

# Micro Signal Type Tester

## II. TH199X Series precision source/measure unit

**NEW**

### Features

- 7-inch capacitive touch screen, resolution 800×480
- Linux operating system
- Four-quadrant precision power output and measurement
- Single/dual channel output and measurement
- Up to ±210V DC voltage, ±3A DC current/±10.5A pulse
- 10fA/100nV minimum measurement resolution (6 1/2 digits)
- 10fA/100nV minimum supply resolution (6 1/2 digits)
- Up to 1,000,000 dots/sec sampling rate
- Arbitrary waveform generation
- List scan function (minimum 1μs interval)
- Direct generation of I/V curves of diodes, triodes, MOS tubes and IGBTs
- Standard PC software, convenient for computer control and data collection



RS232	LAN	HANDER	USB HOST	USB DEVICE
standard	standard	standard	standard	standard

### TH199X Series

Shelf volume (mm): 125x132x480

Outline volume (mm): 236x154x526

Net weight: about 6kg (single channel) / 7.5kg (dual channel)

### Applications

- Semiconductor, discrete and passive component testing
  - Diodes, Laser Diodes, LEDs
  - Photodetectors, Sensors
  - Field effect transistor, triode
  - ICs (ICs, RFICs, MMICs)
  - Resistors, rheostats, thermistors, switches
- Precision electronics and green energy device testing
  - PV
  - Power semiconductor
  - Battery
  - Car
  - Medical instrument
  - Power and DC Bias Sources for Board Level Testing
- Research and Education
  - New material research
  - Nanodevice properties
  - Giant magnetoresistance
  - Organic equipment
  - Any precision I/V source or measure

### Specifications

Model	TH1991C	TH1991B	TH1991A	TH1991	TH1992B	TH1992A	TH1992		
Display	7-inch capacitive touch screen, resolution 800×480								
Key Parameters									
Channel	1	1	1	1	2	2	2		
Max Output	Voltage	±63V	±210V	±210V	±210V	±210V	±210V		
	Current	DC	±1.515A	±3.03A	±3.03A	±3.03A	±3.03A	±3.03A	
		Impulse	-----	-----	±10.5A	±10.5A	-----	±10.5A	±10.5A
Power Source	Max Digits	Digits	5 1/2	5 1/2	5 1/2	6 1/2	5 1/2	5 1/2	6 1/2
	Min Resolution	Voltage	1μV	1μV	1μV	100nV	1μV	1μV	100nV
		Current	1pA	100fA	1pA	10fA	100fA	1pA	10fA
Measurement	Max Digits	Digits	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2
	Min Resolution	Voltage	100nV	100nV	100nV	100nV	100nV	100nV	100nV
		Current	100fA	10fA	100fA	10fA	100fA	100fA	10fA
Voltage Range	200mV-60V	200mV-200V	200mV-200V	200mV-200V	200mV-200V	200mV-200V	200mV-200V		
Min Time Interval	50μs	20μs	10μs	1μs	20μs	10μs	1μs		

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## II. TH199X Series precision source/measure unit

Voltage Source (Accuracy: Reading % + Bias, Noise: peak-to-peak (0.1Hz-10Hz))			
Range	±200mV	Programming Resolution	100nV
		Accuracy	±(0.015% + 225 μ V)
	±2V	Programming Resolution	1 μ V
		Accuracy	±(0.02% + 350 μ V)
	±20V	Programming Resolution	10 μ V
		Accuracy	±(0.015% + 5mV)
	±200V	Programming Resolution	100 μ V
		Accuracy	±(0.015% + 50mV)
Voltage Measurement (Accuracy: Reding %+ Bias)			
Range	±200mV	Measurement Resolution	100nV
		Accuracy	±(0.015% + 225 μ V)
	±2V	Measurement Resolution	1 μ V
		Accuracy	±(0.02% + 350 μ V)
	±20V	Measurement Resolution	10 μ V
		Accuracy	±(0.015% + 5mV)
	±200V	Measurement Resolution	100 μ V
		Accuracy	±(0.015% + 50mV)
Current Source (Accuracy: Reading % + Bias, Noise: peak-to-peak (0.1Hz-10Hz))			
Range	± 10nA	Programming Resolution	10fA
		Accuracy	±(0.10% + 50pA)
	±100nA	Programming Resolution	100fA
		Accuracy	±(0.06% + 100pA)
	± 1 μ A	Programming Resolution	1pA
		Accuracy	±(0.025% + 500pA)
	± 10 μ A	Programming Resolution	10pA
		Accuracy	±(0.025% + 1.5nA)
	± 100 μ A	Programming Resolution	100pA
		Accuracy	±(0.02% + 25nA)
	± 1mA	Programming Resolution	1nA
		Accuracy	±(0.02% + 200nA)
	± 10mA	Programming Resolution	10nA
		Accuracy	±(0.02% + 2.5 μ A)
	± 100mA	Programming Resolution	100nA
		Accuracy	±(0.02% + 20 μ A)
	± 1A	Programming Resolution	1 μ A
		Accuracy	±(0.03% + 1.5mA)
	± 1.5A	Programming Resolution	1 μ A
		Accuracy	±(0.05% + 3.5mA)
± 3A	Programming Resolution	10 μ A	
	Accuracy	±(0.4% + 7mA)	
± 10A (Impulse)	Programming Resolution	10 μ A	
	Accuracy	±(0.4% + 25mA)	

Current Measurement			
Range	± 10 nA	Measurement Resolution	10fA
		Accuracy	±(0.10 % + 50 pA)
	± 100nA	Measurement Resolution	100fA
		Accuracy	±(0.06% + 100pA)
	± 1 μ A	Measurement Resolution	1pA
		Accuracy	±(0.025% + 500pA)
	± 10 μ A	Measurement Resolution	10pA
		Accuracy	±(0.025% + 1.5nA)
	± 100 μ A	Measurement Resolution	100pA
		Accuracy	±(0.02% + 25nA)
	± 1mA	Measurement Resolution	1nA
		Accuracy	±(0.02% + 200nA)
	± 10mA	Measurement Resolution	10nA
		Accuracy	±(0.02% + 2.5 μ A)
	± 100mA	Measurement Resolution	100nA
		Accuracy	±(0.02% + 20 μ A)
± 1A	Measurement Resolution	1 μ A	
	Accuracy	±(0.03% + 1.5mA)	
± 1.5A	Measurement Resolution	1 μ A	
	Accuracy	±(0.05% + 3.5mA)	
± 3A	Measurement Resolution	10 μ A	
	Accuracy	±(0.4% + 7mA)	
± 10A	Measurement Resolution	10 μ A	
	Accuracy	±(0.4% + 25mA)	
Pulse source (pulse width refers to the time from 10% rising edge to 90% falling edge, base level: pulse low level, peak level: pulse high level)			
Minimum programmable pulse width			50 μ s
Pulse width programming resolution			1 μ s
Max Voltage of DC or Impulse	210V	Max Peak Current	0.105A
		Max Base Current	0.105A
		Impulse Width	50 μ s - 99999.9s
		Max Duty Cycle	99.9999%
	21V	Max Peak Current	1.515A
		Max Base Current	1.515A
		Impulse Width	50 μ s - 99999.9s
		Max Duty Cycle	99.9999%
	6V	Max Peak Current	3.03A
		Max Base Current	3.03A
		Impulse Width	50 μ s - 99999.9s
		Max Duty Cycle	99.9999%
Impulse Only	200V	Max Peak Current	1.515A
		Max Base Current	50mA
		Impulse Width	50 μ s - 2.5ms
		Max Duty Cycle	2.5%
	180V	Max Peak Current	1.05A
		Max Base Current	50mA
		Impulse Width	50 μ s - 10ms
		Max Duty Cycle	2.5%
	6V	Max Peak Current	10.5A
		Max Base Current	0.5A
		Impulse Width	50 μ s - 1ms
		Max Duty Cycle	2.5%

Resistance Measurement (Auto resistance measurement mode, 4-wire, 2V range)			
Range	2 Ω	Resolution	1 μ Ω
		Test Current	1 A
		Current Range	1 A
		Total Tolerance	0.2% + 0.00035 Ω
	20 Ω	Resolution	10 μ Ω
		Test Current	100mA
		Current Range	100mA
		Total Tolerance	0.06% + 0.0035 Ω
	200 Ω	Resolution	100 μ Ω
		Test Current	10mA
		Current Range	10mA
		Total Tolerance	0.065% + 0.035 Ω
	2k Ω	Resolution	1m Ω
		Test Current	1mA
		Current Range	1mA
		Total Tolerance	0.06% + 0.35 Ω
	20k Ω	Resolution	10m Ω
		Test Current	100 μ A
		Current Range	100 μ A
		Total Tolerance	0.065% + 3.5 Ω
200k Ω	Resolution	100m Ω	
	Test Current	10 μ A	
	Current Range	10 μ A	
	Total Tolerance	0.06% + 35 Ω	
2M Ω	Resolution	1 Ω	
	Test Current	1 μ A	
	Current Range	1 μ A	
	Total Tolerance	0.095% + 350 Ω	
20M Ω	Resolution	10 Ω	
	Test Current	100nA	
	Current Range	100nA	
	Total Tolerance	0.18% + 3.5k Ω	
200M Ω	Resolution	10 Ω	
	Test Current	10nA	
	Current Range	10nA	
	Total Tolerance	1.08% + 35k Ω	
Interface		RS232C、USB HOST、USB DEVICE、LAN、HANDLER	
Environment and Temperature			
Operation temperature and humidity range		23° C ± 5° C	
Storage temperature and humidity range		23° C ± 5° C	
Accuracy guarantees temperature and humidity		23° C ± 5° C	
Preheat time		60 Minutes	
Ambient temperature change		30% to 80%RH	
Calibration cycle		One year	
General Parameter			
Power Supply		90 V to 264 V, 47 Hz to 63 Hz, 250 VA maximum	
Power		31.8W	
Shelf Size		125mmx132mmx480mm	
Dimensions		236mmx154mmx526mm	
Weight		About 6kg (Single Channel) / 7.5kg (Dual Channel)	