RIGOL

Calibration Guide

DP1308A
Programmable Linear DC Power Supply

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RIGOL Technologies, Inc.

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If you have any problem or requirement when using our products or this manual, please contact **RIGOL**.
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Chapter 1 Calibration Notices

Calibration Time Interval

You are recommended to calibrate the instrument at a 90-day or one-year calibration interval. If relatively higher measurement accuracy of DP1308A is required, please perform regular calibration.

Recommended Calibration

No matter which calibration interval you choose, it is recommended that you perform overall calibration within the calibration interval to ensure the performance specifications of the instrument before the next calibration.

Calibration Safety

To perform calibration, you need to input the correct password. The password is used to prevent accidental or unauthorized calibration of the instrument.

Press **Utility** → **Calibrate** and input the correct password to enter the channel calibration interface.

The password is "666666" when the instrument leaves the factory. The password is stored in the non-volatile memory and will not change at power-off or remote interface reset.

You can modify the password. After entering the **Main Calibration Interface**, press **password** to input the old password and new password respectively.

To Stop the Calibration

During the calibration, you may need to stop it; at this point, you can cut off the power or press any other function key at the front panel. When the instrument enters the calibration interface again, you need to restart the calibration.

If all the voltage or current calibration points are calibrated and **Save** is performed, you need not to calibrate the items already calibrated in the next calibration.

If you want to reset the calibration value to the default, please enter the **Main Calibration Interface** and press  → **Default** → **OK**.

CAUTION
If the calibration is stopped when the instrument is writing the new calibration constants into the Flash, you may lose all the calibration constants and you need to perform the calibration again.

To Acquire the Calibration Service

RIGOL does not recommend manual calibration by users. If calibration is required, please contact **RIGOL** customer service department or the local distributor.

Chapter 2 Test Devices and Notices

Recommended Test Devices

It is recommended that you use the test devices listed in the table below or other test devices with the same performance and specifications for calibration.

Table 2-1 Recommended Test Devices

Device	Performance Requirement	Recommended
Digital Multimeter	6 ½	**RIGOL** DM3068 
Test Lead	Connect the output terminal of DP1308A and the input terminal of the multimeter	
Short Circuitor	Used to short-circuit the (+) and (-) terminals of the output channel of DP1308A	

Test Notices

Follow the suggestions below during the test to ensure the best effect.

1) Make sure the environment temperature is constant (within 18℃ to 28℃). Ideally, the calibration should be done under 23℃±1℃.
2) Make sure the environment relative humidity is less than 80%.
3) Make sure the instrument has been warmed up for one hour before the calibration.
4) The cable used for the test should be as short as possible. The cable impedance should be as required.

Chapter 3 Calibration Process

Test Items

Table 3-1 Test Items Preview

No.	Item
1	+6 V channel voltage calibration
2	+6 V channel current calibration
3	+6 V channel overvoltage protection calibration
4	+6 V channel overcurrent protection calibration
5	+25 V channel voltage calibration
6	+25 V channel current calibration
7	+25 V channel overvoltage protection calibration
8	+25 V channel overcurrent protection calibration
9	-25 V channel voltage calibration
10	-25 V channel current calibration
11	-25 V channel overvoltage protection calibration
12	-25 V channel overcurrent protection calibration

Note: as the calibration methods of the three channels are the same, +6V channel is taken as an example here.

Calibration Procedures

Step 1: Select a Channel and Enter the Calibration Interface

Step 2: Perform Voltage Calibration

Step 3: Perform Current Calibration

Step 4: Perform Overvoltage Protection Calibration

Step 5: Perform Overcurrent Protection Calibration

Step 1: Select a Channel and Enter the Calibration Interface

1) Press **+6V** at the front panel (you need not to turn on the output).

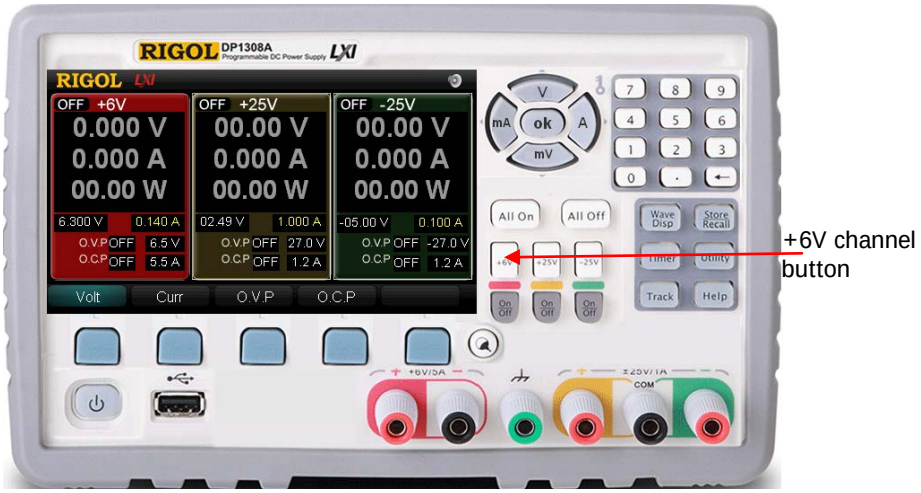

Figure 3-1 Enter +6V Channel

2) Press **Utility** → **Calibrate**, input the password "666666" and press **OK** to enter the main calibration interface as shown in Figure 3-3.

Figure 3-2 Input the Password

3) Press **+6V** in the Main Calibration Interface to enter the +6V channel calibration interface as shown in Figure 3-4.

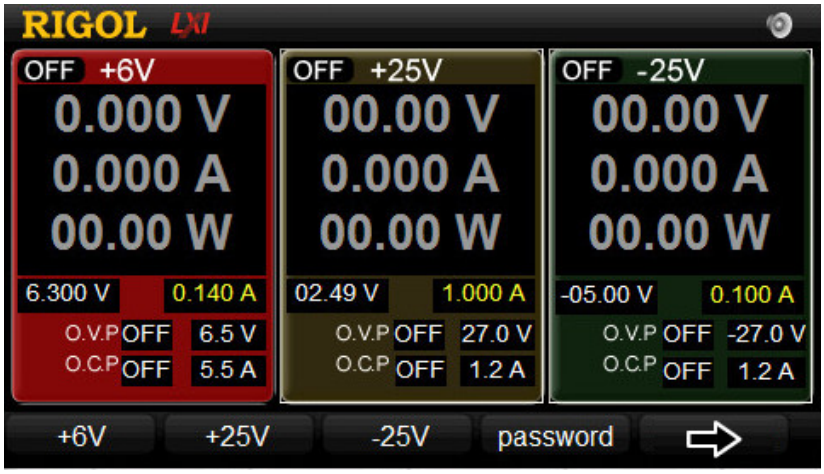

Figure 3-3 Main Calibration Interface

Figure 3-4 Channel Calibration Interface

Step 2: Perform Voltage Calibration

1) Connect the output terminal of +6V channel of DP1308A with the DC voltage input terminal of the multimeter using the test lead. Set the multimeter to DC voltage test, press **VoltCal** in the **Channel Calibration Interface** and DP1308A enters the voltage calibration interface as shown in Figure 3-6.

Figure 3-5 Voltage Calibration

2) Press **StartCal** in the Voltage Calibration Interface and read the first measurement value from the multimeter; then, input the measurement data into DP1308A using the numeric keyboard.

Figure 3-6 Voltage Calibration Interface

Figure 3-7 Input the Calibration Data

3) Press **Next** in the **Voltage Calibration Interface** and read the second measurement value from the multimeter; then, input the measurement data into DP1308A.

4) Repeat the above step until all the measurement values are input; then, press **Save** in the **Voltage Calibration Interface** to finish the voltage calibration.
If you need to re-calibrate a certain calibration point, press **SelID** in the **Voltage Calibration Interface** to input the ID of the calibration point to be re-calibrated.

After the voltage calibration is finished, press  to return to the **Channel Calibration Interface**.

Tip

When the calibration data input contains large error, the prompt message "Calibration has failed because error is great" will be displayed. At this point, please make sure that whether the error is due to the measurement problem of the multimeter. If not, the power supply can not pass the calibration and should be returned back to factory for maintenance.

Step 3: Perform Current Calibration

1) Connect the output terminal of +6V channel of DP1308A with the DC current input terminal of the multimeter. Set the multimeter to DC current test, press **CurrCal** in the **Channel Calibration Interface** and DP1308A enters the current calibration interface.

Figure 3-8 Current Calibration

The remaining steps are the same with those of voltage calibration. For the detailed calibration steps, refer to "**Step 2: Perform Voltage Calibration**".

Tip

If you are using **RIGOL** DM3068 as the calibration device, please select the **A** test scale when measuring the current.

After the current calibration is finished, press  to return to the **Channel Calibration Interface**.

Step 4: Perform Overvoltage Protection Calibration

Make sure that no load is connected (no test lead is connected) to DP1308A before performing overvoltage protection calibration. Then, press **O.V.P** in the **Channel Calibration Interface** and the instrument starts the calibration. The prompt message "Calibrating is completed!" will be displayed when the calibration is finished.

Figure 3-9 Overvoltage Protection Calibration

Figure 3-10 Overvoltage Protection Calibration Completed

After the overvoltage protection calibration is finished, press  to return to the **Channel Calibration Interface**.

Step 5: Perform Overcurrent Protection Calibration

Short-circuit the (+) and (-) terminals of +6 V channel (here, a short circuitor is used) before performing overcurrent protection calibration. Then, press **O.C.P** in the **Channel Calibration Interface** and the instrument starts the calibration. The prompt message "Calibrating is completed!" will be displayed when the calibration is finished.

Figure 3-11 Overcurrent Protection Calibration

Figure 3-12 Overcurrent Protection Calibration Completed

After the overcurrent protection calibration is finished, press  to return to the main calibration interface or press **Utility** to exit the calibration.

By now, the calibration is finished.