Product Introduction | High-precision test instrument

# HIGH-PRECISION TEST INSTRUMENT

High-precision electrical measuring instruments are a new generation of intelligent high-tech electrical energy measurement instruments developed and manufactured by Hangzhi. It employs a completely new software and hardware design that can measure single AC and DC voltage, current, frequency, phase, active power, active energy, and so on, as well as high harmonic distortion (up to 63 harmonics).

It is widely used in battery charging and discharging equipment manufacturers and battery manufacturers for finished product detection, measurement, and automatic calibration of battery charging and discharging equipment, AC and DC measurement in measurement research institutes, power, measurement, military industry, manufacturing, scientific research, and other fields, government inspection agencies and other measurement fields for single AC and DC voltmeters, ammeters, and power meters.



## HIU Series High-precision AC/DC Tester HIU Series High-precision AC/DC Tester HIU Series High-precision AC/DC Tester



Product mod	el	HIU600B	HIU1000B	HIU600L	HIU1000L
	Measurement range limit	600A	1000A	600A	1000A
DC current	Measurement range	(0~110%)RG	(0~110%)RG	(0~110%)RG	(0~110%)RG
	Measurement accuracy	±0.02%RD(20A≤I≤600A)	±0.02%RD(30A≤I≤1000A)	±0.05%RD(500mA≤l≤600A)	±0.05%RD(1A≤I≤1000A)
	Measurement resolution	0.002%RD(20A≤I≤600A)	0.002%RD(30A≤I≤1000A)	0.005%RD(500mA≤I≤600A)	0.005%RD(1A≤I≤1000A)
	Measurement range limit	1000V	1000V	1000V	1000V
	Measurement range	(0~110%)RG	(0~110%)RG	(0~110%)RG	(0~110%)RG
DC voltage	Measurement accuracy	±0.02%RD(20V≤U≤1000V)	±0.02%RD(20V≤U≤1000V)	±0.05%RD(20V≤U≤1000V)	±0.05%RD(20V≤U≤1000V)
	Measurement resolution	0.002%RD(20V≤U≤1000V)	0.002%RD(20V≤U≤1000V)	0.005%RD(20V≤U≤1000V)	0.005%RD(20V≤U≤1000V)
	Measurement range limit	424A	707A	424A	707A
	Measurement range	(0~110%)RG	(0~110%)RG	(0~110%)RG	(0~110%)RG
AC current	Measurement accuracy	±0.05%RD(15A≤I≤424A)	±0.05%RD(20A≤I≤707A)	±0.05%RD(500mA≤I≤424A)	±0.05%RD(1A≤I≤707A)
	Measurement resolution	0.005%RD(15A≤I≤424A)	0.005%RD(20A≤I≤707A)	0.005%RD(500mA≤I≤424A)	0.005%RD(1A≤I≤707A)
	Measurement range limit	707V	707V	707V	707V
A C valtage	Measurement range	(0~110%)RG	(0~110%)RG	(0~110%)RG	(0~110%)RG
AC voltage	Measurement accuracy	±0.05%RD(30V≤U≤707V)	±0.05%RD(30V≤U≤707V)	±0.05%RD(30V≤U≤707V)	±0.05%RD(30V≤U≤707V)
	Measurement resolution	0.005%RD(30V≤U≤707V)	0.005%RD(30V≤U≤707V)	0.005%RD(30V≤U≤707V)	0.005%RD(30V≤U≤707V)
DC power	Measurement	±0.02%RD (20V≤U≤1000V,	±0.02%RD (20V≤U≤1000V,	±0.05%RD (20V≤U≤1000V,	±0.05%RD (20V≤U≤1000V,
	accuracy	20A≤I≤600A)	30A≤l≤1000A)	500mA≤l≤600A)	1A≤I≤1000A)
AC active	Measurement	±0.05%RD (30V≤U≤707V,	±0.05%RD (30V≤U≤707V,	±0.05%RD (30V≤U≤707V,	±0.05%RD (30V≤U≤707V,
power		15A≤I≤424A)	1A≤I≤707A)	500mA≤I≤424A)	1A≤I≤707A)
Other Indexes	Voltage range of work power supply	AC85V ~ 265V, 50/60Hz			
	Operating temperature	10~35°C	10~35°C	10~35℃	10~35°C
	Relative humidity	≤85%, no corrosive gas			
	Size	about 300mm×185mm×100mm	about 300mm×185mm×100mm	about 300mm×185mm×100mm	about 300mm×185mm×100mm
		(length * width * height) (excluding bulge)			
	Weight	3.0kg	3.0kg	3.0kg	3.0kg







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PSM Series Portable AC/DC Standard Meter **PSM SERIES PSM600~PSM1500** 



## 0.01 % grade - high-precision DC tester **PIU SERIES** PIU600~PIU1500







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	Measurement range limit	600A	1000A	1500A
DC current	Measurement range	(0~110%)RG	(0~110%)RG	(0~110%)RG
	Measurement accuracy	±0.02%RD(500mA≤I≤600A)	±0.02%RD(1A≤I≤1000A)	±0.02%RD(75A≤I≤1500A)
	Measurement resolution	0.002%RD(500mA≤I≤600A)	0.002%RD(1A≤I≤1000A)	0.002%RD(75A≤I≤1500A)
DC voltage	Measurement range limit	1000V	1000V	1000V
	Measurement range	(0~110%)RG	(0~110%)RG	(0~110%)RG
	Measurement accuracy	±0.02%RD(20V≤U≤1000V)	±0.02%RD(20V≤U≤1000V)	±0.02%RD(20V≤U≤1000V)
	Measurement resolution	0.002%RD(20V≤U≤1000V)	0.002%RD(20V≤U≤1000V)	0.002%RD(20V≤U≤1000V)
	Measurement range limit	424A	707A	1000A
	Measurement range	(0~110%)RG	(0~110%)RG	(0~110%)RG
AC current	Measurement accuracy	±0.05%RD(500mA≤I≤424A)	±0.05%RD(1A≤I≤707A)	±0.05%RD(50A≤I≤1000A)
	Measurement resolution	0.005%RD(500mA≤I≤424A)	0.005%RD(1A≤I≤707A)	0.005%RD(50A≤I≤1000A)
AC voltage	Measurement range limit	707V	707V	707V
	Measurement range	(0~110%)RG	(0~110%)RG	(0~110%)RG
	Measurement accuracy	±0.05%RD(30V≤U≤707V)	±0.05%RD(30V≤U≤707V)	±0.05%RD(30V≤U≤707V)
	Measurement resolution	0.005%RD(30V≤U≤707V)	0.005%RD(30V≤U≤707V)	0.005%RD(30V≤U≤707V)
DC power	Measurement	±0.02%RD (20V≤U≤1000V,	±0.02%RD (20V≤U≤1000V,	±0.02%RD (20V≤U≤1000V,
	accuracy	500mA≤I≤600A)	1A≤I≤1000A)	75A≤I≤1500A)
AC active power	Measurement	±0.05%RD (30V≤U≤707V,	±0.05%RD (30V≤U≤707V,	±0.05%RD (30V≤U≤707V,
	accuracy	500mA≤I≤424A)	1A≤I≤707A)	50A≤l≤1000A)
Other Indexes -	Voltage range of work power supply	AC85V ~ 265V, 50/60Hz	AC85V ~ 265V, 50/60Hz	AC85V ~ 265V, 50/60Hz
	Operating temperature	10~35°C	10~35°C	10~35°C
	Relative humidity	≤85%, no corrosive gas	≤85%, no corrosive gas	≤85%, no corrosive gas
	Size	about 373mm×211.5mm×131.5mm (length * width * height) (excluding bulge)	about 373mm×211.5mm×131.5mm (length * width * height) (excluding bulge)	about 373mm×211.5mm×131.5mm (length * width * height) (excluding bulge)
	Weight	5.5kg	5.5kg	5.5kg

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Product mod	el	P10600	P101000	PI01500
DC current	Measurement range limit	600A	1000A	1500A
	Measurement range	(0~110%)RG	(0~110%)RG	(0~110%)RG
	Measurement accuracy	±0.01%RD(30A≤I≤600A)	±0.01%RD(50A≤I≤1000A)	±0.01%RD(75A≤I≤1500A)
	Measurement resolution	0.001%RD(30A≤I≤600A)	0.001%RD(50A≤I≤1000A)	0.001%RD(75A≤I≤1500A)
DC voltage	Measurement range limit	1000V	1000V	1000V
	Measurement range	(0~110%)RG	(0~110%)RG	(0~110%)RG
	Measurement accuracy	±0.01%RD(50V≤U≤1000V)	±0.01%RD(50V≤U≤1000V)	±0.01%RD(50V≤U≤1000V)
	Measurement resolution	0.001%RD(50V≤U≤1000V)	0.001%RD(50V≤U≤1000V)	0.001%RD(50V≤U≤1000V)
DC power	Measurement accuracy	±0.01%RD	±0.01%RD	±0.01%RD
		(50V≤U≤1000V, 30A≤I≤600A)	(50V≤U≤1000V, 50A≤I≤1000A)	(50V≤U≤1000V, 75A≤I≤1500A
	Work power supply voltage	AC85V ~ 265V, 50/60Hz	AC85V ~ 265V, 50/60Hz	AC85V ~ 265V, 50/60Hz
	Preheat time	≤30 minutes	≤30 minutes	≤30 minutes
	Operating temperature	10°C ~ 35°C	10°C ~ 35°C	10°C ~ 35°C
Other Parameters	Relative humidity	≤85%, no corrosive gas	≤85%, no corrosive gas	≤85%, no corrosive gas
	Size	320mm*180mm*110mm	320mm*180mm*110mm	320mm*180mm*110mm
		(length * width * height) (excluding bulge)	(length * width * height) (excluding bulge)	(length * width * height) (excluding bulge)
	Weight	3.0kg	3.0kg	3.0kg

### PIU600~PIU1500 PIU series

0.01 % grade - high-precision DC tester **PIU SERIES** PIU2000~PIU10000





Product mod	el	PIU2000	PIU5000	PIU10000
DC current	Measurement range limit	2000A	5000A	10000A
	Measurement range	(0~110%)RG	(0~110%)RG	(0~110%)RG
	Measurement accuracy	±0.01%RD(100A≤I≤2000A)	±0.01%RD(250A≤I≤5000A)	±0.01%RD(500A≤I≤10000A)
	Measurement resolution	0.001%RD(100A≤I≤2000A)	0.001%RD(250A≤I≤5000A)	0.001%RD(500A≤I≤10000A)
DC voltage	Measurement range limit	1000V	1000V	1000V
	Measurement range	(0~110%)RG	(0~110%)RG	(0~110%)RG
	Measurement accuracy	±0.01%RD(50V≤U≤1000V)	±0.01%RD(50V≤U≤1000V)	±0.01%RD(50V≤U≤1000V)
	Measurement resolution	0.001%RD(50V≤U≤1000V)	0.001%RD(50V≤U≤1000V)	0.001%RD(50V≤U≤1000V)
DC power	Measurement accuracy	±0.01%RD	±0.01%RD	±0.01%RD
		(50V≤U≤1000V, 100A≤I≤2000A)	(50V≤U≤1000V, 250A≤I≤5000A)	(50V≤U≤1000V, 500A≤I≤10000A)
	Work power supply voltage	AC85V ~ 265V, 50/60Hz	AC85V ~ 265V, 50/60Hz	AC85V ~ 265V, 50/60Hz
Other Parameters	Preheat time	≤30 minutes	≤30 minutes	≤30 minutes
	Operating temperature	10°C ~ 35°C	10°C ~ 35°C	10°C ~ 35°C
	Relative humidity	≤85%, no corrosive gas	≤85%, no corrosive gas	≤85%, no corrosive gas
	Size	320mm*180mm*110mm	320mm*180mm*110mm	320mm*180mm*110mm
		(length * width * height) (excluding bulge)	(length * width * height) (excluding bulge)	(length * width * height) (excluding bulge)
	Weight	1	1	/

**TYPICAL APPLICATION PIU Series - Typical applications** 

### Application Overview

The battery charging and discharging testing system mainly consists of a microcomputer control unit, a charging unit (DC stable power supply), a discharging unit (DC electronic load), a charging/discharging switching unit, a measuring unit, etc.

The battery charging and discharging testing system is a device that regulates and protects battery charging and discharging by establishing charging and discharging parameters. The typical voltage range can be regulated throughout the battery charging and discharging operation to prevent overcharging or discharging of the battery. The typical current range can be set. When the test reaches the specified value, it will immediately terminate. The battery charging and discharging testing system is primarily used to detect the battery's current, voltage, capacity, internal resistance, charging and discharging temperature, battery cycle life, etc. There are many channels to choose from and different battery models and types can be tested at the same time.

## ◎ The parameters of the battery charging and discharging testing system that must be measured

- Voltage range: 100mV~1000V, maximum allowable error: ± (0.02% -5%);
- Voltage measurement range: 100mV~1000V, maximum allowable error: ± (0.02% -5%);
- Setting range of charging and discharging current: 10mA~1500A, maximum allowable error: ± (0.05% -5%);
- The charging and discharging current measurement range is 10mA~1500A, with maximum allowable error: ± (0.05% -5%).

## ◎ PIU series high-precision DC tester parameters

- Voltage measurement range: ± (0.1V -1000V), maximum allowable error: ± 0.005%:
- Current measurement range: 10mA~2000A, maximum allowable error: ± 0.005%





The above parameters demonstrate that the accuracy of the PIU series high-precision DC tester is at least two orders of magnitude greater than the parameters required by the battery charging and discharging testing system for metrological verification, fully meeting the needs of the battery charging and discharging testing system for metrological verification