



UActivate

Simultaneous Current and Voltage measurements!

Overview

The uActivate is a convenience tool that allows for easy access for circuit testing through a relay socket, fuse and when connected in series in most circuits.

The uActivate:

- Takes the place of the relay in the circuit.
- Lets you activate the circuit, control it on ON or OFF or TOGGLE it.
- Provides test ports for each relay connection via safety banana sockets and pin-tip sockets.
- Includes a test loop for easy connection of inductive current probes.
- Uses LEDs to indicate when voltage is present.
- Includes built-in circuit protection.

What can you do with the uActivate?

Use the uActivate with your DMM or lab scope and amp probe to perform voltage, current, and resistance tests through the relay socket or fuse.

- Simultaneously measure circuit voltage and current to expose the amount of work the circuit is performing.
- Monitor voltage to determine if any voltage drop exists which could indicate a resistance problem.
- Monitor current to determine how it is being used by the load – build up and levels.
- Easily perform circuit resistance and voltage test with your DMM.
- Manually operate circuit, the uActivate includes built-in circuit protection

These tests give you a true performance test of the circuit.

Ever wonder if a circuit has a bad relay, or if the relay is bad due to some fault in the circuit? Get out the uActivate and performance test the circuit!

Testing Relays

The uActivate does not test relays, it tests the circuit.

Testing the relay is fairly easy, just grab a known-good relay and plug it in.

When you need to test the circuit, grab the uActivate.

Contents

- uActivate base unit
- Bosch relay adapter cable
- Ford relay adapter cable
- GM relay adapter cable
- Customisable relay adapter cable
- Case



Connecting the uActivate via a Relay Socket



1 Locate the Circuit to Test. In this case, we are locating the relay for the radiator fan. It is important to verify the circuit you are going to check since you will activate it manually – don't want to be guessing. (Click on images to expand)



2 Remove the Relay Take note of location and any unique orientation such as on this GM. Note the beveled corner top left. Remove relay and store in a safe place.



3 Select uActivate Cable Compare the relay tabs to the uActivate cables. Included are standard [GM \(Micro 280\)](#), [Ford \(ISO Micro\)](#) and [Bosch \(ISO Mini\)](#) relays. If these are not the correct cables, select the universal cable and the correct adapters. In some unique cases you may have to fashion your own adapters.



4 Insert Cable While the uActivate cable is not attached to the uActivate, insert into the relay socket. In the case of a [Micro 280 GM](#) style, as used in this case, orientation is not an issue.



5 Prepare the uActivate Before connecting the cable to the uActivate insure that the switch is in the OFF position.



6 Connect uActivate Close inspection of the cable connector reveals a channel marking the top of the connector. With the channel up, press the connector into the banana plugs of the uActivate. Note that the connector will only mate in this orientation due to offsets of the banana plugs.



7 LED On Once all is connected and the uActivate switch is in the OFF (contacts open) position, the LED at the top of the uActivate will shine red or green indicating power to the contacts. The color references the safety banana sockets at the top of the uActivate.

Note: The LED will shine only when power is present and the switch/contacts are open – switch in off position.



8 Connect Meter/Scope Knowing the location of power at the contacts makes it easy to select the best test point for voltage or resistance testing. For example, to perform a resistance test of this fan, install test lead into the socket that does not correspond to the LED color. To voltage drop test the power side of the circuit, install test lead into the socket that does correspond to the LED color.

Note: Do not activate the circuit when doing a resistance test.



9 Connect Amp Probe Connect an inductive current probe to the loop at the base of the uActivate. Note: If the current goes down instead of up, flip the amp probe connection.

Note: The LED on the lower section of the front panel will light up when the system intends to activate the circuit.

Ready to uActivate Flip the switch and you are activating!

2. Voltage drop on the load side

In this scenario the next step is to check the integrity of the circuit between the relay contacts and the ground. This is a little more difficult doing a voltage test to check for excessive resistances.

First, activate the circuit and note the voltage via the uActivate (on the load side of the switch).

Next, find a test point as close to the load as possible. Activate the circuit and compare voltage measurements.

A lower voltage at the second test point indicates a resistance problem in the circuit between the relay contact (first test point) and the second test point.

3. Resistance Test

The uActivate makes it easy to perform the resistance test.

Make sure the uActivate contact switch is open. Break out your DMM and connect to a known good system ground, and put the test probe into the load side of the uActivate. This measures the resistance of the circuit between the "load side" relay contact, the load and the ground. If resistance is excessive, you know where to look, just follow the wires!

What do you do when you can not access a test point close to the load such as in the case of fuel pump?

Many circuits do not have published specs for current. However, many publish specs for resistance.

4. Current Test

Often, a voltage test offers very little information as to the general performance of a circuit.

On the other hand, a current test shows how the circuit is using the energy giving a good indication of circuit work and performance.

Consider a typical switch to power circuit:

The test point for a voltage test is between the load and the switch. When the circuit switches on, the voltage reads source voltage.

There is often no indication of circuit work. The only indication is the intent to energize the circuit.

5. Why do simultaneous current and voltage tests?

The voltage test qualifies the current test. This is especially important for circuits with electrical motors. Consider this:

A resistance problem within a circuit can result in an unwanted change of current. The problem is that a minor change in current can be very difficult to detect. Especially if there are no "good" specs to compare to. On the other hand, a voltage drop test is very accurate. Via the uActivate test ports you can perform a voltage drop test of the circuit between the relay contacts and the power source. When the circuit is activated using the uActivate, any changes in voltage via the test port will be the result of the power sources inability to supply the adequate current or a voltage drop due to excessive resistance between the test point and the power source.

