# 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 Inut 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

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

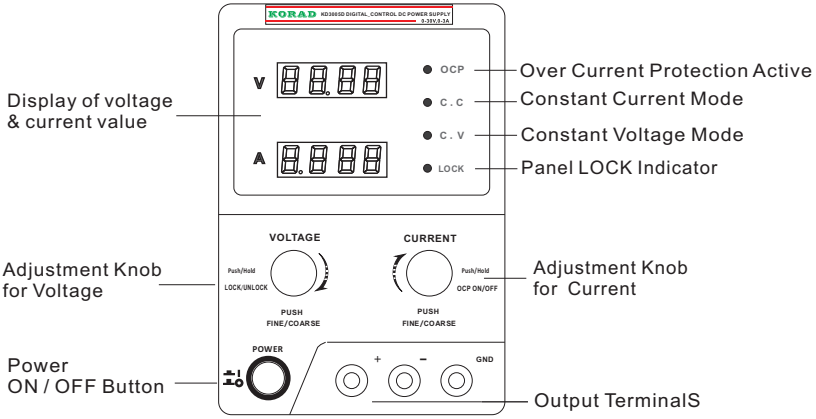
## Storage environment

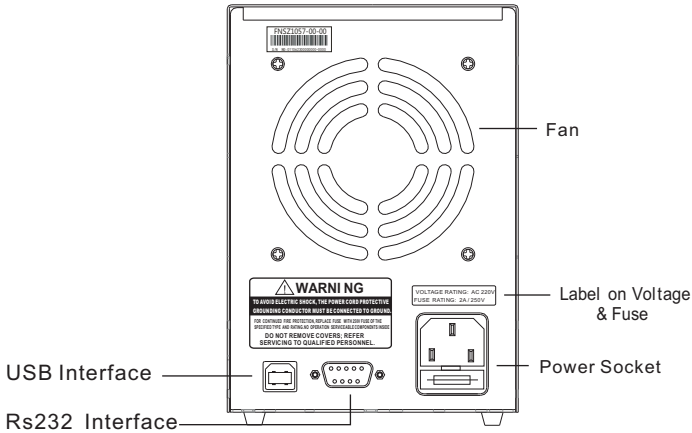
- Location: Indoor
- Relative Humidity: < 70%
- Temperature:-10-70℃

## FUSE

| Model | 110/120VV | 220/230V |
|---|---|---|
| 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 .

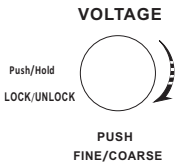
## Condition Indicators - LED Panel Lights

- **OCP** 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

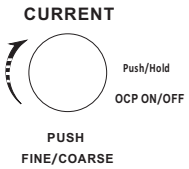
## Voltage and Current Adjustment Knob Operation

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



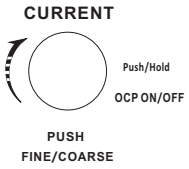

Voltage Adjustment Knob: Push the voltage adjustment knob and then the voltage meter will flicker, when voltage output can be changed by adjusting the knob. Then the resolution of the knob rotation can be changed. Push it to change the resolution of voltage adjustment;




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 flikers, then the resolution of the knob rotation can be changed.
Will be closed.

## **Mode 2** Continuous Adjustment Mode

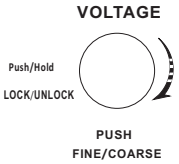
In mode 2,rotate the adjustment knobs to adjust the voltage and current values. The default of the voltage initial settings is 1v while that of the current is 100mA. The voltage and current levels can be changed by pushing the knobs.




## 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


On / Off main power.


outputs voltage and current.

Connects the ground (earth ) terminal.

## Specifications

Note: The specifications below are tested under the conditions of temperation 25℃+-5℃ and the warm-up for 20 minutes.

| Models | KD3003P | KD3005P | KD6003P |
|---|---|---|---|
| Voltage<br>Current | 0-30V<br>0-3A | 0-30V<br>0-5A | 0-60V<br>0-3A |
| **Load Regulation** | | | |
| Voltage<br>Current | ≤0.01%+2mv<br>≤0.1%+5mA | ≤0.01%+2mv<br>≤0.1%+10mA | ≤0.01%+2mv<br>≤0.1%+5mA |
| **Line Regulation** | | | |
| Voltage<br>Current | ≤0.01%+3mv<br>≤0.1%+3mA | ≤0.01%+3mv<br>≤0.1%+3mA | ≤0.01%+3mv<br>≤0.1%+3mA |
| **Setup Resolution** | | | |
| Voltage<br>Current | 10mV<br>1mA | 10mV<br>1mA | 10mV<br>1mA |
| **Setup Accuracy ( 25℃+-5℃ )** | | | |
| Voltage<br>Current | ≤0.5%+20mV<br>≤0.5%+5mA | ≤0.5%+20mV<br>≤0.5%+10mA | ≤0.5%+30mV<br>≤0.5%+5mA |
| **Ripple(20-20M)** | | | |
| Voltage<br>Current | ≤1mVrms<br>≤3mArms | ≤2mVrms<br>≤3mArms | ≤1mVrms<br>≤3mArms |
| **Temp. Coefficient** | | | |
| Voltage<br>Current | ≤150ppm<br>≤150ppm | ≤150ppm<br>≤150ppm | ≤150ppm<br>≤150ppm |
| **Read Back Resolution** | | | |
| Voltage<br>Current | 10mV<br>1mA | 10mV<br>1mA | 10mV<br>1mA |
| **Read Back Temp. Coefficient** | | | |
| Voltage<br>Current | ≤150 ppm<br>≤150 ppm | ≤150 ppm<br>≤150 ppm | ≤150 ppm<br>≤150ppm |
| **Accessories** | | | |
| User manual *1, Power cord*1 | | | |
| **Weight and Dimension** | | | |
| KD3003,KD3005,KD6003:110mm(W)*156mm(H)*260(D)<br>KD3003x4Kg,KD3005x4.8Kg | | | |

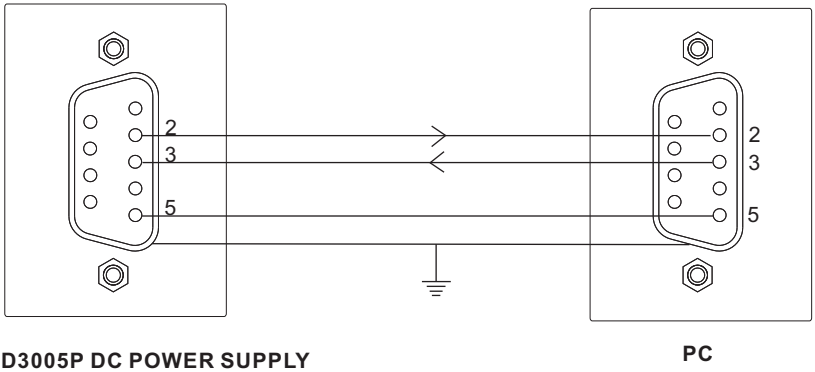
# REMOTE CONTROL

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




**KD3005P DC POWER SUPPLY** **PC**

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 ： OCP**1** OCP ON

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