

# RIGOL DP832A POWER SUPPLY

STUDENT INNOVATION CENTER  
ROOM 2222

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VERSION 1.0

2/10/2021

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# OVERVIEW

The purpose of this document is to provide standard operating procedures for the use of the Rigol DP832A power supply in room 2222 of the Student Innovation Center

***Prior to engaging in hands-on training and operation, these required training modules MUST be completed:***

- Shop Safety Fundamentals
- Fire Safety and Fire Extinguisher Training
- Hazard Communication Training (aka Worker Right to Know)
- Portable Power Tool Safety

# HEALTH & SAFETY INFO

**Chemical Vapors:** Heating of solder can generate toxic vapors and vapors with high volatile organic compounds (VOCs).

**Hot Surfaces:** Circuits and soldering equipment generate heat. Such surfaces must be guarded and labeling must warn users of the hazards.

**Mechanical Hazards:** Moving parts must be guarded to prevent accidental contact. Guards must never be bypassed.

**Electrical:** Contact with energized parts can lead to injury or even death. Before each use, inspect for any damaged wiring and safeguards. Do not use if problems are found. Ensure the oscilloscope is properly grounded and plugged directly into an outlet.

# HAZARD CONTROL MEASURES AND REQUIRED PPE

## **REQUIRED PPE:**

- Safety glasses
- Closed toed shoes

## Hazard Control Measures:

- Always use the grounding strap when operating equipment
- No food/drink
- Electric shock can be dangerous and possibly deadly! If you are unfamiliar with the electricity requirements of your project, ask a shop staff for assistance

# FIRST AID PROCEDURES

**BURNS:** Minor burns are typically small, red, have swelling, and can blister. Cool burns with cold water and continue until the pain lessens. After cooling, cover with a dry, sterile bandage or clean dressing. Consult a physician as needed.

**CUTS/SCRAPES:** Minor cuts and scrapes usually stop bleeding on their own. If needed, apply gentle pressure with a clean bandage or cloth and elevate the wound until bleeding stops. Clean the wound and apply bandages. Consult a physician as needed.

**PINCH/CRUSH:** Consult a physician as needed.

**INHALATION:** Ensure there is proper ventilation prior to use. If needed, stop the procedure and move to a well ventilated area. Consult a physician as needed.

**EYES:** Immediately irrigate the eyes at an eyewash station for at least 15 minutes. Hold the eyelids away from the eyeball, moving eye in all directions to wash thoroughly behind the eyelids. Consult a physician as needed.

All accidents and injuries occurring at work or in the course of employment must be reported to the employee's supervisor as soon as possible (even if no medical attention is required).

<http://www.ehs.iastate.edu/occupational/accidents-injuries>

# WASTE DISPOSAL

If you have left over parts/materials that are still useable, you may donate them to the shop for other users.

Dispose of any un-useable left over wires, components, solder drips, etc. into the waste bin.

# SPILL/CLEAN UP PROCEDURES

If using solder, do not touch solder drips for 30 seconds to allow solder to cool. After 30 seconds, wipe off surface(s) and dispose of in the waste bins.



# OPERATIONS GUIDE

# OVER VOLTAGE/CURRENT PROTECTION

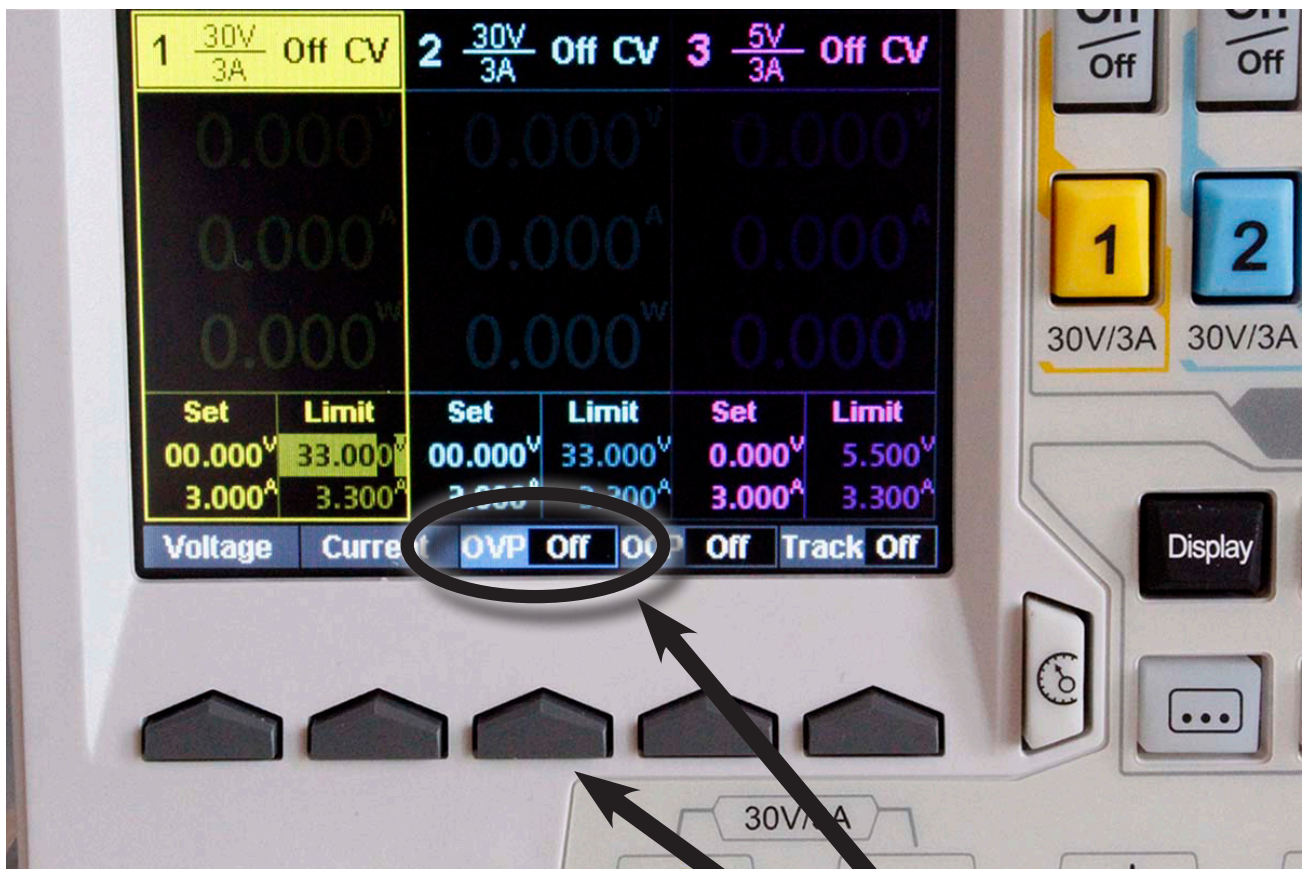
***It is always a good idea to set both Over Voltage and Over Current Protection prior to attaching a load/circuit to the power supply. If you accidentally exceed the voltage or current limits of your circuit, you can possibly damage/destroy your circuit or potentially injure yourself from shock.***

# OVER VOLTAGE PROTECTION (OVP)

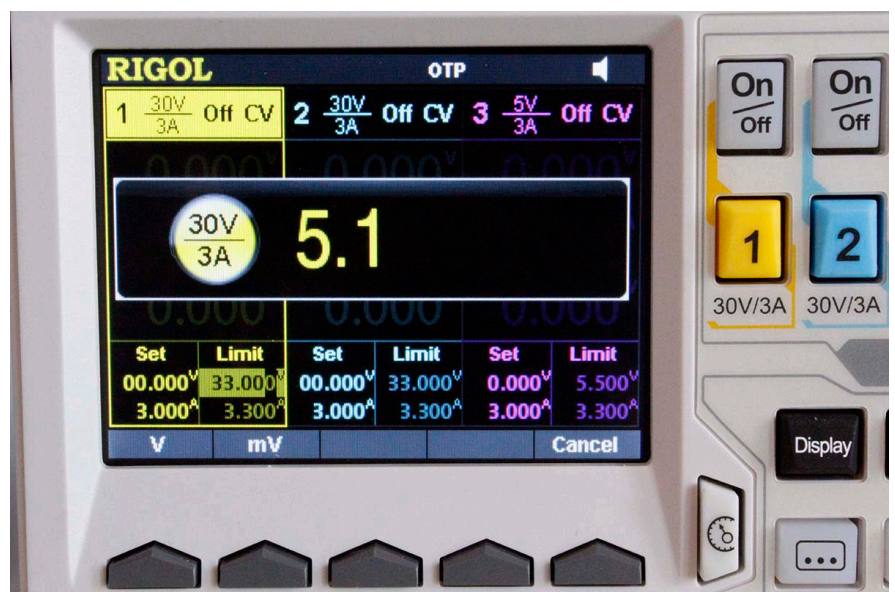
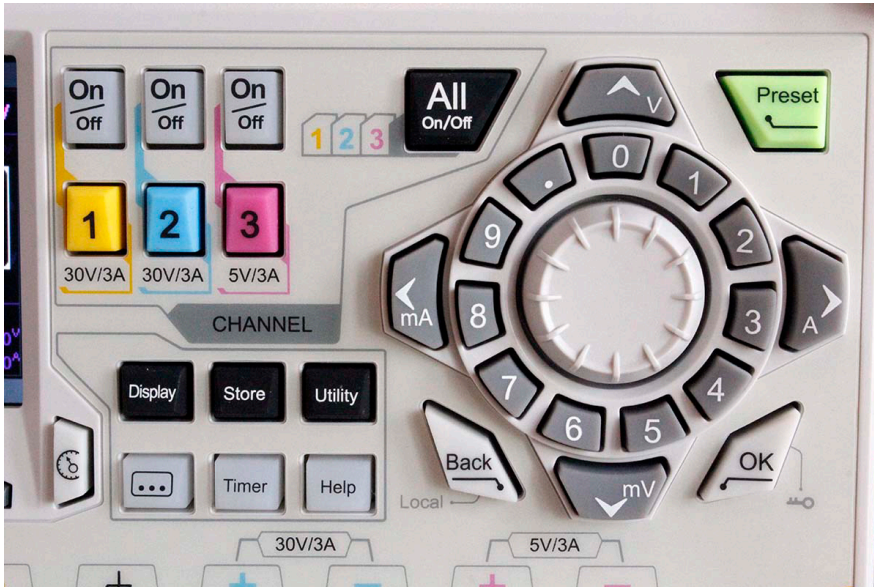
1. Turn on the power supply



2. Press the OVP soft key to select (NOTE: Pressing once does NOT turn it on, rather, it only selects it)



3. Using the Number button on the button wheel, enter your OVP limit (i.e. 5.10 V)

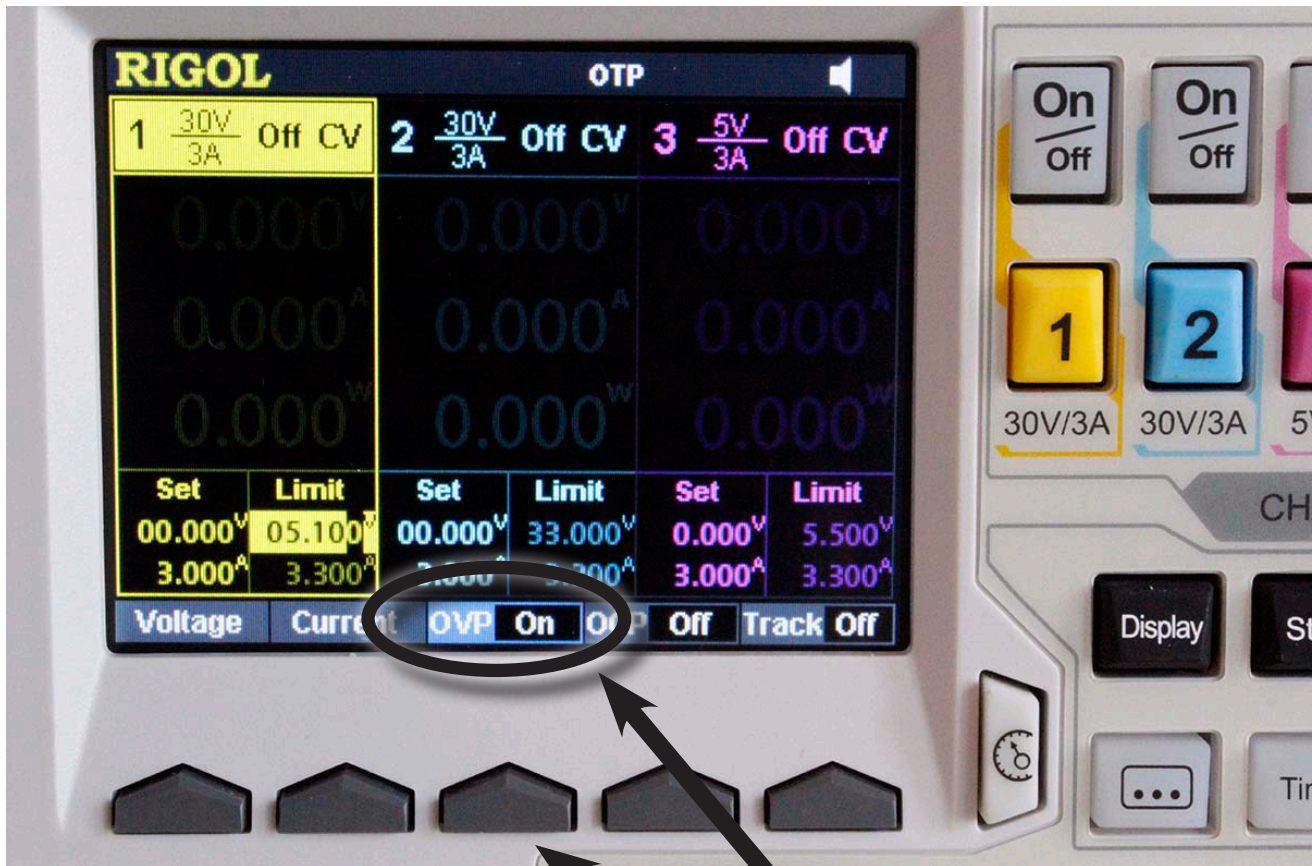




4. Press the “↑ V” button at the top of the button wheel



5. To engage the OVP, press the OVP soft key again. (It will say ON). If you accidentally exceed your voltage limit, the OVP will automatically turn off that channel.



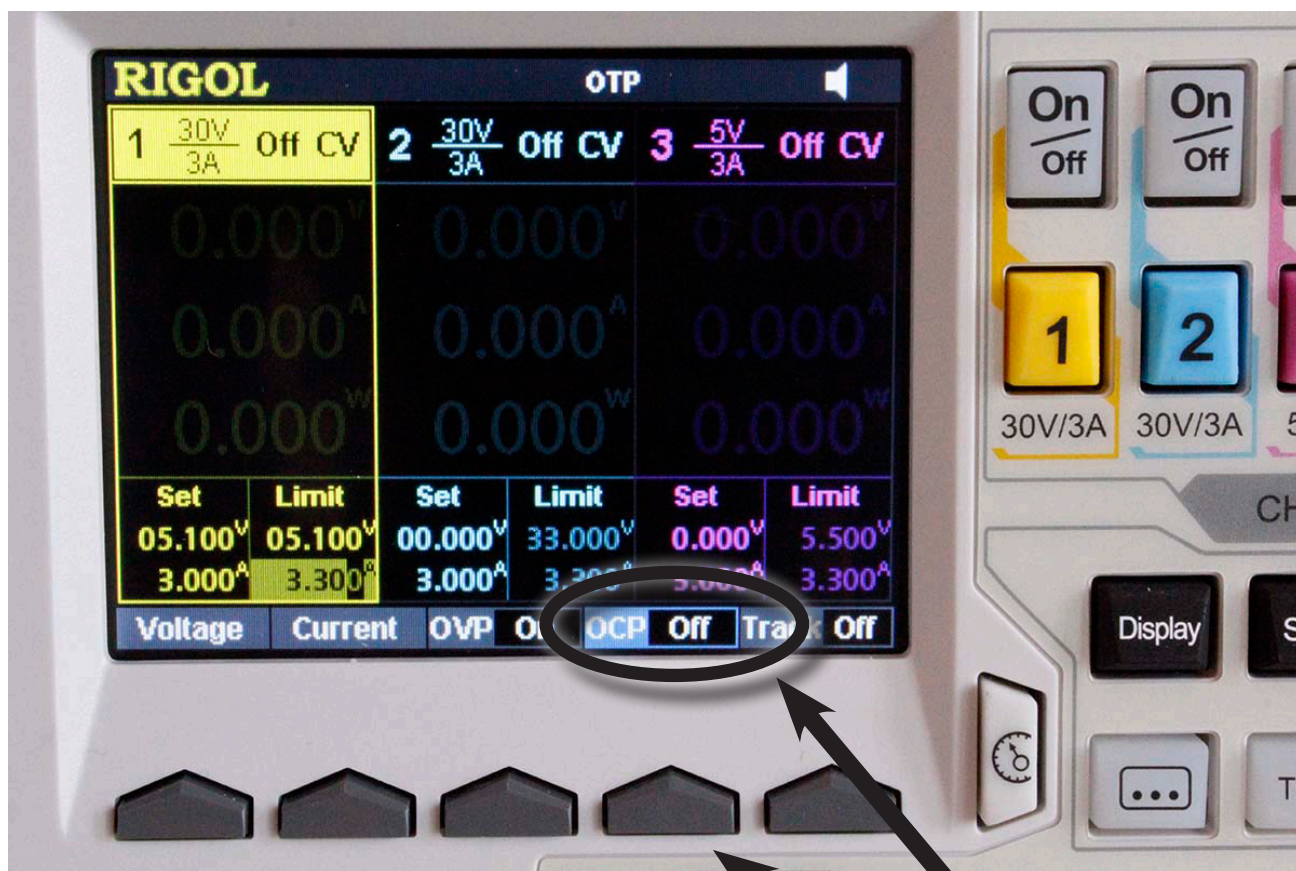


# OVER CURRENT PROTECTION (OCP)

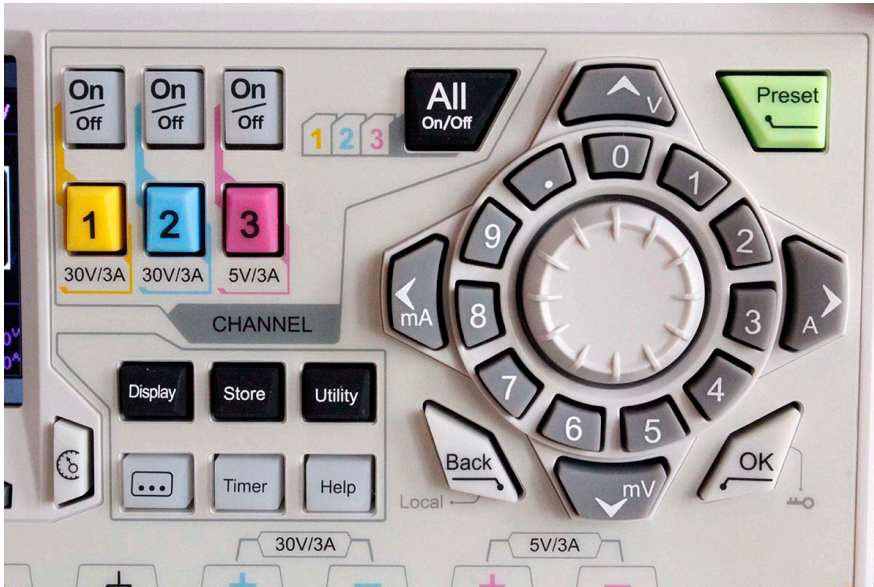
1. Turn on the power supply



2. Press the OCP soft key to select (NOTE: Pressing once does NOT turn it on, rather, it only selects it)



3. Using the Number button on the button wheel, enter your OCP limit (i.e. 1.10 A)

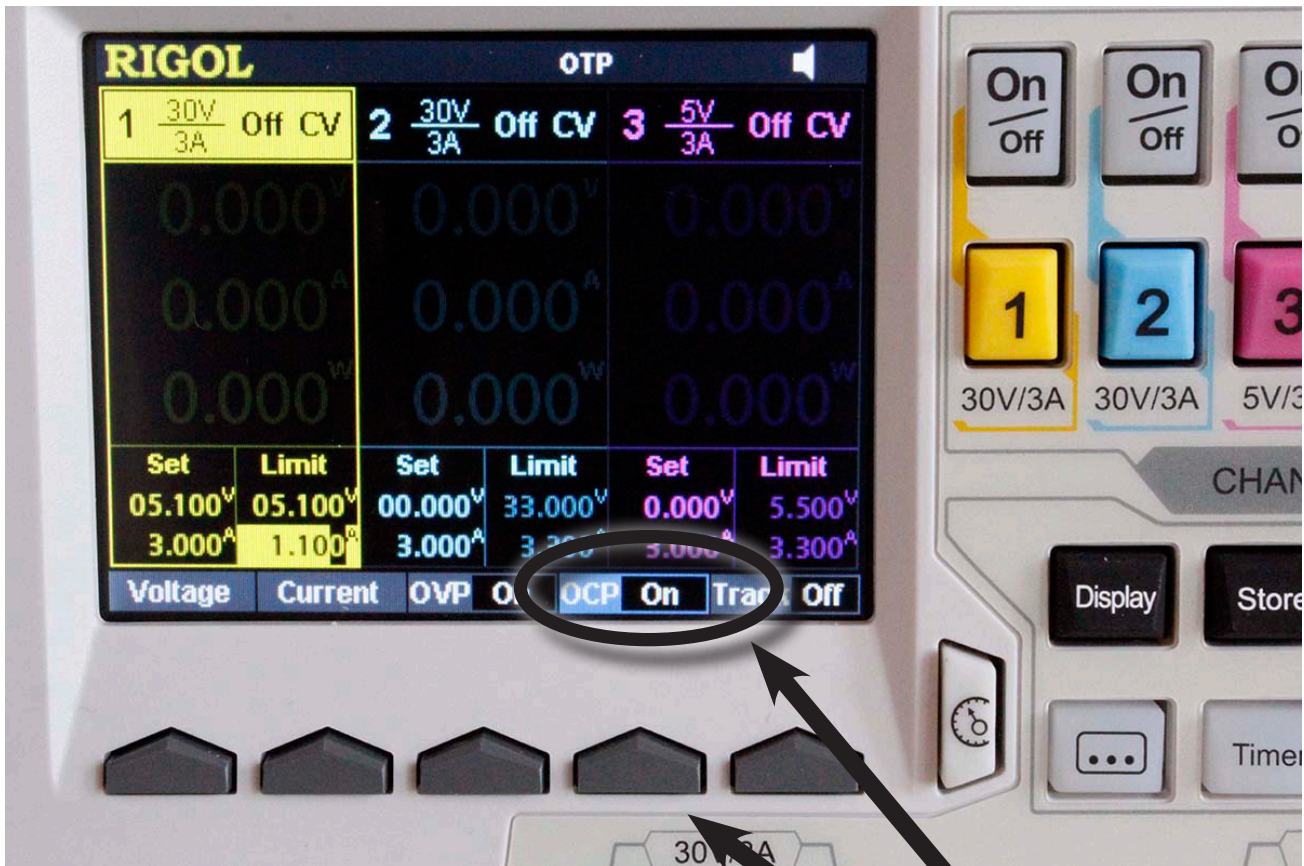




4. Press the “→ A” button at the right of the button wheel



5. To engage the OCP, press the OCP soft key again. (It will say ON). If you accidentally exceed your current limit, the OCP will automatically turn off that channel



# CONSTANT VOLTAGE

## CONSTANT VOLTAGE METHOD 1

NOTE: It is highly recommended that you first set your Over Voltage Protection (OVP) limits BEFORE adjusting the voltage output levels and attaching your load/circuit to prevent damage to your circuit and prevent possible injury. (SEE: "OVER VOLTAGE PROTECTION")



1. Turn on the power supply



2. Select which channel you wish to use (Ch. 1 – 3)

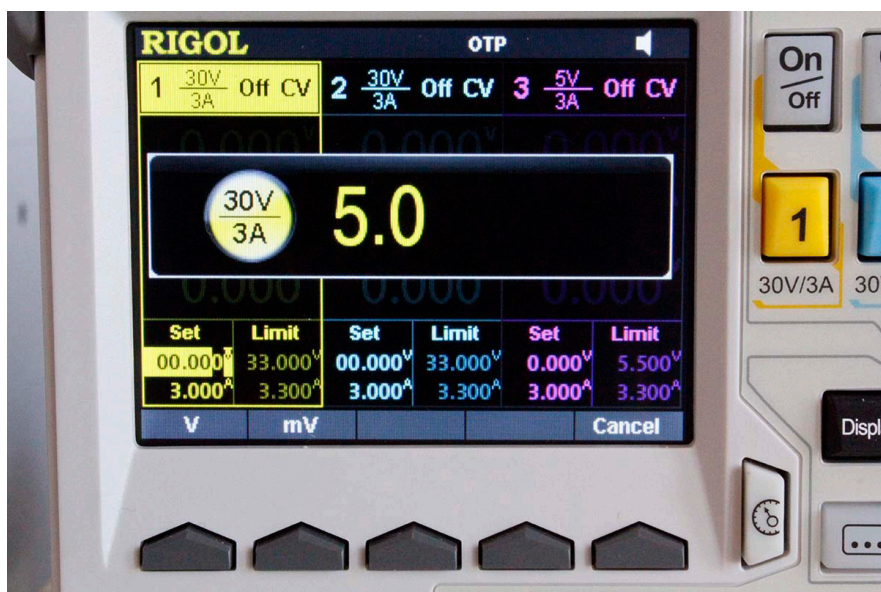
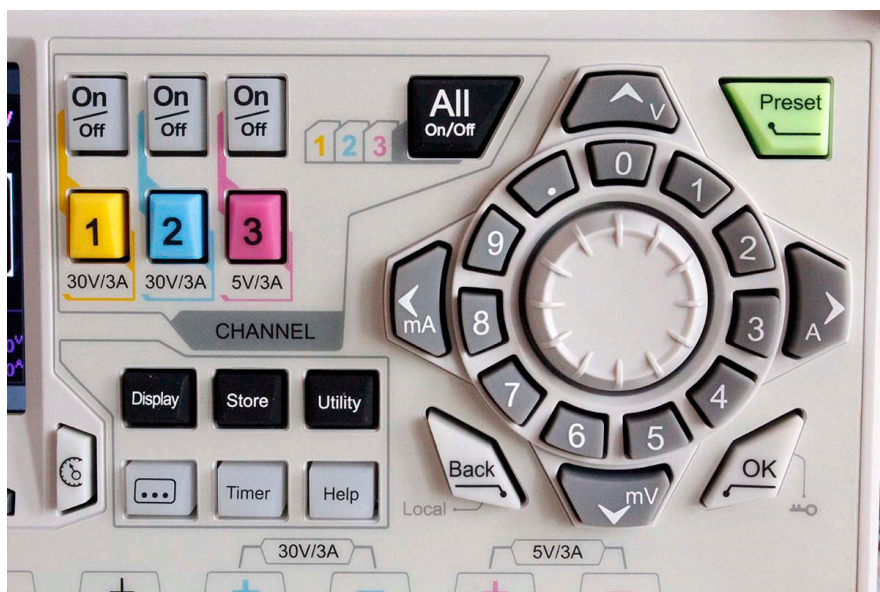


3. Press the "Voltage" soft key





4. Using the number buttons on the button wheel, enter the voltage you want (i.e. 5.0V)

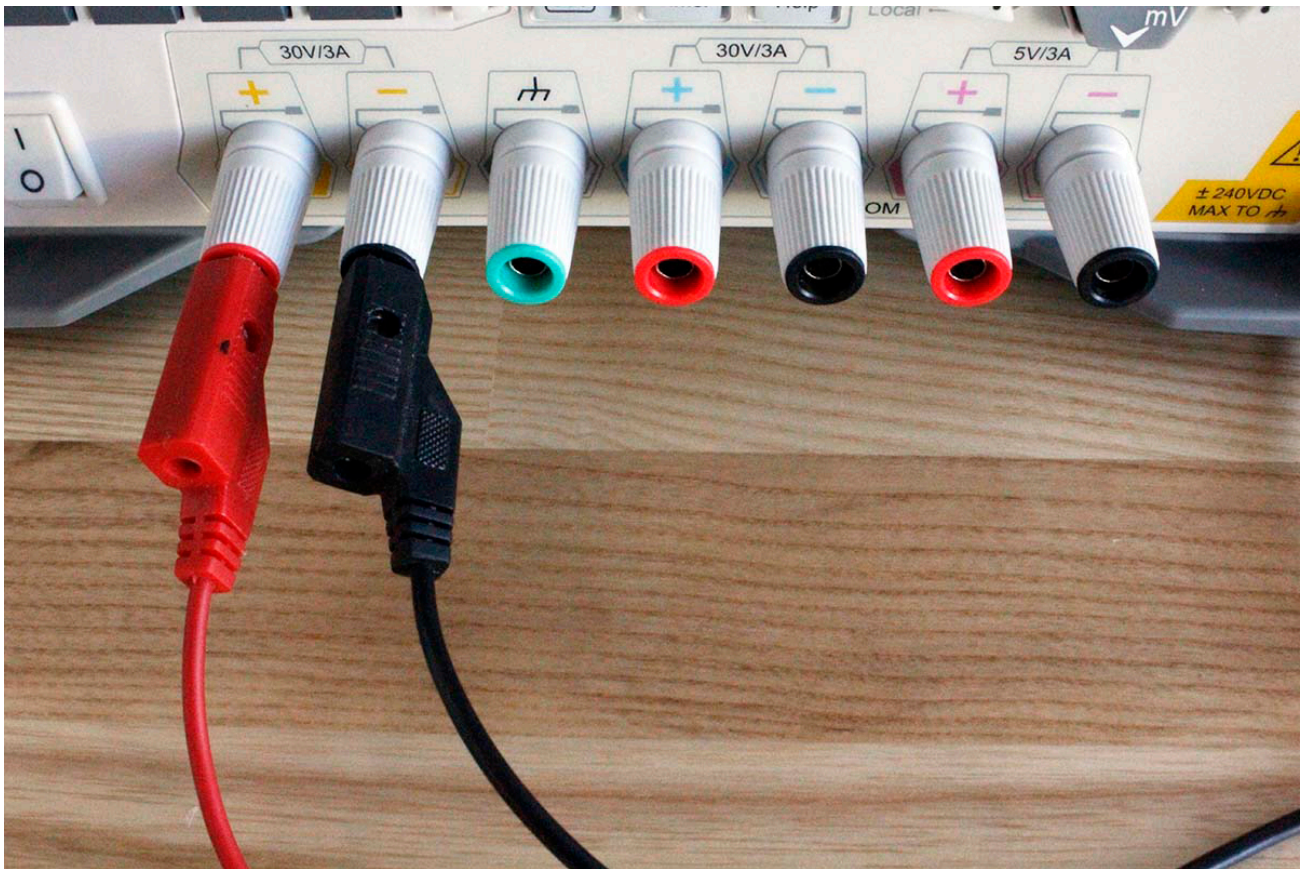


5. Press the “↑ V” button at the top of the button wheel

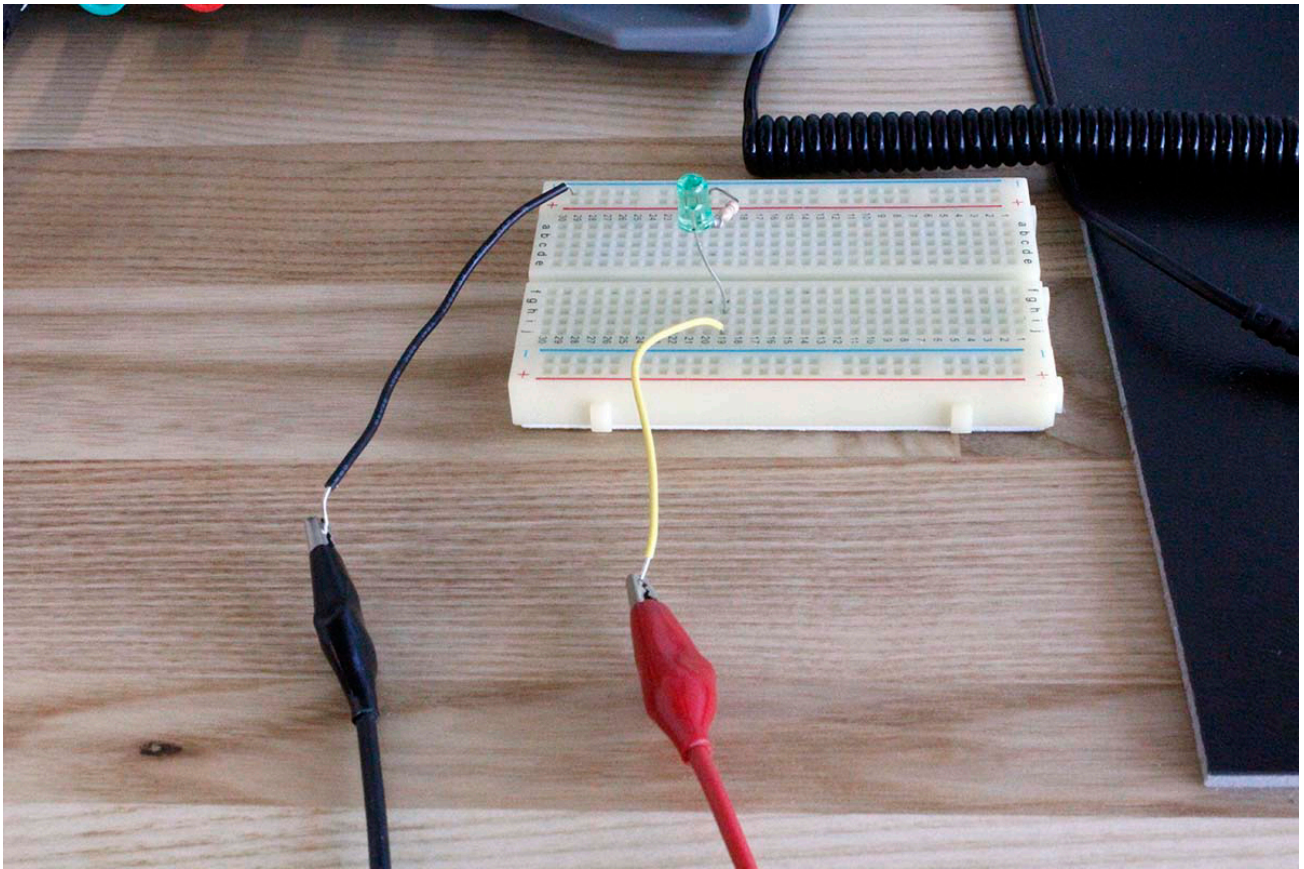




6. Plug in the leads to the power supply terminals



## 7. Attach your leads to your load/circuit





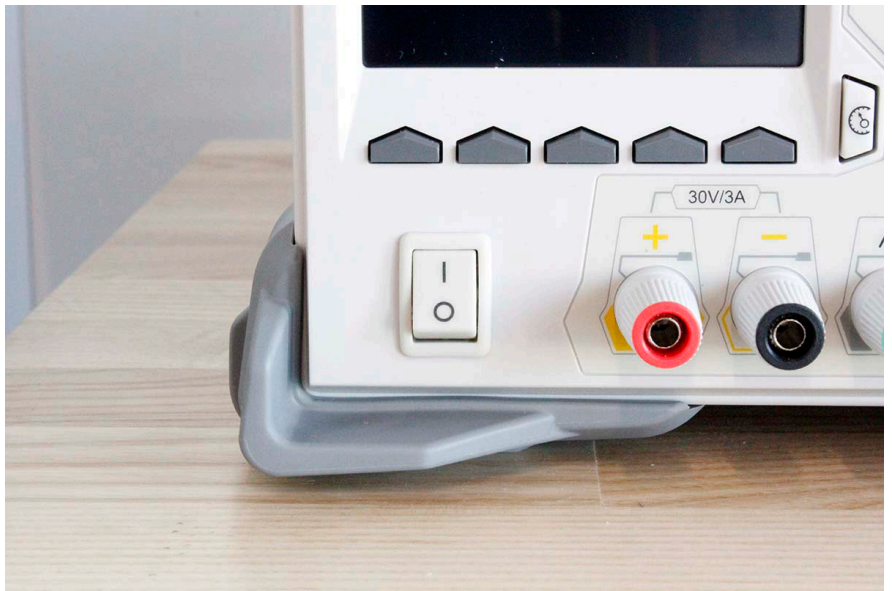
8. Press the ON/OFF button associated with your channel





## CONSTANT VOLTAGE METHOD 2

1. Turn on the power supply



2. Select which channel you wish to use (Ch. 1 – 3)

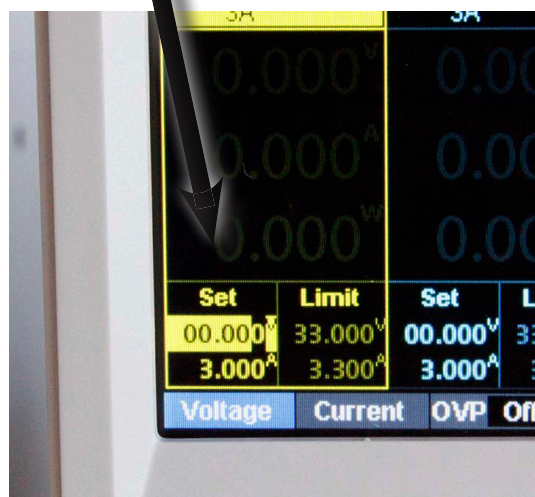


3. Press the "Voltage" soft key

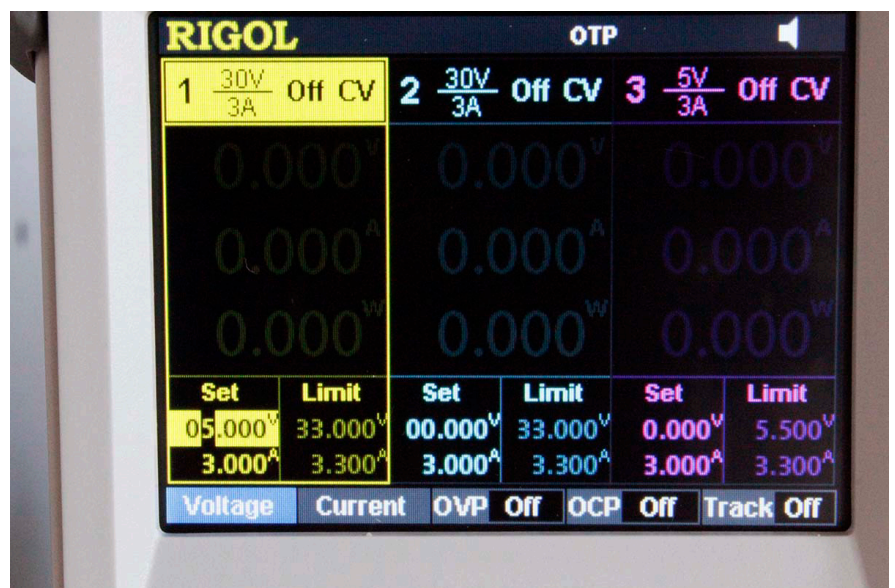
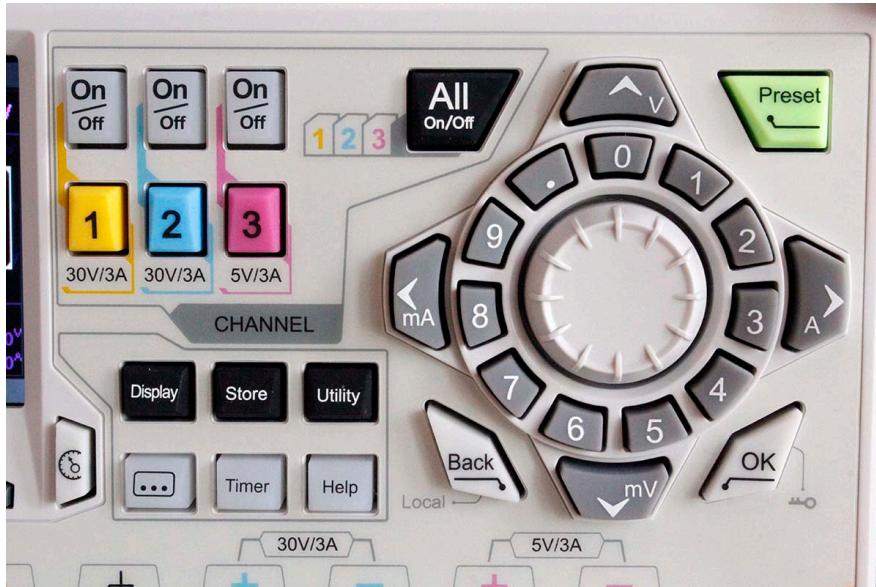




4. Press the “← mA” or “→ A” buttons to toggle which digit you want to adjust



5. Rotate the dial to increase/decrease the voltage for that digit (i.e. 5.000 for 5V)

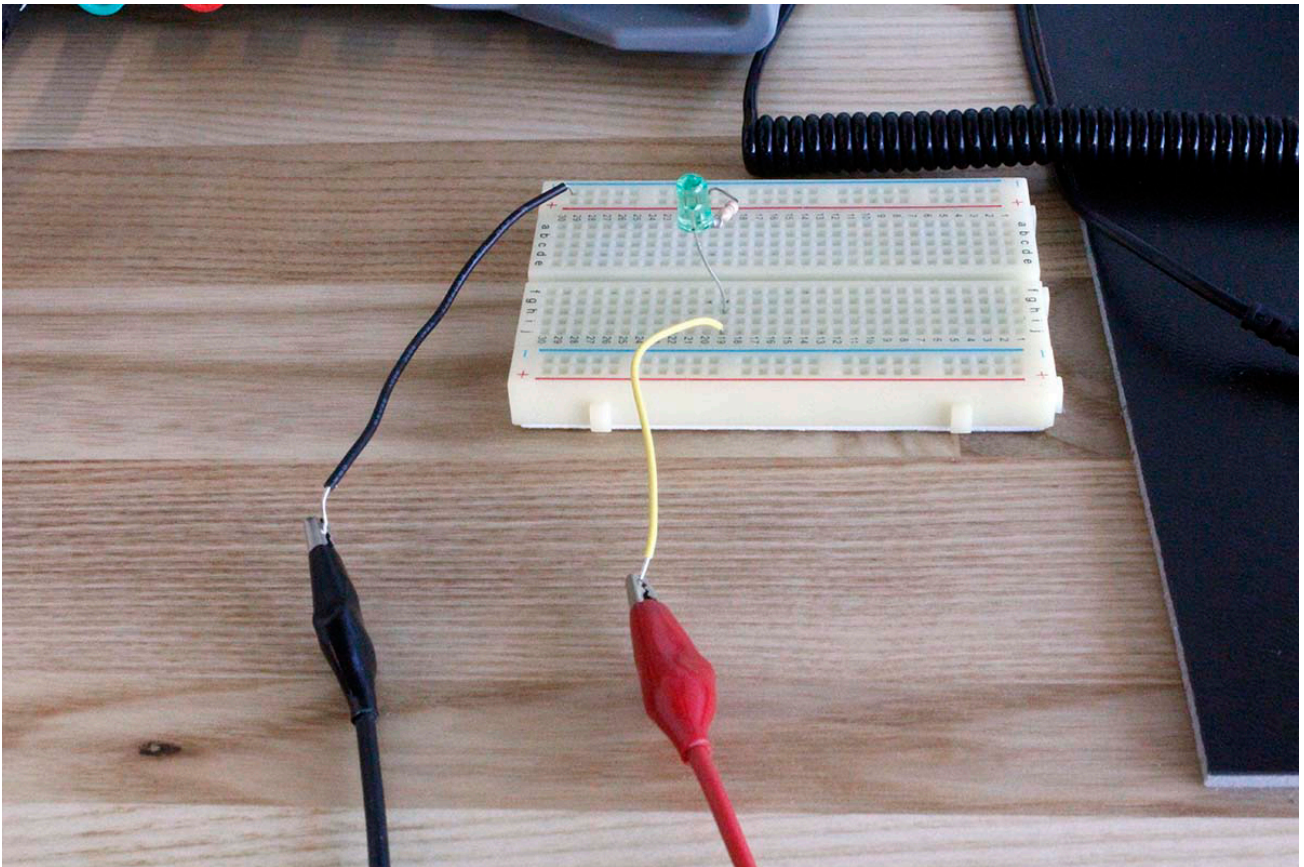




6. Plug in the leads to the power supply terminals



## 7. Attach your leads to your load/circuit





8. Press the ON/OFF button associated with your channel



# CONSTANT CURRENT

NOTE: It is highly recommended that you first set your Over Current Protection (OCP) limits BEFORE adjusting the current output levels and attaching your load/circuit to prevent damage to your circuit and prevent possible injury. (SEE: "OVER CURRENT PROTECTION")

# CONSTANT CURRENT METHOD 1

1. Turn on the power supply

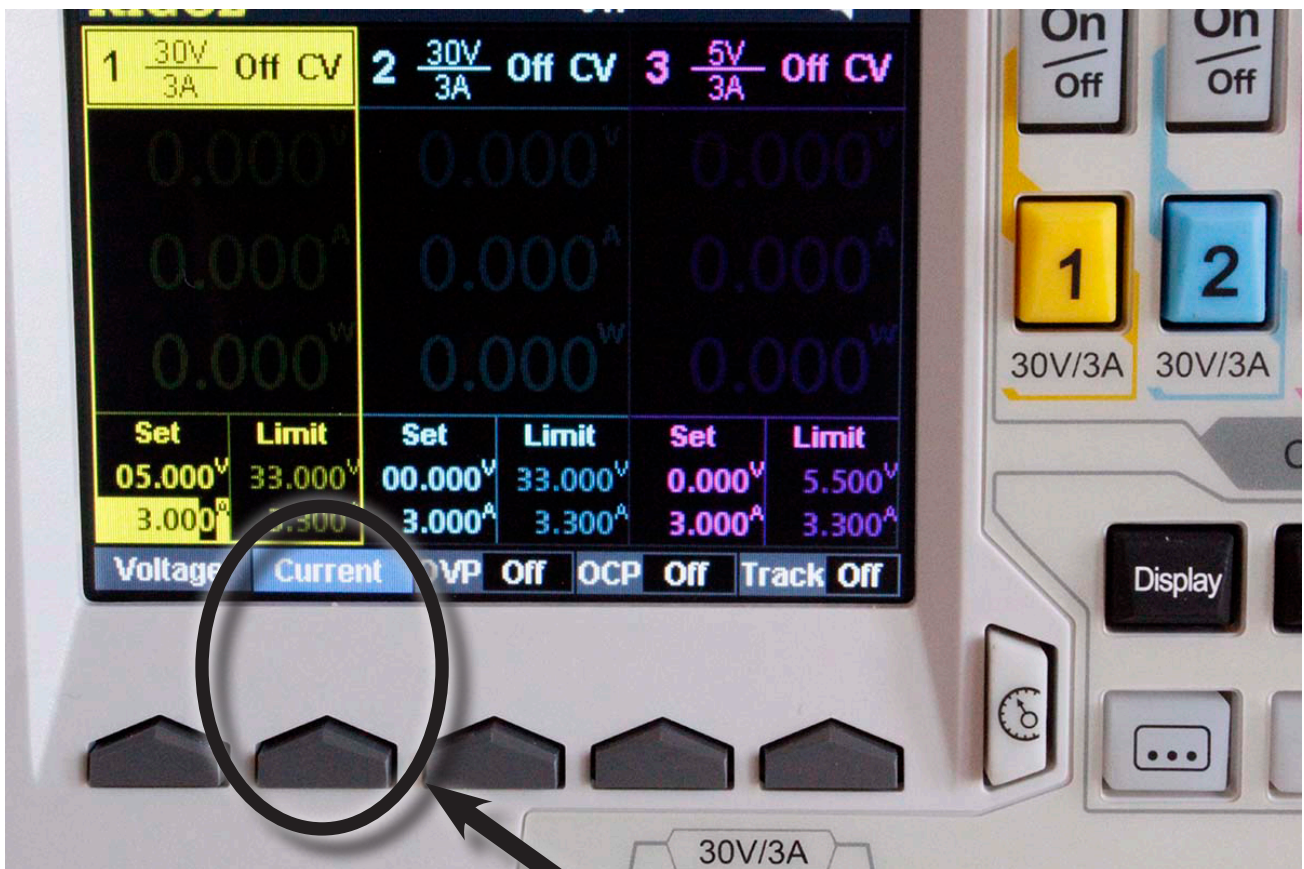




2. Select which channel you wish to use (Ch. 1 – 3)

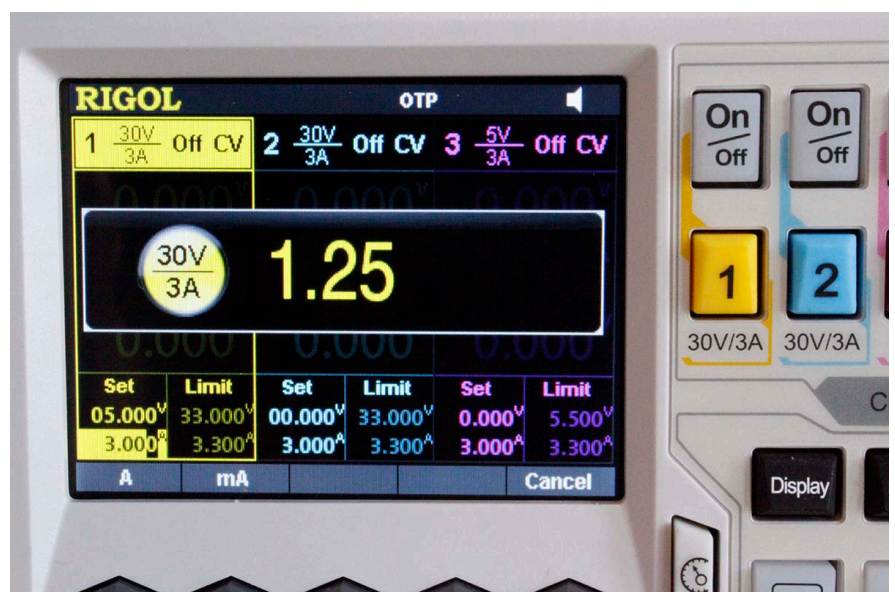
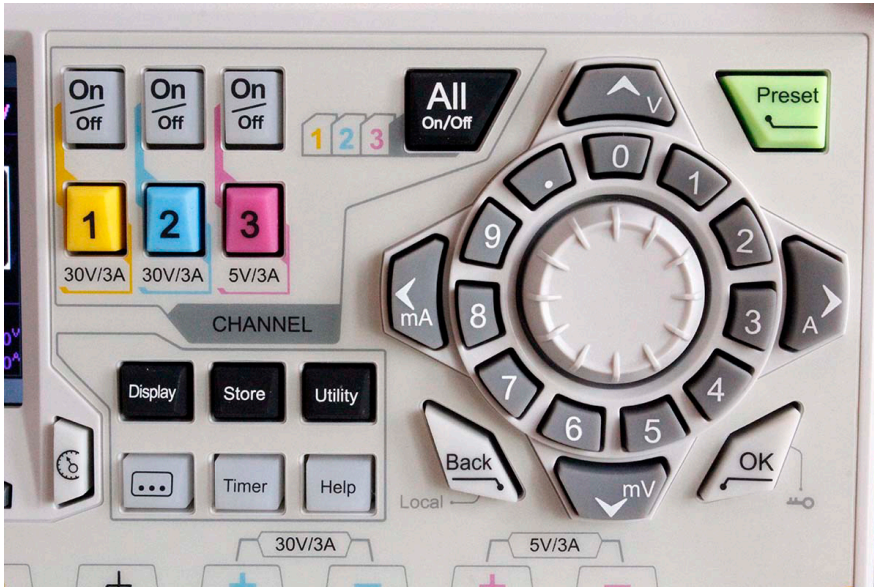


3. Press the "Current" soft key





4. Using the number buttons on the button wheel, enter the current you want (i.e. 1.25A)

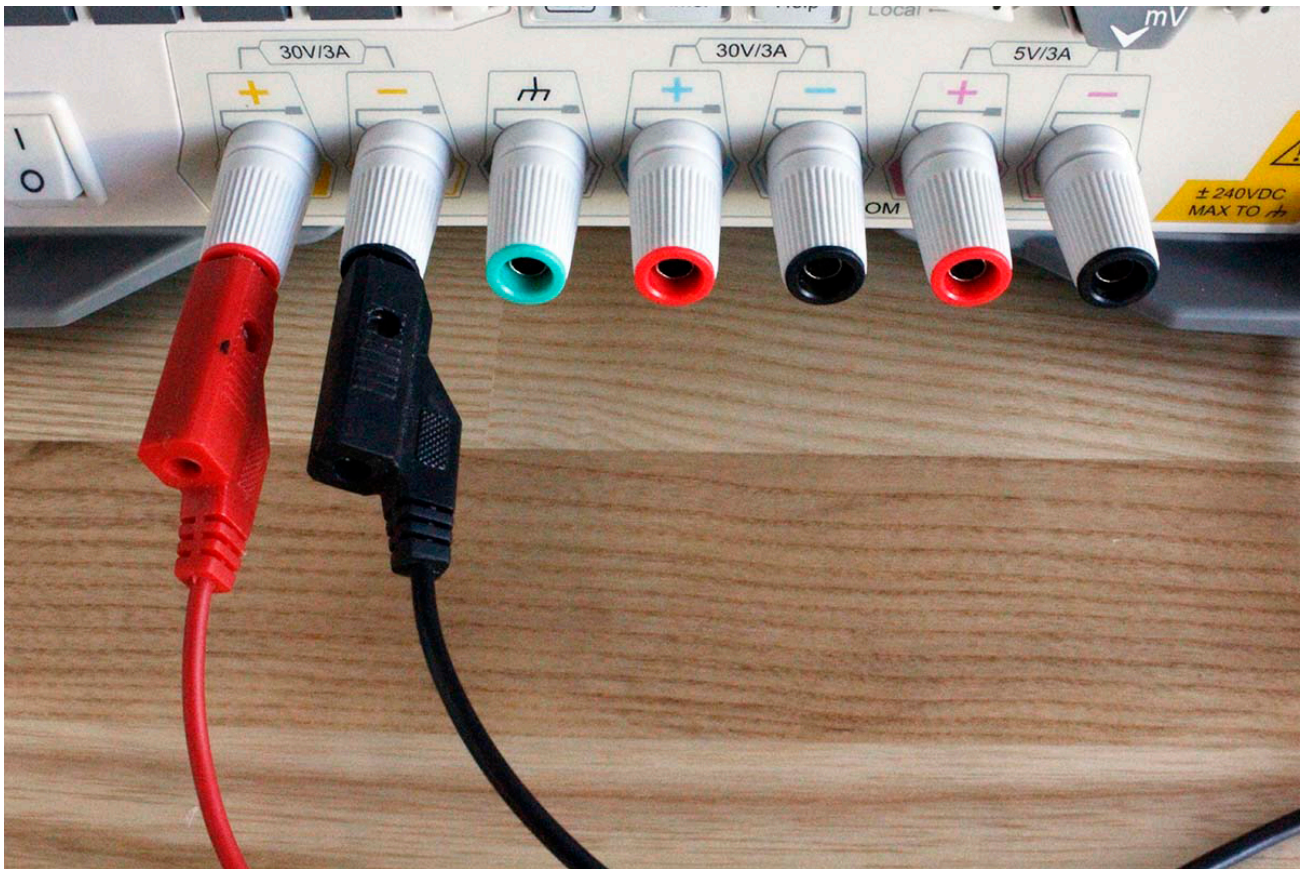


5. Press the “→ A” button at the right of the button wheel

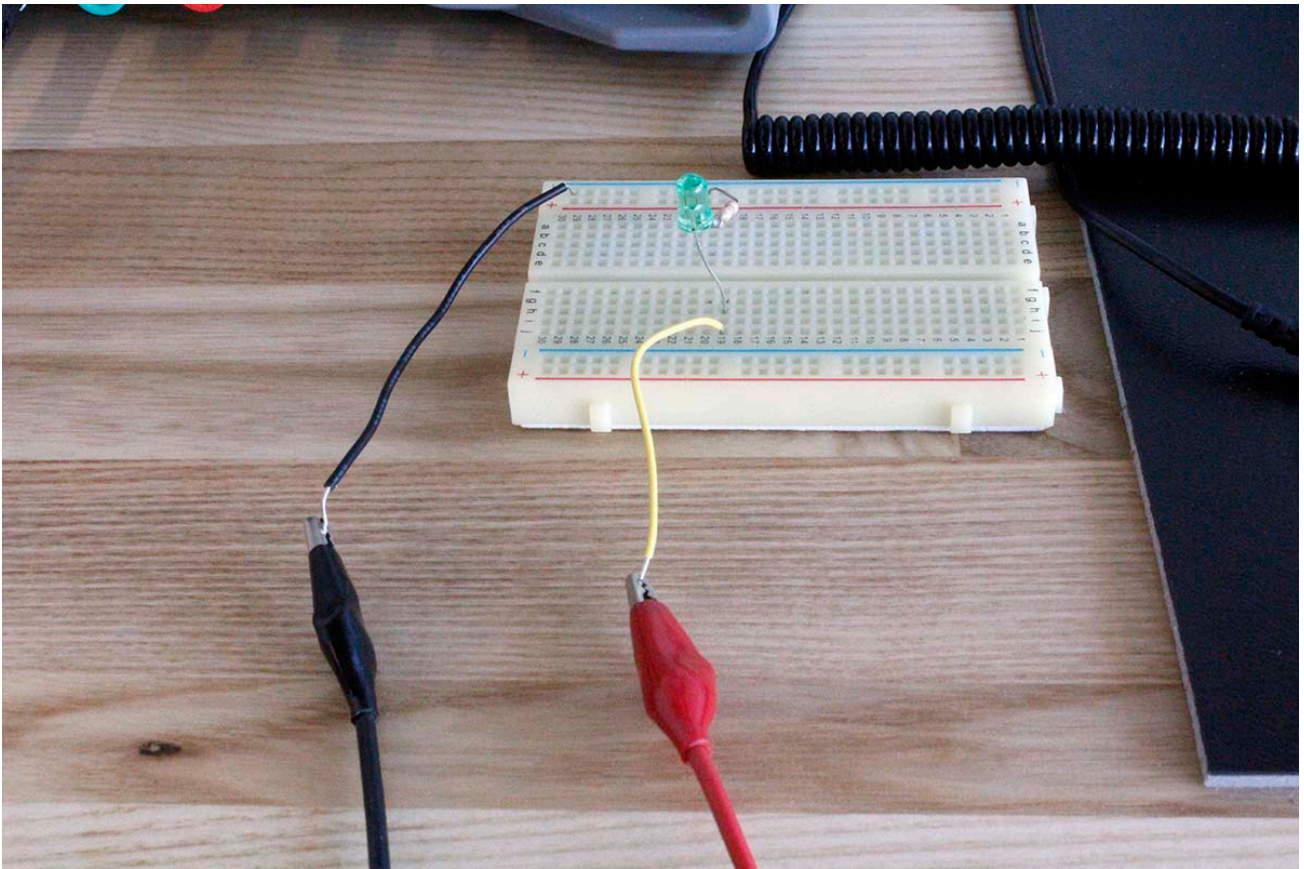




6. Plug in the leads to the power supply terminals



## 7. Attach your leads to your load/circuit





8. Press the ON/OFF button associated with your channel



## CONSTANT CURRENT METHOD 2



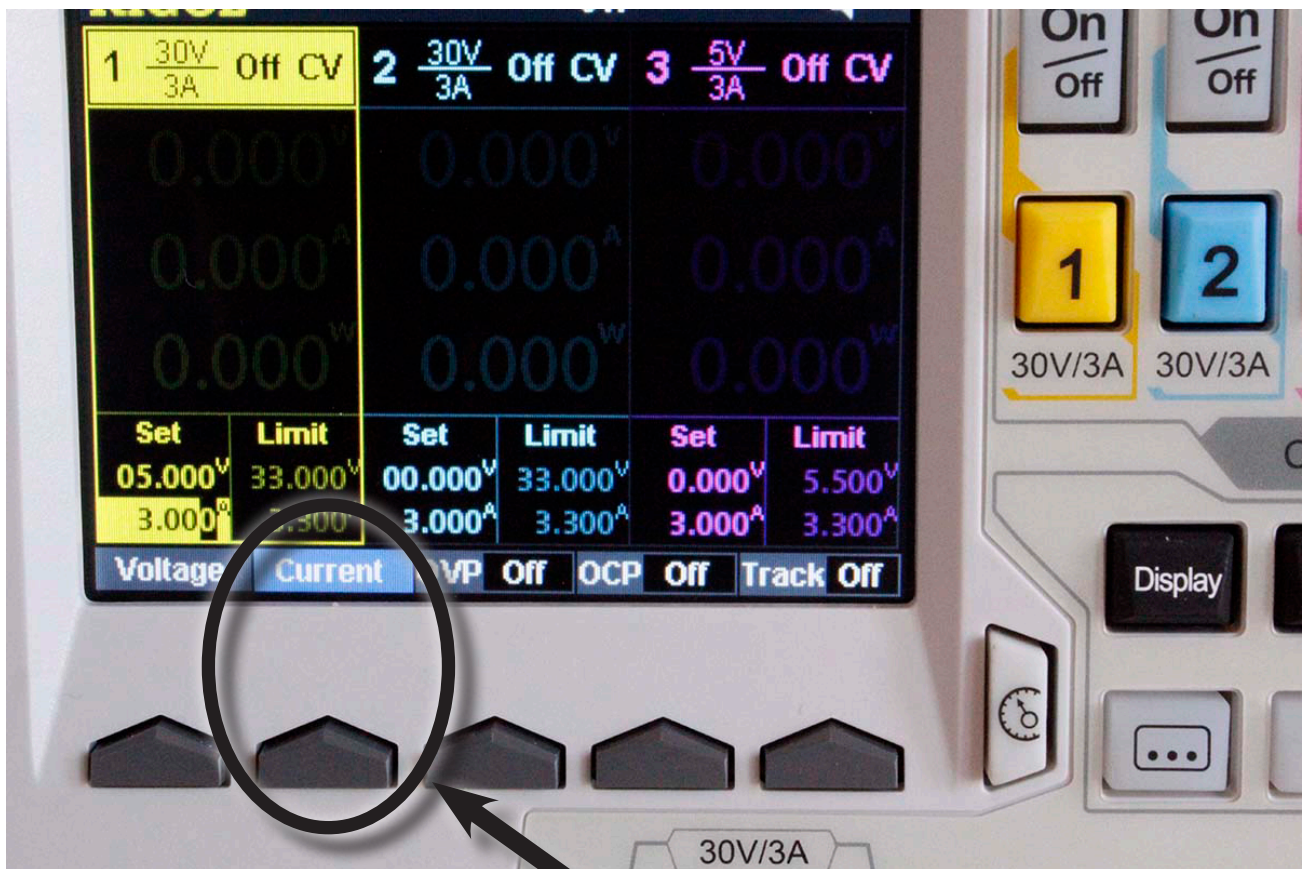
1. Turn on the power supply



2. Select which channel you wish to use (Ch. 1 – 3)

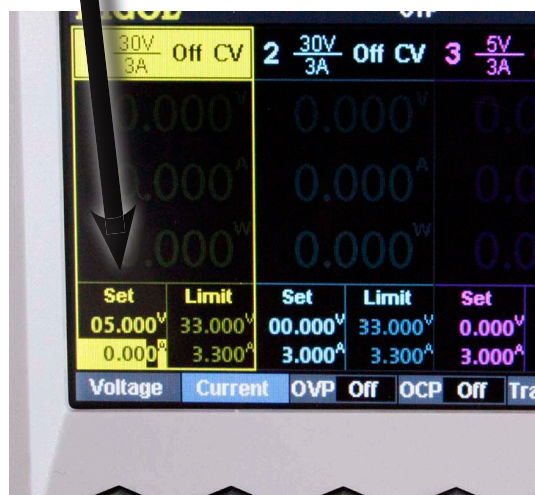
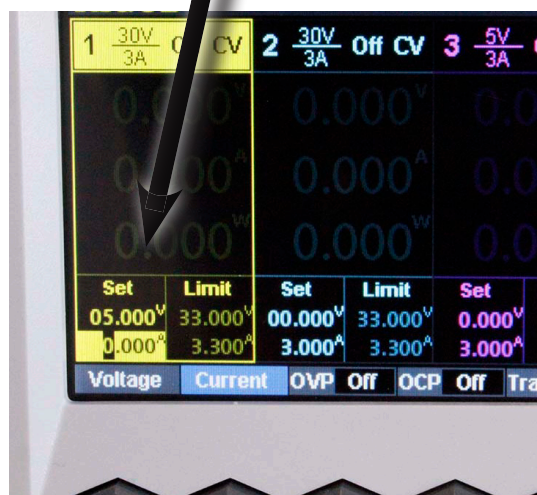


3. Press the "Current" soft key



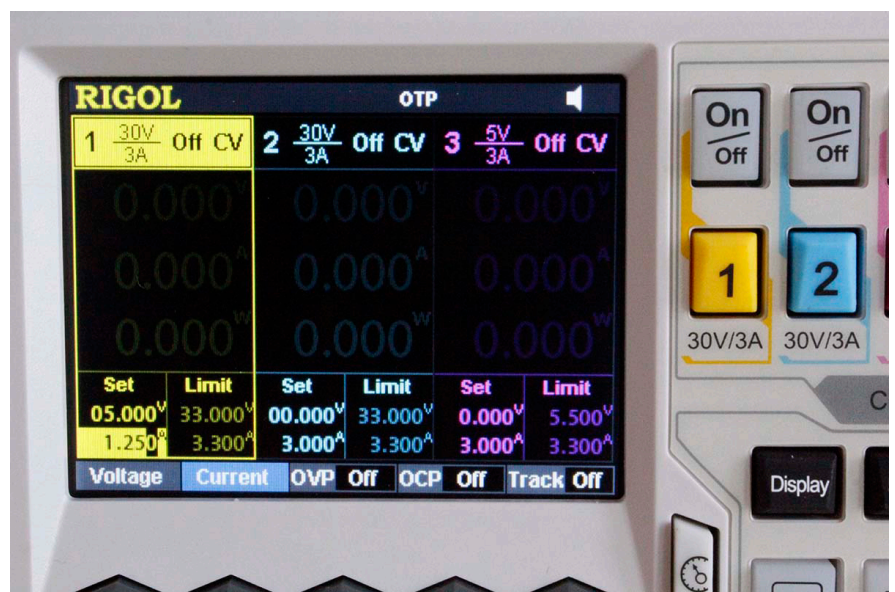
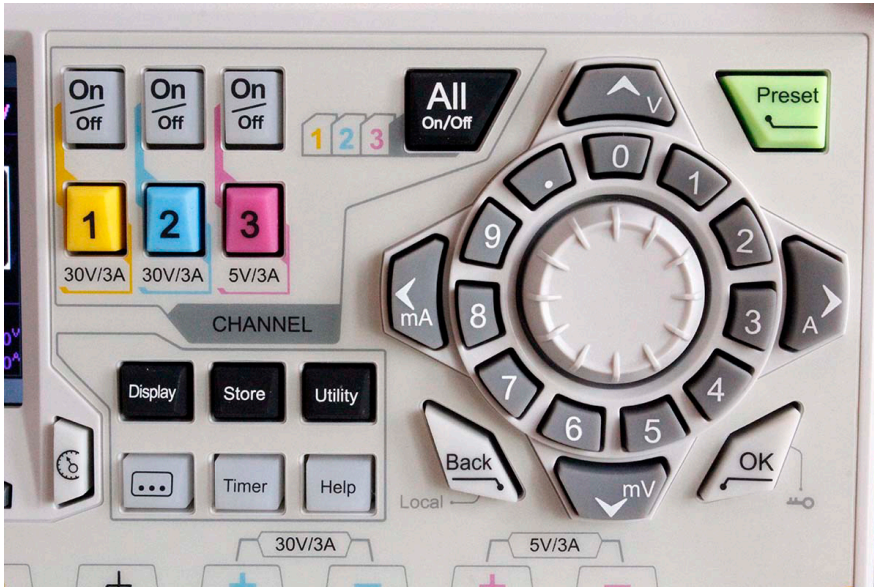


4. Press the “← mA” or “→ A” buttons to toggle which digit you want to adjust

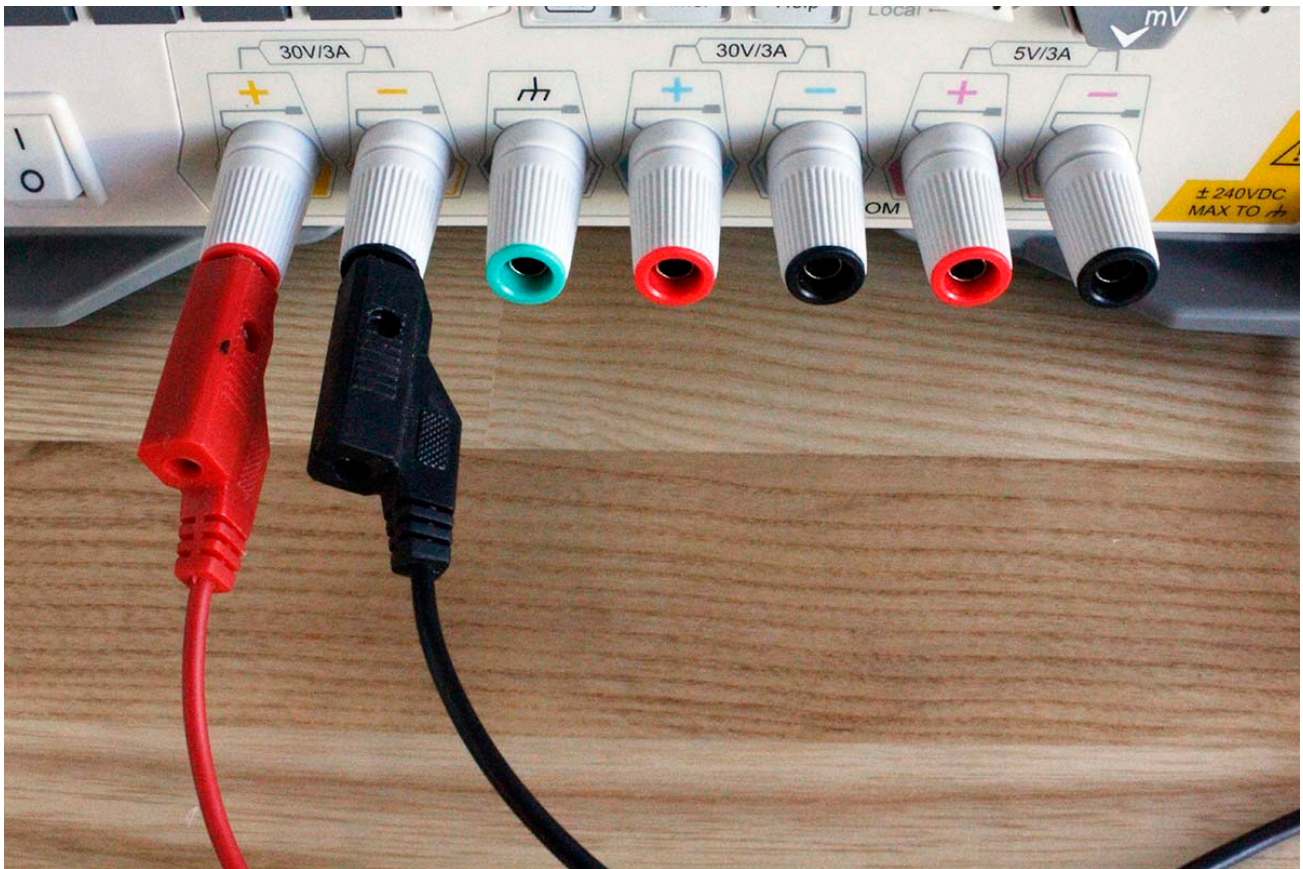




5. Rotate the dial to increase/decrease the current for that digit (i.e. 1.250 for 1.25A)

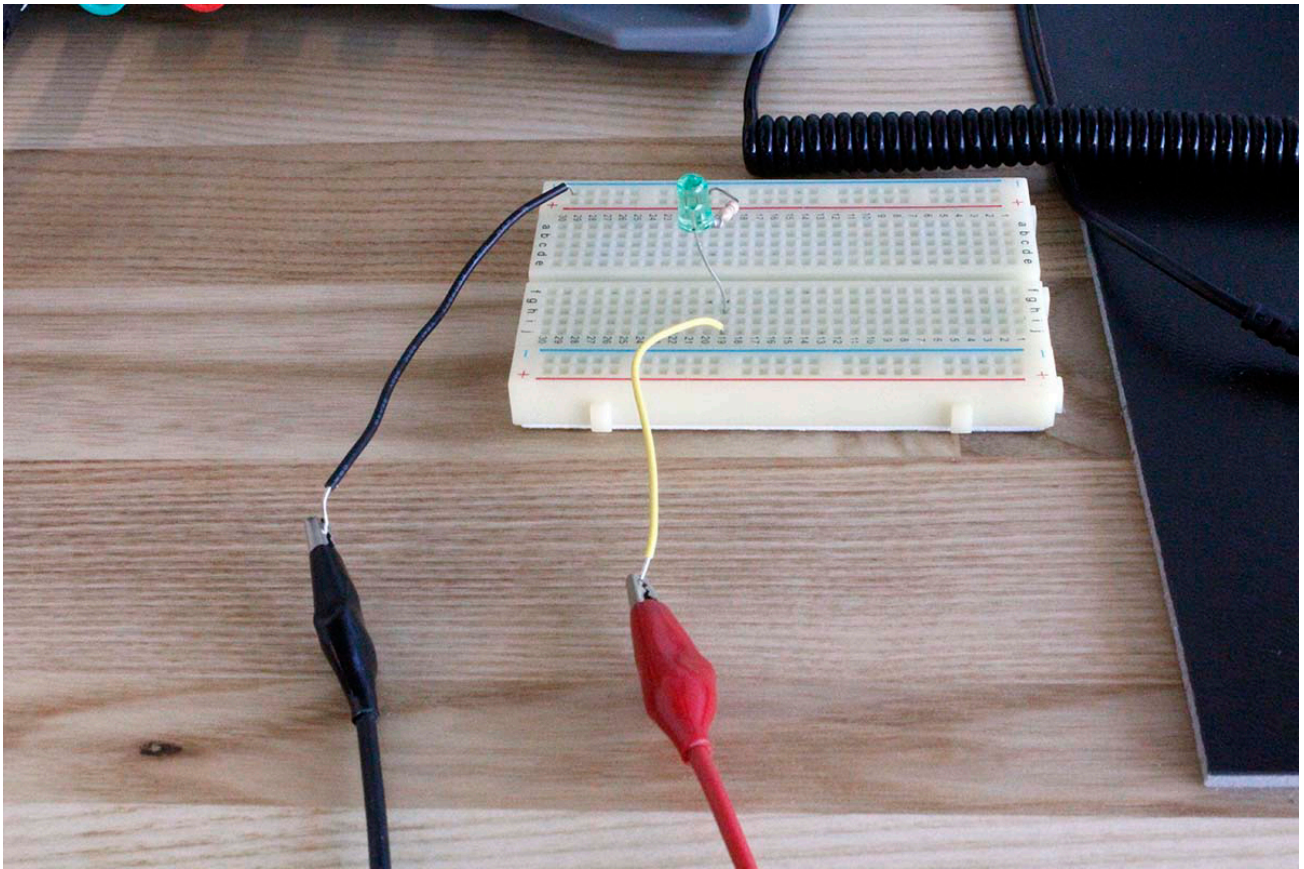


6. Plug in the leads to the power supply terminals





## 7. Attach your leads to your load/circuit



8. Press the ON/OFF button associated with your channel





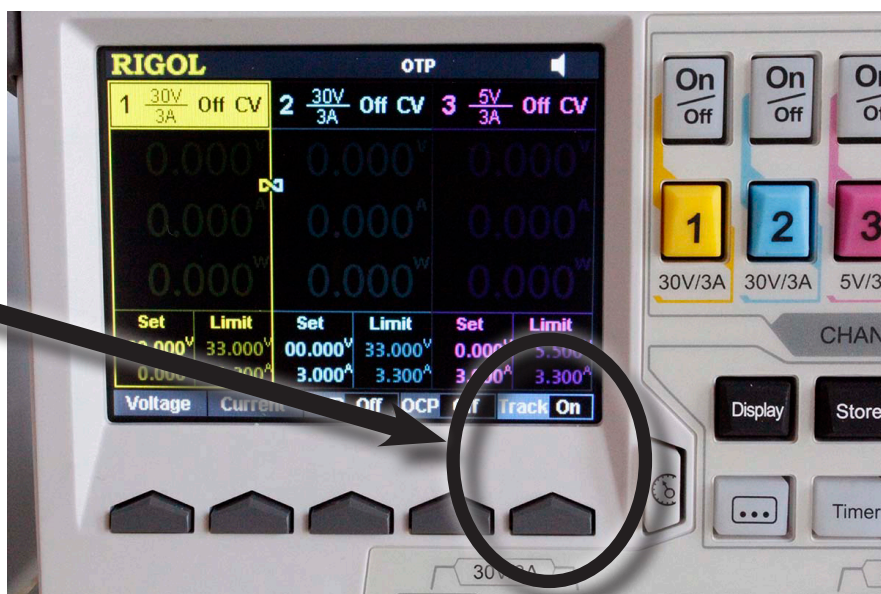
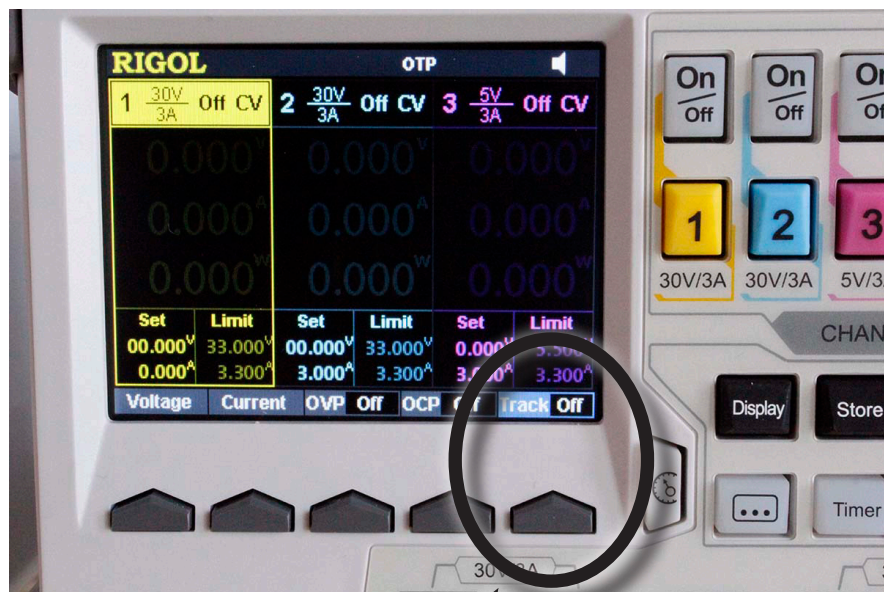
# VOLTAGE TRACKING

Voltage tracking is a function that synchronizes the voltage output for channels 1 and 2. When tracking is engaged, changing the voltage output level of one channel will change the voltage output level of the other channel to be the same voltage. This feature is helpful for applications such as Operational Amplifiers (OpAmps).

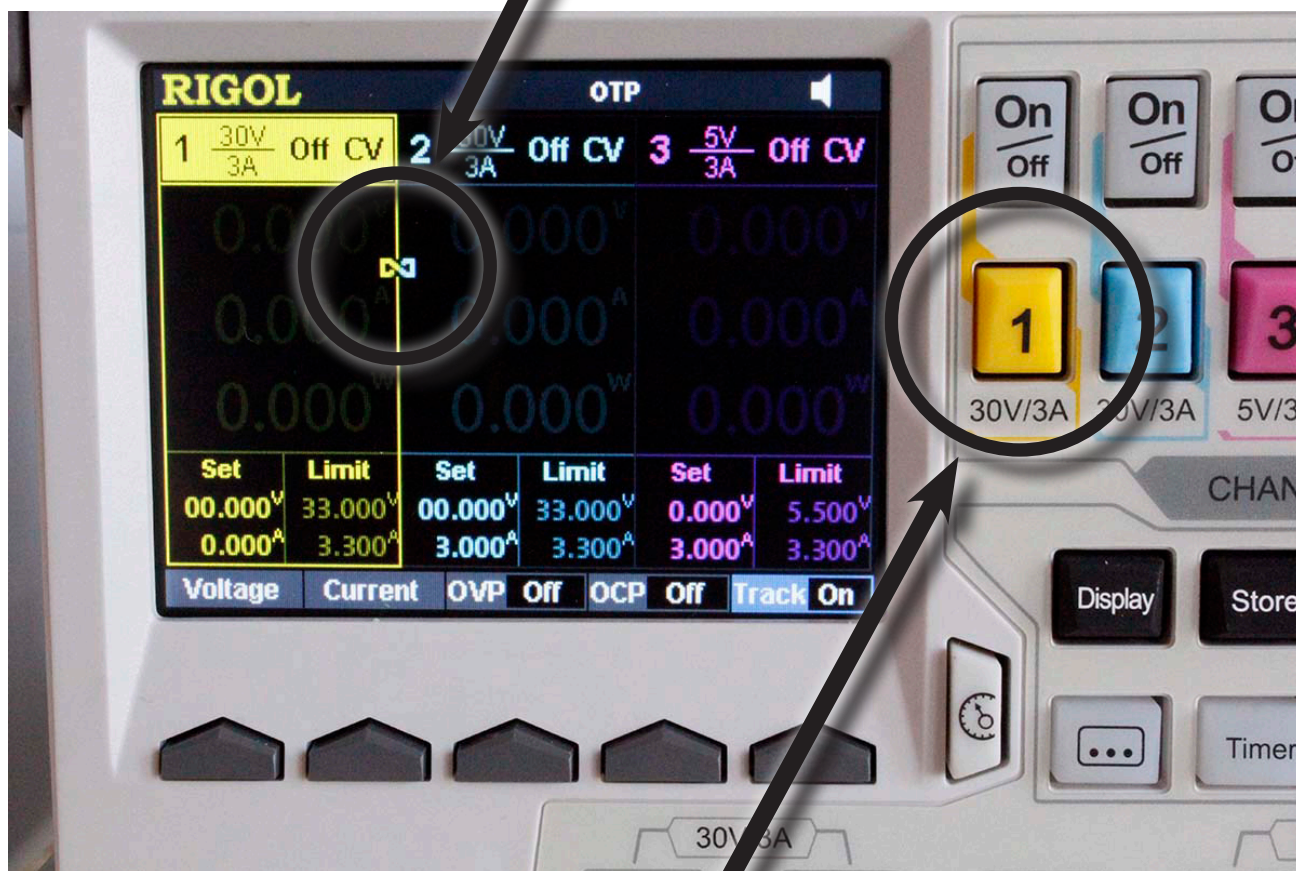
1. Turn on the power supply



2. Press the "Track" soft key twice to turn the feature on

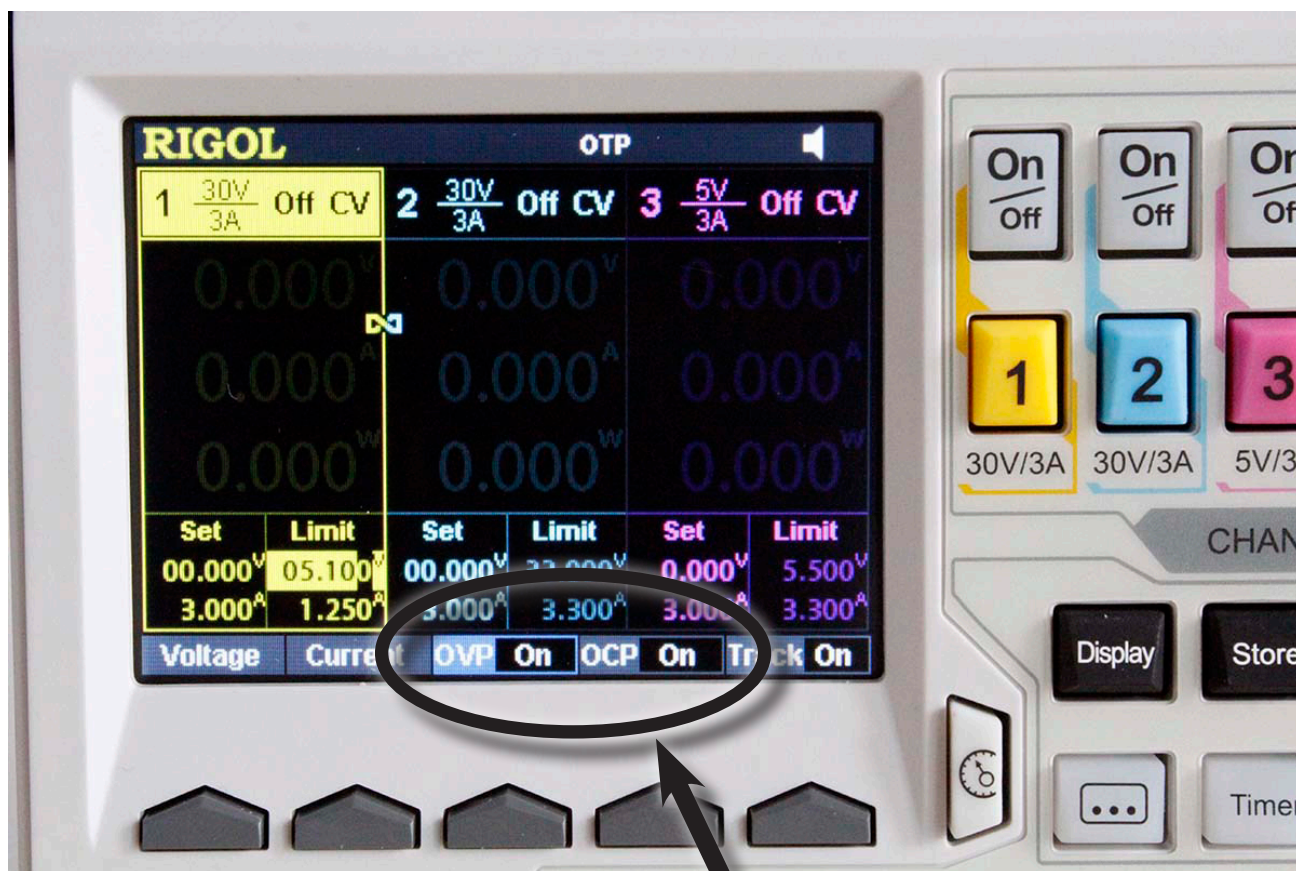


3. Select Channel 1 (Note the “link” icon on the screen connecting channel 1 and channel 2)

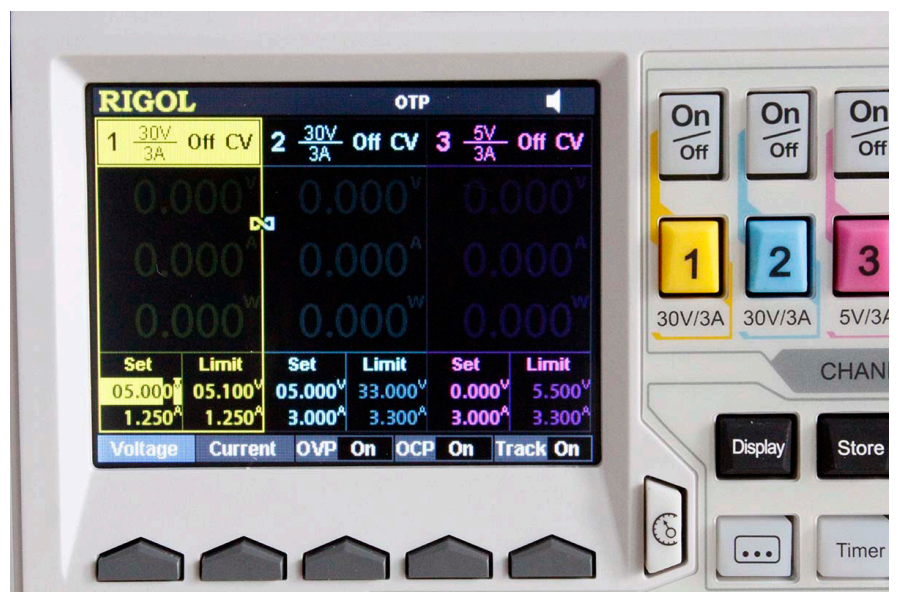
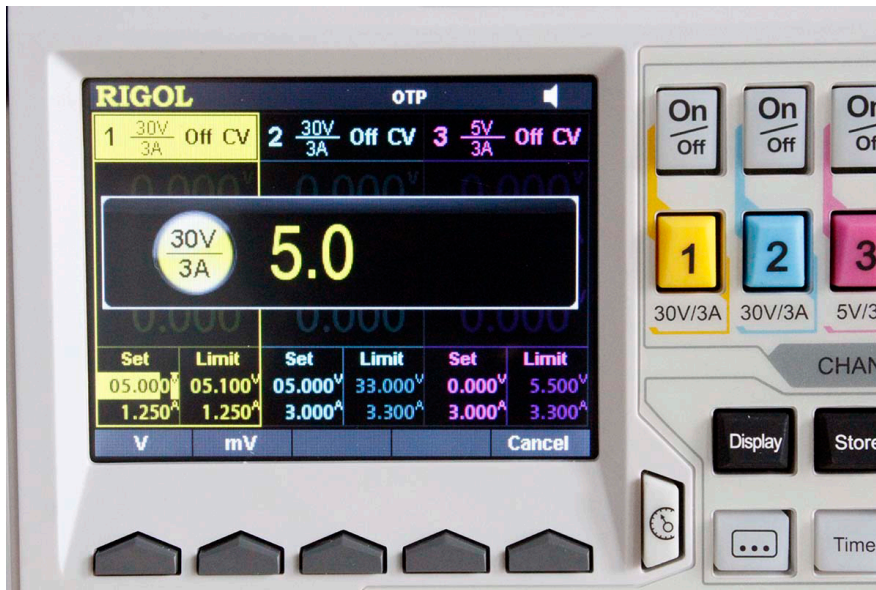




4. Set your OVP and OCP (SEE "OVER VOLTAGE/CURRENT PROTECTION")



## 5. Set your voltage (SEE "CONSTANT VOLTAGE")

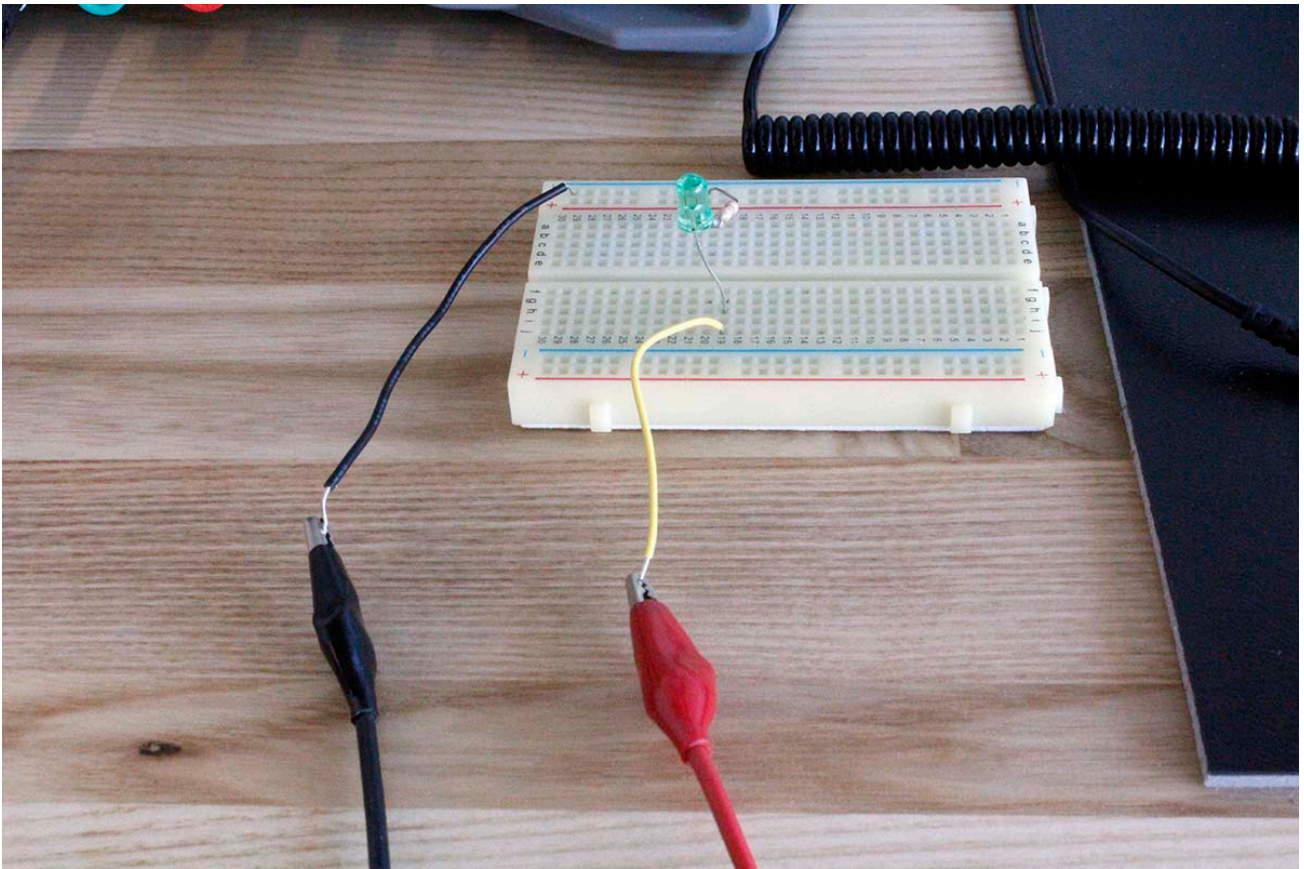




6. Plug in the leads to the power supply terminals



## 7. Attach your leads to your load/circuit





8. Press the ON/OFF buttons for Channel 1 and Channel 2. Changing the voltage for either channel will result in the same change in the linked channel

