YDC100 Series
High-Precision Programmable DC Power Supply

At a Glance

The YDC100 Series is a high-precision programmable DC power supply delivering stable output with low ripple and noise (< 8 mVrms). Designed for R&D and automated testing, it ensures clean power for reliable device characterization.

Available in dual (YDC100DW) and triple-channel (YDC100TW) configurations, the series features CC/CV priority modes, List programming, and remote sensing. It offers precise control with 1 mV / 0.1 mA resolution to handle complex load requirements.

The series supports seamless integration via standard RS-232 and optional USB/LAN/RS-485 interfaces with SCPI and Modbus compatibility. Its compact design includes comprehensive OVP, OCP, and OTP protection for maximum safety.

YDC100 Series Key Features

High Precision & Resolution

- Offers 1mV voltage and 0.1mA current resolution.
- Features low ripple and noise under 8mVrms.
- Maintains high accuracy of ≤ 0.1% + 8mV.

Enhanced Visual Monitoring

- Includes a 4.3-inch TFT high-visibility color display.
- Provides live View mode for real-time waveform tracking.

Systematic Integration

- Supports standard SCPI and Modbus communication protocols.
- Enables direct data logging to external USB drives.
- Designed for AI, drone, and EV power testing.

Comprehensive Safety Protection

- Integrates hardware-level OVP, OCP, and OTP safety.
- Includes a panel lock to prevent accidental touches.
- Ensures swift performance with < 80ms rise time.

Intelligent Hardware Design

- Features Remote Sense to compensate for voltage drops in load leads, ensuring precision at the DUT (Device Under Test).
- Offers CC/CV priority to suppress inrush current.
- Utilizes smart temperature-controlled fans for quiet cooling.

Flexible List Programming

- Enables multi-step List mode for custom waveforms.
- Supports independent sequence execution on specific channels.
- Allows programmable slew rates between 0 and 250 mS/V (or mS/A) to meet diverse testing requirements.

YDC100 Series Outline Dimensions

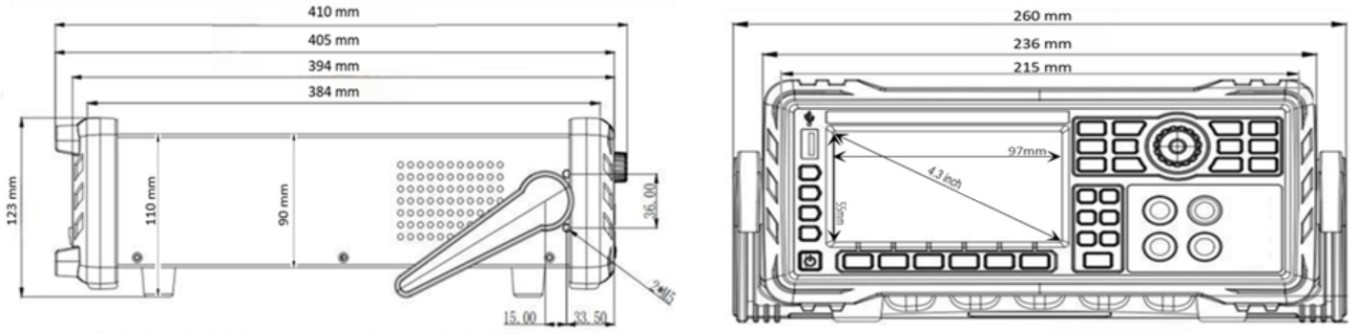


Figure 2-1(a). YDC100DW Series Outline Dimensions (2D)

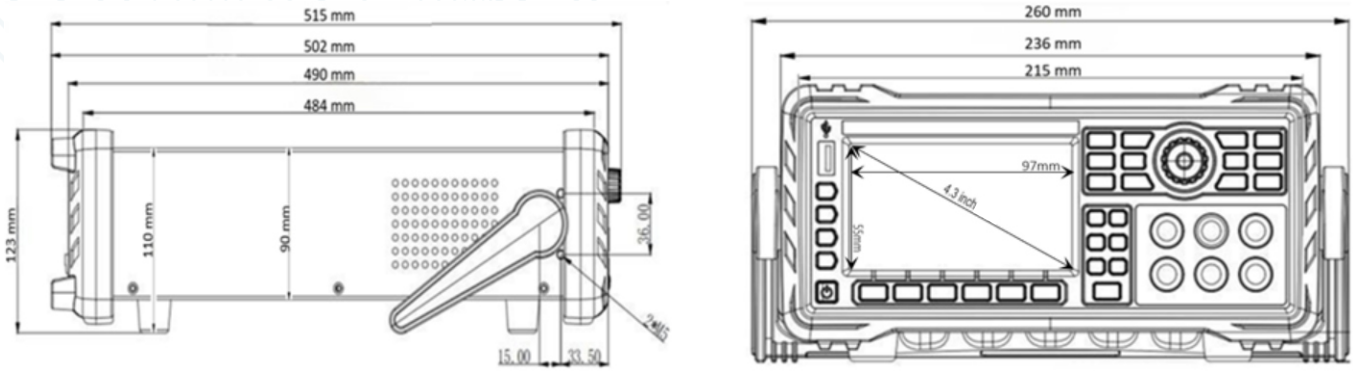


Figure 2-1(b). YDC100TW Series Outline Dimensions (2D)

YDC100 Series Functional Features

List (Sequence) Operation Function

By pressing the **[List]** button, users can access the sequence editing function.

This allows for the configuration of voltage, current, and duration for each individual step.

Users can customize output waveforms based on specific requirements and save these sequences to the internal memory or an external USB flash drive for easy recall.

Edited List files can be assigned to any channel from CH1 to CH3, allowing designated channels to execute sequence operations while others remain unaffected.

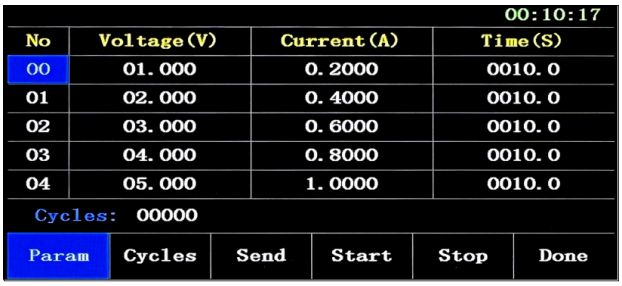


Figure 3-1. List Sequence Operation Interface

Data Collection Function

By pressing the **[Store]** button, the device can record real-time voltage, current, and time data directly to a USB flash drive.

This provides users with reliable data logs for real-time tracking and subsequent analytical support. Note: A USB drive must be inserted before initiating data storage.

Figure 3-2. Data Collection and USB Storage Menu

Slew Rate

The Slew Rate defines the speed of the output transition. In Voltage Priority mode, only the Voltage Slew Rate can be set; in Current Priority mode, only the Current Slew Rate can be set. These settings are mutually exclusive.

- **Units:** mS/A or mS/V
- **Range:** 0 - 250

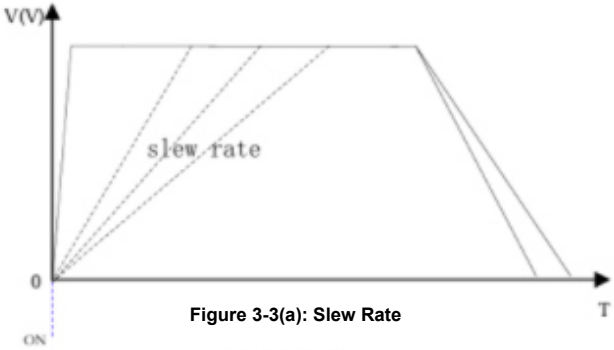


Figure 3-3(a): Slew Rate

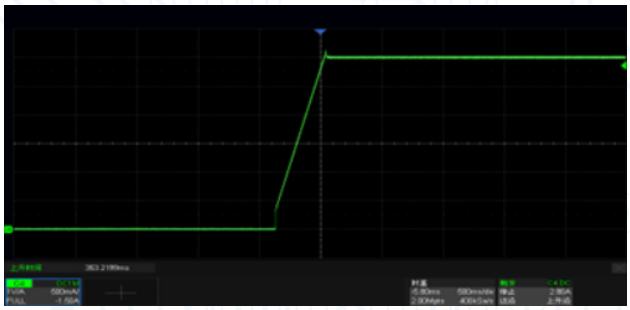


Figure 3-3(b). Slew rate Waveform Comparison

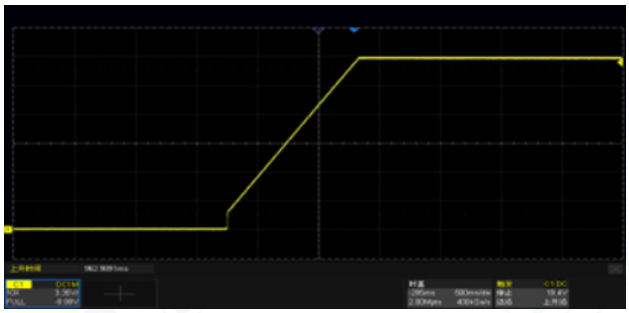


Figure 3-3(c). Slew Rate Parameter Schematic

YDC100 Series Functional Features

Built-in Compensation

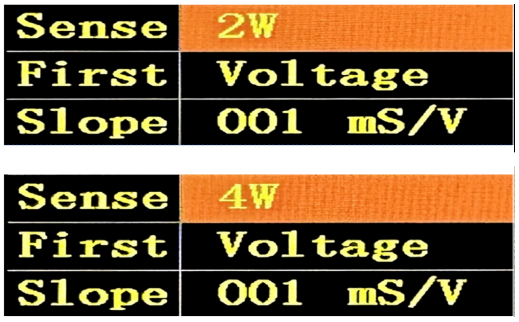


Figure 4-1(a). Built-in Compensation (2W/4W) Setup

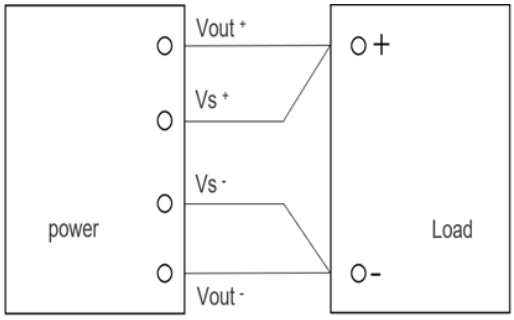


Figure 4-1(b). Remote Sensing (4-wire) Wiring Diagram

The remote sensing function compensates for voltage drops across the load leads.

- **2W (2-Wire):** Remote compensation is disabled.
- **4W (4-Wire):** Remote compensation is enabled.

CC/CV Priority

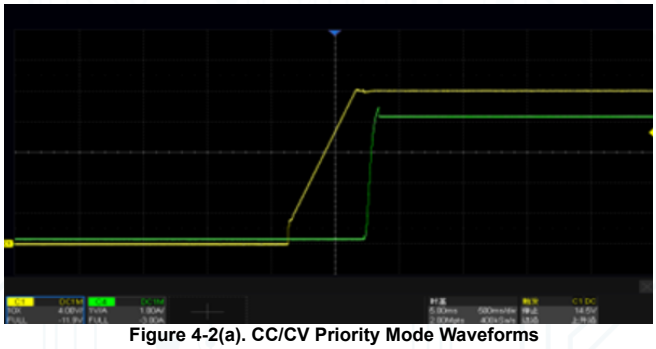


Figure 4-2(a). CC/CV Priority Mode Waveforms

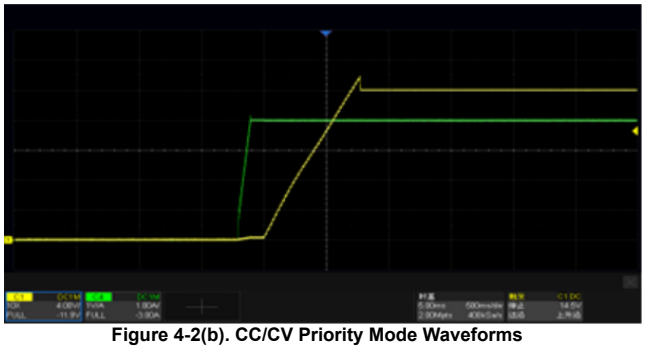


Figure 4-2(b). CC/CV Priority Mode Waveforms

Users can flexibly select between CC or CV priority modes based on test requirements, optimizing response speed and operational stability.

- **Voltage Priority (CV):** The output voltage reaches the set value first upon activation.
- **Current Priority (CC):** The output current reaches the set value first upon activation.

View (Waveform View) Function

This function monitors the output waveforms of voltage, current, and power in real-time. Press the **[View]** button while in standby or operational mode to enter the waveform interface; press it again to exit.

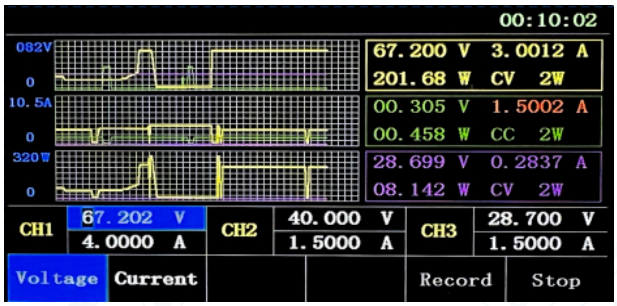


Figure 4-3. Real-time Waveform View Monitoring

YDC100 Series Functional Features

Panel Lock Function

Long-press the **[ALL ON/OFF]** button to enter LOCK mode. A "LOCK" indicator will appear on the screen, disabling panel inputs to prevent accidental operation or short-circuit risks.

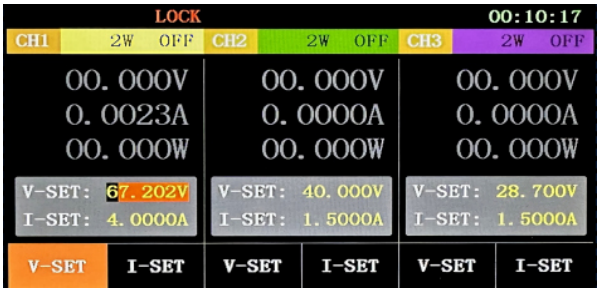


Figure 5-1. Panel lock (LOCK) Status Indicator

Three Major Protection Functions

Over Voltage Protection (OVP): Prevents high-voltage damage to the load by automatically tripping the output.

Over Current Protection (OCP): Protects the load from excessive current by automatically tripping the output.

Over Temperature Protection (OTP): Protects the instrument from thermal damage; the internal circuitry will automatically shut down the output if overheating is detected.

Figure 5-2. OVP, OCP, and OTP Protection Settings

Dual Display Interfaces

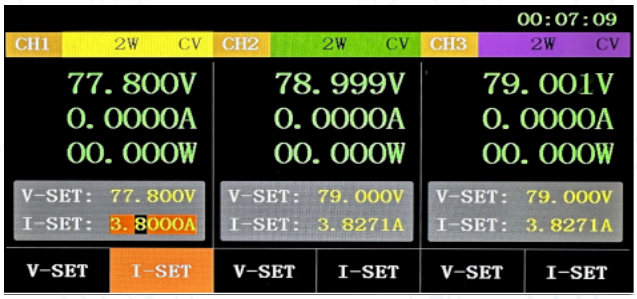


Figure 5-3(a). Triple channels Display Modes

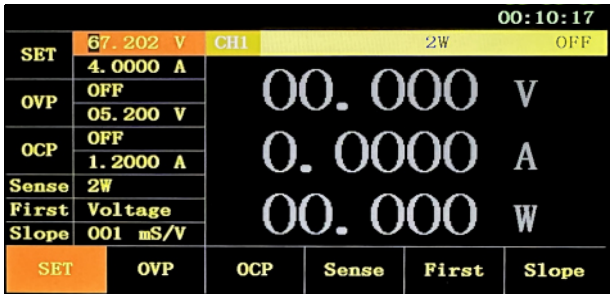


Figure 5-3(b). Single-channel Display Modes

Three-Channel Interface: Provides a summary view of CH1, CH2, and CH3 simultaneously.

Single-Channel Interface: Press [CH1], [CH2], or [CH3] to enter a detailed view of a specific channel, displaying comprehensive parameters such as OVP, OCP, Compensation, Priority, and Slew Rate.

System Settings

Press the [Menu] button to enter the system configuration:

- **Language:** Switch between Chinese and English.
- **Backlight:** Adjustable brightness levels (1-10).
- **Communication:** Supports SCPI and Modbus protocols.
- **Baud Rate:** Selectable from 4800 to 115200 bps.
- **Termination Character:** CR, LF, CRLF, or LFCR.

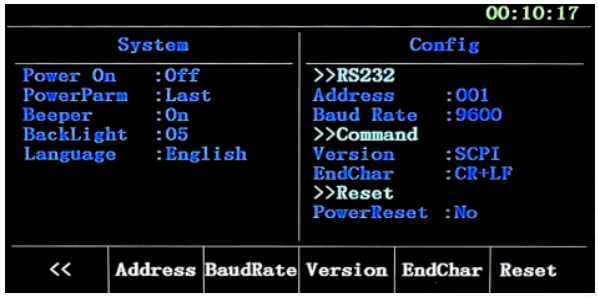


Figure 5-4. System Settings and Communication Configuration

Application Industries

Graphene Heating

Precision power delivery for graphene-based heating elements.

AI Server Motherboard Repair/Burn-in

High-stability power for diagnostic testing and stress-testing of AI server components.

Drone Motor Testing

Dynamic load testing for UAV propulsion systems.

New Energy Vehicle (NEV) Controller

Functional validation and durability testing for EV control units.

New Energy Vehicle (NEV) Water Pump

Performance characterization for automotive cooling systems.

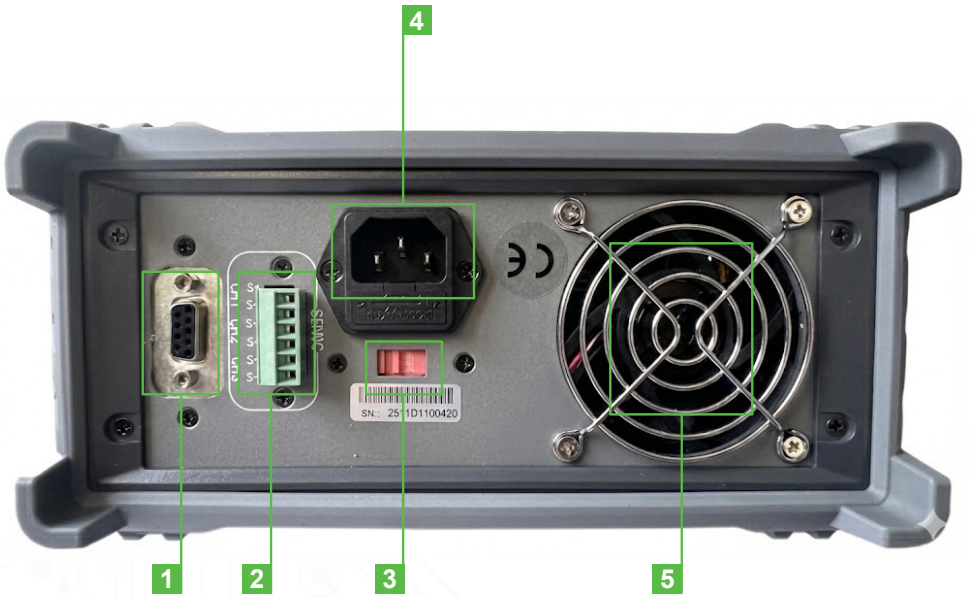
Automated Integrated Testing

Seamless integration into automated production lines (ATE) for comprehensive system testing.

YDC100 Series Front Panel Overview

No	Component	Description
1	USB Port	5V/1A output; used for software upgrades and data import export.
2	Function Keys	Dedicated buttons for navigating device features.
3	Power Switch	Main power ON/OFF button.
4	Softkeys	Context-sensitive function keys corresponding to the bottom screen menu.
6	Output Terminals	Binding posts for power output (Red for Positive +, Black for Negative −).
7	Detachable Handle	Ergonomic handle for portability; can be removed for rack mounting.
8	Numeric Keypad &	Used for direct numerical input and command confirmation.
9	Multi-function Knob	Used for incremental adjustment of values or menu navigation.
11	TFT Display	4.3-inch high-visibility color screen for real-time data monitoring
12	Model Specification Label	Displays the specific model number and rated output parameters.

YDC100 Series Rear Panel Overview



No	Component	Description
1	Communication Port	Standard RS-232; optional USB, RS-485, or LAN for remote control.
2	Remote Sense Terminals	Voltage compensation interface for CH1, CH2, and CH3 (S+: Positive, S-: Negative).
3	AC Input Selector	Switch to select 110V or 220V AC; must match local utility to avoid damage.
4	AC Input Socket	Standard AC power inlet for connecting the power cord.
5	Cooling Vents	Airflow outlets for the internal temperature-controlled cooling fan.

YDC100DW Series Specifications

Parameter		YDC100DW-80-6	YDC100DW-80-10	YDC100DW-150-5
Rated Output Voltage		0~80V×2	0~80V×2	0~150V×2
Rated Output Current		0~6A×2	0~10A×2	0~5A×2
Rated Output Power		200W×2	300W×2	300W×2
Load Regulation	Voltage	≤0.02%+8mV	≤0.02%+8mV	≤0.02%+8mV
	Current	≤0.02%+5mA	≤0.02%+5mA	≤0.02%+5mA
Line Regulation	Voltage	≤0.02%+8mV	≤0.02%+8mV	≤0.02%+8mV
	Current	≤0.02%+5mA	≤0.02%+5mA	≤0.02%+5mA
Setting Resolution	Voltage	1mV	1mV	1mV
	Current	0.1mA	0.1mA	0.1mA
Setting Accuracy	Voltage	≤0.1%+8mV	≤0.1%+8mV	≤0.1%+8mV
	Current	≤0.2%+2mA	≤0.2%+2mA	≤0.2%+2mA
Readback Resolution	Voltage	1mV	1mV	1mV
	Current	0.1mA	0.1mA	0.1mA
Readback Accuracy (25°C±5°C)	Voltage	≤0.1%+8mV	≤0.1%+8mV	≤0.1%+8mV
	Current	≤0.2%+2mA	≤0.2%+2mA	≤0.2%+2mA
Ripple & Noise (25°C±5°C)	Voltage	<8mVrms	<8mVrms	<8mVrms
	Current	<5mArms	<5mArms	<5mArms
Peak-to-Peak (Vpp)	Voltage	30mVpp	30mVpp	30mVpp
Transient Response	Full Load	<20ms	<20ms	<20ms
Rise Time	Voltage	≤80ms	≤80ms	≤80ms
Fall Time	Voltage	≤5.2ms	≤5.2ms	≤5.2ms
Power Consumption	No Load	9W	10W	10W
	Full Load	500W	800W	700W
Remote Sense	Max Voltage	2V		
Environment	Operating	0 to 40°C≤80% R.H.		
	Storage	−15 to 70°C≤80% R.H.		
Dimensions	(WHD) mm	260×123×410	260×123×410	260×123×410
Net Weight	kg	4.3	4.8	4.8
Package Size	(WHD) mm	260×123×410	260×123×410	260×123×410
Gross Weight	kg	5.9	6.4	6.4
Communication	Standard	RS-232 Interface		
	Optional	RS-485 / USB / LAN (Ethernet) Interface		
Standard Accessories	User Manual*1, Communication Cable*1, Calibration Report*1, Test Leads (varies by model), Power Cord*1			

YDC100TW Series Specifications

Parameter		YDC100TW-80-6	YDC100TW-80-10	YDC100TW-150-5
Rated Output Voltage		0~80V×3	0~80V×3	0~150V×3
Rated Output Current		0~6A×3	0~10A×3	0~5A×3
Rated Output Power		200W×3	300W×3	300W×3
Load Regulation	Voltage	≤0.02%+8mV	≤0.02%+8mV	≤0.02%+8mV
	Current	≤0.02%+5mA	≤0.02%+5mA	≤0.02%+5mA
Line Regulation	Voltage	≤0.02%+8mV	≤0.02%+8mV	≤0.02%+8mV
	Current	≤0.02%+5mA	≤0.02%+5mA	≤0.02%+5mA
Setting Resolution	Voltage	1mV	1mV	1mV
	Current	0.1mA	0.1mA	0.1mA
Setting Accuracy	Voltage	≤0.1%+8mV	≤0.1%+8mV	≤0.1%+8mV
	Current	≤0.2%+2mA	≤0.2%+2mA	≤0.2%+2mA
Readback Resolution	Voltage	1mV	1mV	1mV
	Current	0.1mA	0.1mA	0.1mA
Readback Accuracy (25°C±5°C)	Voltage	≤0.1%+8mV	≤0.1%+8mV	≤0.1%+8mV
	Current	≤0.2%+2mA	≤0.2%+2mA	≤0.2%+2mA
Ripple & Noise (25°C±5°C)	Voltage	<8mVrms	<8mVrms	<8mVrms
	Current	<5mArms	<5mArms	<5mArms
Peak-to-Peak (Vpp)	Voltage	30mVpp	30mVpp	30mVpp
Transient Response	Full Load	<20ms	<20ms	<20ms
Rise Time	Voltage	≤80ms	≤80ms	≤80ms
Fall Time	Voltage	≤5.2ms	≤5.2ms	≤5.2ms
Power Consumption	No Load	9W	10W	10W
	Full Load	700W	1100W	1200W
Remote Sense	Max Voltage	2V		
Environment	Operating	0 to 40°C≤80% R.H.		
	Storage	−15 to 70°C≤80% R.H.		
Dimensions	(WHD) mm	260×123×515	260×123×515	260×123×515
Net Weight	kg	5.6	6.1	6.1
Package Size	(WHD) mm	260×123×515	335×220×600	260×123×515
Gross Weight	kg	7.1	7.6	7.6
Communication	Standard	RS-232 Interface		
	Optional	RS-485 / USB / LAN (Ethernet) Interface		
Standard Accessories	User Manual*1, Communication Cable*1, Calibration Report*1, Test Leads (varies by model), Power Cord*1			