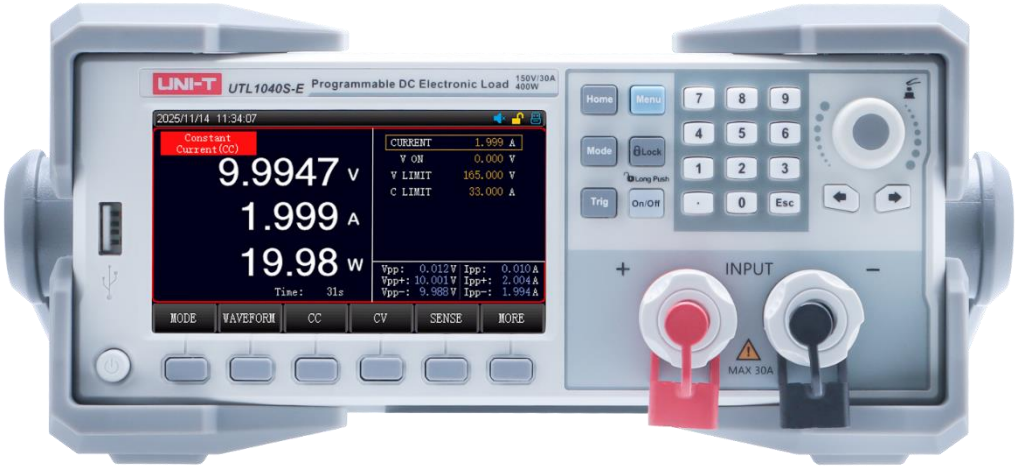
Instruments.uni-trend.com



Datasheet

UTL1000S Series DC Electronic Load

V1.0

December 2025

1. Key Features

- 4.3 inch LCD, all the test results at a glance
- Synchronous sampling of 500 kHz, 10Hz, 10uA, 0.1 mV stable resolution output
- Dynamic mode (DYNA) of 50 kHz pull load, the waveform of current and voltage peak can be observed directly, Vpp, Ipp measurement
- Realistic simulation of LED function
- Basic mode: CC, CV, CR and CP
- Supports OCP test and maximum power test
- Supports time measurement (TIME)
- Supports OVP test
- Supports intelligent and programmable automated list test (LIST)

2. Product Overview

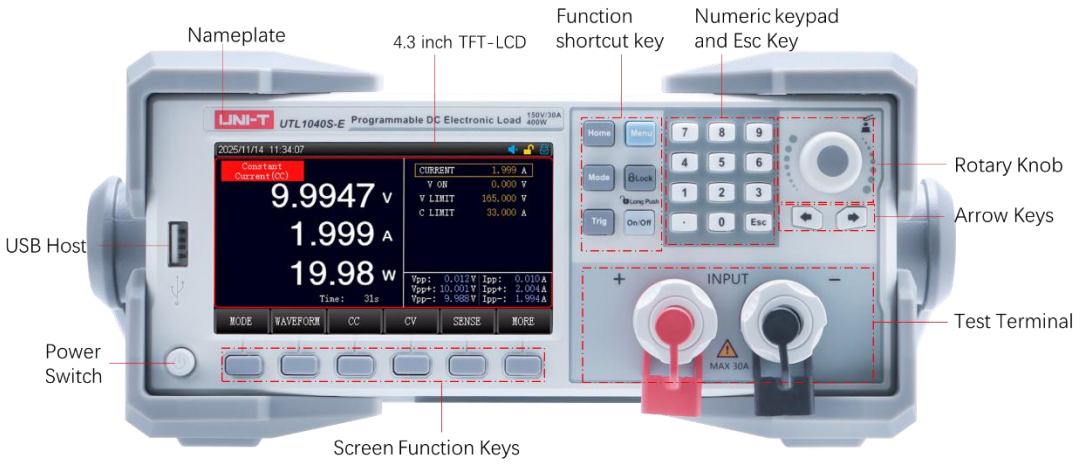
UTL1000S Series (UTL1020S/UTL1020S-E/UTL1040S/UTL1040S-E) DC electronic load are a new generation of intelligent, large-screen and cost-effective electronic loads. The synchronizing sampling is up to 500 kHz, with high-performance DSP processing, built-in self-adaptive voltage and current waveform display , convenient for transient testing and multi-faceted intelligent simulation and analysis. Fast, efficient, visualized LIST programmable automated test modes for most R&D and test needs.

Automatic application: power, charger, driver, batter

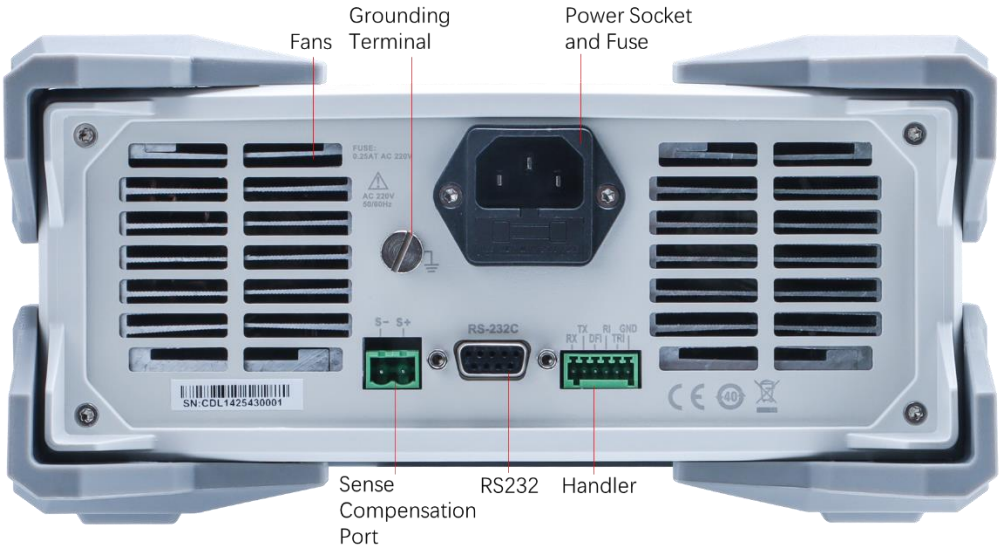
Serial connection application: overcurrent test, programmable constant current, 5 1/2 digit ampere meter, current waveform detection

Other applications: LED simulation, battery simulation, intelligent and programmable automated test

Front Panel



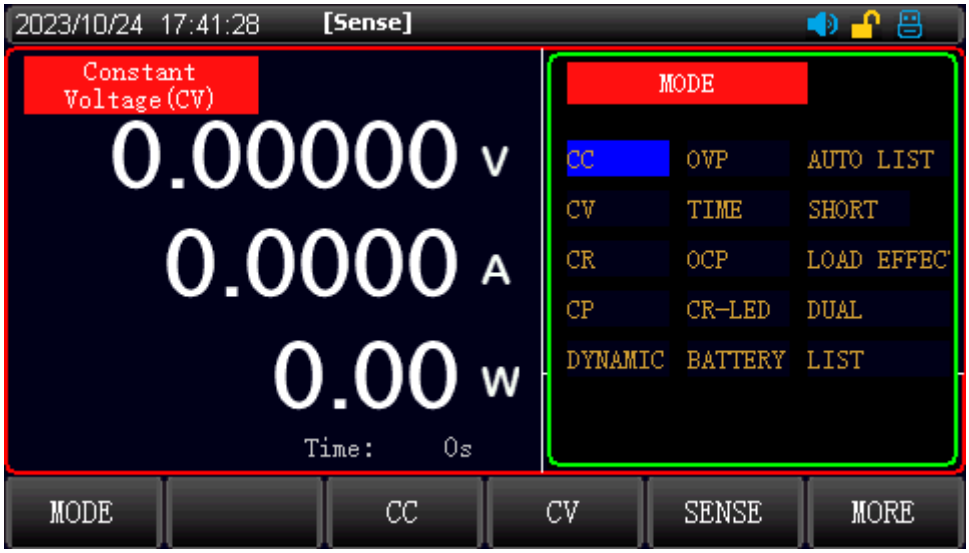
Rear Panel



3.Design Highlights

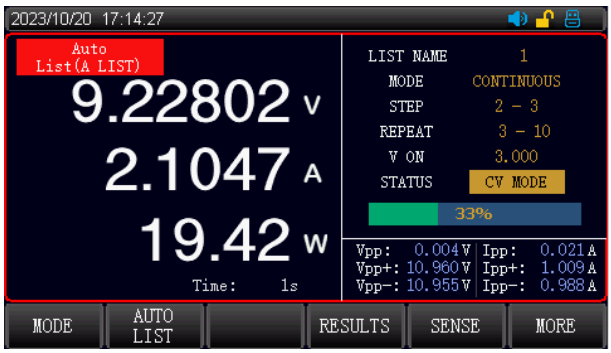
Multiple Modes

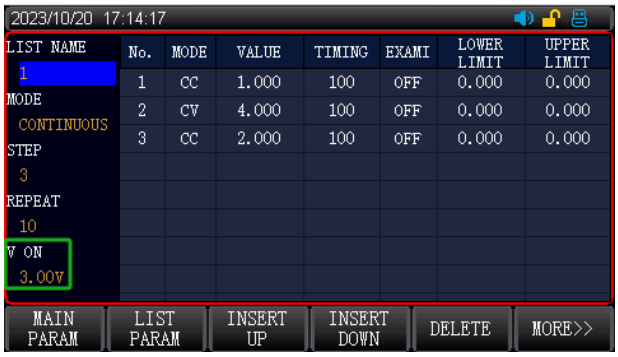
The electronic load has four constant test mode, which are CC (constant current), CV (constant voltage), CR (constant resistance) and CP (constant power). In addition, it has 11 kinds of other modes, which are dynamic, OVP, time, OCP, CR-LED, battery, automatic list, short-circuit, load effect, combination and list.



Automatic List Test

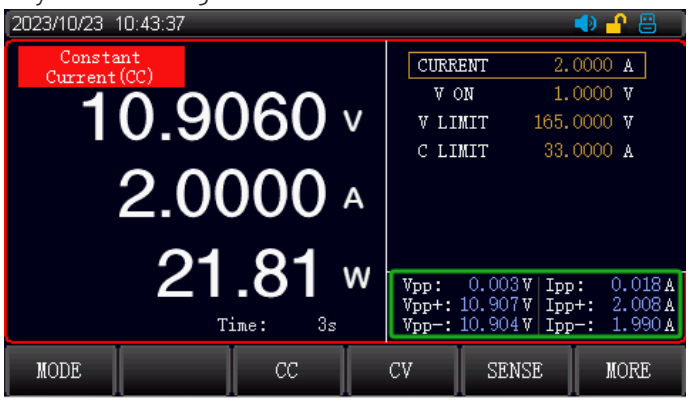
The automatic list test can be performed by setting the appropriate load voltage and combination list in the parameter setting.





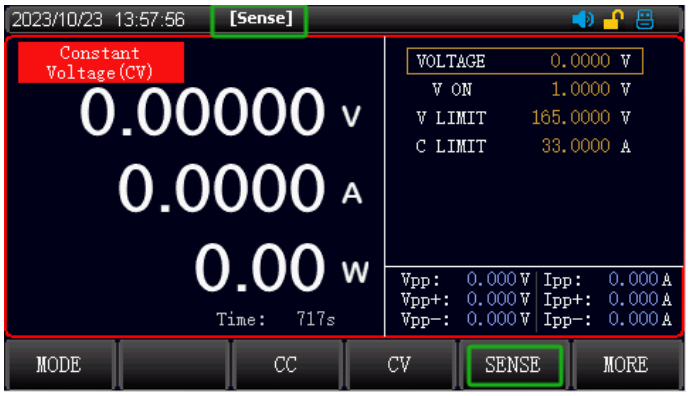
Ripple Display

The ripple wave is displayed in the right corner of the screen.



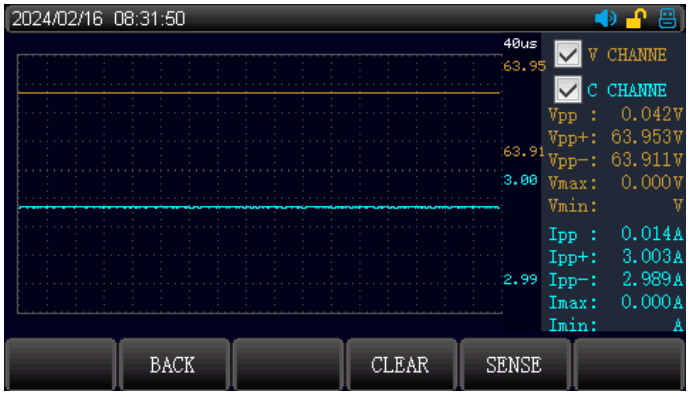
Sense Terminal

In CC/CV/CR/CP test, when the electronic load consumes a large current, it will generate a large voltage drop between the electronic load and the DUT's connecting wire. To ensure an accurate measurement, the electronic load provides a Sense terminal in the rear panel, the terminal can measure the accurate voltage of the DUT's output terminal.



Real-time Waveform

UTL1000S series has real-time waveform display function, press the function key [WAVE] at the bottom of the screen to check the voltage and current waveform.



4.Specifications

Series		UTL1000S Series			
Model		UTL1020S		UTL1020S-E	
Display Screen		LCD		LCD	
Rated value 0~40℃	Input voltage	0~15V	0~150V	0~15V	0~150V
	Input current	0~3A	0~30A	0~3A	0~30A
	Input power	200W		200W	
	Minimum of operating voltage	1.4±0.1V at 30A		1.4±0.1V at 30A	
CV (Constant Voltage) mode	Range	0.1~150V		0.1~150V	
	Resolution	1mV		1mV	
	Accuracy	± (0.03%+0.05%FS)		± (0.03%+0.05%FS)	
CC (Constant Current) mode	Range	0~3A	0~30A	0~3A	0~30A
	Resolution	0.01mA	0.1mA	0.1mA	1mA
	Accuracy	± (0.03%+0.05%FS)		± (0.03%+0.05%FS)	
CR (Constant Resistance) mode	Range	0.05Ω~10kΩ		0.05Ω~10kΩ	
	Resolution	16bit		16bit	
	Accuracy	(0.1+0.01R)%		(0.1+0.01R)%	
CP (Constant Power) mode	Range	200W		200W	
	Resolution	10mW		10mW	
	Accuracy	± (0.1%+0.1%FS)		± (0.1%+0.1%FS)	
Dynamic mode	T1&T2	10μs~50s/Res:1μs		10μs~50s/Res:1μs	
	Accuracy	1μs/1ms±100ppm		1μs/1ms±100ppm	
	Rising/falling slope	0.0006A/μs~3A/μs		0.0006A/μs~3A/μs	
	Minimum of rising time	10μs		10μs	
CC/CP Readback voltage	Range	0~15V	0~150V	0~15V	0~150V
	Resolution	0.01mV	0.1mV	0.1mV	1mV
	Accuracy	± (0.02%+0.3%FS)		± (0.02%+0.3%FS)	
CV/CR Readback voltage	Range	0~150V		0~150V	
	Resolution	0.1mV		0.1mV	
	Accuracy	± (0.02%+0.3%FS)		± (0.02%+0.3%FS)	
	Range	0~3A	0~30A	0~3A	0~30A

Readback current	Resolution	0.01mA	0.1mA	0.1mA	1mA
	Accuracy	± (0.03%+0.05%FS)		± (0.03%+0.05%FS)	
Readback power	Range	200W		200W	
	Resolution	10mW		10mW	
	Accuracy	± (0.1%+0.1%FS)		± (0.1%+0.1%FS)	
Overpower protection		Delay protection when ≥ 202W,Immediately protection when ≥220W		Delay protection when ≥ 202W,Immediately protection when ≥220W	
Overcurrent protection		Delay protection when ≥ 30.3A,Immediately protection when ≥33A		Delay protection when ≥ 30.3A,Immediately protection when ≥33A	
Overvoltage protection		Delay protection when ≥ 152V,Immediately protection when ≥165V		Delay protection when ≥ 152V,Immediately protection when ≥165V	
Over-temperature protection		≥85℃		≥85℃	
Short Circuit	Current (CC)	≥3A	≥30A	≥3A	≥30A
	Voltage (CV)	0V	0V	0V	0V
	Resistance (CR)	60mΩ	60mΩ	60mΩ	60mΩ
Ripple display		√		√	
Waveform record		√		√	
Test mode		15 test modes: CC, CV, CR, CP, dynamic, OVP, time, OCP, CR-LED, battery, automatic list, short circuit, load effect, combination, list		15 test modes: CC, CV, CR, CP, dynamic, OVP, time, OCP, CR-LED, battery, automatic list, short circuit, load effect, combination, list	
Resistance of input terminal		300KΩ		300KΩ	
Fuse specification		0.5A(110V)/0.25A(220V)		0.5A(110V)/0.25A(220V)	
Communication interface		RS232		RS232	
Protocol		SCPI		SCPI	
Data acquisition software		√		√	
Standard accessory		Power cord		Power cord	
Power requirement		110V/220V Frequency 50/60Hz		110V/220V Frequency 50/60Hz	
Size mm (WxHxD)		215*88*372		215*88*372	
Net Weight (kg)		3.73		3.73	

Series		UTL1000S Series			
Model		UTL1040S		UTL1040S-E	
Display Screen		LCD		LCD	
	Input voltage	0~15V	0~150V	0~15V	0~150V

Rated value 0~40℃	Input current	0~3A	0~30A	0~3A	0~30A
	Input power	400W		400W	
	Minimum of operating voltage	1.4V±0.1V at 30A		1.4V±0.1V at 30A	
CV (Constant Voltage) mode	Range	0.1~150V		0.1~150V	
	Resolution	1mV		1mV	
	Accuracy	± (0.03%+0.05%FS)		± (0.03%+0.05%FS)	
CC (Constant Current) mode	Range	0~3A	0~30A	0~3A	0~30A
	Resolution	0.01mA	0.1mA	0.1mA	1mA
	Accuracy	± (0.03%+0.05%FS)		± (0.03%+0.05%FS)	
CR (Constant Resistance) mode	Range	0.05Ω~10kΩ		0.05Ω~10kΩ	
	Resolution	16bit		16bit	
	Accuracy	(0.1+0.01R)%		(0.1+0.01R)%	
CP (Constant Power) mode	Range	400W		400W	
	Resolution	10mW		10mW	
	Accuracy	± (0.1%+0.1%FS)		± (0.1%+0.1%FS)	
Dynamic mode	T1&T2	10μs~50s/Res:1μs		10μs~50s/Res:1μs	
	Accuracy	1μs/1ms±100ppm		1μs/1ms±100ppm	
	Rising/falling slope	0.0006A/μs~3A/μs		0.0006A/μs~3A/μs	
	Minimum of rising time	10μs		10μs	
CC/CP Readback voltage	Range	0~15V	0~150V	0~15V	0~150V
	Resolution	0.01mV	0.1mV	0.1mV	1mV
	Accuracy	± (0.02%+0.3%FS)		± (0.02%+0.3%FS)	
CV/CR Readback voltage	Range	0~150V		0~150V	
	Resolution	0.1mV		0.1mV	
	Accuracy	± (0.02%+0.3%FS)		± (0.02%+0.3%FS)	
Readback current	Range	0~3A	0~30A	0~3A	0~30A
	Resolution	0.01mA	0.1mA	0.1mA	1mA
	Accuracy	± (0.03%+0.05%FS)		± (0.03%+0.05%FS)	
Readback power	Range	400W		400W	
	Resolution	10mW		10mW	
	Accuracy	± (0.1%+0.1%FS)		± (0.1%+0.1%FS)	

Overpower protection		Delay protection when ≥404W,Immediately protection when ≥440 W		Delay protection when ≥404W,Immediately protection when ≥440 W	
Overcurrent protection		Delay protection when ≥30.3A,Immediately protection when ≥33A		Delay protection when ≥30.3A,Immediately protection when ≥33A	
Overvoltage protection		Delay protection when ≥152V,Immediately protection when ≥165V		Delay protection when ≥152V,Immediately protection when ≥165V	
Over-temperature protection		≥85℃		≥85℃	
Short Circuit	Current (CC)	≥3A	≥30A	≥3A	≥30A
	Voltage (CV)	0V	0V	0V	0V
	Resistance (CR)	50mΩ	50mΩ	50mΩ	50mΩ
Ripple display		√		√	
Waveform record		√		√	
Test mode		15 test modes: CC, CV, CR, CP, dynamic, OVP, time, OCP, CR-LED, battery, automatic list, short circuit, load effect, combination, list		15 test modes: CC, CV, CR, CP, dynamic, OVP, time, OCP, CR-LED, battery, automatic list, short circuit, load effect, combination, list	
Resistance of input terminal		300KΩ		300KΩ	
Fuse specification		0.5A(110V)/0.25A(220V)		0.5A(110V)/0.25A(220V)	
Communication interface		RS232		RS232	
Protocol		SCPI		SCPI	
Data acquisition software		√		√	
Standard accessory		Power cord		Power cord	
Power requirement		110V/220V Frequency 50/60Hz		110V/220V Frequency 50/60Hz	
Size mm (WxHxD)		215*88*372		215*88*372	
Net Weight (kg)		4.49		4.49	

Accuracy temperature range: 25 ± 5 ℃

Calibration period: 1 time/year

5.Package Contents

Item	Quantity	Remarks
DC electronic load	1 pcs	The model is subject to the actual order
Power cord	1 pcs	
RS232 communication wire	1 pcs	
Spare fuse	2 pcs	
User's manual	/	Electronic file can download from the official website
Certificate Of Calibration	1 pcs	
Multi-language Safety Precautions	1 pcs	

6. Optional Accessory

Model	Description	Picture
UT-L0615-OO	Double O type terminal 60A/1.5m power supply/electronic load test wire	
UT-L0320-UU	Double U-type terminal 30A/2m power supply/electronic load test wire	
UT-L0312-UU	Double U-type terminal 30A/1.2m power supply/electronic load test wire	
UT-L0110-BB	Double Fold insert 10A/1m power supply/electronic load test wire	
UT-L0110-BU	Fold insert-U type terminal 10A/1m power supply/electronic load test wire	

7. Limited Warranty and Liability

Uni-T guarantees that the Instrument product is free from any defect in material and workmanship within three years from the purchase date. This warranty does not apply to damages caused by accident, negligence, misuse, modification, contamination or improper handling. If you need warranty service within the warranty period, please contact your seller directly. Uni-T will not be responsible for any special, indirect, incidental or subsequent damage or loss caused by using this device. For the probes and accessories, the warranty period is one year. Visit instrument.uni-trend.com for full warranty information. Learn more at: www.uni-trend.com

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