

# Digital Volt/Amp meter connection diagram

Before starting working on your meter, here are a few keynotes that you should pay attention to

1) Make sure the power of the meter you have. Typically there are three different types

- 5V
- 6~14V
- 12V

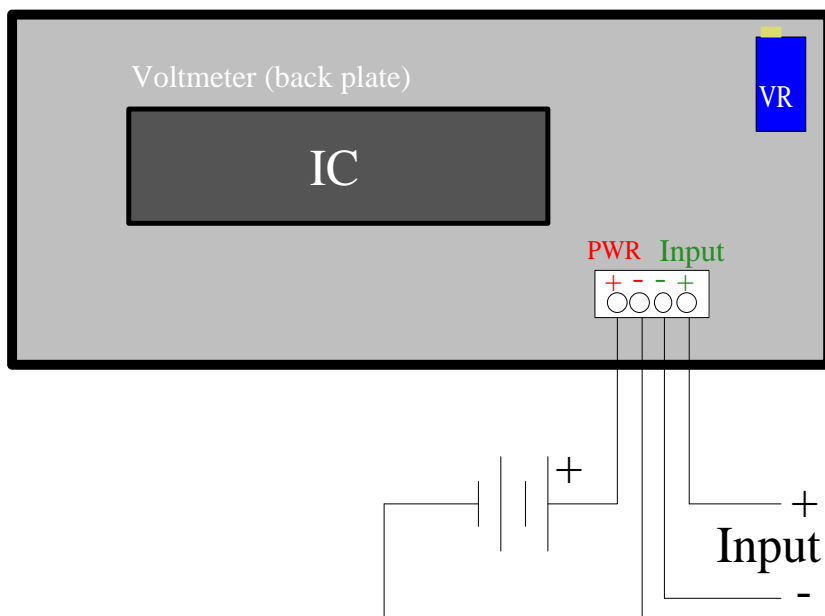
Determine whether an isolated power module or power supply is required for you meter. Note, most current meter need an isolated power to work with such as a battery pack(not convenience) or an isolated power module. Don't get confuse with a 7805 module as it output is NOT isolated from the input. Instead, it's a common ground device. The 7805 module is good for a voltmeter where common ground is ok.

2) Even though a 7805 can take as high as 28V for the input, do not apply over 15V without a proper heat sink installed. Failed to do so may damage the module as heat will be accumulated.

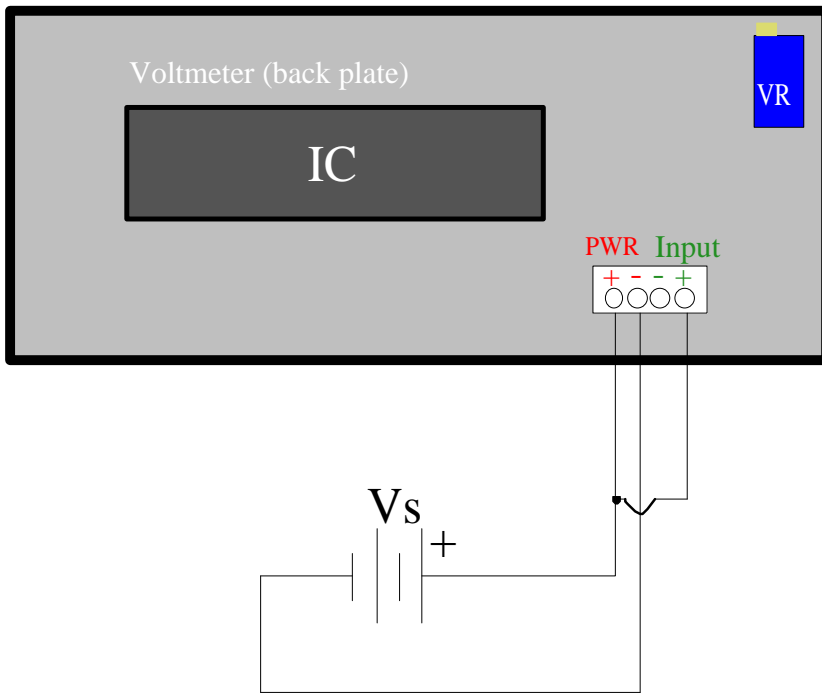
Use an isolated power module for a current meter to avoid feedback problem. An isolated power means that there is no 'physical' connection between the sources and the output. It acts just like a 'virtual battery'. There are so many different type of isolated power module in the market:

- In 5V, Out 5V
- In 12V, Out 5V/12V, or others
- In 9V~18V, Out 5V/12V, or others
- In 24V~32V, Out 5V/12V, or others
- In 48V~72V, Out 5V/12V, or others

3) Choose a shunt of having the same rating as the current meter. Example: 100A current meter need a 100A shunt.



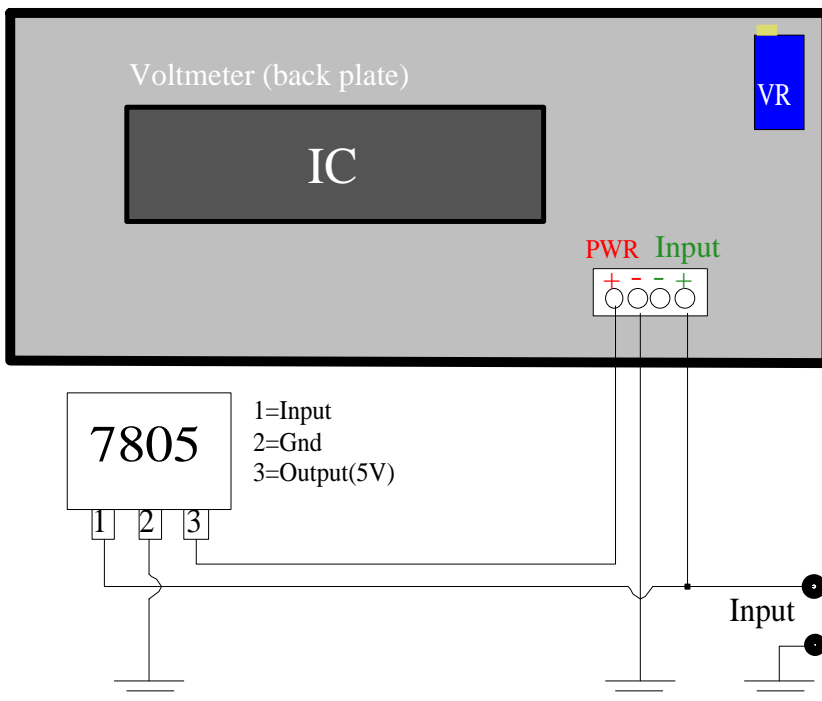
**Fig 1. Basic connection for 3-1/2 or 4-1/2 meter**



**Fig 2. Self monitor configuration.**

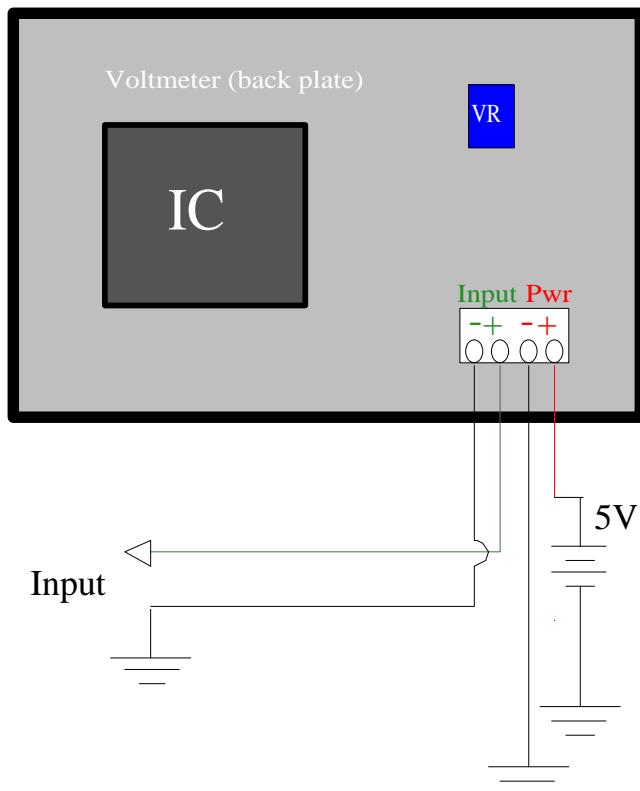
Note, the  $V_s$  never exceed the meter's power input limit.

If the power of the meter support 6V~15V, this is a configuration for vehicle self-monitoring

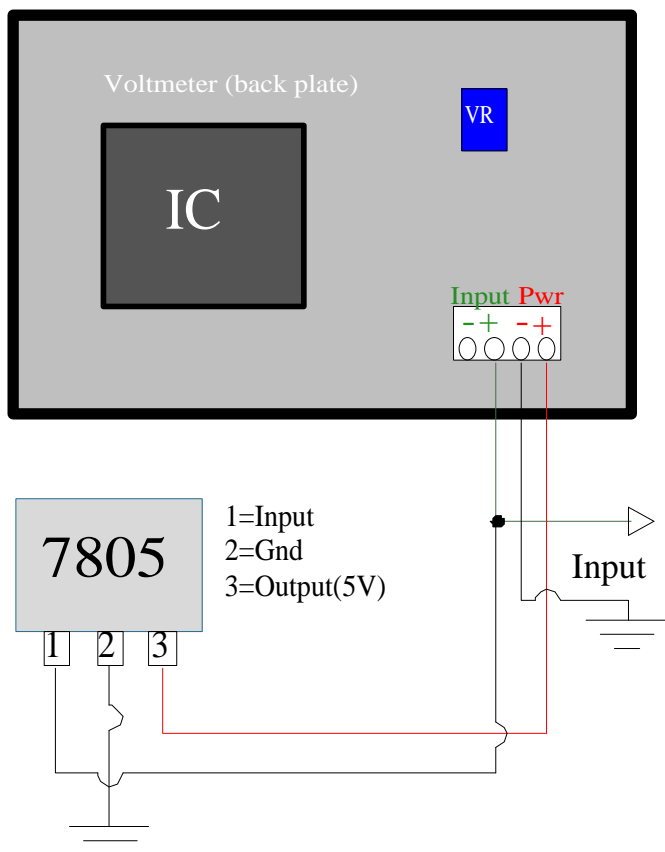


**Fig 3. Typical connection for 3-1/2 or 4-1/2 digit current meter diagram**

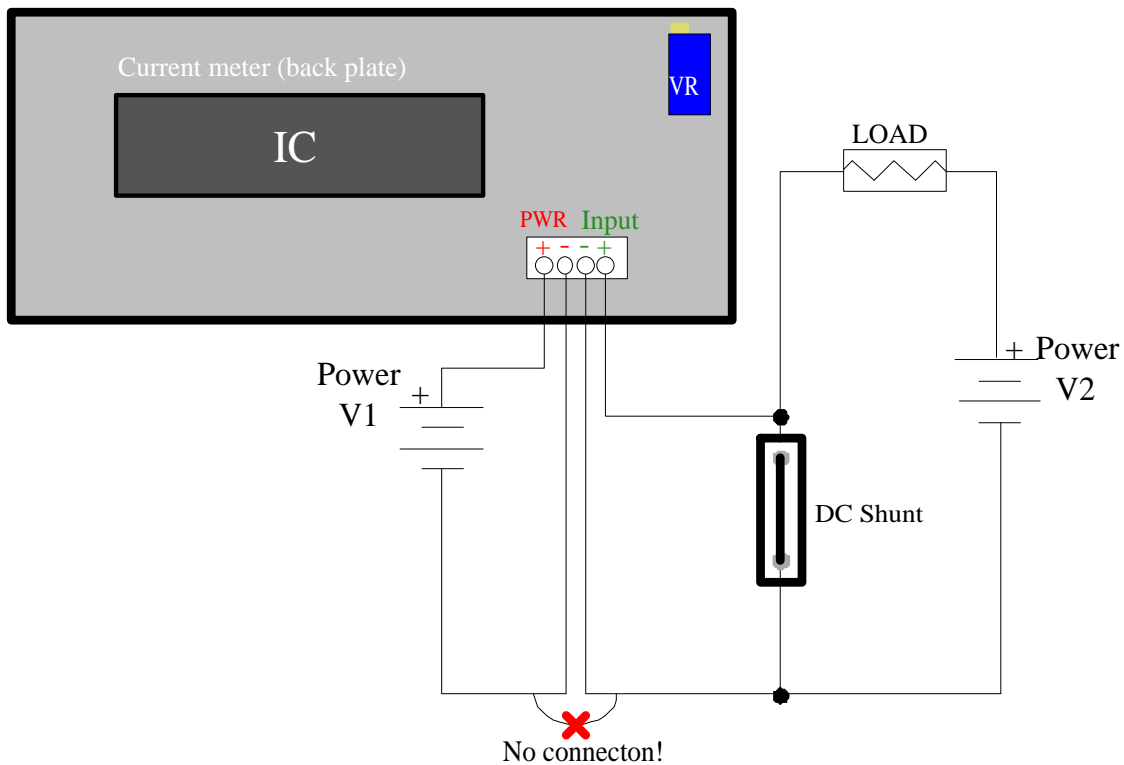
Assume that the meter is 5V



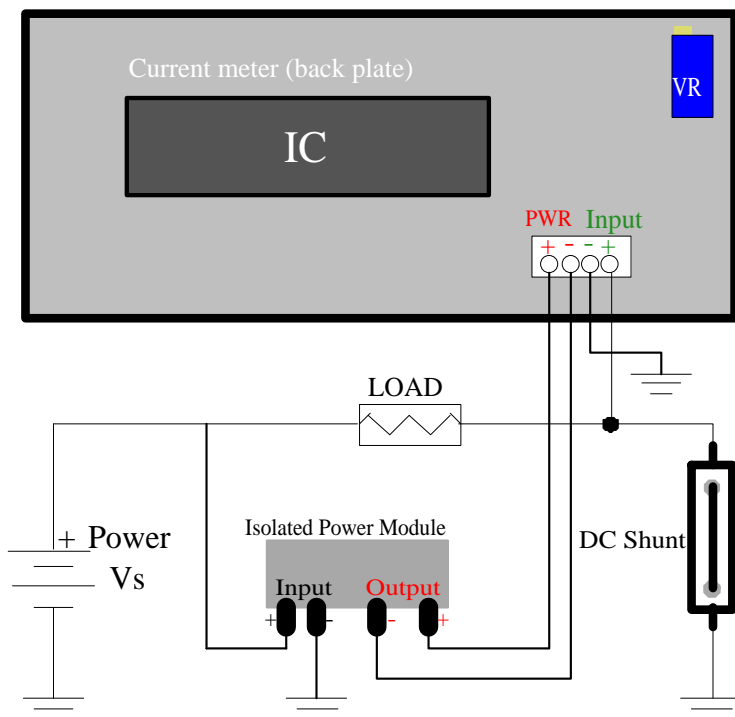
**Fig 4. Basic connection for the mini 3 digit meter.**  
Power is 5V +/- 0.2V



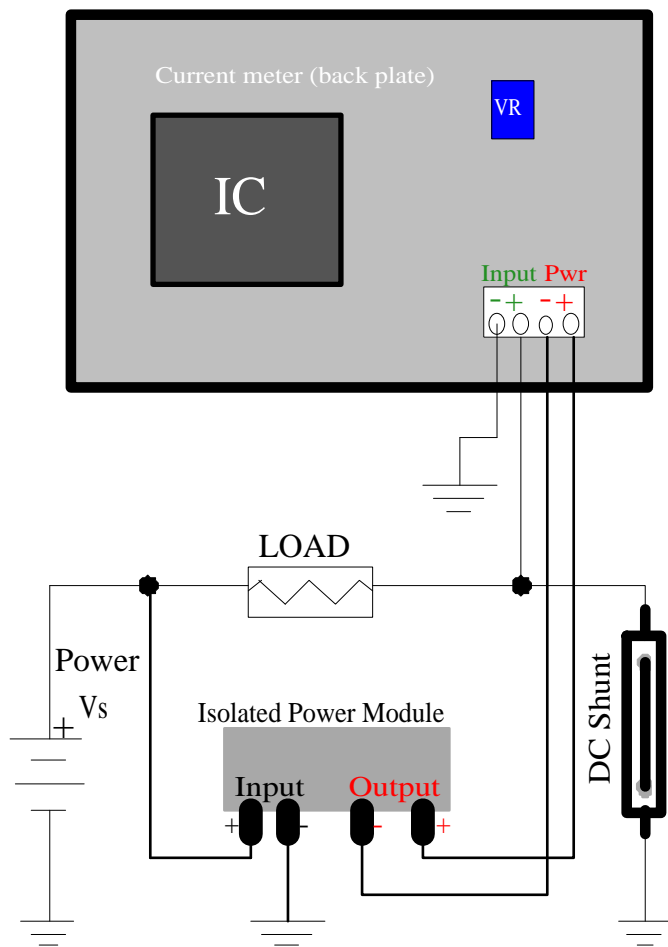
**Fig 5. Mini 3digit meter connection for vehicle with a 7805 regulator**



**Fig 6. 3-1/2 or 4-1/2 digit current meter configuration with an independent power**  
 Note, the shunt must installed next to the negative side of the V2.



**Fig 7. 3-1/2 or 4-1/2 digit current meter configuration with an isolated power module**  
 When sharing power with the power sources Vs, an isolated power module is required to provide an isolated power for a current meter. 7805 or 7812 module will not work for a current meter.



**Fig 8 Mini 3 digit current meter with an isolated power module configuration**