TECHMIZE by TONGHUI

OM

OPERATION MANUAL

TH6430 Series

Multi-Channel Programmable DC Power Supply / Electronic Load — TH6431 / TH6432 / TH6433 / TH6434. Covers front-panel operation, channel configuration, sequence and recording functions, system settings and the remote-control interfaces.

Techmize Electronic GmbH · Ismaning, Germany · an international subsidiary of Changzhou Tonghui Electronic Co., Ltd.

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TH6430 Series Operation Manual

Multi-Channel Programmable DC Power Supply / Electronic Load — TH6431 / TH6432 / TH6433 / TH6434

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The TH6430 series SCPI command set (around 45 commands) is covered in full in Chapter 6 of this manual, rather than as a separate companion document, in line with Techmize's practice for command sets of this size. The series supports SCPI only; it does not implement MODBUS.

CHAPTER 1

Safety & Compliance

1.1 About this manual

This is the original-language (English) edition of the operation manual for the Techmize TH6430 series programmable DC power supply / electronic load, covering models **TH6431**, **TH6432**, **TH6433** and **TH6434**. Where this manual and the instrument itself appear to disagree, or where a described function is not present on your particular model, contact Techmize or your authorized distributor using the details in §1.9 before relying on the instrument.

Techmize continually improves the performance, features and construction of its instruments; content, specifications and accessories described here are subject to change without notice.

> **WARNING — ELECTRIC SHOCK**
>
> Always use a supply outlet with a protective earth contact, and confirm the protective-earth conductor is reliably connected to ground before powering on the instrument. Never connect the AC supply, or operate the instrument, with the protective ground disconnected. Disconnect the power cord before replacing the fuse.

1.2 Safety symbols used in this manual

The following symbols and signal words appear in this manual and on the instrument itself:

WARNING — a hazard that, if not avoided, could result in personal injury or death.

CAUTION — a hazard that, if not avoided, could damage the instrument or the device under test, or invalidate a measurement.

NOTE — supplementary information that helps with correct or efficient use, but is not itself a hazard.

Protective ground — this terminal must be connected to protective earth. Also printed next to the instrument's rear-panel ground terminal.

1.3 Power & environment requirements

Item	Requirement
Supply voltage	110 V / 220 V AC ±10% (rear-panel selector switch)
Supply frequency	50 Hz / 60 Hz ±5%
Power consumption	≤ 130 VA
Fuse	T4AL (110 V/60 Hz) · T2AL (220 V/50 Hz) — use only the fuse type matching the selected line-voltage range
Operating temperature / humidity	0–40 °C · ≤75% RH
Storage temperature / humidity	5–40 °C · ≤85% RH, non-condensing
Warm-up time	≥ 30 minutes before relying on rated accuracy

Do not use the instrument in a dusty, vibrating, direct-sunlight or corrosive-gas environment, and keep its left/right ventilation openings clear. Do not power-cycle the instrument frequently, as this may cause internal data confusion. If the instrument will not be used for an extended period, store it in its original packaging in a well-ventilated room within the storage conditions above.

WARNING — OUTPUT TERMINALS

In source mode, each channel's output terminals can supply the rated voltage and current shown in Chapter 5 — up to 64 V in series connection (CH1+CH2). In load mode, CH1/CH2 can sink current from an externally connected DUT. Always check the mode and settings of a channel, and its over-voltage/over-current/over-power protection limits, before connecting or energizing a load. Do not short-circuit the series/parallel busbar terminals on the front panel unless the channels are actually configured for that connection.

1.4 Electrical safety test data

Item	Specification
Safety class	Class I
Insulation resistance (power terminals to shell)	≥ 50 MΩ (reference conditions) · ≥ 2 MΩ (hot/humid transport conditions)
Dielectric strength	50 Hz, 1.5 kV AC, 1 minute — no breakdown or flashover
Leakage current	≤ 3.5 mA (AC RMS)

1.5 EMC & CE marking

The TH6430 series (TH6431/TH6432/TH6433/TH6434) carries the CE mark, as shown on the instrument's rear-panel nameplate, supported by the following EU certificates of conformity:

Directive	Harmonized standard	Certificate
Low Voltage Directive 2014/35/EU	EN 61010-1:2010+A1:2019	No. MTZS25034221, issued 2025-03-27
EMC Directive 2014/30/EU	EN IEC 61326-1:2021	No. MTZS25024067, issued 2025-02-28

Certificates issued by Shenzhen Most Technology Service Co., Ltd., covering the TH6431/TH6432/TH6433/TH6434 model range.

In addition to the standards listed above, the instrument's EMC performance has also been evaluated against:

Standard	Requirement
CISPR 11:2015+A1:2016+A2:2019	Emitted/conducted radiation, Group 1, Class A
EN 61000-4-2:2009	Electrostatic discharge immunity
EN 61000-4-3:2020	Radiated RF electromagnetic field immunity
EN 61000-4-4:2012	Electrical fast transient/burst immunity
EN 61000-4-5:2014+A1:2017	Surge immunity
EN 61000-4-6:2014	Conducted RF immunity
EN 61000-4-11:2020	Voltage dips and interruptions immunity
EN 61000-3-2:2019+A1:2021	Harmonic current emissions
EN 61000-3-3:2013+A1:2019+A2:2021	Voltage changes, fluctuations and flicker

1.6 WEEE — disposal of electrical and electronic equipment



This symbol indicates that the instrument must not be disposed of as unsorted municipal waste at the end of its service life. Within the European Union, return the instrument to Techmize, your distributor, or a designated collection point for electrical and electronic equipment, in accordance with the WEEE Directive (2012/19/EU) and its national transposition in your country.

1.7 RoHS compliance

The TH6430 series complies with Directive 2011/65/EU (RoHS), as amended. Supporting documentation is available from Techmize on request.

1.8 Warranty

Techmize warrants this instrument to be free from defects in material and workmanship for a period of **two (2) years** from the date of delivery to the original purchaser, evidenced by the instrument's warranty card. During the warranty period, Techmize will repair the instrument at no charge, provided it has been used within the specified operating conditions; damage caused by improper operation by the user is excluded and will be repaired at the user's cost.

Repair must be carried out by qualified technical personnel; do not replace internal components without authorization. After any repair, the instrument must be recalibrated before further use, since a user-performed repair that damages a component is not covered by the warranty.

1.9 Manufacturer & EU contact

Techmize Electronic GmbH

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Tonghui Electronic Co., Ltd. (China)

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Registration

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

CHAPTER 2

Out of the Box

2.1 Unpacking

Inspect the shipping container for damage after unpacking; it is not recommended to power on the instrument if the container shows signs of damage. Check the contents against your order and against the packing list; if anything does not conform, contact Techmize or your distributor promptly.

Item	Qty
TH6431 / TH6432 / TH6433 / TH6434 instrument (model as ordered)	1
EU power cable (Schuko, CEE 7/7)	1
YT3008 test lead set	1
Fuse (matching the selected line-voltage range)	1
Certificate of conformity	1
Warranty card	1

The TH26035D and TH26035E high-current test leads are optional accessories and must be ordered separately. This operation manual is provided as a PDF document; it is not supplied as a printed edition.

Keep the original packaging — it is the recommended way to store or return the instrument. Store the instrument in a dry, well-ventilated room at 5–40 °C and ≤85% RH when not in use for an extended period.

2.2 Connecting the power supply

Item	Specification
Supply	110 V / 220 V AC ±10%, 50/60 Hz (rear-panel selector)
Power consumption	≤ 130 VA
Power switch	Front-panel POWER switch

WARNING

Before connecting the power cable, check that the rear-panel line-voltage selector switch matches your local AC supply, and that the fitted fuse matches the selected voltage range (T4AL for 110 V/60 Hz, T2AL for 220 V/50 Hz). Make sure the protective-earth conductor is reliably grounded to prevent electric shock from leakage current, and disconnect the power cable before replacing the fuse.

2.3 Connecting a device or load

Each channel presents an independent pair of output/sense terminals on the front panel (plus a shared GND terminal). On CH1/CH2-equipped models, a Series/Parallel busbar row lets CH1 and CH2 be combined for a higher-voltage or higher-current output. Connect the test leads (YT3008, or the optional TH26035D/E high-current leads) to the correct channel terminals before enabling the output.

> **WARNING**
>
> Do not connect or disconnect test leads while a channel's output is enabled. Confirm the intended mode (source or load), voltage/current setting and OVP/OCP/OPP protection limits of a channel before switching its output on, and never bridge the series/parallel busbar unless the channels are actually configured for that connection mode.

2.4 Starting the instrument for the first time

1. Connect the EU power cable to the rear-panel inlet, confirming reliable earth-ground connection.
2. Press the front-panel POWER switch.
3. The instrument displays a startup screen, then opens on the default <OUTPUT> display page.
4. If Power-On Memory is set to File (§4.6), the instrument loads the stored setup file instead of its factory-default parameters.

Allow at least 30 minutes of warm-up before relying on the rated accuracy (§1.3). For an overview of the front panel, rear panel and screen layout, continue to Chapter 3.

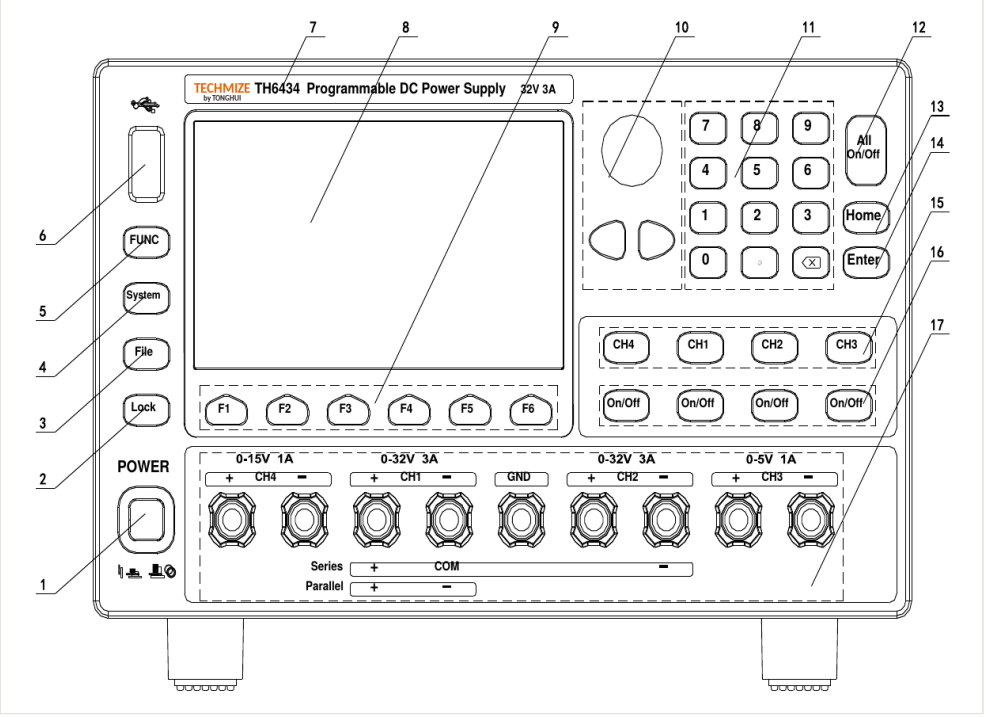
CHAPTER 3

Getting to Know the Instrument

All four models share the same chassis, LCD, keypad and control logic. They differ only in the number of channel-selector keys, On/Off keys and output terminal pairs fitted on the front panel, matching each model's channel count (see table below and Chapter 5).

Model	Channels	Series/Parallel busbar
TH6431	CH1 only	—
TH6432	CH1, CH2	CH1+CH2
TH6433	CH1, CH2, CH3 (fixed-voltage, USB Type-A port)	CH1+CH2
TH6434	CH1, CH2, CH3, CH4	CH1+CH2

3.1 Front panel (TH6434, 4-channel, shown)



1 **POWER switch** — turns the main power line on/off.

2 **LOCK** — locks the keys to prevent misuse; the instrument also enters a key-locked state while communicating with an external controller.

3 **File** — opens the file/memory management page (§4.9).

4 **System** — opens the <SYSTEM> setup page (§4.6).

5 **FUNC** — opens higher-order functions: sequence (LIST), delay and recording (§4.3–4.5).

6 **USB HOST port** — connects a USB flash drive for file storage/recall, screenshots and data upload.

7 **Trademark & model**.

8 **LCD display** — 480×272 dot-matrix graphic LCD.

9 **Function keys F1–F6** — context-sensitive, shown along the bottom of each page.

10 **Knob and arrow keys** — cursor movement and parameter adjustment.

11 **Numeric keypad** — direct entry of parameter values.

12 **All On/Off** — simultaneous startup or shutdown of all channels.

13 **Home** — returns to the main <OUTPUT> display page.

14 **Enter** — confirms a value entry.

15 **Channel-selector keys** — one per fitted channel; switches the setting focus between channels.

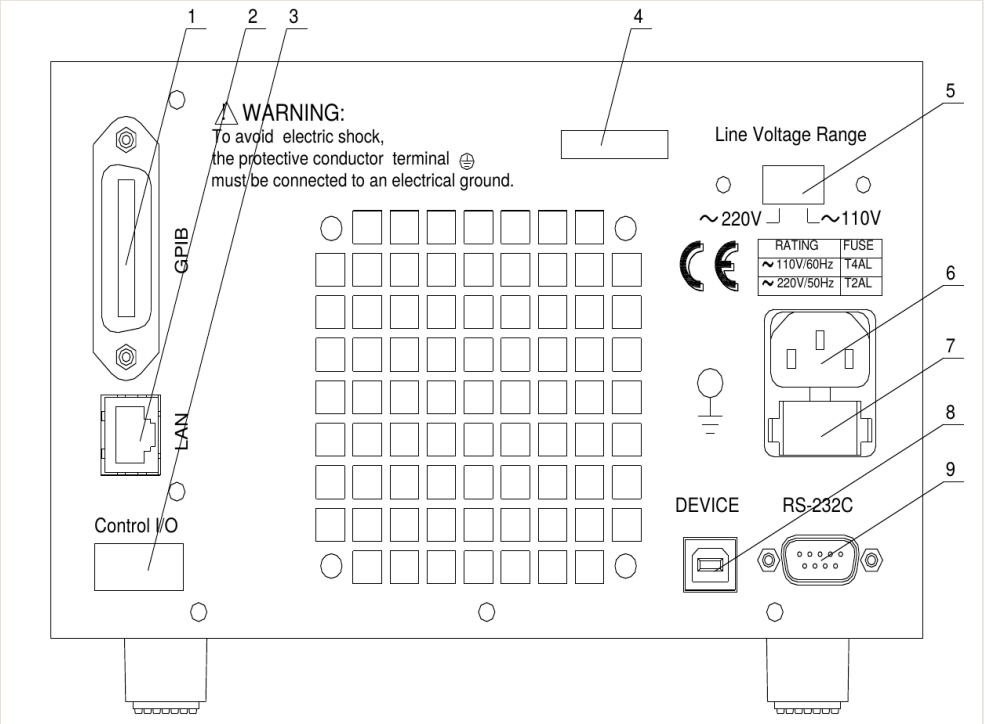
16 **Independent On/Off keys** — one per fitted channel; starts or shuts down that channel only.

17 **Output terminals** — one independent +/− pair per fitted channel, plus a shared GND terminal. A Series/Parallel busbar row combines CH1+CH2 on two- to four-channel models.

3.2 Front panel — fewer-channel models

On **TH6431**, only the CH1 selector key, CH1 On/Off key and a single CH1 output terminal pair (plus GND) are fitted, and there is no series/parallel busbar row. On **TH6432**, CH1 and CH2 selector/On-Off keys and terminal pairs are fitted, with the series/parallel busbar row present. On **TH6433**, CH1, CH2 and CH3 selector/On-Off keys are fitted; CH3 is a fixed-voltage auxiliary output with both a terminal pair and a front-panel USB Type-A port (§5.1). In each case, the keypad, knob, LCD and function-key area are identical to the TH6434 layout shown in §3.1, simply with fewer channel-selector keys, On/Off keys and terminal pairs populated.

3.3 Rear panel



1 **GPIB interface** — parallel communication with a computer, for GPIB test systems.

2 **LAN interface** — network communication and control.

3 **Control I/O** — 5 independent ports, each configurable as an input or output (§4.8).

4 **Nameplate** — manufacture date, serial number, manufacturer and CE mark.

5 **AC input voltage-range selector** — switches between 110 V/60 Hz and 220 V/50 Hz.

6 **AC power inlet & fuse holder**.

7 **USB Device interface** — USB communication with a host PC (USB-CDC / USB-TMC).

8 **RS232C interface** — serial communication with a host PC.

Rear-panel layout is identical across all four models.

3.4 Main pages

Page	Description
<OUTPUT>	Live voltage/current/power display for all fitted channels; main display page (§4.1)
<CH SETUP>	Source/load mode, voltage/current/resistance/power setting and OVP/OCP/OPP for the selected channel (§4.2)
<LIST>	Programmable sequence setup for CH1/CH2 (§4.3)
<DELAY>	Turn-on/turn-off delay and working-time timer, all channels (§4.4)
<RECORDER>	Real-time data-logging setup (§4.5)
<SYSTEM>	Language, beeper, power-on memory, channel combination, backlight, date/time (§4.6)
<COMM>	Communication interface selection and parameters (§4.7)
<I/O>	Rear-panel Control I/O port configuration (§4.8)
<MEMORY>	Internal/external setup-file storage and recall (§4.9)

3.5 Basic operation

1. Select the channel to work on with the channel-selector keys, and the page with **File**, **System**, **FUNC** or **Home**.
2. Use the arrow keys to move the cursor to the field to be set.
3. Enter a value directly from the numeric keypad, or press a function key to select from the on-screen choices.
4. For fine adjustment, press the corresponding function key to enter knob-adjust mode, then use the arrow keys and knob to change individual digits.

CHAPTER 4

Operation & Configuration

4.1 <OUTPUT> display page

The main display page shows the live voltage, current and power readings for every fitted channel at the same time, and allows basic voltage/current setting without opening <CH SETUP>.

Control	Function
Parameter setting	Select the channel with the channel-selector keys, move the cursor with the arrow keys, then enter a value from the numeric keypad, or press F1 (Set) and use the knob/arrow keys for fine adjustment
Power/load switching (F6)	CH1 and CH2 only — toggles the selected channel between source (power) mode and load (pull-load) mode

4.2 <CH SETUP> page — channel settings

Configures the detailed parameters for the currently selected channel.

Field	Description
Port	SOUR (source/power mode) · LOAD (electronic-load mode, CH1/CH2 only)
Mode (source)	Fixed voltage/current output; Vset and Iset (current limit)
Mode (load)	CC · CV · CR · CP — constant current, voltage, resistance or power pull-load
OVP	Over-voltage protection — the channel shuts down if the sampled voltage exceeds this value
OCP	Over-current protection — the channel shuts down if the sampled current exceeds this value
OPP	Over-power protection — the channel shuts down if the sampled power exceeds this value

> NOTE
> Only CH1 and CH2 support load mode. CH3/CH4 (or CH3 on TH6433) operate in source mode only. See Chapter 5 for the voltage/current ranges and protection limits applicable to each channel on each model.

4.3 LIST function (programmable sequence)

Generates a continuously changing output or pull-load profile for **CH1/CH2 only**, up to 100 steps per list. Reached via FUNC → LIST.

Field	Options
Port	Source · Load
Template	User (freely edited steps) · Waveform (Sine, Triangle, Step, Exponential, Logarithmic)
Cycles	1–100, or Infinite
Waveform parameters	Object (Volt/Curr) · Min/Max value · Steps · Period (s) · Phase (Sine) · Duty cycle (Triangle) · Trend (Step/Exponential/Logarithmic)

For a User list, set the number of steps (F1 to increase, F2 to insert), move the cursor to each step's voltage/current/delay field and enter the value directly, then press F6 to finish. For a waveform template, set the parameters above and press F5 (Create) to automatically generate the list. Completed lists can be stored to and recalled from 10 internal list slots (F1 Store / F2 Recall on the list-storage page).

4.4 Delay output function

Sets a per-channel turn-on/turn-off delay or working-time timer. Reached via FUNC → DELAY, applicable to all fitted channels.

Field	Range
Start delay (Sta-Delay)	0–100 s — delay before the channel's output turns on
End delay (End-Delay)	0–100 s — delay before the channel's output turns off
Working time (Work-Time)	0.1–360,000 s — total output run time before automatic shutdown

4.5 Output recording function

Records voltage, current and power samples at regular intervals and uploads the data in CSV format to a USB flash drive. Reached via FUNC → Recorder.

Field	Description
Recorder	On/Off — master enable for data logging
Period	Sampling interval (s)
Groups	Total number of data groups recorded per session
REC Type	Single (stop after reaching Groups) · Continuous (start a new recording automatically)
REC CH	Channel(s) to record

To record: insert a USB flash drive into the front-panel USB HOST port, configure the fields above and turn Recorder on. The instrument samples at the set interval; when the Groups target is reached, it uploads the data to the USB drive in CSV format and either stops (Single) or begins a new recording (Continuous).

4.6 System settings

Reached via the front-panel System key.

Field	Options
Language	English
Beeper	On / Off
Power-Mem	Factory (default parameters) · File (loads a stored setup file at power-on, §4.9)
Port-Comb	None · Independent · Series · Parallel — CH1/CH2 combination state
BackLight	Low / Middle / High
Date / time	Year-Month-Day-Hour-Minute-Second

4.7 Communication settings

Reached via <SYSTEM> → COMM. Select one communication interface and configure its parameters.

Interface	Configurable parameters
RS232	Baud rate, data bits, stop bit, parity (default: 9600, 8, 1, None)
USB-CDC	Virtual COM port — no further parameters
USB-TMC	USB test-and-measurement class — no further parameters
GPIB	Bus address
LAN	IP configuration

The TH6430 series supports SCPI only; it does not implement MODBUS over any interface.

4.8 I/O settings (Control I/O)

The rear-panel Control I/O connector provides 5 independent ports, each individually configurable as a signal **input** or **output**, reached via <SYSTEM> → I/O.

4.8.1 Input settings

Field	Options
Input type	Rising edge · Falling edge · High level · Low level · Level state
Response	Off/On (turns the controlled channel(s) on or off) · Port (switches channel mode)
Function	Off–On · Power – CC/CV/CR/CP mode switching
Controlled channel(s)	Multi-selectable

4.8.2 Output settings

Field	Options
Output type	Rising edge · Falling edge
Condition	Off/On · Sampling voltage · Sampling current · Sampling power
Requirement	Off/On state · > / < a triggered sample value
Controlled channel	Single selection

4.9 Memory (setup file storage)

Reached via the front-panel File key. Stores and recalls complete instrument configurations as `*.STA` files, so a setup does not need to be re-entered manually.

Location	Capacity	Operations
Internal	10 setup files (MEM01.STA–MEM10.STA)	Store · Recall · Clear · copy To USB drive
External (USB)	STA folder on a connected USB flash drive	Recall

To store: rotate the knob to select an internal file slot and press F1 (Store) to save the current configuration and parameters. To load automatically at power-on, set Power-Mem = File on <SYSTEM> (§4.6). To copy an internal file to a USB drive, select it and press F6 (To UDisk). To recall from a USB drive, select External Files, rotate the knob to the desired file and press F1 (Recall).

CHAPTER 5

Performance & Specifications

5.1 Output ratings by channel

Model	CH1	CH2	CH3	CH4
TH6431	0–32 V / 0–6 A	—	—	—
TH6432	0–32 V / 0–3 A	0–32 V / 0–3 A	—	—
TH6433	0–32 V / 0–3 A	0–32 V / 0–3 A	1.8 V / 2.5 V / 3.3 V / 5.0 V (fixed) — 0–5 A (terminal) / 0–3 A (USB-A port)	—
TH6434	0–32 V / 0–3 A	0–32 V / 0–3 A	0–5 V / 0–1 A	0–15 V / 0–1 A

Model	Series (CH1+CH2)	Parallel (CH1+CH2)
TH6431	—	—
TH6432 / TH6433 / TH6434	0–64 V / 0–3 A	0–32 V / 0–6 A

5.2 Source (power) mode — general specifications

Item	Specification
Setting resolution	1 mV / 0.1 mA
Readback resolution	0.1 mV / 0.1 mA
Accuracy	Voltage: 0.03%+10 mV · Current: 0.3%+10 mA
Ripple & noise	Constant voltage: 1 mVrms · Constant current: 2 mArms
Line (power) regulation	Constant voltage: 0.006%+3 mV · Constant current: 0.01%+3 mA
Load regulation	Constant voltage: 0.01%+3 mV · Constant current: 0.01%+3 mA
Recovery time	50 µs

These setting/readback resolution, accuracy, ripple and regulation figures apply equally to CH1–CH4 (including the fixed-voltage CH3 on TH6433 and the auxiliary CH3/CH4 on TH6434). **TH6433 CH3** differs: Accuracy (voltage) 5% · Load regulation (voltage) 5 mV · Line regulation (voltage) 3 mV · Ripple & noise (voltage) 2 mVrms; CH3 has no current-mode accuracy/regulation specification, as it is a fixed-voltage rail with no current-setting function.

Item (CH1+CH2 combination)	Specification
Series connection — linear / load regulation	0.01%+5 mV / 100 mV
Parallel connection — linear / load regulation	0.01%+3 mV / 0.01%+3 mV

5.3 Load mode — CH1/CH2 only

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

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

5.4 Additional functions

Function	Specification
Programmable sequence (LIST)	CH1/CH2 (CH1 only on TH6431) · 100 steps · templates: Sine, Triangle, Step, Exponential, Logarithmic, User · 1–100 cycles or infinite
Delay output	All channels · turn-on/turn-off delay 0–100 s · working-time timer 0.1–360,000 s
Data recording	All channels · interval, groups and single/continuous mode user-configurable · CSV export to USB
Setup storage	10 internal setup files (*.STA) · external USB storage/recall

5.5 Interfaces & environment

Item	Specification
Interfaces	RS232C · GPIB · LAN · USB HOST · USB DEVICE (USB-CDC / USB-TMC) · Control I/O (5 independent ports)
Remote-control protocol	SCPI (no MODBUS support)
Display	480×272 dot-matrix graphic LCD
Operating environment	0–40 °C, ≤75% RH
Storage environment	5–40 °C, ≤85% RH
Power	110 V / 220 V AC ±10%, 50/60 Hz, ≤130 VA
Dimensions (W×H×D)	215 × 125 × 290 mm
Weight	≈ 8 kg

Dimensions, weight, display, interfaces and environmental ratings are identical across TH6431/TH6432/TH6433/TH6434.

5.6 Model selection summary

Model	Channels	Series/Parallel	Typical application
TH6431	1 (0–32 V/6 A, source + load)	No	Single higher-current rail, bench use, basic load testing
TH6432	2 (0–32 V/3 A each, source + load)	Yes	Dual independent or combined rails, up to 0–64 V or 0–6 A
TH6433	2 + 1 fixed-voltage aux. (USB-A port)	Yes (CH1+CH2)	Adds a 1.8/2.5/3.3/5.0 V logic-level or USB-charging rail
TH6434	4 (2 source+load, 2 auxiliary source-only)	Yes (CH1+CH2)	Multi-rail bench supply for boards needing several independent voltages

PART II

Remote Control

Covers the RS232C, GPIB, LAN and USB remote interfaces and the SCPI command set used to control the instrument programmatically.

CHAPTER 6

Interfaces & Remote Commands

The instrument can be controlled remotely over RS232C, GPIB, LAN or USB (USB-CDC / USB-TMC). Only one interface is active at a time; all interfaces share the same SCPI command set. The TH6430 series supports SCPI only — it does not implement MODBUS.

6.1 RS232C

Item	Specification
Connector	9-pin D-type (DB9) female
Pin assignment	TXD = pin 3, RXD = pin 2, GND = pin 5
Configurable parameters	Baud rate, data bits, stop bit, parity (§4.7)

Connect with a standard DB9 cross-over (null-modem) cable, less than 1.5 m long. The instrument's pin definition follows the common 9-pin RS-232C convention used on IBM AT-compatible machines.

> **WARNING**
> Turn off power before connecting or disconnecting the RS232C cable.

6.2 GPIB

IEEE 488 (GPIB) parallel bus interface for connecting the instrument to a computer or other test instruments in a GPIB-based automated test system. The instrument does not implement the controller function.

Item	Requirement
Cable length	Total bus cable length ≤ 2 m × number of connected instruments, and ≤ 20 m overall
Instruments on one bus	Up to 15
Connector stacking	No more than 4 back-to-back connectors recommended on any one instrument
Supported functions	SH1, AH1, T5, L4, RL1, DC1, DT1, C0, E1 (no controller function, no listen-only, no serial poll)

6.3 LAN & USB

Interface	Description
LAN	Rear-panel RJ45 connector for network-based control and communication; IP parameters set on <COMM> (§4.7)
USB DEVICE	Rear-panel USB port; USB-CDC (virtual COM port) or USB-TMC (USB test-and-measurement class) selectable on <COMM>
USB HOST	Front-panel USB port for a USB flash drive — file storage/recall, screenshots and recorded-data upload (not a remote-control interface)

6.4 SCPI command syntax

The instrument references the GPIB Common Instructions (IEEE 488.2-1987) and the SCPI instruction set. SCPI instructions are tree-structured with up to three layers; a colon separates the hierarchy.

- Commands are case-insensitive: `SYSTem:LOCAL` = `system:local` = `SYSTem:LOCAL`
- A space separates the command from its parameter: `SYST:LANG EN`
- Some commands take no parameter, e.g. `SYSTem:LOCAL`
- No space is placed before or after a colon
- A command keyword may be sent in full or abbreviated to its capitalized portion, e.g. `SYSTem:LOCAL` = `SYST:LOCAL`
- `<>` marks a required parameter value; `|` separates alternative parameter choices; a trailing `?` marks a query that returns the corresponding value

6.5 SYSTem command set

Command	Description
`SYSTem:LOCAL`	Set instrument operation to local
`SYSTem:LANG <EN>` / `?`	Set/query the instrument display language
`SYSTem:BEEPer <0|1|OFF|ON>` / `?`	Set/query the buzzer state
`SYSTem:PMEM <DEFault|FILE>` / `?`	Set/query the power-on parameter type
`SYSTem:COMBine <0|1|2|OFF|SERial|PARallel>` / `?`	Set/query the CH1/CH2 combination mode
`SYSTem:BRIGHt <0|1|2|LOW|MIDdle|High>` / `?`	Set/query the display backlight brightness
`SYSTem:<YEAR|MONth|DATe|HOUR|MINute|SECond> <NR1>` / `?`	Set/query the instrument's date/time fields

6.6 CHSELect, DISPlay & MEASure command sets

Command	Description
`CHSELect <CH1|CH2|CH3|CH4|1|2|3|4>`	Select the current channel to be controlled
`DISPlay:page <outp|ch|list|delay|rec|syst|comm|io|mem>`	Switch the instrument display page
`MEASure <1|2|3|4>:<VOLTage|CURRent|POWer|ALL>?`	Reads the measured value(s) of the selected channel
`MEASure:<VOLTage|CURRent|POWer>?`	Reads the selected measurement for all channels

6.7 OUTPut & MODe command sets

Command	Description
`OUTPut <1|2|3|4>:STATe <0|1|OFF|ON>` / `?`	Turns the selected channel's output on/off, or queries its state
`OUTPut:STATe <0|1|OFF|ON>` / `?`	Turns all channels' outputs on/off, or queries all states
`MODe <1|2>:SOURce`	Sets the selected channel to source mode
`MODe <1|2>:LOAD <CC|CV|CR|CP>`	Sets the selected channel to the given load mode
`MODe <1|2>?`	Queries the current mode of the selected channel

6.8 SOURce & LOAD command sets

Command	Description
`SOURce <1|2|3|4>:VOLTage <NRf|MINimum|MAXimum>` / `?`	Sets/queries the source voltage of the selected channel
`SOURce <1|2|3|4>:CURRent <NRf|MINimum|MAXimum>` / `?`	Sets/queries the source current of the selected channel
`LOAD <1|2>:VOLTage <NRf|MINimum|MAXimum>` / `?`	Sets/queries the load voltage (CV mode) of the selected channel
`LOAD <1|2>:CURRent <NRf|MINimum|MAXimum>` / `?`	Sets/queries the load current (CC mode) of the selected channel
`LOAD <1|2>:RESistance <NRf|MINimum|MAXimum>` / `?`	Sets/queries the load resistance (CR mode) of the selected channel
`LOAD <1|2>:POWer <NRf|MINimum|MAXimum>` / `?`	Sets/queries the load power (CP mode) of the selected channel

6.9 PROTect command set

Command	Description
`PROTect <1|2|3|4>:VOLTage <NRf|MINimum|MAXimum>` / `?`	Sets/queries the OVP limit of the selected channel
`PROTect <1|2|3|4>:CURRent <NRf|MINimum|MAXimum>` / `?`	Sets/queries the OCP limit of the selected channel
`PROTect <1|2|3|4>:POWer <NRf|MINimum|MAXimum>` / `?`	Sets/queries the OPP limit of the selected channel

6.10 LIST command set (CH1/CH2 only)

Command	Description
`LIST <1|2>:MODe <SOURce|CC|CV>`	Sets the working mode of the selected channel's list
`LIST <1|2>:CYCles <NRf|MINimum|MAXimum|UNLimit>`	Sets the number of times the list will cycle
`LIST <1|2>:STEPs <NRf|MINimum|MAXimum>`	Sets the number of steps in the list
`LIST <1|2>:LEVel <number>,<voltage>,<current>,<delay>`	Sets the voltage, current and delay for a given step
`LIST <1|2>:TYPe <1–5>,<params…>`	Sets the waveform template and its parameters for the list
`LIST <1|2>:STATe <0|1|OFF|ON>`	Enables or disables the selected channel's list function

6.11 DELAY command set

Command	Description
`DELAY <1|2|3|4>:<STArt|END|WORK> <NRf|MINimum|MAXimum>`	Sets the start-delay, end-delay or working-time value for the selected channel
`DELAY <1|2|3|4>:<STArt|END|WORK> <OFF|ON>`	Enables/disables the corresponding delay for the selected channel

6.12 TRIGer command set (rear-panel Control I/O)

Command	Description
`TRIGer:SELect <1|2|3|4|5>`	Selects the Control I/O port to be configured
`TRIGer:ENABle <IN|OUT>`	Enables the selected port as an input or output
`TRIGer:DISABle`	Disables the selected port
`TRIGer:IN:TYPe <RISe|FALL|HIGH|LOW|STATe>`	Sets the detected input-signal type
`TRIGer:IN:FUNCtion <OFF|ON|SOURce|CC|CV|CR|CP>`	Sets the function the port triggers on the controlled channel(s)
`TRIGer:IN:CHannel <1|2|3|4|ch1|ch2|ch3|ch4>`	Sets the channel(s) controlled by this input port
`TRIGer:OUT:TYPe <Rise|FALL>`	Sets the output signal edge type
`TRIGer:OUT:CONDition <OFF|ON|>V|<V|>I|<I|>P|<P|val>`	Sets the output trigger condition
`TRIGer:OUT:CHannel <1|2|3|4|ch1|ch2|ch3|ch4>`	Sets the channel this output port matches against

APPENDIX

Packing, Warranty & Related Documents

A.1 Standard accessories

See §2.1 for the standard packing contents (instrument, EU power cable, YT3008 test lead set, fuse, documentation). TH26035D and TH26035E high-current test leads are optional accessories, purchased separately.

A.2 Transport & storage

Store the instrument in its original packaging, in a dry, well-ventilated location at 5–40 °C and ≤85% RH, away from corrosive gases, for any extended period of non-use. During transport, protect the instrument from shock, vibration and moisture.

A.3 Nameplate & markings

Each instrument's rear-panel nameplate carries: the manufacturer's name/trademark, product model, serial number, date of manufacture, rated AC input voltage ranges and fuse ratings, and the CE mark.

A.4 Related documents

- TH6430 Series Datasheet (Techmize)

A.5 Contacting Techmize

For technical support, accessories, calibration or service, contact Techmize directly or through your authorized Techmize distributor.

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