

Programmable DC Power Supply
KD3000-6000 Series User Manual

KORAD

User Manual

Main Features

Low noise

Cooling fan controlled by heatsink temperature

Constant voltage / constant

Digital panel control

4 digits display

Software calibration

Over Current Protection

Button lock function

USB/RS232 for remote control

SAFETY INSTRUCTION

Safety Guidelines

- Do not block or obstruct the cooling fan vent opening.
- Avoid severe impacts or rough handling that leads to damage.
- Do not discharge static electricity .
- Do not disassemble unless you are qualified as service personnel.

AC INPUT



- AC Input Voltage: 110V / 120V / 220V / 230V , 50 / 60 Hz
- Connect the protective grounding conductor of the AC power cord to an earth ground, to avoid electrical shock.

Operation Environment

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- Location: Indoor, no direct sunlight, dust free, almost non-conductive pollution (note below)
- Relative Humidity: < 80%
- Altitude: < 2000m
- Temperature: 32 – 104°F

Storage environment

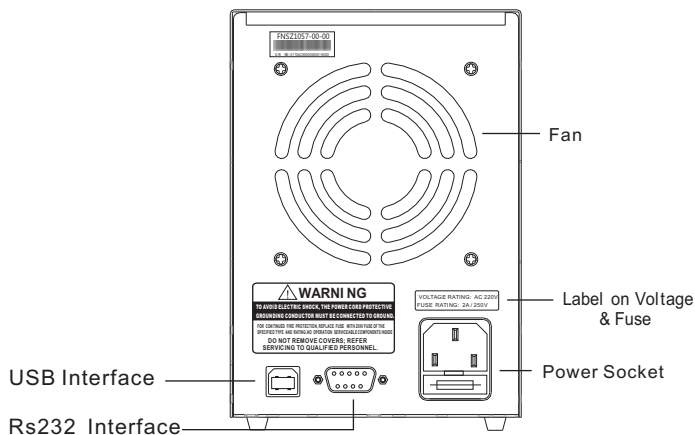
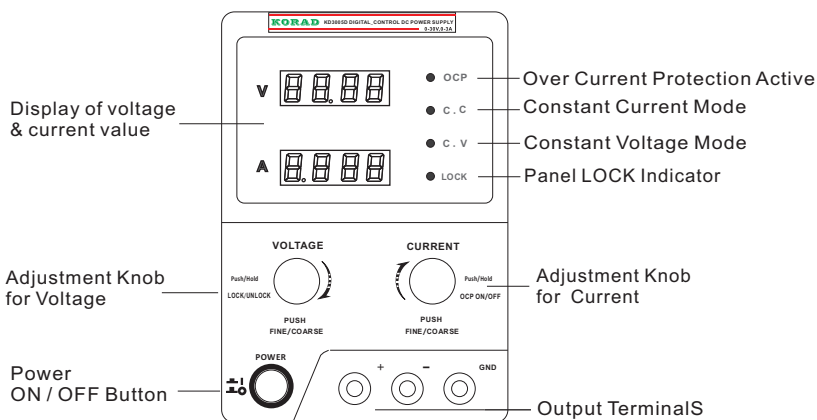
- Location: Indoor
- Relative Humidity: < 70%
- Temperature:-10-70°C

FUSE



Model	110/120 VV	220/230 V
KD3003	T4A/250V	T2A/250V
KD3005	T5A/250V	T3A/250V
KD6003	T5A/250V	T3A/250V

- To ensure fire protection, replace the fuse only with the specified type and rating.
- Disconnect the power cord before fuse replacement.
- Make sure the cause of fuse blowout is fixed before fuse replacement.



DISPLAY

Voltage level **V**

Voltmeter displays the setup value of output voltage .

Current level **A**

Displays the setup value of output current .

Condition Indicators - LED Panel Lights

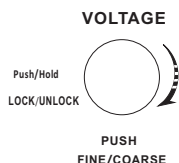
- **OC P** Over Current Protection indicator. When the power supply is in OCP mode this light is on.
- **C . C** C.C indicates constant current. When the power supply is in constant current mode, this light is on.
- **C . V** C.V indicates constant voltage. When the power supply is in constant voltage mode, this light is on.
- **LOCK** Panel LOCK Indicator

Voltage and Current Adjustment Knob Operation

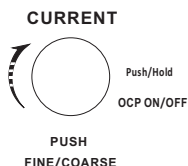
There are 3 adjustment modes for the voltage and current levels, that is, Mode 1 and Mode 2. Mode 1: Before setting, push the knobs to adjust the voltage and current levels. Mode 2: adjust directly, no need to push the knobs. And these 2 modes can be shifted by pushing the voltage adjustment knob and the current adjustment knob at the same time and holding for 2 seconds.

Mode 3: remote control mode (programmable control mode).

Mode1 LOCK Adjustment Mode



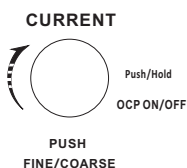
Voltage Adjustment Knob: Push the voltage adjustment knob and then the voltage meter will flicker, when voltage output can be changed by adjusting the knob. Then the resolution of the knob rotation can be changed. Push it to change the resolution of voltage adjustment;



Current Adjustment Knob: Push the voltage adjustment knob and then the voltage meter will flicker, when voltage output can be changed by adjusting the knob. And push the knob again when the meter flickers, then the resolution of the knob rotation can be changed. Will be closed.

Mode 2 Continuous Adjustment Mode

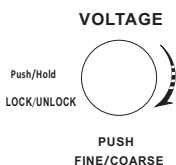
In mode 2, rotate the adjustment knobs to adjust the voltage and current values. The default of the voltage initial settings is 1v while that of the current is 100mA. The voltage and current levels can be changed by pushing the knobs.



Operation of Over Current Protection

press and hold for 3 seconds to start OCP mode, where the output will be cut off when the output current reaches the set value. In the OCP mode, rotate this knob to recover the output. Press and hold for 3 seconds again and then the OCP function

Mode 3 Remote Control Mode



Push and hold the VOLTAGE knob for 3 seconds to lock the VOLTAGE and CURRENT adjustment knobs. Then the output of the power supply will be off. At this time, the CURRENT adjustment knob becomes the output knob; push the CURRENT knob and then the output of the power supply will be ON and OFF accordingly. Push and hold the VOLTAGE knob again for 3 seconds and the VOLTAGE and CURRENT adjustment knobs will be unlocked .

Power Switch and Output Terminals

POWER



On / Off main power.



outputs voltage and current.



Connects the ground (earth) terminal.

Specifications

Note: The specifications below are tested under the conditions of temperature 25°C+/-5°C and the warm-up for 20 minutes.

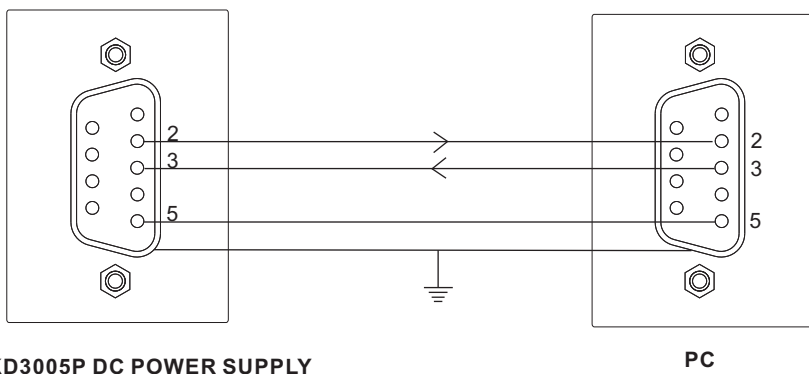
Models	KD3003P	KD3005P	KD6003P
Voltage	0-30V	0-30V	0-60V
Current	0-3A	0-5A	0-3A
Load Regulation			
Voltage	$\leq 0.01\% + 2\text{mV}$	$\leq 0.01\% + 2\text{mV}$	$\leq 0.01\% + 2\text{mV}$
Current	$\leq 0.1\% + 5\text{mA}$	$\leq 0.1\% + 10\text{mA}$	$\leq 0.1\% + 5\text{mA}$
Line Regulation			
Voltage	$\leq 0.01\% + 3\text{mV}$	$\leq 0.01\% + 3\text{mV}$	$\leq 0.01\% + 3\text{mV}$
Current	$\leq 0.1\% + 3\text{mA}$	$\leq 0.1\% + 3\text{mA}$	$\leq 0.1\% + 3\text{mA}$
Setup Resolution			
Voltage	10mV	10mV	10mV
Current	1mA	1mA	1mA
Setup Accuracy (25°C+/-5°C)			
Voltage	$\leq 0.5\% + 20\text{mV}$	$\leq 0.5\% + 20\text{mV}$	$\leq 0.5\% + 30\text{mV}$
Current	$\leq 0.5\% + 5\text{mA}$	$\leq 0.5\% + 10\text{mA}$	$\leq 0.5\% + 5\text{mA}$
Ripple(20-20M)			
Voltage	$\leq 1\text{mVrms}$	$\leq 2\text{mVrms}$	$\leq 1\text{mVrms}$
Current	$\leq 3\text{mA rms}$	$\leq 3\text{mA rms}$	$\leq 3\text{mA rms}$
Temp. Coefficient			
Voltage	$\leq 150\text{ppm}$	$\leq 150\text{ppm}$	$\leq 150\text{ppm}$
Current	$\leq 150\text{ppm}$	$\leq 150\text{ppm}$	$\leq 150\text{ppm}$
Read Back Resolution			
Voltage	10mV	10mV	10mV
Current	1mA	1mA	1mA
Read Back Temp. Coefficient			
Voltage	$\leq 150\text{ppm}$	$\leq 150\text{ppm}$	$\leq 150\text{ppm}$
Current	$\leq 150\text{ppm}$	$\leq 150\text{ppm}$	$\leq 150\text{ppm}$
Accessories			
User manual *1, Power cord*1			
Weight and Dimension			
KD3003,KD3005,KD6003:110mm(W)*156mm(H)*260(D)			
KD3003x4Kg,KD3005x4.8Kg			

REMOTE CONTROL

COM setting Set up the COM port inside the PC according to the following list.

- Baud rate: 9600
- Parity bit: None
- Data bit: 8
- Stop bit: 1
- Data flow control: None

RS232 Interface Definition



Functionality check Run this query command via the terminal application such as MTTTY (Multi-threaded TTY).
*DIN?
This should return the identification information:
Manufacturer, model name, software version.
KORAD KD3003P Vx.xx

KA Series Remote Control Syntax V2.0

Command format : **VSET<X>:<NR2>**

1. **VSET**: command header
2. **X**: output channel
3. **:** separator
4. **NR2**: parameter

Command Details:

1. ISET<X>:<NR2>

Description: Sets the output current.

Example: **ISET1:2.225**

Response time 50ms

Sets the CH1 output current to 2.225A

2. ISET<X>?

Description: Returns the output current setting.

Example: **ISET1?**

Returns the CH1 output current setting.

3. VSET<X>:<NR2>

Description: Sets the output voltage.

Example **VSET1:20.50**

Sets the CH1 voltage to 20.50V

4. VSET<X>?

Description: Returns the output voltage setting.

Example **VSET1?**

Returns the CH1 voltage setting

5. IOUT<X>?

Description: Returns the actual output current.

Example **IOUT1?**

Returns the CH1 output current

6. VOUT<X>?

Description: Returns the actual output voltage.

Example **VOUT1?**

Returns the CH1 output voltage

7. OUT<Boolean>

Description: Turns on or off the output.

Boolean: 0 OFF, 1 ON

Example: **OUT1** Turns on the output

8. STATUS?

Description: Returns the POWER SUPPLY status.

Contents 8 bits in the following format

Bit	Item	Description
-----	------	-------------

0	CH1 0=CC mode, 1=CV mode
---	--------------------------

1,2,3,4,5	N/A
-----------	-----

6	Output 0=Off, 1=On
---	--------------------

7	N/AN/A
---	--------

9. *IDN?

Description: Returns the KA3005P identification.

Example ***IDN?**

Contents KORAD KD3005P V2.0 (Manufacturer, model name,).

10. RCL<NR1>

Description: Recalls a panel setting.

NR1 1 5: Memory number 1 to 5

Example **RCL1** Recalls the panel setting stored in memory number 1

11. SAV<NR1>

Description: Stores the panel setting.

NR1 1 5: Memory number 1 to 5

Example : **SAV1** Stores the panel setting in memory number 1

12. OCP<NR1>

Description: Over current

Example : **OCP1** OCP ON

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