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USER MANUAL

RND 320-KD3000 Series

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 (RND 320-KD3005P)
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Safety Symbols

These safety symbols may appear in this manual.



WARNING



DANGER High Voltage



Earth (ground) Terminal

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.
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AC Input



- AC Input Voltage: 230 V, 50Hz
 - Connect the protective grounding conductor of the AC power cord to an earth ground, to avoid electrical shock.
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Operation Environment

- Location: Indoor, no direct sunlight, dust free, almost non-conductive pollution (note below)
 - Relative Humidity: < 80%
 - Altitude: < 2000m
 - Temperature: 0 – 40 °C
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Storage environment

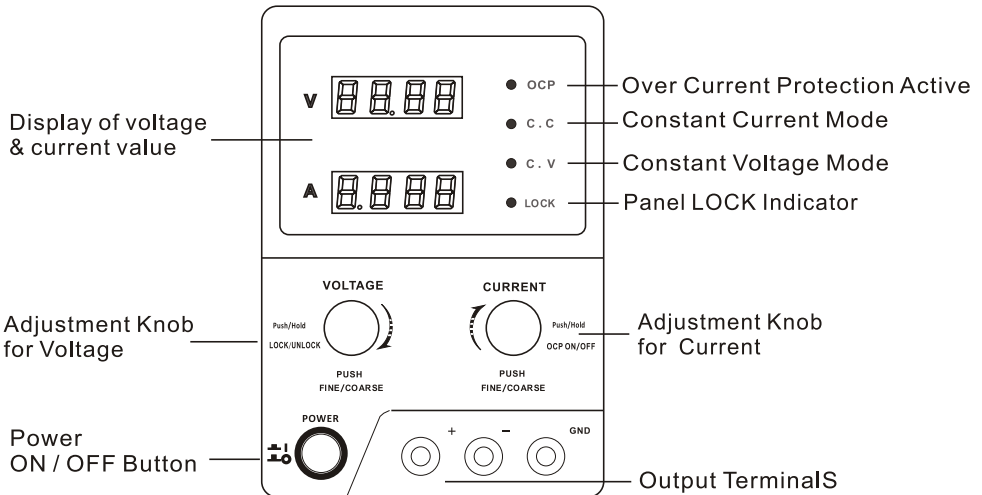
- Location: Indoor
- Relative Humidity: < 70%
- Temperature: -10 – 70 °C

Fuse

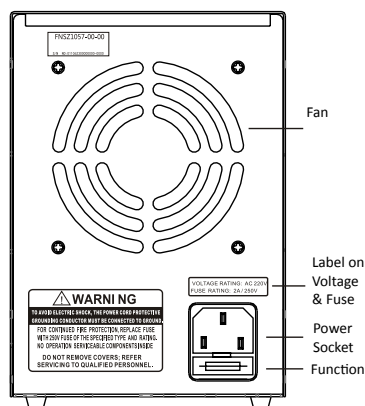


MODEL	220/230 V
RND 320-KD3005D	T3A/250 V
RND 320-KD3005P	T3A/250 V

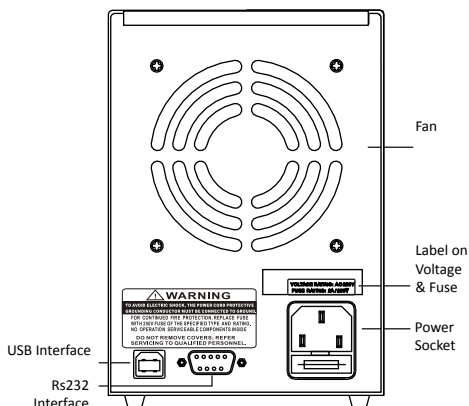
- To ensure fire protection, replace the fuse only with the specified type and rating.
- Disconnect the power cord before fuse replacement.
- Make sure the cause of fuse blowout is fixed before fuse replacement.



RND 320-KD3005D



RND 320-KD3005P



Display

Voltage level



Voltmeter displays the setup value of output voltage.

Current level



Displays the setup value of output current.

Condition Indication

- **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

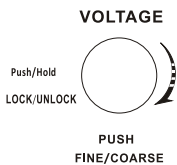
There are up to 3 modes for the voltage and current levels, that is, Mode 1, Mode 2 and Mode 3.

Mode 1: Before setting, push the knobs to adjust the voltage and current levels.

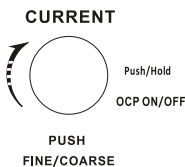
Mode 2: adjust directly, no need to push the knobs. And these 2 modes can be shifted by pushing the voltage adjustment knob and the current adjustment knob at the same time and holding for 2 seconds.

Mode 3 - only for RND 320-KD3005P: remote control mode (programmable control mode).

Mode 1



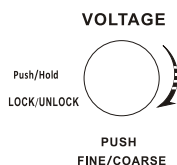
Voltage Adjustment Knob: Push the voltage adjustment knob and then the voltage meter will flicker, when voltage output can be changed by adjusting the knob. Then the resolution of the knob rotation can be changed. Push it to change the resolution of voltage adjustment;



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.

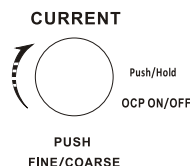
Mode 2 - Continuous Adjustment Mode

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



Operation of LOCK Function

Press and hold for 3 seconds to lock the front panel and then press again and hold for 3 seconds to unlock the panel.

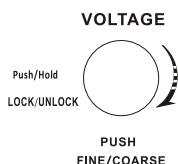


Operation of Over Current Protection

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

(only for RND 320-KD3005P)



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 temperature 25°C to -5 °C and the warm-up for 20 minutes.

RND 320-KD3005P/D- Model

VOLTAGE RANGE	0- 30 V
CURRENT RANGE	0- 5 A
LOAD REGULATION	
VOLTAGE RANGE	$\leq 0.01\% + 2 \text{ mV}$
CURRENT RANGE	$\leq 0.1\% + 10 \text{ mA}$
LINE REGULATION	
VOLTAGE RANGE	$\leq 0.01\% + 3 \text{ mV}$
CURRENT RANGE	$\leq 0.1\% + 3 \text{ mA}$

SETUP RESOLUTION

VOLTAGE RANGE	10 mV
CURRENT RANGE	1 mA

SETUP ACCURACY (25°C + -5°C)

VOLTAGE RANGE	$\leq 0.5\% + 20 \text{ mV}$
CURRENT RANGE	$\leq 0.5\% + 10 \text{ mA}$

RIPPLE (20 - 20 M)

VOLTAGE RANGE	$\leq 2 \text{ mVrms}$
CURRENT RANGE	$\leq 3 \text{ mArms}$

TEMP. COEFFICIENT

VOLTAGE RANGE	$\leq 150 \text{ ppm}$
CURRENT RANGE	$\leq 150 \text{ ppm}$

READ BACK RESOLUTION

VOLTAGE RANGE	10 mV
CURRENT RANGE	1 mA

READ BACK TEMP. COEFFICIENT

VOLTAGE RANGE	$\leq 150 \text{ ppm}$
CURRENT RANGE	$\leq 150 \text{ ppm}$

ACCESSORIES

RND 320-KD3005D: USER MANUAL *1, POWER CORD*1

RND 320-KD3005P: USER MANUAL *1, POWER CORD*1; USB CABLE *1/ USB, RS232

WEIGHT AND DIMENSION

110MM(W)* 156MM(H)* 260(D), 4.8 KG

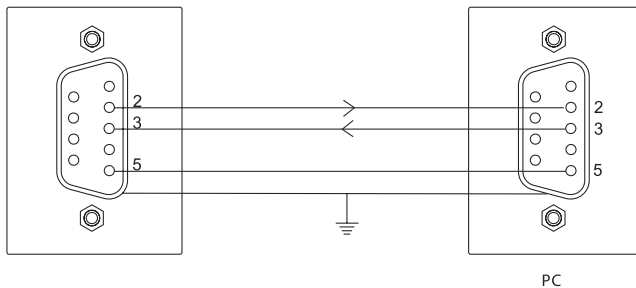
Remote control for RND 320-KD3005P

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

Functionality check

Run this query command via the terminal application such as MTTY (Multi-threaded TTY).

KD 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

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. IOOUT<X>?

Description: Returns the actual output current.

Example: IOOUT1?

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

BITS	ITEM	DESCRIPTION
0	CH1	0=CC MODE, 1=CV MODE
0	CH1	0=CC MODE, 1=CV MODE
2,3,4,5	N/A	
6	OUTPUT 0=OFF, 1=ON	
7	N/A	N/A

9. *IDN?

Description: Returns the KD3005P identification.

Example: * IDN?

Contents 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 number1

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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