AKTAKOM

Digital-Control and Programmable DC Power Supply

APS-7313/7315/7612

User Manual

Table of Contents

Safety Symbols

These safety symbols may appear in this manual or on th

WARNING

DANGER High Voltage。

Earth (ground) Terminal

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 / 120 V / 220 V / 230 V , 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: 0-40℃

Storage environment
- Location: Indoor
- Relative Humidity: < 70%
- Temperature:

FUSE

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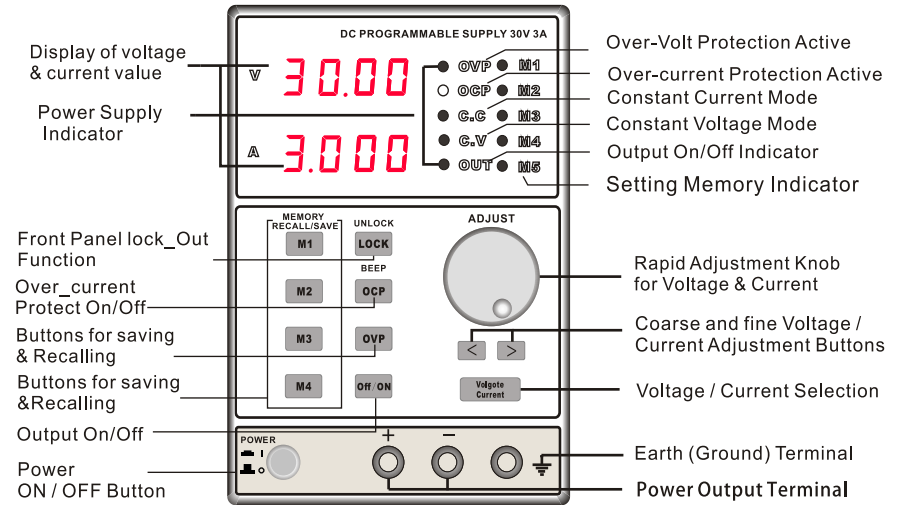- Make sure the cause of fuse blowout is fixed before fuse replacement .

Series Lineup/Main Features

Model	V Meter	A Meter	USB	Resolution
APS-7313	4digit	4digit	Yes	10mV/1mA
APS-7315	4digit	4digit	Yes	10mV/1mA
APS-7612	4digit	4digit	Yes	10mV/1mA

Main Features

Performance	● Low noise: cooling fan controlled by heatsink temperature; ● Compact size, light weight.
Operation	● Constant voltage / constant current operation ● Output On / Off Control ● Digital panel control ● 4 pairs of panel setup save / recall ● Coarse and fine Voltage / Current control ● Software calibration ● Beep output ● Key lock function
Protection	● Overload protection ● Reverse polarity protection
Interfaces	● Usb/rs232 for remote control

Front Panel Overview

Display of voltage & current value
Power Supply Indicator

Over-Volt Protection Active
Over-current Protection Active
Constant Current Mode
Constant Voltage Mode
Output On/Off Indicator
Setting Memory Indicator

DC PROGRAMMABLE SUPPLY 30V 3A

Front Panel lock_Out Function
Over_current Protect On/Off
Buttons for saving & Recalling
Buttons for saving &Recalling
Output On/Off
Power ON / OFF Button

MEMORY RECALL/SAVE
UNLOCK
ADJUST
LOCK
BEEP

Rapid Adjustment Knob for Voltage & Current
Coarse and fine Voltage / Current Adjustment Buttons
Voltage / Current Selection
Earth (Ground) Terminal
Power Output Terminal

DISPLAY

Voltage level ∨ — Voltmeter displays the setup value of output voltage .

Current level ∧ — Displays the setup value of output current .

Condition Indication

● OVP — OVP is the indicator of overvoltage protection. When overvoltage function is turned on, ● OVP indicator lights on; when output voltage is higher than protection setup value due to unexpected conditions, output cuts off and OVP indicator flickers; Press the key OVP again, and the power supply recovers.

○ OCP   OCP is OCP indicator. When overcurrent function is turned on, ○ OCP indicator lights on.

● C.C   C.C is constant current indicator. When power supply is in the mode of constant current, this light is on.

● C.V   C.V is constant voltage indicator. When power supply is in the mode of constant voltage, this light is on.

● OUT   OUT is output indicator. If light on, there is voltage output in the output terminal.

Storage Indication

● M1
● M2
● M3   Indication of saving and recalling 5 setups stored internally;
● M4
● M5

Brief Introduction of Panel Operation

MEMORY RECALL/SAVE

M1
M2
M3
M4
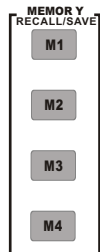
Saves or recalls panel settings. For settings, 1 ~ 4 are available. For save / recall details, see Page 13.

UNLOCK

LOCK —— Front panel lock_out function. For details, see Page 11.

BEEP

OCP —— Over-Current protect on/off,. Pressing this key for more than 2 seconds will make beep ON On/OFF.

OVP —— Over-votage Protect On/Off

Off/ON —— Output On/Off。
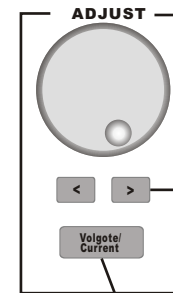
ADJUST

—— Voltage-Current Setting Adjustment

<   > —— Digit Selector Buttons

Volgote/ Current

Selection Voltage / Current for Adjustment Pressing the key, the volt indicator starts to flicker; pressing it again, the ampere indicator starts to flicker. Then turn the key ADJUST and the settings of the setted voltage or current can be adjusted.

POWER —— On / Off main power. For power up sequence, see Page 10.

+ −   outputs voltage and current.

⏚   Connects the ground (earth) terminal.

FNSZ1057-00-00
S/N NO.01106230000000-0000

Fan

⚠ **WARNING**

TO AVOID ELECTRIC SHOCK, THE POWER CORD PROTECTIVE
GROUNDING CONDUCTOR MUST BE CONNECTED TO GROUND.
FOR CONTINUED FIRE PROTECTION, REPLACE FUSE
WITH 250V FUSE OF THE SPECIFIED TYPE AND RATING.
NO OPERATION SERVICEABLE COMPONENTS INSIDE

DO NOT REMOVE COVERS; REFER
SERVICING TO QUALIFIED PERSONNEL.

VOLTAGE RATING: AC 220V
FUSE RATING: 2A / 250V

Label on Voltage
& Fuse

Power Socket

USB Interface

Rs232 Interface

RS232 dependent interface based on remote
control order (see Page 14)

RS232 dependent interface based on remote
control order (see Page 14)

The power cord socket mainly accepts AC
values: 115V / 230V, 50 / 60 Hz. Please
refer to the fuse parameters on the back
fuse label to replace the specified fuse.

⚠ Make sure the correct type of fuse is installed
before power up

9

OPERATION

**Connect AC
power cord**

Connecting AC power cord and selecting the
corresponding AC voltgae according to the
back label on voltage; then connecting the
AC power cord to the socket on the back panel

power on POWER

Press the power switch to make power on.
The display initializes, showing the model
of the machine and then showing the setting
level recalled the last time..

power off POWER

Press the power switch again to make power off.

10

Output On / Off

Panel Operation
Pressing the Output key to turn on output; and the key LED also turns on. Pressing the Output key again to turn off the output and the key LED.

Note: If there are any of the following conditions, the output will automatically turn off.

1. OVP turns on and there are unusual OVP on the output terminal.
2. The setting voltage is more than that of the OVP.
3. Recalling other setups from the memory.

Beep On / Off

Panel Operation
By default, the beep sound is enabled. To turn off the beep, press the OCP(BEEP) key for 2 seconds. A beep comes out and the beep setting will be turned off. To enable the beep, press the OCP(BEEP) key again for 2 seconds.

Front Panel Lock

Panel operation
Press the LOCK key to lock the front panel key operation. The key LED turns on. To unlock, press the LOCK key for 2 seconds.

Output Set

Panel operation

1. Connecting the load to the front port, CH 1 + / - .
2. Setting output voltage and current.
   Press the key Voltage/Current selection to switch voltage adjustment and current adjustment. Adjusting voltage and current with Voltage / Current Adjustment knob. By default, the Voltage and Current knob work in the coarse mode. To activate the fine mode, press the keys to select the coarse mode or the fine mode.
3. Turning on the output and pressing the output key.
   The key LED turns on and displays CV or CC mode.
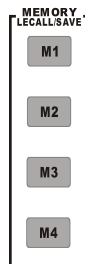
SAVE / RECALL SETUP

Save Setup

Background The front panel settings can be stored into one of the four internal memories.

Contents The following list shows the setup contents.。
- ●Fine / coarse knob editing mode
- ●Beep on / off
- ●Output voltage / current level

The following settings are always saved as "off ".
- ● Output on / off
- ● Front panel lock on / off

Panel operation Press one of the 1 ~ 4 Memory keys for 2 seconds, for example number 1. The panel settings are saved in memory No. 1 and the key LED turns on. When the panel settings are modified, the LED turns off. 。

Recall Setup

The front panel settings can be recalled from one of the four internal memories.

MEMORY LECALL/SAVE

| M1 |
| M2 |
| M3 |
| M4 |

Recalls panel settings. For settings, 1 ~ 4 are available.

○ M1   Indication of saving and recalling 5 setups stored
● M2   internally;
● M3   Press one of the 1 ~ 4 Memory keys, for example
● M4   number 1. The panel settings saved in memory
● M5   No. 1 are recalled. The LED M1 turns on.

Note   When a setting is recalled, the output automatically turns off.

REMOTE CONTROL

Remote Control Setup

All the models with the suffix "P", etc. can be connected to the PC through interfaces USB/RS232 on the back of the machine and controlled by the 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

REMOTE CONTROL PROCEDURES

Entering the Remote Control Mode

    1.Connecting USB

    2.The power supply will automatically connect. After

      normal connection, there will be a tweet from the

      power supply itself.

    3.The panel keys are locked, so the power supply can only

      rely on the remote control.

Exiting from the Remote Control Mode

    1.Closing the remote control software.

    2. Disconnecting USB from the back.

    3. The power supply disconnects; a tweet from the beep with

      the hint that the remote control is over.

    4. The power supply automatically comes into the panel

      control mode.

FAQ

Q1: The panel buttons don't work when power on.

A1: The panel is locked. Press the key **LOCK UNLOCK** for over 2 seconds, and then the panel will unlock.

Q2: Pressing ON/OFF, there is no output when power on.

A2: Current setup is 0.

Q3: Output voltage rises slowly when output button is on.

A3: Current setup is too small.

Q4: Making OCP on and pressing output switch; and then the output is automatically shut off.

A4: Current protection value setup is too small. You could press output switch and then make OCP on.

Specifications

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

Models	APS-7313	APS-7315	APS-7612
Voltage Range	0-30V	0-30V	0-60V
Current Range	0-3A	0-5A	0-2A
Load Regulation			
Voltage	≤0.01%+2mv	≤0.01%+2mv	≤0.01%+2mv
Current	≤0.1%+5mA	≤0.1%+10mA	≤0.1%+5mA
Line Regulation			
Voltage	≤0.01%+3mv	≤0.01%+3mv	≤0.01%+3mv
Current	≤0.1%+3mA	≤0.1%+3mA	≤0.1%+3mA
Setup Resolution			
Voltage	10mV	10mV	10mV
Current	1mA	1mA	1mA
Setup Accuracy（25℃+-5℃）			
Voltage	≤0.5%+20mV	≤0.5%+20mV	≤0.5%+30mV
Current	≤0.5%+5mA	≤0.5%+10mA	≤0.5%+5mA
Ripple(20-20M)			
Voltage	≤1mVrms	≤2mVrms	≤1mVrms
Current	≤3mArms	≤3mArms	≤3mArms
Temp. Coefficient			
Voltage	≤100ppm+10mV	≤100ppm+10mV	≤100ppm+10mV
Current	≤100ppm+5mA	≤100ppm+5mA	≤100ppm+5mA
Read Back Accuracy			
Voltage	10mV	10mV	10mV
Current	1mA	1mA	1mA
Read Back Temp. Coefficient			
Voltage	≤100ppm+10mv	≤100ppm+10mv	≤100ppm+10mv
Current	≤100ppm+5mA	≤100ppm+5mA	≤100ppm+5mA

Reaction Time			
Voltage Rise Voltage Drop	≤100mS ≤100mS （10% Rated load）	≤100mS ≤100mS （10% Rated load）	≤100mS ≤100mS （10% Rated load）
Interface			
Optional Interfaces (for program mable models only): RS232, USB			
Accessories			
User manual 1 PC ; Power cord1 PC			
Dimension			
110(W)*156(H)*260(D),			