D and design-verification testing, automated test-cell integration, LED test.

Production line & education

Routine test and maintenance on production-line workbenches, teaching laboratories.

Three power classes, one platform

750 W
7 models, 40–1000 V

Voltage range	40–1000 V
Max. current	60 A
Net weight	9.6 kg

1.5 kW
7 models, 35–1000 V

Voltage range	35–1000 V
Max. current	100 A
Net weight	10.8 kg

3 kW
7 models, 35–1000 V

Voltage range	35–1000 V
Max. current	200 A
Net weight	13.5 kg

All 21 models share the same 2U chassis, control panel, protection set and interface options — only rated voltage, current and power differ. Select the model whose voltage/current pair covers your test point; the constant-power topology gives up to 3× the operating window of an equal-power fixed-rectangle supply.

750 W models

Model	TH6940-60	TH6980-30	TH69200-12.5	TH69360-7.5	TH69500-5	TH69750-3	TH691000-2.5
Voltage	40 V	80 V	200 V	360 V	500 V	750 V	1000 V
Current	60 A	30 A	12.5 A	7.5 A	5 A	3 A	2.5 A

1.5 kW models

Model	TH6935-100	TH6980-60	TH69200-25	TH69360-15	TH69500-10	TH69750-6	TH691000-5
Voltage	35 V	80 V	200 V	360 V	500 V	750 V	1000 V
Current	100 A	60 A	25 A	15 A	10 A	6 A	5 A

3 kW models

Model	TH6935-200	TH6980-120	TH69200-50	TH69360-30	TH69500-20	TH69750-12	TH691000-10
Voltage	35 V	80 V	200 V	360 V	500 V	750 V	1000 V
Current	200 A	120 A	50 A	30 A	20 A	12 A	10 A

Efficiency & ripple by voltage class

Voltage class	40 V	80 V	200 V	360 V	500 V	750 V	1000 V
Efficiency	≤92%	≤92%	≤92%	≤93%	≤93%	≤93%	≤93%
Ripple RMS (20 Hz–300 kHz)	10 mVrms	10 mVrms	20 mVrms	40 mVrms	50 mVrms	75 mVrms	100 mVrms
Ripple P-P (20 Hz–2 MHz)	75 mVpp	100 mVpp	175 mVpp	250 mVpp	325 mVpp	500 mVpp	650 mVpp

Voltage set/readback resolution is 10 mV on every model. Current set/readback resolution is 1 mA on the lower-current variant at each voltage and 10 mA on the higher-current variants of the same voltage — see the per-model current ratings on this page. Set-value and readback accuracy for all models: voltage ≤±(0.05%+0.04%FS); current ≤±(0.15%+0.1%FS); power ≤±0.8%FS.

General & environmental specifications

Parameter	All models		
Operating modes	Constant voltage (CV), constant current (CC), constant power (CP)		
Load regulation	Voltage ≤0.05%FS (0–100% load) · Current ≤0.15%FS (0–100% ΔUDC)		
Line regulation	Voltage ≤0.02%FS · Current ≤0.05%FS (both at ±10% ΔUAC input)		
Rise time	≤2 ms, 10–100% no load · ≤30 ms, 10–90% full load		
Rise/fall edge speed	Adjustable in all modes (CV/CC/CP); settable range 0.01–999.99 s		
Protection	OTP, OVP, OCP, OPP, PF (input under-voltage), SENSE reverse-connection protection		
OVP range	Adjustable, 0–110% of rated output voltage		
Discharge circuit	Brings output below 10 V within 1 s at no-load/light-load shutdown		
Master-slave parallel	True master-slave operation via shared digital bus, up to 10 units of the same model, active current sharing		
Sequence test	50 sequences (non-volatile storage), 20 steps per sequence, 12 independently configurable step functions including loop control and slope-mode output		
Function generator	Built-in; sine, square, triangle and trapezoidal waveforms on output voltage or current		
Solar-array simulation	Built-in output-curve model; CC, CV and EN50530 modes also available via host-computer software		
Remote sense	S+/S– terminals for output-voltage compensation at the load		
Display	4.0" high-brightness colour LCD, English UI		
Cooling	Temperature-controlled fans		
Operating conditions	Indoor use; 0–50 °C, <80% RH non-condensing, altitude <2000 m		
Storage temperature	–20 to 70 °C		
AC input	220 V AC ±10%, 45–66 Hz, 1ph+N+PE, power factor ≥0.99		
Isolated withstand voltage	AC input to chassis: 2500 VDC · AC input to DC output: 2500 VDC · DC output to chassis (PE): negative max. 400 VDC, positive max. 400 VDC + output voltage		
Dimensions (W×H×D)	482 × 88 × 455 mm, standard 2U rack chassis		
Net weight	9.6 kg (750 W)	10.8 kg (1.5 kW)	13.5 kg (3 kW)

Interfaces

RS232	USB Host	SCPI	RS485	CAN
standard	standard	standard	alt.*	alt.*

* RS232, RS485 and CAN share a single communication port and are factory-fitted as one mutually exclusive choice per unit — selecting RS485 or CAN replaces RS232, it is not an add-on alongside it. GPIB, LAN and an analog control interface are not available on this series. Master-slave parallel operation uses a separate, dedicated digital bus (PAR IN / PAR OUT rear-panel connectors), independent of the communication port.

Standard accessories

Item	Description
–	EU power cable (Schuko, CEE 7/7)

Rear panel

Item	Description
–	PAR IN / PAR OUT (master-slave bus), USB, communication port (RS232, or factory-fitted RS485/CAN alternative), output terminals, S+/S– remote-sense terminals, AC power input

Output and remote-sense wiring is sized by the customer to the selected model's rated current; consult your Techmize contact or authorized distributor for wire-gauge guidance at high current ratings (up to 200 A).

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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

Load-mode accuracy figures are sourced from the TH6434 operation manual (V1.0, 2023-04) — the current brochure/datasheet does not publish a load-mode accuracy table. 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°C · ≤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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TH6400 Series

Linear Multi-Channel Programmable DC Power Supply

Five multi-channel linear DC power supplies covering 5 W to 180 W per channel, from the economy 3-channel TH6402A to the 4-channel TH6402B and the high-current TH6412 / high-voltage TH6413. All models offer series, parallel and synchronous operation between channels, front- and rear-panel output, and 1 mV / 0.1 mA programming resolution on the high-precision models — suited to R&D bench work, production-line testing and automated test-system integration.



TH6402A / TH6402: 215(W)×88(H)×412(D) mm, 8.1 kg · TH6402B: 215(W)×88(H)×473(D) mm, 12 kg · TH6412 / TH6413: 215(W)×88(H)×473(D) mm, 13 kg

- Linear, program-controlled output design — **low ripple, low noise, high stability**
- Series, parallel or synchronous operation between channels, freely combined
- 4.3" colour TFT LCD, 480×272, all channels displayed simultaneously
- 1 mV / 0.1 mA programming and read-back resolution (TH6402/TH6402B/TH6412/TH6413)
- Remote sense (4-wire) compensates for voltage drop in long test leads
- Front- and rear-panel output and sampling terminals, 1/2-rack (2U) chassis
- Over-voltage and over-current protection (OVP/OCP) with programmable trip points
- Programmable output timer, 0.1 – 99999.9 s; 40 setting files per channel
- Screen-capture and data-logging to USB (voltage/current/time, ~100 ms sampling)*
- SCPI and MODBUS communication protocols standard

Five models, one platform

	TH6402A	TH6402B	TH6402	TH6412	TH6413
	Economy 3-channel	4-channel, high-precision	High-precision 3-channel	High-current, 6 A/channel	High-voltage, 60 V/channel
Channels	3	4	3	3	3
Max power	90 W/ch	90 W/ch	90 W/ch	180 W/ch	180 W/ch
Interfaces	USB Host				
Total power		215 W	210 W	390 W	390 W

TH6402A differs from the other four models: it has USB Host only (no RS232, no USB Device) and coarser programming/read-back resolution and setting accuracy (see page 2) — load/power regulation itself is the same across the series. All models differ mainly in per-channel voltage/current/power rating. GPIB is optional across the series. * Data-logging capacity and support vary by model — confirm with Techmize before quoting to a customer who specifically needs this function.

Applications

R&D & design verification

General-purpose bench supply for design verification, ageing and burn-in tests that need stable, low-ripple, low-noise output over long run times.

Production & automated test

Production-line routine testing and maintenance; front/rear-panel output and SCPI/MODBUS support make the series easy to integrate into automated test systems.

Energy & education

Solar photovoltaic simulation, new-energy-vehicle power simulation, and teaching laboratories needing multi-channel, series/parallel-capable supplies.

Rated output & over-voltage protection (0–40 °C)

Model	CH1	CH2	CH3	CH4	Total power[1]
TH6402A	0–30 V / 3 A OVP 0–36 V	0–30 V / 3 A OVP 0–36 V	0–5 V / 3 A OVP 0–10 V	—	195 W
TH6402B	0–30 V / 3 A OVP 0–36 V	0–30 V / 3 A OVP 0–36 V	0–10 V / 3 A OVP 0–16 V	0–5 V / 1 A OVP 0–10 V	215 W
TH6402	0–30 V / 3 A OVP 0–36 V	0–30 V / 3 A OVP 0–36 V	0–6 V / 5 A OVP 0–11 V	—	210 W
TH6412	0–30 V / 6 A OVP 0–36 V	0–30 V / 6 A OVP 0–36 V	0–6 V / 5 A OVP 0–11 V	—	390 W
TH6413	0–60 V / 3 A OVP 0–65 V	0–60 V / 3 A OVP 0–65 V	0–6 V / 5 A OVP 0–11 V	—	390 W

1 Total power is the sum of the per-channel ratings shown; not a separate rated figure on all sources.

Regulation, accuracy & noise

Parameter	TH6402A	TH6402B	TH6402	TH6412	TH6413
Load / power regulation — V	≤0.01%+3 mV				
Load / power regulation — I	≤0.1%+3 mA			≤0.01%+3 mA	
Programming resolution — V / I	10 mV / 1 mA	1 mV / 0.1 mA			
Read-back resolution — V / I	10 mV / 1 mA	1 mV / 0.1 mA			
Setting/read-back accuracy — V	≤0.05%+20 mV	≤0.1%+20 mV	≤0.03%+10 mV		
Setting/read-back accuracy — I	≤0.2%+5 mA	≤0.2%+5 mA	≤0.1%+5 mA	≤0.1%+8 mA[3]	≤0.1%+5 mA
Ripple & noise — V (pk-pk / rms)	3 mVp-p / 1 mVrms	3 mVp-p / 1 mVrms	4 mVp-p / 1 mVrms	4 mVp-p / 1 mVrms	4 mVp-p / 1 mVrms
Ripple & noise — I (rms)	3 mArms	3 mArms	5 mArms	4 mArms	5 mArms
Series synchronization error	≤0.02%+5 mA	≤0.2%+10 mA	≤0.05%+10 mA		
Parallel setting accuracy — V	≤0.02%+20 mV	≤0.02%+5 mV	≤0.02%+10 mV		
Parallel setting accuracy — I	≤0.1%+30 mA	≤0.1%+20 mA	≤0.1%+30 mA		

Load/power regulation: voltage regulation is the same (≤0.01%+3 mV) across all five models; only the current figure differs, with TH6412/TH6413 slightly better than TH6402A/TH6402B/TH6402. TH6402A's lower-precision tier applies specifically to programming/read-back resolution and setting/read-back accuracy, not to load/power regulation. 3 TH6412 current accuracy is ≤0.1%+8 mA on CH1/CH2 and ≤0.1%+5 mA on CH3 — normal channel-to-channel variation on a mixed-power model.

Parameter	TH6402A	TH6402B	TH6402	TH6412	TH6413
Timer	0.1 – 99999.9 s, 0.1 s resolution, per channel				
Memory	40 setting files per channel				
Working temperature	0 – 40 °C				
Rack mount (W×H×D)	215×88×412 mm	215×88×473 mm	215×88×412 mm	215×88×473 mm	
Outline (W×H×D)	235×111×440 mm	235×111×501 mm	235×111×440 mm	235×111×501 mm	
Net weight	8.1 kg	12 kg	8.1 kg	13 kg	

Interfaces

RS232	USB Host	USB Device	SCPI / MODBUS	GPIB
std.*	standard	std.*	standard	optional

* RS232 and USB Device are standard on TH6402B / TH6402 / TH6412 / TH6413. TH6402A has USB Host only — no RS232, no USB Device.

Standard accessories

Item	Description
—	EU power cable (Schuko, CEE 7/7)
YT3007	Test cable
YT3008	Test cable

Optional accessories

Item	Description
TH26035D	High-current test lead
TH26035E	High-current test lead
—	GPIB interface (factory option)

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TH7100 Series

Programmable AC Power Source

A single-phase, linear-amplifier programmable AC power source for reproducing normal and abnormal mains conditions and measuring key parameters of the product under test. Output voltage is adjustable from 0 to 300 V at 45.0–500 Hz, with high stability and low distortion suited to precision power testing. Three power ratings — 500 W, 1000 W and 2000 W — share the same control platform, front-panel layout and communication interfaces.

3 models · 500–2000 W · 0–300 V AC output, 45.0–500 Hz · front & rear panel output



- **Linear amplifier design** for high stability and low output distortion
- Output **0–300 V AC**, **45.0–500 Hz**, in three power tiers (500 / 1000 / 2000 W)
- Adjustable start/stop phase angle (0–359°) and surge & notch (SD) waveform simulation
- Manual mode (50 memory groups) and programmable sequence mode (50 groups, 9 steps/group), incl. timed output and dimming-mode output
- Fast response time, <100 µs, for rapid load-step testing
- 4.3″ colour TFT display with simultaneous V / I / P / peak current / power factor readout
- Front and rear panel AC output
- Pass/fail sorting with PASS, FAIL and PROCESSING result output
- Full protection suite: HI-A, OVP, LVP, OCP, OPP, OTP, with two-speed smart cooling fan
- RS232 (SCPI & MODBUS) and USB Host/Device standard, plus remote control input/output

Three models, one platform

TH7105
Entry power tier

Rated power	500 W
Max current (≤150 V)	4.2 A
Max current (≤300 V)	2.1 A
Weight	30 kg

TH7110
Mid power tier

Rated power	1000 W
Max current (≤150 V)	8.4 A
Max current (≤300 V)	4.2 A
Weight	40 kg

TH7120
High power tier

Rated power	2000 W
Max current (≤150 V)	16.8 A
Max current (≤300 V)	8.4 A
Weight	75 kg

All three models share the same 0–300 V / 45.0–500 Hz output range, control platform, protection functions and communication interfaces — the difference between models is output power and current capacity only. SCPI and MODBUS protocols are standard across the full range, not exclusive to any one model.

TH7120 uses a different enclosure. Unlike the compact, low-profile chassis shared by TH7105 and TH7110, the 2000 W TH7120 ships in a taller enclosure with a finned cooling front panel and integrated transport casters — see Mechanical specifications on page 2 for exact dimensions and weight.



Applications

Electrical & electronic products

Motors and transformers, general electronic production testing, and lighting products.

Communications, audio & monitoring

Network communication equipment, audio/video equipment, and monitoring equipment.

Simulation & compliance

Simulating AC power specifications of different countries, EMC (electromagnetic compatibility) testing, and aerospace/military equipment.

Technical specifications

Parameter	TH7105	TH7110	TH7120
AC output			
Rated power	500 W	1000 W	2000 W
Output voltage	0–300 Vac		
Output frequency	45.0–500 Hz		
Max current (RMS)	4.2 A (≤150 V) / 2.1 A (≤300 V)	8.4 A (≤150 V) / 4.2 A (≤300 V)	16.8 A (≤150 V) / 8.4 A (≤300 V)
Max current (peak)	12.6 A (≤150 V) / 6.3 A (≤300 V)	25.2 A (≤150 V) / 12.6 A (≤300 V)	50.4 A (≤150 V) / 25.2 A (≤300 V)
Phase	1Ø / 2W		
Total harmonic distortion	≤0.5% (output 80–140 V low range, or 160–280 V high range; resistive load)		
Crest factor	≥4		
Linearity adjustment rate	0.1%±10%		
Load regulation	≤0.5% (resistive load)		
Response time	<100 µs		
AC input			
Phase	1Ø		
Voltage	115 / 230 Vac ±15%		
Frequency	47–63 Hz		
Max input current (230 V)	8 A	16 A	30 A
Power factor	0.7		
Setting parameters			
Voltage	0–300 V, 0.1 V resolution, ±(0.5% of setting + 2 digits)		
Frequency	45.0–500 Hz; resolution 0.1 Hz (<100 Hz) / 1 Hz (≥100 Hz); ±0.02%		
Start / stop phase angle	0–359°, 1° resolution, ±1° (45–65 Hz)		
Measurement parameters			
Voltage	0–300 Vac, 0.1 V resolution, ±(0.5% of reading + 2 digits)		
Frequency	45.0–500 Hz, resolution as above, ±0.1 Hz		
Current	0.000–4.200 A (≤150 V) / 0.000–2.100 A (≤300 V)	0.000–8.400 A (≤150 V) / 0.000–4.200 A (≤300 V)	0.000–16.800 A (≤150 V) / 0.000–8.400 A (≤300 V)
Current res. / accuracy	0.001 A resolution, ±(0.5% of reading + 5 digits)		
Peak current	0.00–12.6 A (≤150 V) / 0.00–6.3 A (≤300 V)	0.00–25.2 A (≤150 V) / 0.00–12.6 A (≤300 V)	0.00–50.4 A (≤150 V) / 0.00–25.2 A (≤300 V)
Peak current res. / accuracy	0.01 A resolution, ±(5% of reading + 2 digits)		
Power range	0–500 W	0–1000 W	0–2000 W
Power resolution	0.1 W	0.1 W	0.1 W (0–1000 W); 1 W (1000–2000 W)
Power accuracy	±(0.6% of reading + 5 digits), at PF > 0.5		
Power factor	0.001–1.000, 0.001 resolution, displayed to 3 significant digits		
General			
Memory	Manual mode: 50 groups · Program mode: 50 groups, 9 steps/group		
Remote signal input	Output ON/OFF; recall manual-mode memory groups 1–7		
Remote signal output	PASS / FAIL / PROCESSING		
Sync signal output	10 V signal, BNC connector		
Protection	HI-A (over set current), OVP, LVP, OCP, OPP, OTP		
Display	4.3″ colour TFT LCD, 480 × 272		
Interfaces	RS232 (SCPI & MODBUS), USB Host, USB Device		
Mechanical			
Dimensions (W×H×D)	430 × 88 × 600 mm	430 × 88 × 600 mm	430 × 178 × 602 mm
Weight	30 kg	40 kg	75 kg

Interfaces

RS232	Remote	USB Host	USB Device	Sync / Signal Out	SCPI / MODBUS
standard	standard	standard	standard	standard	standard



Rear panel (TH7110 shown) — AC input/output terminals, Sync, Signal Out, USB Device, RS232, Remote

Standard accessories

Item	Description
–	EU power cable (Schuko, CEE 7/7)

Notes

Front and rear panel AC output; two-speed smart cooling fan control; boot-hold and password-protected power-on function. Full command set (SCPI/MODBUS) available on request for automated test integration.

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TH7200 Series

Programmable AC/DC Power Source

A single-phase, linear-amplifier programmable power source that combines a high-speed linear amplifier with an arbitrary waveform generator to deliver precision AC, DC or combined AC+DC output. Built-in and CSV-importable custom waveforms, a 600-step sequencer and a dedicated anomaly-simulation mode make the TH7200 series suited to power-quality testing, motor and transformer evaluation, and simulating mains conditions from different countries.

Dimensions: 430(W) × 177(H) × 610(D) mm · Weight: 27.5 kg



- Single-phase AC, DC or AC+DC output from one linear-amplifier output stage
- Output voltage **0–300 V**, output frequency **1 Hz – 1 kHz**
- 4.3" color TFT display, English UI, numeric keypad and jog-shuttle control
- Built-in waveform library (8 standard shapes) plus CSV-importable custom waveforms, up to **64 sets** stored
- Basic / Step / Simulate operating modes — up to **600 steps** for complex sequences
- Simultaneous display of up to **14 measurement parameters** (Urms, Irms, P, PF and more)
- Simulate mode reproduces power-line anomalies: outage, voltage rise/fall
- Front and rear panel output; software-controlled output switch
- Seven protection modes: HI-A, OVP, LVP, OCP, OCKP, OPP, OTP
- RS232, USB Host/Device, LAN standard; SCPI and MODBUS programming

Two power levels, one platform

TH7205

500 VA AC / 350 W DC

AC rated power	500 VA
DC / AC+DC rated power	350 W
Max. AC current (RMS)	5.0 A (LOW) / 2.5 A (HIGH)
Max. DC current (peak)	3.5 A (LOW) / 1.75 A (HIGH)

TH7210

1000 VA AC / 700 W DC

AC rated power	1000 VA
DC / AC+DC rated power	700 W
Max. AC current (RMS)	10.0 A (LOW) / 5.0 A (HIGH)
Max. DC current (peak)	7.0 A (LOW) / 3.5 A (HIGH)

Output voltage range is identical on both models — LOW: 0–150.0 V AC / ±(1.4–212.0) V DC, HIGH: 0–300.0 V AC / ±(2.8–424.0) V DC. TH7210 delivers twice the rated power and current of TH7205 at the same voltage range. Both models support SCPI and MODBUS programming.

Applications

Design & production

Motors and transformers, electronic production test, lighting, aerospace and military electronics, network communication equipment.

Audio, video & monitoring

Audio and video equipment, monitoring equipment, and other mains-powered electronic products requiring a controlled AC/DC source.

Power quality & EMC

Simulating power specifications of different countries; supplying electromagnetic-compatibility (EMC) test setups.

Technical specifications

Parameter	TH7205	TH7210
AC input		
Phase	1Ø / 2-wire	
Voltage	100–120 V AC, 200–240 V AC	
Frequency	47–63 Hz	
Max. input current	11.3 A / 5.5 A	22.5 A / 10.8 A
Power factor	0.7	
AC output		
Rated power	500 VA	1000 VA
Output voltage range	LOW: 1.0–150.0 V | HIGH: 2.0–300.0 V	
Output voltage resolution	0.1 V	
Output voltage accuracy	±(0.3% of set voltage + 0.6 V)	
Output frequency range	1 Hz – 1000 Hz	
Output frequency resolution	0.01 Hz (1.00–99.99 Hz) | 0.1 Hz (100.0–999.9 Hz)	
Max. current (RMS)	5.0 A (LOW) / 2.5 A (HIGH)	10.0 A (LOW) / 5.0 A (HIGH)
Max. instantaneous current	Max. RMS current × 4 (TYP)	
Power factor (load)	0–1	
DC / AC+DC output		
Rated power	350 W	700 W
Output voltage range	LOW: 1.4–212.0 V | HIGH: 2.8–424.0 V	
Output voltage resolution	0.1 V	
Output voltage accuracy	LOW: ±(0.05% of set voltage + 0.05 V) | HIGH: ±(0.05% of set voltage + 0.1 V)	
Max. current (peak)	3.5 A (LOW) / 1.75 A (HIGH)	7.0 A (LOW) / 3.5 A (HIGH)
Max. instantaneous current	Max. peak current × 3.6 (TYP)	
Ripple noise	≤ 0.15 Vrms	
Additional output parameters		
Line regulation	±0.1%	
Load regulation	LOW: ±0.1 V | HIGH: ±0.2 V	
Total harmonic distortion (THD)	≤ 0.2%	
Response time	30 µs (TYP)	
Energy efficiency	≥ 55%	
Start / end phase setting	0–359°, 1° resolution	
AC+DC superposition limit	LOW: √2 × Vac + |Vdc| ≤ 212.0 V | HIGH: √2 × Vac + |Vdc| ≤ 424.0 V	

Measurement specifications

Parameter	TH7205	TH7210
Voltage range	AC: 0–300 Vac | DC / AC+DC: −424 to 424 V	
Voltage resolution / accuracy	0.1 V | ±(1% of reading + 2 counts)	
Frequency range / accuracy	1 Hz – 1000 Hz | ±(1% of reading + 2 counts)	
Current range (peak)	22 A	44 A
Current resolution	0.01 A	
Current accuracy	RMS: ±(1% of reading + 2 counts) | Peak: ±(5% of reading + 2 counts)	
Power range	0–500 W	0–1000 W
Power resolution / accuracy	0.1 W | ±(1% of reading + 3 counts)	
Power factor resolution / accuracy	0.001 | Calculated and displayed to 3 significant digits	
Measured parameters (up to 14)	Urms, Udc, Upk+, Upk−, Irms, Idc, Ipk+, Ipk−, CFu, CFi, P, S, Q, PF	

General specifications

Parameter	TH7205 / TH7210
Display	4.3" color TFT LCD, 480 × 272, English UI
Operating modes	Basic (single AC / DC / AC+DC output) · Step (complex sequences) · Simulate (AC-only anomaly simulation)
Waveform library	8 built-in waveforms (sine, square, clip, triangle, surge, notch, pre-dimmer, post-dimmer); custom waveforms importable via CSV; up to 64 sets stored
Sequence storage	600 steps
Interfaces	RS232, USB Device, USB Host, LAN
Programming protocol	SCPI, MODBUS
Protection	Set-current protection (HI-A), over-voltage protection (OVP), low-voltage protection (LVP), over-current protection (OCP), over-peak-current protection (OCKP), over-power protection (OPP), over-temperature protection (OTP)
Operating temperature / humidity	0–40 °C / 20–80% RH (non-condensing)
Storage temperature	−20 to 70 °C
Altitude / pollution degree	Up to 2000 m / Pollution degree 2
Safety class	Safety Class I
Dimensions (W × H × D)	430 × 177 × 610 mm
Weight	27.5 kg

Interfaces

RS232	USB Host	USB Device	LAN	SCPI / MODBUS
standard	standard	standard	standard	standard

Both models share the same standard interface set — no optional interface cards are documented for this series.

Waveform library

Sine	Square	Clip	Triangle	Surge	Notch	Pre-dimmer	Post-dimmer

8 waveforms are stored by default; up to 64 waveform sets can be held in the internal library, including user-defined waveforms imported from a CSV file via USB.

Standard accessories

Model	Standard accessory
TH7205	EU power cable (Schuko, CEE 7/7)
TH7210	Circuit breaker (no power cable supplied — AC input wired via rear-panel terminal block)

Applications (detail)

Typical use
Motors & transformers
Electronic production & design
Lighting
Aerospace & military
Network communication
Audio & video equipment
Monitoring equipment
Worldwide mains simulation
EMC equipment

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TH8300 Series

Modular Programmable DC Electronic Load

A modular, high-power DC electronic load platform for validating power supplies, chargers, battery packs and DC/DC converters. Choose a 5-slot (TH8300) or 2-slot (TH8310) mainframe and populate it with any combination of nine plug-in load modules — single- or dual-channel, 80 V or 600 V, from 100 W to 500 W — to match the exact test requirement, with up to ten channels and 2500 W in a single unit.

TH8300 mainframe: 477(W) × 177(H) × 590(D) mm, 15 kg, 5 module slots · TH8310 mainframe: 255(W) × 177(H) × 590(D) mm, 10.5 kg, 2 module slots



- **Modular design** — mainframe and load modules ordered and installed separately; each module runs independently or under master/slave control
- Up to **10 channels / 2500 W** in one TH8300 mainframe; up to **400 A** when modules are paralleled
- High resolution: **0.1 mV / 10 µA** class
- Dynamic load frequency up to **50 kHz**; sampling up to **500 kHz**
- Four standard modes — CC, CR, CV, CP — plus 12 advanced test modes
- 2.8" 24-bit colour LCD per module; English user interface
- Module parallel/master-slave linking (Power mode or Copy mode)
- Data logging, 40 setting files per module, timing and power-on-hold functions
- Protections: OVP, OCP, OPP, OTP, reverse-polarity (REV), low-voltage (LVP); independent short-circuit test mode
- RS232, USB Host, USB Device, LAN, GPIB and SYSTEM I/O — all standard

Applications

Power supplies

Chargers, switching power supplies, communication power supplies, LED drivers, mobile-phone batteries, power banks.

New energy

Solar cells / modules, EV power systems, electric bicycles.

Power components

Fuses, connectors, relays, sensors and other electronic power components.

Automation & integration

Multi-channel automated test cells built around the modular mainframe.

Interfaces (standard on both mainframes)

RS232	USB Host	USB Device	LAN	GPIB	SYSTEM I/O	SCPI
standard	standard	standard	standard	standard	standard	standard

How it works: mainframe + modules

TH8300 and TH8310 are empty mainframes — the load-carrying electronics live in the plug-in modules, selected independently for each slot. The photos below show the nine available module types (illustrative front panels); a fully populated TH8300, for example, could combine any five of them.


TH8301-80-20


TH8301A-80-20


TH8302-80-40


TH8303-80-60


TH8304-80-80


TH8305-80-80


TH8302-600-10


TH8303-600-15


TH8305-600-30

Mainframe comparison

Parameter	TH8300	TH8310
Module slots	5	2
Max. channels	10	4
Max. unit power (5 × 500 W modules)	2500 W	—
Frame size (W×H×D)	477 × 177 × 590 mm	255 × 177 × 590 mm
Frame weight	15 kg	10.5 kg
Power supply	90–130 VAC or 175–253 VAC, 47–63 Hz, < 300 VA	
Setting storage	40 setting groups (50 status-memory groups)	
Module link modes	Power mode (current shared proportionally to each module's rating) · Copy mode (all linked modules follow the master module's set current)	
Sold as	Empty mainframe — load modules are ordered and installed separately	

Module lineup

Module	Channels	Module power	Input voltage	Input current	Min. operating voltage*
80 V modules — dual-channel					
TH8301-80-20	2	100 W × 2	0–80 V	0–20 A / ch	0.5 V @ 0.2 A
TH8301A-80-20	2	200 W × 2	0–80 V	0–20 A / ch	0.5 V @ 0.2 A
80 V modules — single-channel					
TH8302-80-40	1	200 W	0–80 V	0–40 A	0.5 V @ 0.4 A
TH8303-80-60	1	300 W	0–80 V	0–60 A	0.5 V @ 0.6 A
TH8304-80-80	1	400 W	0–80 V	0–80 A	0.4 V @ 0.8 A
TH8305-80-80	1	500 W	0–80 V	0–80 A	0.4 V @ 0.8 A
600 V modules — single-channel					
TH8302-600-10	1	200 W	0–600 V	0–10 A	2 V @ 0.1 A
TH8303-600-15	1	300 W	0–600 V	0–15 A	2 V @ 0.15 A
TH8305-600-30	1	500 W	0–600 V	0–30 A	2 V @ 0.3 A

* Lowest input voltage at which the module can still sink its full rated current; also specified at 10% and 100% of the current range — see full specification tables. All modules: 85.5(W) × 142(H) × 550(D) mm, 4.2 kg; standard CC / CR / CV / CP modes.

80 V module family — technical specifications

Parameter	TH8301-80-20	TH8301A-80-20	TH8302-80-40	TH8303-80-60	TH8304-80-80	TH8305-80-80
Constant voltage (CV)						
Range / resolution	6 V / 0.1 mV · 16 V / 1 mV · 80 V / 1 mV					
Accuracy	0.05% + 0.1% FS					
Constant current (CC)						
Range / resolution	0–0.2 A/0.01 mA 0–2 A/0.1 mA 0–20 A/1 mA	0–0.2 A/0.01 mA 0–2 A/0.1 mA 0–20 A/1 mA	0–0.4 A/0.01 mA 0–4 A/0.1 mA 0–40 A/1 mA	0–0.6 A/0.01 mA 0–6 A/0.1 mA 0–60 A/1 mA	0–0.8 A/0.01 mA 0–8 A/0.1 mA 0–80 A/1 mA	0–0.8 A/0.01 mA 0–8 A/0.1 mA 0–80 A/1 mA
Accuracy	0.2% + 0.2% FS					
Constant resistance (CR)						
Range (power/V tier)	0.04–80 Ω (6V) 1.4–2.9 kΩ (16V) 6–12 kΩ (80V)	0.04–80 Ω (6V) 1.4–2.9 kΩ (16V) 6–12 kΩ (80V)	0.03–60 Ω (6V) 1.0–2.16 kΩ (16V) 4.3–9 kΩ (80V)	0.015–30 Ω (6V) 0.3–600 Ω (16V) 1.5–3 kΩ (80V)	0.01–20 Ω (6V) 0.36–720 Ω (16V) 1.5–2.9 kΩ (80V)	0.01–20 Ω (6V) 0.3–720 Ω (16V) 1.5–2.9 kΩ (80V)
Resolution	0.1 Ω					
Accuracy*[1]	1%					
Constant power (CP)						
Range / resolution	0–2 W/1 mW 0–10 W/10 mW 0–100 W/100 mW	0–4 W/2 mW 0–20 W/20 mW 0–200 W/200 mW	0–4 W/2 mW 0–20 W/20 mW 0–200 W/200 mW	0–6 W/3 mW 0–30 W/30 mW 0–300 W/300 mW	0–8 W/4 mW 0–40 W/40 mW 0–400 W/400 mW	0–10 W/5 mW 0–50 W/50 mW 0–500 W/500 mW
Accuracy	1%					
Dynamic mode (constant-current)						
Min. working voltage	1.5 V					
Frequency range	100 Hz–50 kHz / 0.01 Hz–1 kHz · accuracy 1 µs/1 ms + 100 ppm					
Duty cycle	1–99% (min. rise time controlled)					
Slew rate (range/res.)	0.04–4 A/ms (0.02–2 A/µs) 0.01 mA/µs res.	0.04–4 A/ms (0.02–2 A/µs) 0.01 mA/µs res.	0.08–8 A/ms (0.04–4 A/µs) 0.01 mA/µs res.	0.12–12 A/ms (0.06–6 A/µs) 0.01 mA/µs res.	0.16–16 A/ms (0.08–8 A/µs) 0.01 mA/µs res.	0.16–16 A/ms (0.08–8 A/µs) 0.01 mA/µs res.
Slew accuracy / min. rise time	10% ± 20 µs / 10 µs					
Measurement (readback)						
Voltage range/res.	0–6 V/0.2 mV · 0–16 V/0.3 mV · 0–80 V/1.4 mV					
Voltage accuracy	0.025% + 0.01% FS (6V/16V) · 0.01% + 0.025% FS (80V)					
Current range/res.	0–0.2 A/0.004 mA 0–2 A/0.04 mA 0–20 A/0.4 mA	0–0.2 A/0.004 mA 0–2 A/0.04 mA 0–20 A/0.4 mA	0–0.4 A/0.008 mA 0–4 A/0.08 mA 0–40 A/0.8 mA	0–0.6 A/0.012 mA 0–6 A/0.12 mA 0–60 A/1.2 mA	0–0.8 A/0.016 mA 0–8 A/0.16 mA 0–80 A/1.6 mA	0–0.8 A/0.016 mA 0–8 A/0.16 mA 0–80 A/1.6 mA
Current accuracy	0.2% + 0.2% FS					
Power range	16/30/100 W	30/60/200 W	30/60/200 W	30/60/300 W	60/60/400 W	60/60/500 W
Power accuracy	0.2% + 0.2% FS					
Protection & mechanical						
Protections	OVP · OCP · OPP · OTP (per module)					
Operating temperature	0–40 °C					
Dimensions / weight	85.5(W) × 142(H) × 550(D) mm / 4.2 kg					

*[1] CR accuracy does not apply below 5% of the current measurement range. Advanced modes (DYN, SWP, CR-LED, BATT, TIMING, MPPT, OCPT, OVPT, OPPT, SINE, LIST, AUTO) share the dynamic-mode ratings above where applicable.

600 V module family — technical specifications

Parameter	TH8302-600-10	TH8303-600-15	TH8305-600-30
Constant voltage (CV)			
Range / resolution	80 V/1 mV · 150 V/10 mV · 600 V/10 mV		
Accuracy	0.05% + 0.1% FS		
Constant current (CC)			
Range / resolution	0–0.1 A/0.005 mA 0–1 A/0.05 mA 0–10 A/0.5 mA	0–0.15 A/0.005 mA 0–1.5 A/0.05 mA 0–15 A/0.5 mA	0–0.3 A/0.005 mA 0–3 A/0.05 mA 0–30 A/0.5 mA
Accuracy	0.2% + 0.2% FS		
Constant resistance (CR)			
Range (power/V tier)	0.2–400 Ω (80V) 3–6 kΩ (150V) 300–300 kΩ (600V)	0.13–270 Ω (80V) 1.9–4 kΩ (150V) 208–200 kΩ (600V)	0.1–200 Ω (80V) 1.5–3 kΩ (150V) 150–150 kΩ (600V)
Resolution	1 Ω		
Accuracy*[1]	1%		
Constant power (CP)			
Range / resolution	0–4 W/2 mW 0–20 W/20 mW 0–200 W/200 mW	0–6 W/3 mW 0–30 W/30 mW 0–300 W/300 mW	0–10 W/5 mW 0–50 W/50 mW 0–500 W/500 mW
Accuracy	1%		
Dynamic mode (constant-current)			
Min. working voltage	3 V		
Frequency range	100 Hz–50 kHz / 0.01 Hz–1 kHz · accuracy 1 µs/1 ms + 100 ppm		
Duty cycle	1–99% (min. rise time controlled)		
Slew rate (range/res.)	0.02–2 A/ms (0.01–1 A/µs) 0.005 mA/µs res.	0.03–3 A/ms (0.015–1.5 A/µs) 0.005 mA/µs res.	0.06–6 A/ms (0.03–3 A/µs) 0.005 mA/µs res.
Slew accuracy / min. rise time	10% ± 20 µs / 10 µs		
Measurement (readback)			
Voltage range/res.	0–80 V/1.5 mV · 0–150 V/2.7 mV · 0–600 V/10.7 mV		
Voltage accuracy	0.025% + 0.01% FS (80/150V) · 0.01% + 0.025% FS (600V)		
Current range/res.	0–0.1 A/0.002 mA 0–1 A/0.02 mA 0–10 A/0.2 mA	0–0.15 A/0.003 mA 0–1.5 A/0.03 mA 0–15 A/0.3 mA	0–0.3 A/0.003 mA 0–3 A/0.03 mA 0–30 A/0.3 mA
Current accuracy	0.2% + 0.2% FS		
Power range	60/200/200 W	90/300/300 W	180/500/500 W
Power accuracy	0.2% + 0.2% FS		
Protection & mechanical			
Protections	OVP · OCP · OPP · OTP (per module)		
Operating temperature	0–40 °C		
Dimensions / weight	85.5(W) × 142(H) × 550(D) mm / 4.2 kg		

*[1] CR accuracy does not apply below 5% of the current measurement range.

Standard accessories

Item	Description
–	EU power cable (Schuko, CEE 7/7)

Optional accessories

Item	Description
TH26035D	Test cable
TH26035E	Test cable
TH26081	26-pin analog control interface

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

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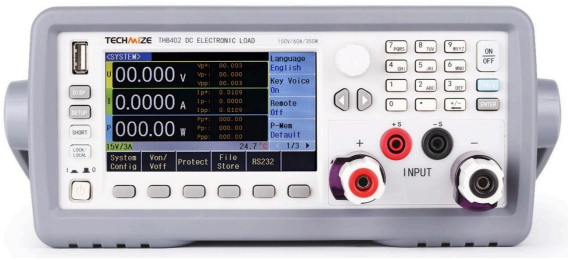
TH8400 Series

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.

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TH343X / TH344X Series

Wideband Multi-Channel Digital Power Meter

A wideband digital power meter for voltage/current RMS, active/reactive/apparent power, power factor, harmonics, energy integration and waveform/vector display, covering **DC and 0.1 Hz–100 kHz** — well beyond mains frequency, suited to switching power supplies, inverters, motor drives and other non-sinusoidal or high-frequency signals. Six models combine two current tiers (2 A / 20 A) with 1, 3 or 4-channel configurations. Built for source and load testing on power supplies, motors, transformers, and household/industrial electrical equipment.

Working size: 236(W) × 154(H) × 475.5(D) mm · Shelf size: 215(W) × 132(H) × 441(D) mm · 8.1 kg



- **0.1% basic accuracy** (reading + range) on voltage and current, across all six models
- Ultra-wide input bandwidth **DC / 0.1 Hz–100 kHz** — for switching supplies, inverters, motor drives and other wideband signals
- 1 / 3 / 4-channel combinations across six models (TH3431–TH3444)
- 7" (800×480) color TFT resistive touch screen, mouse operation supported
- 3/4-channel models: 5 wiring modes (1P2W/1P3W/3P3W/3P4W/3V3A); 1-channel models: 1P2W
- Harmonic analysis to 1.2 kHz, list and bar-graph display; waveform and vector display
- 8-channel programmable comparator output via HANDLER interface
- Selectable measurement update rate: 0.1/0.25/0.5/1/2/10/20 s
- USB Host (FAT16/32, U-disk storage), USB Device, LAN, RS232 standard; RS485 available as a factory-installed option
- SCPI command set and MODBUS protocol supported for automated test systems

Six models, two current tiers

Model	Channels	Current range	Power range	Micro current
TH3431	1	0.01 mA – 2 A	0.01 mW – 1.2 kW	Yes
TH3433	3	0.01 mA – 2 A	0.01 mW – 1.2 kW	Yes
TH3434	4	0.01 mA – 2 A	0.01 mW – 1.2 kW	Yes
TH3441	1	0.1 mA – 20 A	0.1 mW – 12 kW	No
TH3443	3	0.1 mA – 20 A	0.1 mW – 12 kW	No
TH3444	4	0.1 mA – 20 A	0.1 mW – 12 kW	No

All six models share the same voltage range (1 V – 600 V), 0.1% basic accuracy, DC/0.1 Hz–100 kHz bandwidth and chassis. TH343X (2 A tier) adds micro-current measurement; TH344X (20 A tier) covers higher-current loads. 1-channel models support 1P2W wiring only; 3/4-channel models add 1P3W, 3P3W, 3P4W and 3V3A.

Applications

Source equipment

AC power supplies, DC power supplies, linear and switching power supplies, inverters and other source-output equipment.

Load equipment

Household appliances, industrial appliances, electronic loads and other power-consuming equipment.

Industry applications

Motors and transformers, electronic production lines, lighting, aerospace/military, network communication, audio/video equipment, monitoring equipment.

Technical specifications

Parameter	TH343X (2 A): TH3431 / TH3433 / TH3434	TH344X (20 A): TH3441 / TH3443 / TH3444
Number of channels	1 / 3 / 4	1 / 3 / 4
Display	7" (800×480) color TFT resistive touch screen	
Wiring modes	1-channel models: 1P2W only · 3/4-channel models: 1P2W · 1P3W · 3P3W · 3P4W · 3V3A	
Basic features	AC, DC, precision type, harmonic analysis, electric energy test	
Micro current	Yes	No
Display modes	Data, integration data, waveform graph, vector analysis, histogram	
Basic accuracy (1 year)	Voltage: 0.1% reading + 0.1% range · Current: ±(0.1% reading + 0.1% range)	
Voltage range	1 V – 600 V (15/30/60/150/300/600 V)	
Voltage resolution	0.001 V	
Voltage input impedance	2 MΩ	
Voltage max. input	1000 V (1 s) / 700 V (continuous)	
Current range	0.01 mA – 2 A: 0.5/1/2/5/10/20 mA (4 Ω); 0.05/0.1/0.2/0.5/1/2 A (40 mΩ)	0.1 mA – 20 A: 5/10/20/50/100/200 mA (400 mΩ); 0.5/1/2/5/10/20 A (4 mΩ)
Current resolution	0.1 µA	1 µA
Current max. input	3 A (1 s) / 2 A (continuous)	30 A (1 s) / 20 A (continuous)
Power range	0.01 mW – 1.2 kW	0.1 mW – 12 kW
Power resolution	0.001 mW	0.01 mW
Frequency range	DC / 0.1 Hz – 100 kHz, 500 Hz filter	
Frequency resolution	0.01 Hz	
Power factor	−1.000 – 1.000, resolution 0.001	
Harmonic analysis	10 Hz – 1.2 kHz, accuracy ±(5% reading + 0.3% range)	
Energy integration	0 – 99999 kWh, resolution 0.001 Wh, accuracy ±(0.2% RDG + 0.3% RNG)	
Energy timing	0 – 9999:59:59, resolution 1 s, accuracy ±0.05%	
Update rate	Selectable: 0.1 / 0.25 / 0.5 / 1 / 2 / 10 / 20 s	
Range method	Auto / manual	
Lock function	Data lock; keyboard/touch-screen lock	
Comparator	Over-limit sound and light alarm, 8-channel programmable relay output (HANDLER)	
Data storage	Buffered test results to USB disk for PC-side statistical analysis; measurement/system settings save & load	
Storage media	USB waveform data, setting files	
Power supply	AC 220 V ±10%, 50/60 Hz ±5%, soft power switch	
Working / shelf size	236 × 154 × 475.5 mm (with sleeve) / 215 × 132 × 441 mm	
Weight	8.1 kg	

Interfaces

USB Host	USB Device	LAN	Handler	SCPI / MODBUS	RS232	RS485
standard	standard	standard	standard	standard	standard	option[1]

[1] RS485 is available as a factory-installed option in place of RS232 — specify before shipment. USB Host accepts FAT16/FAT32 U-disks. USB Device complies with USBTMC-USB488 / USB 2.0 (CDC or TMC mode selectable).

Standard accessories

Item	Description
–	EU power cable (Schuko, CEE 7/7)

Related series

Series	Description
TH342X	Fixed 4-channel mains-frequency power meter, DC/45–420 Hz — see separate datasheet

TH343X/TH344X and TH342X are separate Tonghui product series with different frequency bandwidths and accuracy classes — see the TH342X datasheet for standard mains-frequency testing.

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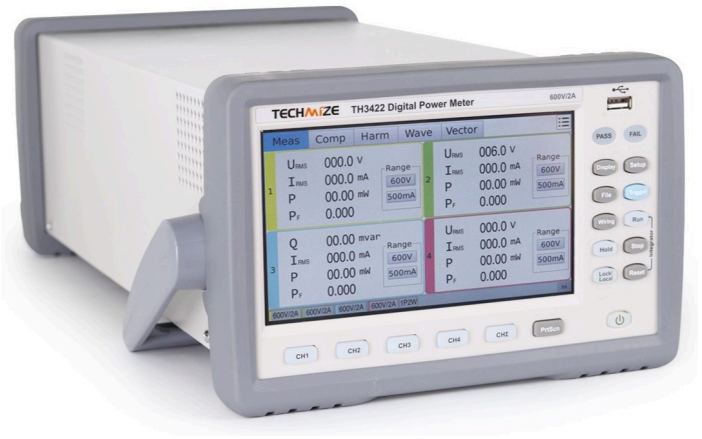
TH342X Series

4-Channel Digital Power Meter

A 4-channel digital power meter for mains-frequency electrical parameter testing — voltage/current RMS, active/reactive/apparent power, power factor, harmonics up to the 50th order, energy integration and waveform/vector display. A phase-locked-loop frequency multiplication technique keeps multi-channel synchronous sampling stable and consistent across the DC/45 Hz–420 Hz input range, covering most of the world's power-grid frequencies. Built for source and load testing on motors, transformers, household and industrial appliances, and power-supply production lines.

Working size: 236(W) × 154(H) × 475.5(D) mm · Shelf size: 215(W) × 132(H) × 441(D) mm · 8.1 kg



- **0.15% basic accuracy** (reading + range + 1 digit), 4 fixed measurement channels
- Broadband input **DC / 45 Hz–420 Hz** (21 kHz bandwidth, 5 kHz filter) — suited to mains-frequency power systems worldwide
- 7" (800×480) color TFT resistive touch screen, mouse operation supported
- 5 selectable wiring modes: 1P2W / 1P3W / 3P3W / 3P4W / 3V3A
- Harmonic analysis up to the 50th order on power-frequency signals, list and bar-graph display
- Waveform display (input signal + integrated power) and vector display
- 8-channel programmable comparator output via HANDLER interface
- Flexible energy integration: continuous timed or manually controlled run/stop
- USB Host (FAT16/32, U-disk storage), USB Device, LAN, RS232 standard; RS485 available as a factory-installed option
- SCPI command set and MODBUS protocol supported for automated test systems

Two models

TH3421

Higher-current 4-channel model

Current range	10 mA – 20 A
Voltage range	5 V – 600 V
Power range	5 mW – 12 kW
Micro current	—

TH3422

Low-current / micro-current model

Current range	1 mA – 2 A
Voltage range	5 V – 600 V
Power range	0.5 mW – 1.2 kW
Micro current	Yes

Both models are fixed 4-channel instruments with identical wiring modes, display modes and chassis; TH3421 targets higher-current loads (up to 20 A) while TH3422 adds a dedicated micro-current measurement capability for low-power devices (down to 1 µA resolution). All models support SCPI and MODBUS protocols.

Applications

Source equipment

AC power supplies, DC power supplies, linear and switching power supplies, inverters and other source-output equipment.

Load equipment

Household appliances, industrial appliances, electronic loads and other power-consuming equipment.

Industry & new energy

Motors and transformers, electronic production lines, lighting, aerospace/military, monitoring, solar batteries, EVs and e-bikes, automation-line integration.

Technical specifications

Parameter	TH3421	TH3422
Number of channels	4	
Display	7" (800×480) color TFT resistive touch screen	
Wiring modes	1P2W · 1P3W · 3P3W · 3P4W · 3V3A	
Basic features	AC, DC, precision type, harmonic analysis, electric energy test	
Micro current	No	Yes
Display modes	Data, integration data, waveform graph, vector analysis, histogram	
Basic accuracy (1 year)	0.15% reading + 0.2% range + 1 digit	
Voltage range	5 V – 75 V / 150 V / 300 V / 600 V	
Voltage resolution	0.01 V	
Voltage input impedance	3 MΩ	
Voltage max. input	1000 V (1 s) / 700 V (continuous)	
Current accuracy	±(0.15% RDG + 0.2% RNG + 1 digit), DC & 45–75 Hz ±(0.3% RDG + 0.2% RNG + 1 digit), 75–420 Hz	Same accuracy classes as TH3421
Current range	10/30/100/400 mA (200 mΩ) 1.5/5/20 A (4 mΩ)	1/3/10/40 mA (2 Ω) 150/500 mA, 2 A (40 mΩ)
Current resolution	0.01 mA	0.001 mA
Current min. resolution	10 µA	1 µA
Current max. input	40 A (1 s) / 30 A (continuous)	4 A (1 s) / 3 A (continuous)
Max. display	Range × 110%	
Power range	5 mW – 12 kW	0.5 mW – 1.2 kW
Power resolution	0.01 mW	0.001 mW
Frequency range	DC / 45 Hz – 420 Hz, bandwidth 21 kHz, 5 kHz filter	
Frequency resolution	0.01 Hz	
Power factor	−1.000 – 1.000, resolution 0.001	
Harmonic analysis	±(5% reading + 0.3% range); up to the 50th order on power-frequency signals	
Energy integration	0 – 99999 kWh, resolution 0.001 Wh, accuracy ±(0.2% RDG + 0.3% RNG)	
Energy timing	0 – 9999:59:59, resolution 1 s, accuracy ±0.05%	
Measuring speed	~7 readings/s (4 readings/s with harmonic/waveform display active)	
Range method	Auto / manual	
Lock function	Data lock; keyboard/touch-screen lock	
Comparator	Over-limit sound and light alarm, 8-channel programmable relay output (HANDLER)	
Data storage	Buffered test results to USB disk for PC-side statistical analysis; measurement/system settings save & load	
Storage media	USB waveform data, setting files	
Power supply	AC 220 V ±10%, 50/60 Hz ±5%, soft power switch	
Working / shelf size	236 × 154 × 475.5 mm (with sleeve) / 215 × 132 × 441 mm	
Weight	8.1 kg	

Interfaces

USB Host	USB Device	LAN	Handler	SCPI / MODBUS	RS232	RS485
standard	standard	standard	standard	standard	standard	option[1]

[1] RS485 is available as a factory-installed option in place of RS232 — specify before shipment. USB Host accepts FAT16/FAT32 U-disks. USB Device complies with USBTMC-USB488 / USB 2.0 (CDC or TMC mode selectable).

Standard accessories

Item	Description
–	EU power cable (Schuko, CEE 7/7)

Related series

Series	Description
TH343X/	Wideband digital power meter, DC/0.1 Hz–100 kHz, 1/3/4-channel — see separate datasheet
TH344X	for signals beyond the 420 Hz mains-frequency range covered here

TH342X and TH343X/TH344X are separate Tonghui product series with different frequency bandwidths and accuracy classes — see the TH343X/TH344X datasheet for wideband/harmonic-rich signal testing.

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