

DP800 Calibration Guide

Prepare for manual calibration of DP800:

- A. Make sure that the DP800 has been working for more than 30 minutes under $25^{\circ}\text{C} \pm 5^{\circ}\text{C}$.
- B. A digital multimeter which has the same accuracy specification with DM3068.
- C. Make sure that the DP800 has been selected the correct channel which you want to calibrate.
- D. Connect DP800 and computer through usb cable, and running control software like ultra-sigma or NI-MAX, and confirm that dp800 can be searched by these control software.
- E. Then start calibration as follow steps:

Steps:

- 1, Use control software to send “:Cal:Start 2012,CH1” command to the dp800. In this command, “2012” is the default calibration password, “CH1” is the channel which you want to calibrate, it is also be “CH2” or “CH3”.
- 2, Use control software to send “:Cal:Clear CH1,ALL” command to the dp800.In this command,“CH1” is the channel which you want to calibrate, it is also be “CH2” or “CH3”; The “All” indicates that you want to calibrate both voltage and current. If you just want to calibrate voltage, you should use “V” to instead “All”; If you just want to calibrate current, you should use “C” to instead “All”.
- 3, Press “Back” key to return local operation mode.
- 4, “Utility→Test/Cal” enter follow screen:



Figure 1

- 5, Press "ManualCal" to enter follow screen, in which you must input the correct password: the default password is "2012".

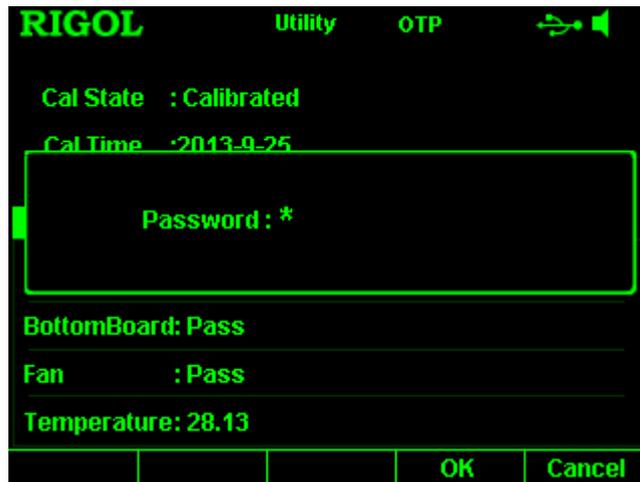


Figure 2

- 6, After finished inputing password, press "OK" to enter the manual calibration screen.
- 7, Press "Cal Item" to enter follow screen, in which you can select the calibration item which you want to calibrate:

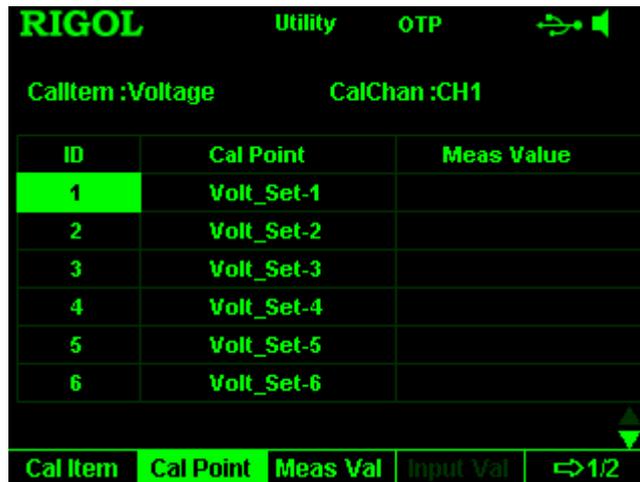


Figure 3

- Item "VDAC" : To calibrate the accuracy of output voltage.
- Item "IDAC": To calibrate the accuracy of output current.
- Item "VADC": To calibrate the accuracy of readback voltage.
- Item "IADC": To calibrate the accuracy of readback current.

8, Press "Cal Point" soft-menu , and to select the calibration point by knob key.

Strongly recommend: to perform manual calibration step by step.



The image shows the RIGOL Utility screen with the following information:

- Calltem :Voltage
- CalChan :CH1
- Table with 3 columns: ID, Cal Point, Meas Value
- Bottom menu: Cal Item, Cal Point, Meas Val, Input Val, ⇌1/2

ID	Cal Point	Meas Value
1	Volt_Set-1	
2	Volt_Set-2	
3	Volt_Set-3	
4	Volt_Set-4	
5	Volt_Set-5	
6	Volt_Set-6	

Figure 4

9, Use DM to measure the DP800's output, please choose the DM's DCV range when the calibration item is "VDAC" or "VADC"; and choose the DM's DCI range when the calibration item is "IDAC" or "IADC".

10, Press "Meas Val" soft-menu, and then the screen displays a default measurement result, please input the actual measurement result from DM by numeric key:



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- CalChan :CH1
- Table with 3 columns: ID, Cal Point, Meas Value
- Bottom menu: Cal Item, Cal Point, Meas Val, Input Val, ⇌1/2

ID	Cal Point	Meas Value
1	Volt_Set-1	00.20 V
2	Volt_Set-2	
3	Volt_Set-3	
4	Volt_Set-4	
5	Volt_Set-5	
6	Volt_Set-6	

Figure 5

11, Press "Input Val" to finish input, and then the focus will be on "Cal Point" soft-menu, see figure 4.

Stongly recommend: please wait at least 3 seconds to press "input val" after finished input measurement value when perform "VADC" or "IADC" calibration, otherwise the calibration result may not successful.

12, Repeat step 8、 9、 10、 11 until complete all calibration points of current calibration item.

13, Repeat step 7、 8、 9、 10、 11 until complete the calibration of all calibration items.

14, Press  soft-menu to enter next page soft-menu as below:



ID	Cal Point	Meas Value
1	Volt_Set-1	
2	Volt_Set-2	
3	Volt_Set-3	
4	Volt_Set-4	
5	Volt_Set-5	
6	Volt_Set-6	

Figure 6

- 15, Press "Save" to store the calibration result.
- 16, Press "Utility" key to exit the manual calibration screen, and to select a new channel which also want to be calibrated. And then repeat step 1 to step 15.
- 17, After finish all channel's calibration, please reboot the DP800.

About the "ADC Cal" soft-menu in the figure 6:

It is only used to calibrate the ADC offset, and since you have performed "VADC" by manual calibration, you mustn't to perform such function. You can perform such function only at below situation: The readback voltage is out-of- specification, and you don't want to perform manual calibration. This function can not be instead of "VADC" and "IADC", but "VADC" and "IADC" can be instead of this function.

If you want to perform such function, please follow below steps:

- 1, Select the channel which you want to calibrate;
- 2, Set output voltage to the value which is out-of-specification;
- 3, Enter the screen which is showed in figure 6, press "ADC Cal" to perform ADC offset calibration;
- 4, Just wait until the DP800 pop up a message window with the calibration information.
- 5, **If you have tried several times to perform such function and it is always failed, please perform manual calibration for "VADC" and "IADC".**