



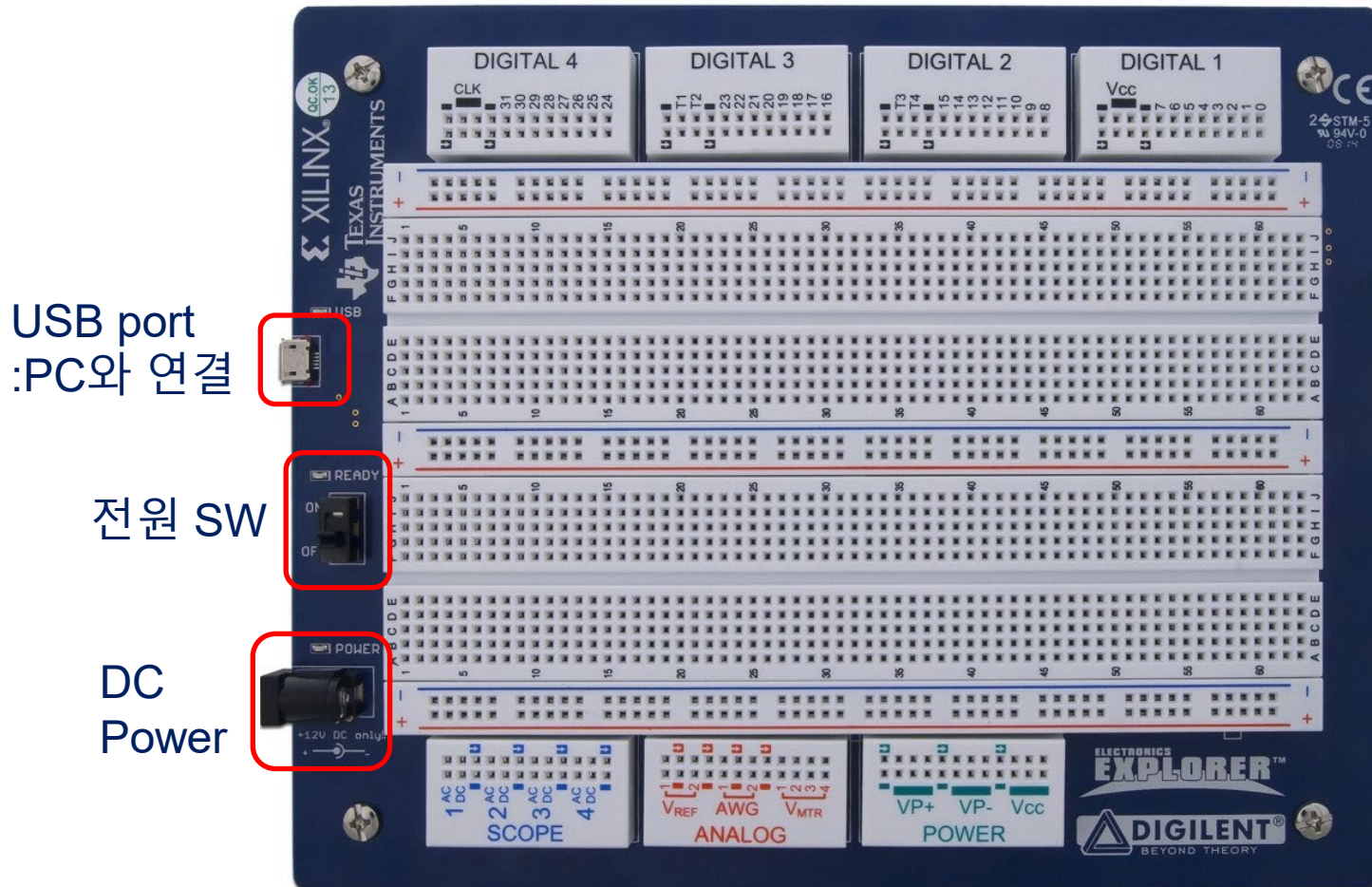
# EEboard 보드 사용법 익히기

**Shinwoong Kim**

# EEboard

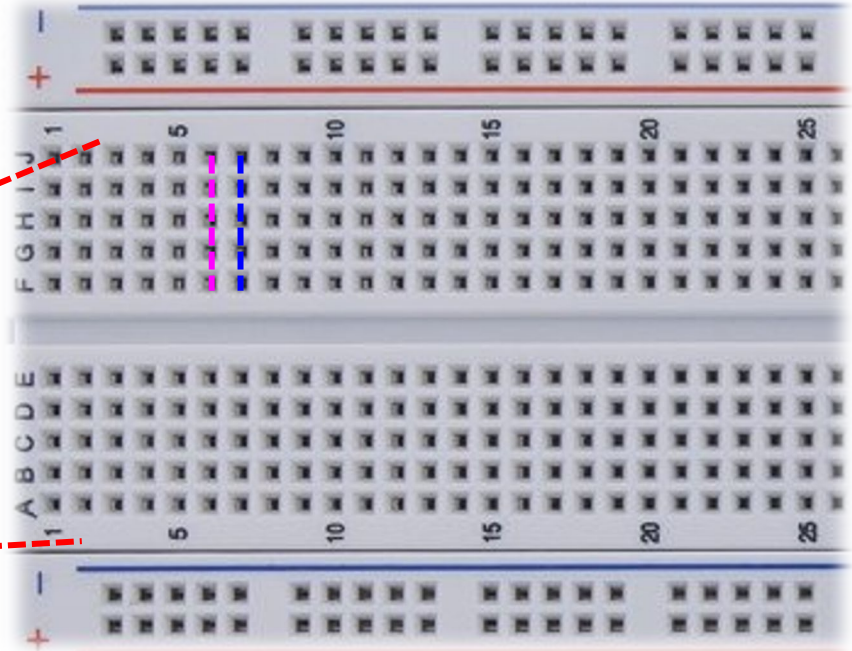
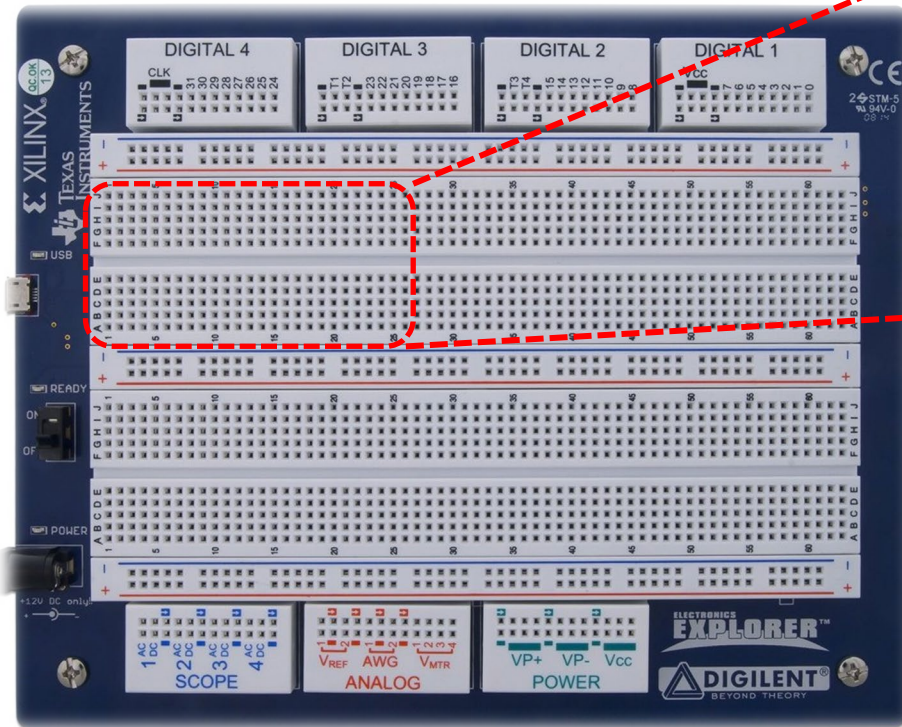
- **Electronic Explore Board**

✓ 일반 브레드 보드 + 유용한 기능(DC전원, 신호생성, 측정, 디지털 등)



# EEboard

- Board 연결도
  - ✓ 일반 배선용

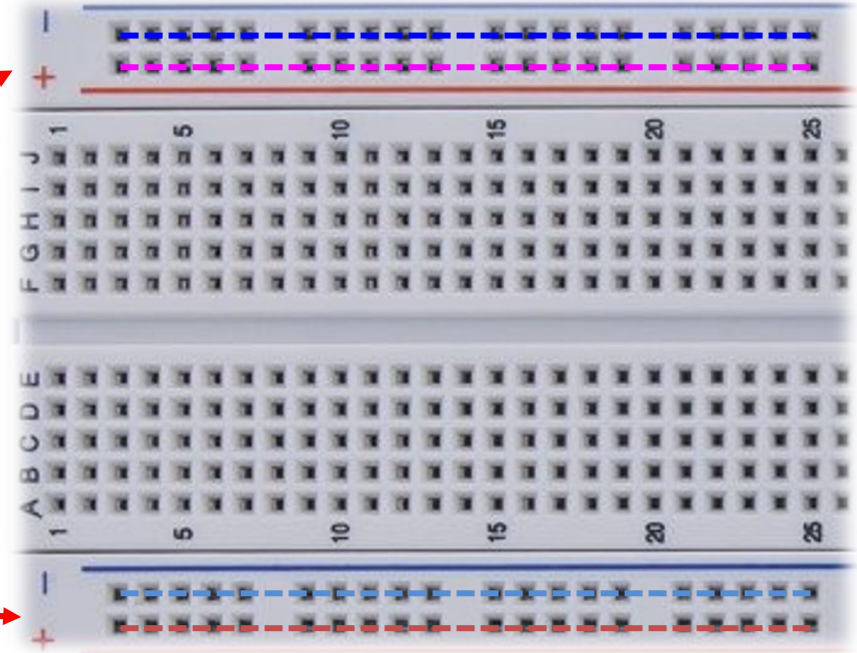
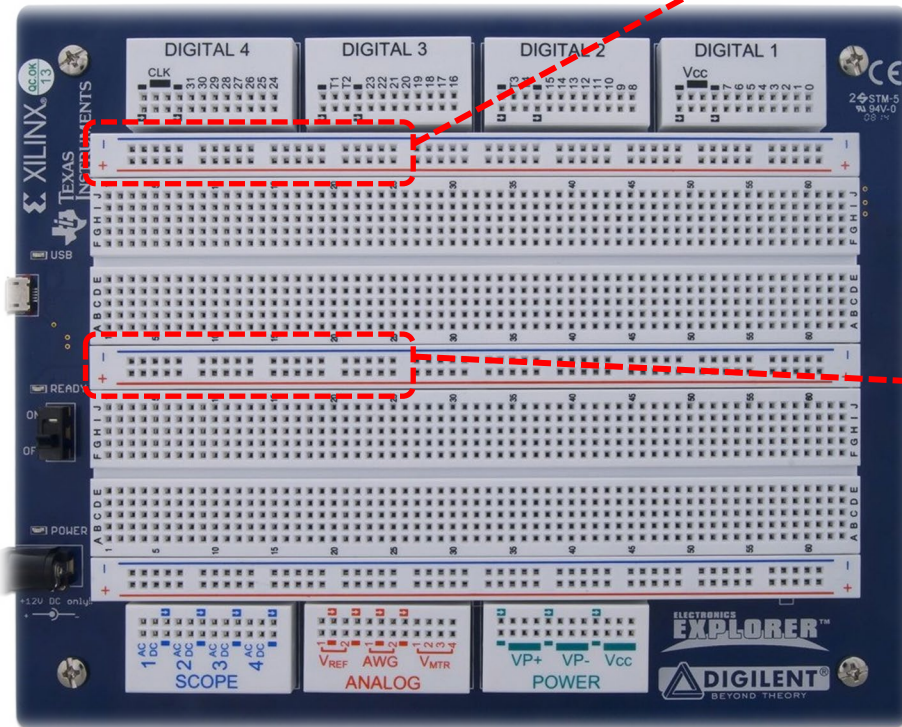


- ✓ 각 5칸 씩은 서로 연결 O  
→ Short 되어 있음
- ✓ 그러나, 서로 다른 라인 간에는 연결 X



# EEboard

- Board 연결도  
✓ 전원 배선용



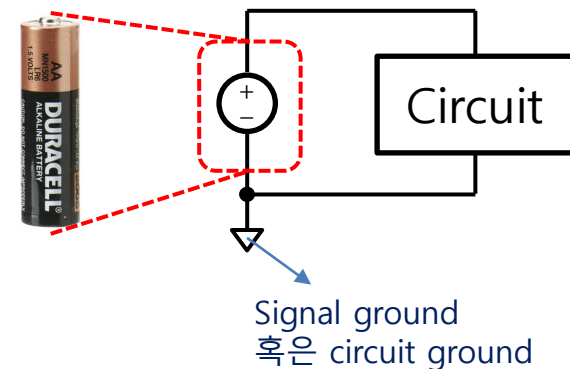
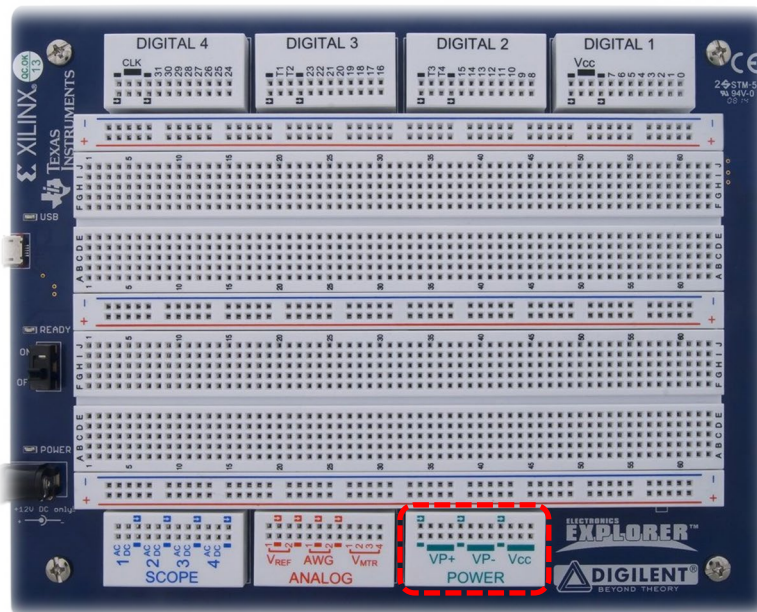
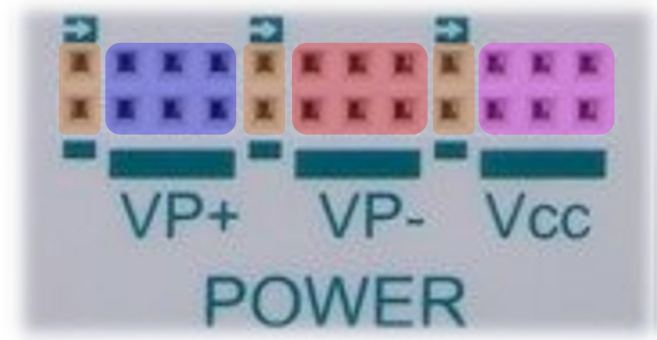
- ✓ 한 줄 전체가 서로 연결 O  
→ Short 되어 있음
- ✓ 그러나, 서로 다른 라인 간에는 연결 X

# EEboard

- Power supply 기능

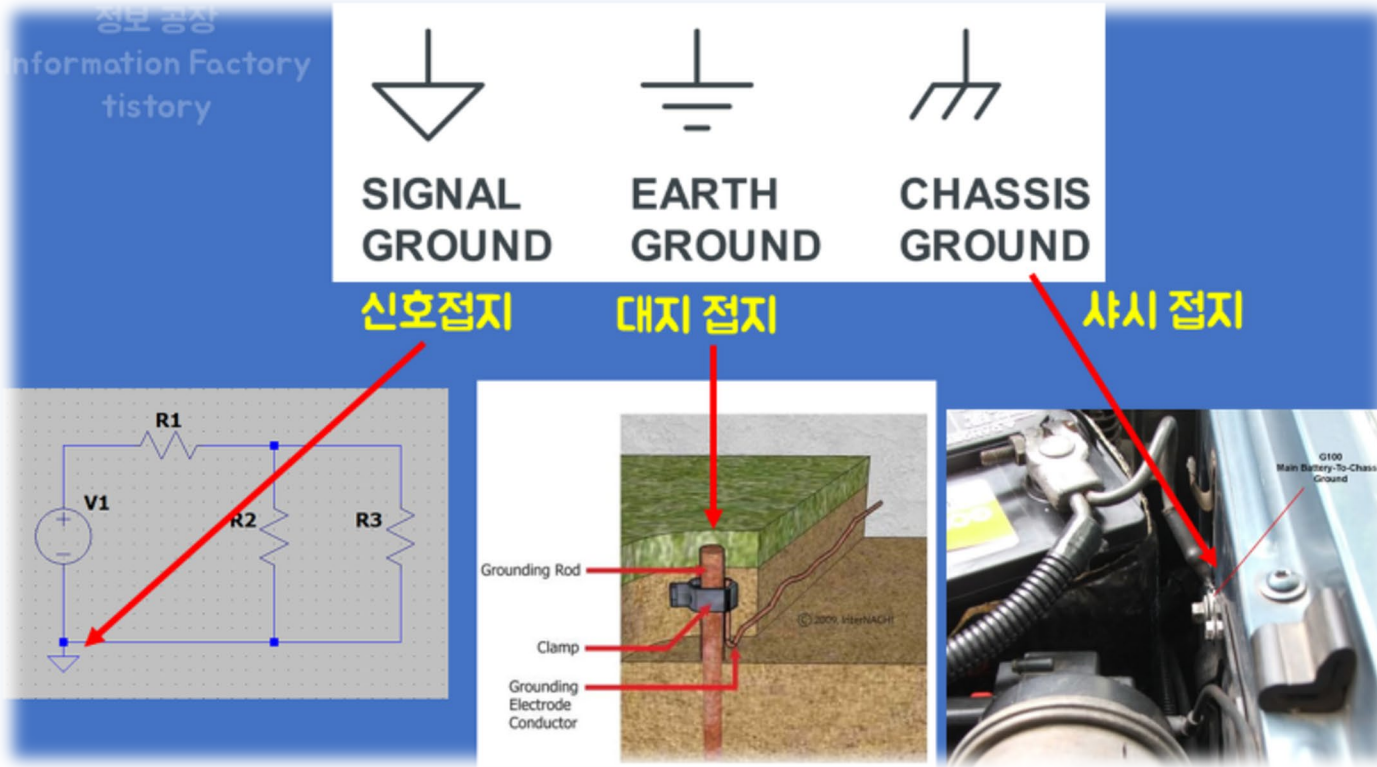
- ✓ DC 전압 생성 (3가지 종류 DC전압 생성 가능)

- **VP+** : (+) plus 전압
- **VP-** : (-) minus 전압
- **VCC** : +3.3V or +5V 고정
- **Signal ground** : 0V



# EEboard

- 그라운드 종류



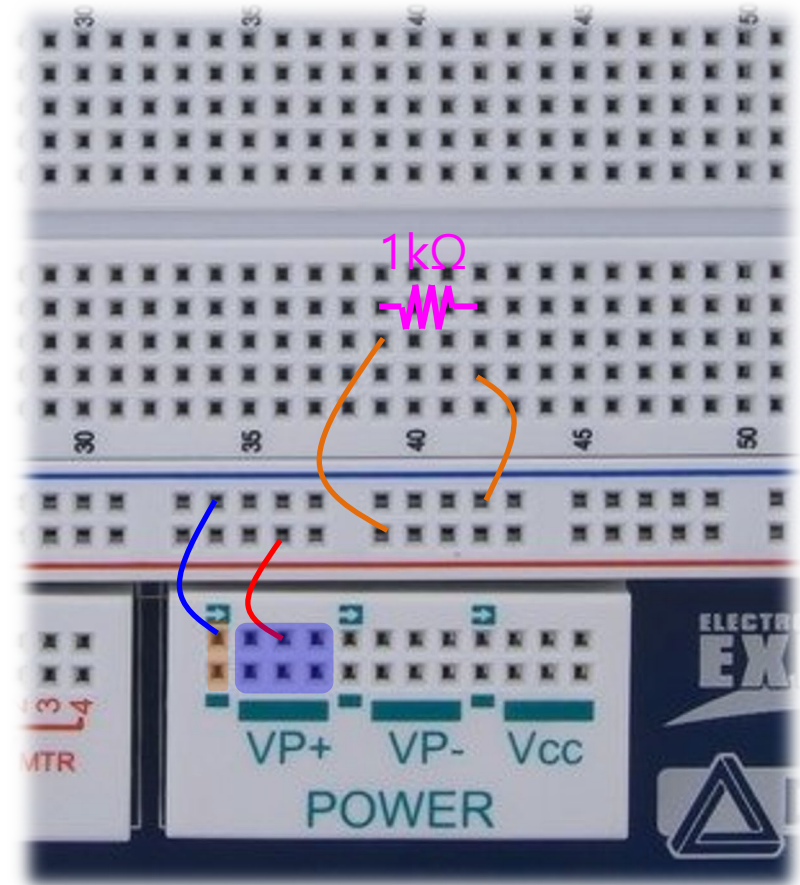
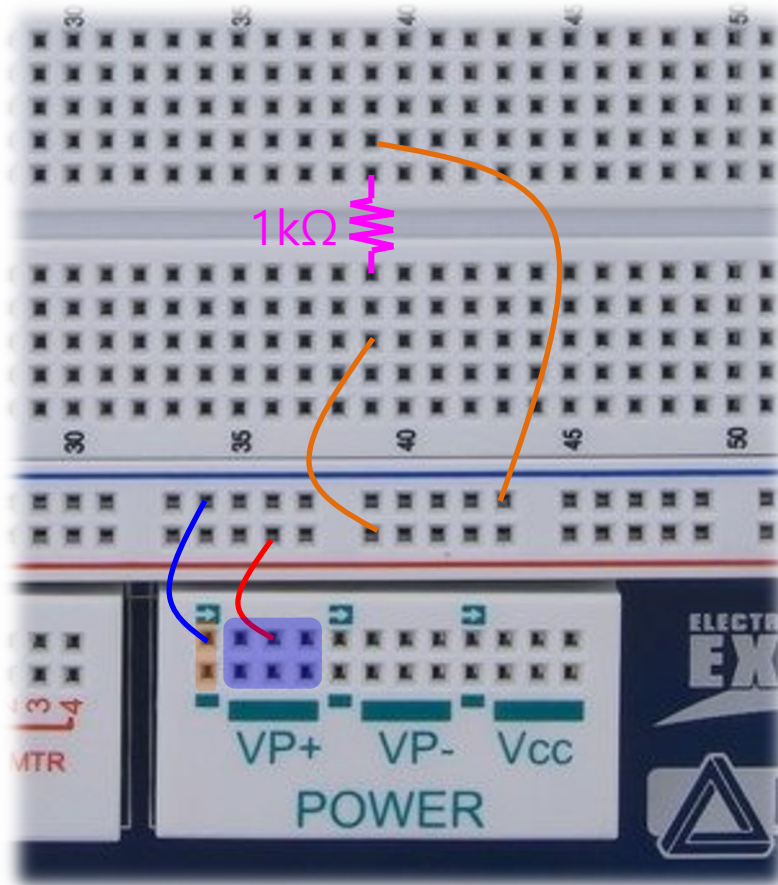
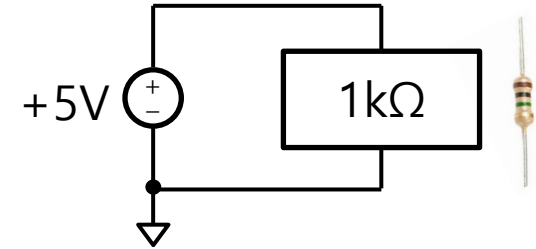
<https://information-factory.tistory.com/16>



# EEboard

- 회로 구성 예 (전원 전압 + 저항 로드)

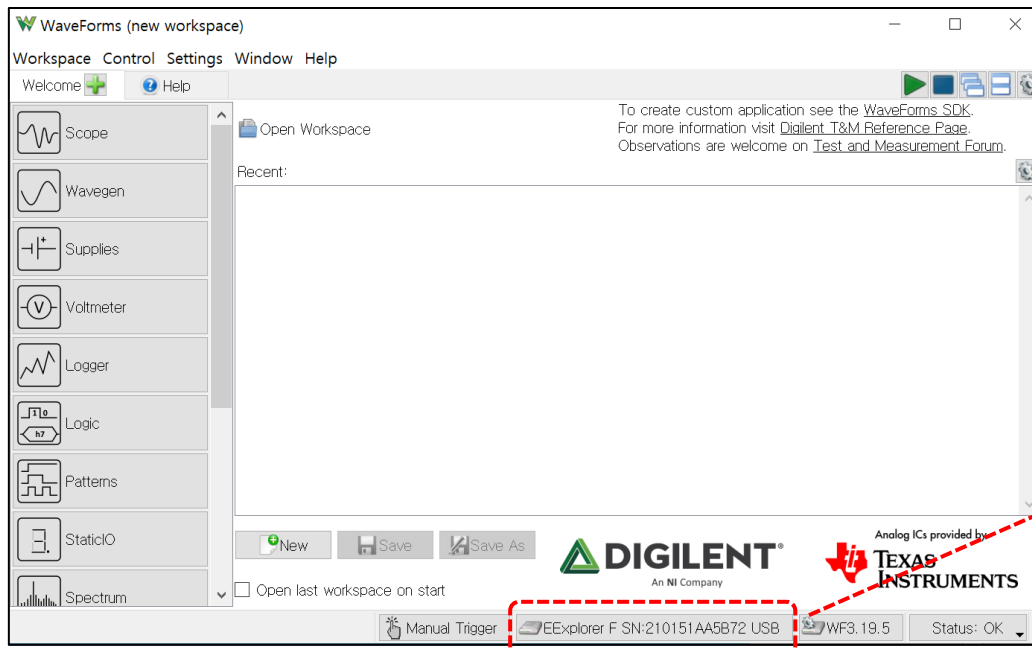
- ✓  $1\text{k}\Omega$  ( $1000\Omega$ ) 저항 1개에  $+5\text{V}$  전원을  
인가하여 직렬 회로를 구성하라



# WaveForms

- EEBoard 제어 소프트웨어

✓ <https://digilent.com/shop/software/digilent-waveforms/>



1. EEboard를 PC에 연결

2. SW on

✓ LED 확인 (READY에 녹색 불)

3. EEboard 시리얼 넘버 뜨면 정상



# WaveForms

## • DC 전원 인가

- ✓ Supplies 클릭 → 사용하고 싶은 DC source 선택 및 설정

The screenshot shows the WaveForms software interface. On the left, the 'Supplies' icon is highlighted with a red dashed box. The main window displays the 'Supplies' configuration panel. A pink arrow points to the 'Positive Supply (VP+) Rdy' section, with a pink text box stating: '전류 제한 기능 : VP+가 허용할 수 있는 최대 전류 값 설정해주는 것'. The 'VP+ Rdy' checkbox is checked. Below this, a table lists power measurements for various components.

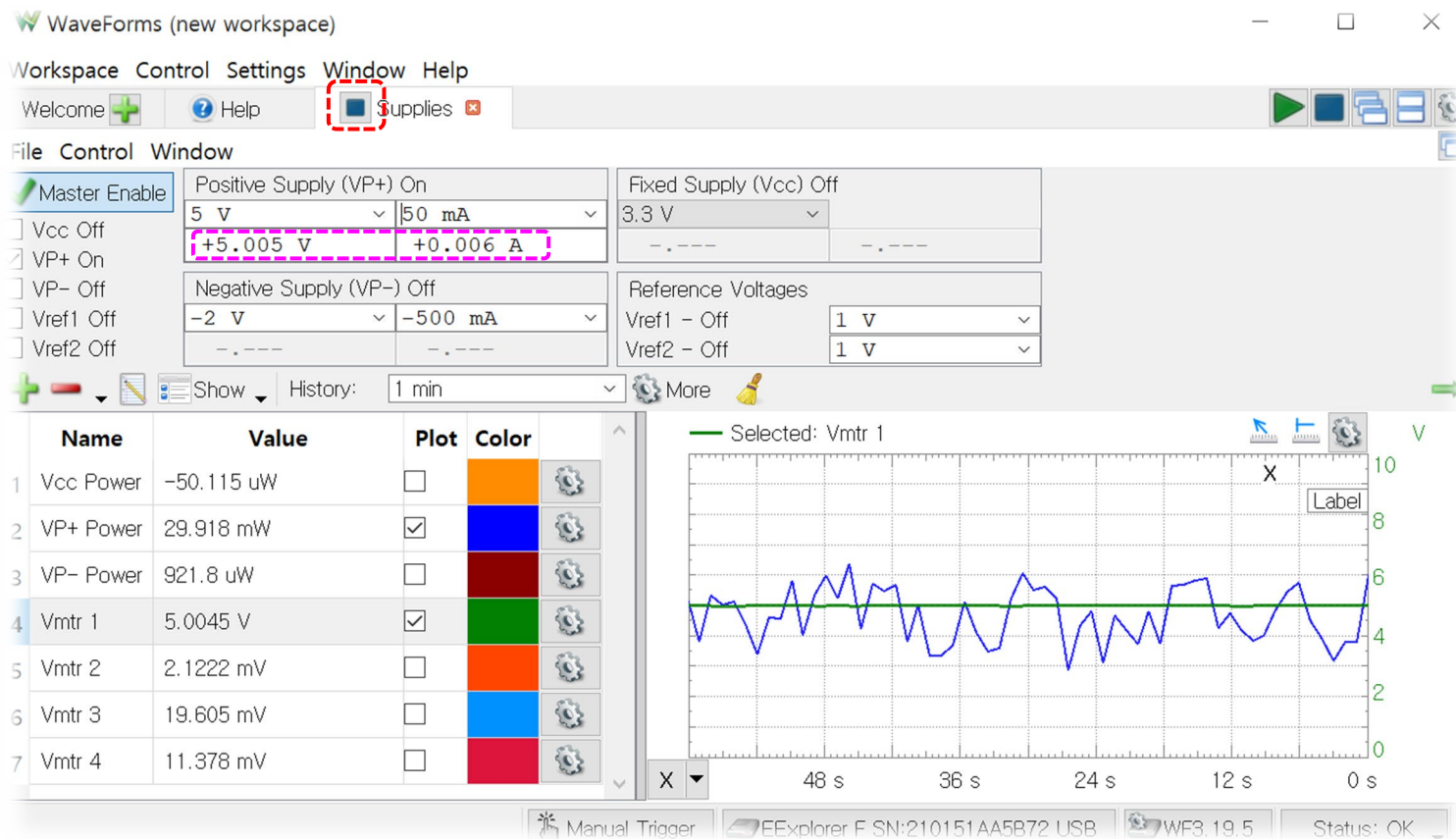
Name	Value	Plot	Color
1 Vcc Power	754.9 nW	<input type="checkbox"/>	Orange
2 VP+ Power	23.896 mW	<input checked="" type="checkbox"/>	Blue
3 VP- Power	896.35 uW	<input type="checkbox"/>	Red
4 Vmtr 1	5.0055 V	<input checked="" type="checkbox"/>	Green
5 Vmtr 2	9.233 mV	<input type="checkbox"/>	Orange
6 Vmtr 3	18.338 mV	<input type="checkbox"/>	Blue
7 Vmtr 4	258.1 uV	<input type="checkbox"/>	Red

The right side of the interface shows a plot area with a green line representing 'Vmtr 1' and a blue line representing a signal. The x-axis is labeled with time values: 48 s, 36 s, 24 s, 12 s, and 0 s. The y-axis is labeled 'V' and ranges from 0 to 10.

# WaveForms

## • DC 전원 인가

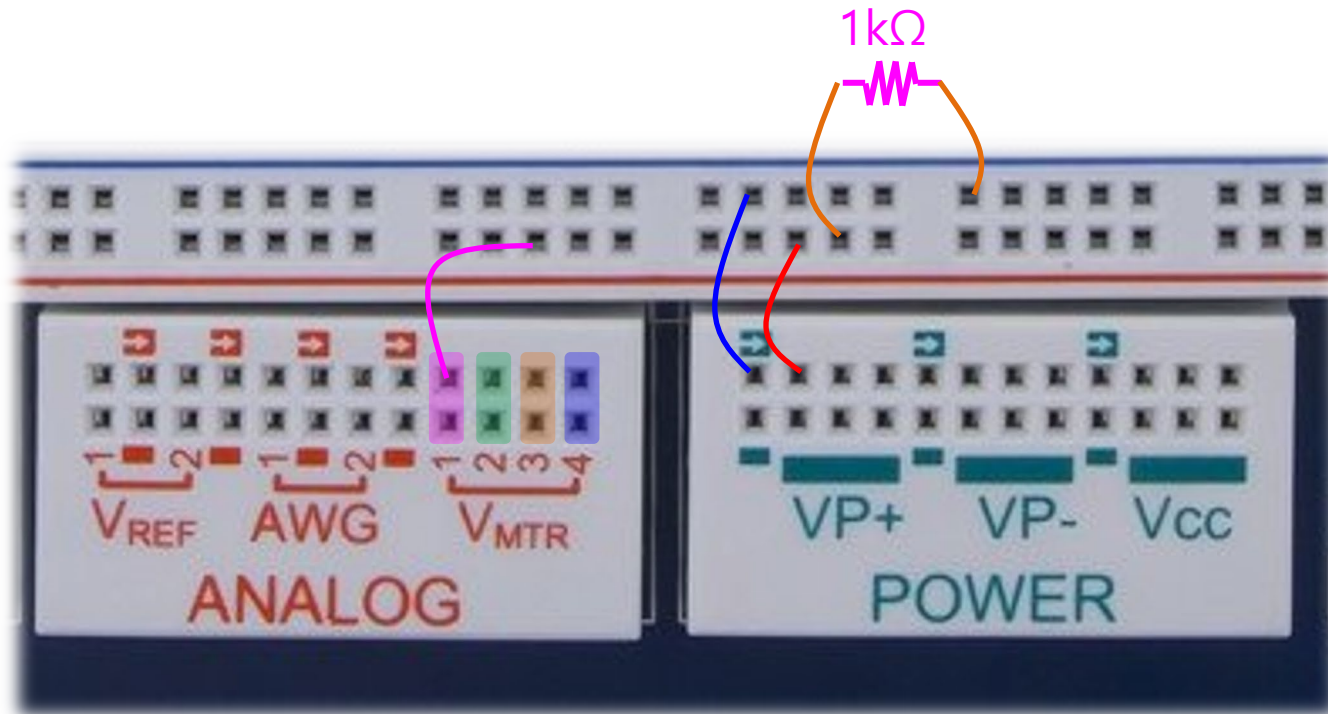
✓ 재생 버튼 클릭 시,  Supplies  실제 설정 값 출력하게 됨



# EEboard

## • Voltmeter 기능

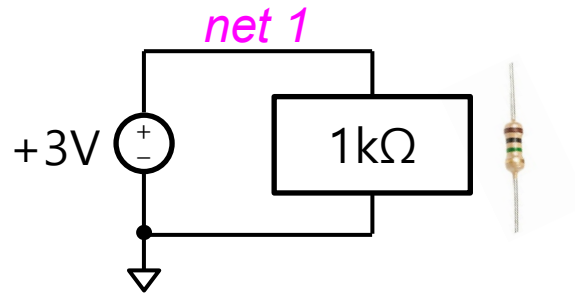
- ✓ 전압 측정 기능: 4개 채널 지원 ( $V_{MTR1}$ ,  $V_{MTR2}$ ,  $V_{MTR3}$ ,  $V_{MTR4}$ )
  - 전압을 측정하고 싶은 신호와 연결
  - 다음 예제: VP+의 전압을  $V_{MTR1}$ 에 연결, 즉 VP+ 전압 측정 중



# 실험 1

- 전원 인가 및 Voltmeter 사용하기

- ✓  $1\text{k}\Omega$ 의 저항을 이용하여 다음과 같이 회로를 구성



- ✓ VP+를 3V로 설정, VP+의 전류 제한을 10mA로 설정
  - 즉, 3V/10mA
- ✓ Voltmeter 3번 채널( $V_{\text{MTR}3}$ )에 *net 1*을 연결하여 전압 및 전류 측정



## 실험 2

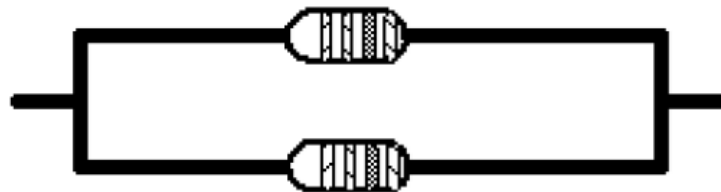
- Bread board에 회로 구성해보기

- ✓ 직렬 저항



Series

- ✓ 병렬 저항



Parallel