Why The Hook?

r those familiar with the blazing speed of Power Probe circuit testers, u will find the addition of the Power Probe HOOK, not only a mpliment to your electrical diagnostic arsenal, but a smart decision well. Power Probe engineers designed the HOOK to help you fix cars h more pinpoint accuracy and do it quicker so you will make more ney. Why should you own the HOOK? Three reasons: Easy, Smart and werful!

eatures:

- owers Up Components
- leasures Amps & Ohms
- alculates Resistance
- ontinuity/Relay Tester
- umper Lead
- oltage Reference Supply Mode
- Voltmeter
- +/- Voltage Indicator
- Audible Feature
- Bad Ground Indicator
- Find Short Circuits
- Adjustable Circuit Breaker

Measures tip voltage and battery for easy comparison

Powers Up Lightings & Heavy Duty Components

PRODUCT SPECIFICATIONS	
Minimum Operating Voltage	12 VDC
Maximum Operating Voltage	48 VDC
Voltage Measurement	0-99.9 VDC/VAC
Ohms Measurement	.001 Ω - 15 Mega Ω
Amps Measurement	.001 Amps - 99.9 Amps
Maximum Continuous Load	25 Amps
Maximum Intermittent Load	65 Amps for 8 Secs.
Hook Up Cables	10 Gauge
Input Impedence	1 Mega Ω

Powers up to 100amps inrush and 25 amps continuous

Please scan QR code or visit www.youtube.com/watch?v=VguAEQkrPss

POWER PROBE

The Ultimate Circuit Tester

300-00002 - Rev. 05 11/02/2016

INSTRUCTION MANUAL

The HOOK®

POWER PROBE

The Ultimate Circuit Tester

www.powerprobe.com · 800-655-3585

The Power Probe Hook Operations Manual

Thank you for purchasing Power Probe's Hook electronic circuit tester. Ergonomically designed so it can be "Hooked" to the vehicle thus eliminating the need to balance it on a fender or worse, lay on the floor where it could be crushed or stepped on! The Hook is designed to give you years of trouble free diagnostic power, even in the most demanding work environments.

If you have any questions please go to our website **www.powerprobe.com** or give us a call: **800-655-3585**.

CAUTION - PLEASE READ

- Power Probe recommends reading this manual before using the Hook.
- This product is designed to be powered from DC power sources such as found in Automotive, Small Craft Marine and Small Craft Aviation electrical systems and will be damaged if connected to line voltage such as 115V AC power sources or 24V AC Control circuits.
- Do not connect to electrical systems with higher than the rated voltage as specified in this manual.
- Before using, inspect the case, probe tip, cable and accessories for damage. When in doubt, have the Hook serviced by Power Probe's repair department.
- Do not use Hook if it operates abnormally, the safety features may be disabled. When in doubt, have the Hook serviced by Power Probe's repair department.
- Only operate in well ventilated areas, do not operate around flammable materials, vapor or dust.
- Only use shrouded leads and accessories authorized by Power Probe to minimize exposed conductive electrical connections to eliminate shock hazard.
- Due to the high output currents the Hook produces, be careful when energizing components that have moving parts, assemblies containing motors or high powered solenoids.
- Do not open the Hook, no serviceable parts are inside. Opening the Hook voids the warranty.
- Power Probe, Inc. shall not be liable for damage to vehicles or components caused by misuse.
- The Hook should not be left unattended while connected to a circuit or used by untrained technicians.
- Power Probe, Inc. shall not be held liable for any harm caused by unintentional or intentional misuse of our products or tools.

The Serial Number can also be found on the back of the unit or case.

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PPH1 Kit includes:

- Power Probe Hook
- 3" Probe Tip
- Battery Hook-Up Clips
- 36" Connector Lead
- 4mm Back Probe Adapter
- 3 Wire Continuity Leads
- 20amp Fuse
- Instructional Manual

I - START-UP

a) Operating Voltage Source

The Hook is designed for use in 12 to 48 VDC electrical systems and comes supplied with a 20 ft., 10-gauge coax cable and 2 heavy-duty battery hook-up clips.

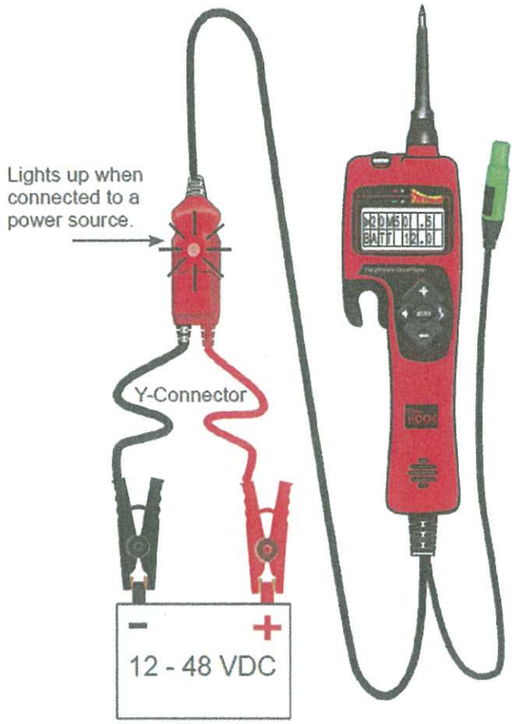
b) Connecting to the Vehicle's Battery (Voltage Source)

Connect the red clip to the positive terminal of the vehicles battery source and the black clip to negative or ground. The Hook start-up tone will sound and the indicator light on the Y-Connector with Battery Clips will illuminate. This tells you that the Hook is connected correctly and the internal fuse of the Y-battery-clip-connector is working properly.

c) Y-Connector with Battery Clips

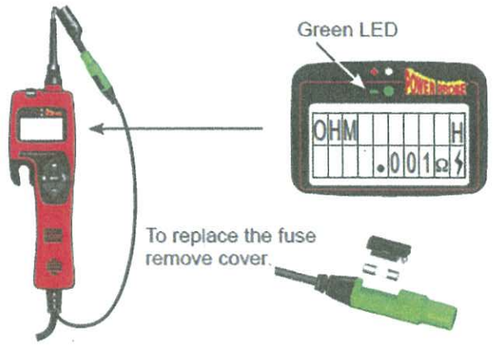
The Y-Connector with Battery Clips has a safety fuse built into it. The built-in fuse will blow in the event the 10-gauge coax power cable gets clamped or pinched in a door or hood causing a short circuit.

Note: If the Y-Connector with Battery Clips does not light when properly connected to the voltage source, you probably have a damaged 10 gauge coax power cable. It is recommended that the cable be inspected and tested before replacing a new Y-Connector with Battery Clips.
Contact your distributor or Power Probe, Inc. for a replacement.



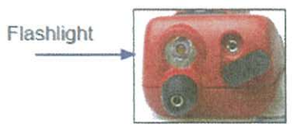
d) Auxiliary Ground Lead

The auxiliary ground lead provides ground to circuits and components that are not connected to ground. It also serves as the negative lead for resistance testing.
To test the auxiliary ground lead, contact the probe tip and the auxiliary ground lead together. The Green LED on the display should light. This shows that the auxiliary ground lead is working properly.
If the green LED does not illuminate, check the replaceable 20 amp fuse (5x20mm fast blow) in the auxiliary ground lead. The fuse is a protection in the event the lead is inadvertently contacted with battery positive.



e) Flashlight

Flashlight is a standard feature on the Hook. The bright LED Flashlight is always ON making it possible to probe under dashboards and in dark areas.



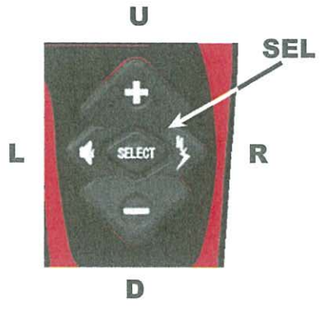
f) Sleep Mode

The Hook will go to sleep after 10 minutes of inactivity and you will see the word SLEEPING on the display. The Flashlight and the LCD backlight will turn off. To wake it up, just press any button or contact the probe tip to a circuit.

II - FIVE BUTTON OPERATIONAL TERMS

The Five Button Switch performs many different functions depending on the state of which the Hook is in at the time. To standardize our terminology when referring to the individual buttons of the Five Button Switch, we will use the following identifiers: U, D, L, R, and SEL.
See the terms and definitions below:

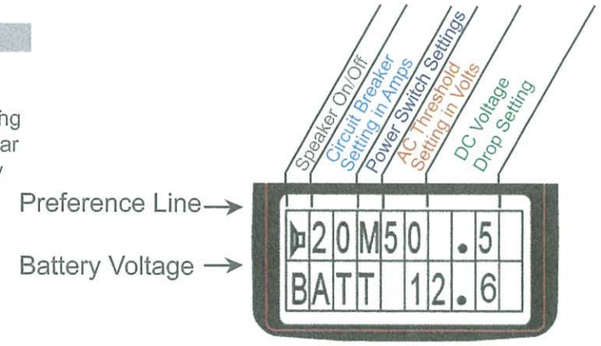
U = (+) = UP BUTTON or TOP BUTTON
D = (–) = DOWN BUTTON or BOTTOM BUTTON
L = (Speaker symbol) or LEFT BUTTON
R = (Hot Shot symbol) or RIGHT BUTTON
SEL = SELECT BUTTON or CENTER BUTTON



III - PREFERENCES AND SETTINGS

a) Preference Line (Top Row)

In Power Probe Hook Mode with the probe tip floating or unloaded, the top line of the display shows the present operating parameters of the Hook. You will want to become very familiar with the preference line of the Hook so you will know exactly how it will operate at any given time.

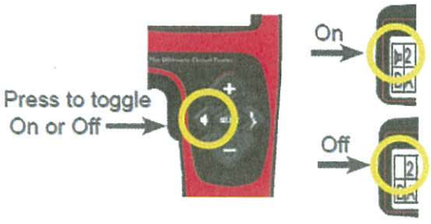


(Fig. IIIa.)

b) Speaker ON/OFF

To toggle the speaker ON or OFF in Power Probe Hook Mode:
1. Press L (Speaker symbol)
2. Notice the speaker symbol in far left of the preference line when the speaker is visible in the Display. This means the Polarity Tone is ON.

(Power Probe Hook Mode is the only mode you can toggle the speaker on/off.)



c) Circuit Breaker Preferences

To adjust and set the Circuit Breaker Preferences while in Power Probe Hook Mode:
1. Press SEL once. Display shows CIR BREAKR.
2. Press L or R to the desired trip point: 2A, 3A, 4A, 5A, 7A, 7.5A, 10A, 15A, 20A, 25A, 30A, 35A, 40A, 50A, or 65A.
3. Press SEL to return to Power Probe Hook Mode.
4. Notice the new Circuit Breaker Setting in the preference line.

The circuit breaker settings of 2, 3, 4, 5, 7.5, 10, 15, 20, 25, 30, 35, 40, 50 and 65 will have been added to give you a complete selection of choices. We have refined the circuit breaker to handle real world testing of components.

d) Power Switch Preferences

To adjust and set the Power Switch Preferences while in Power Probe Hook Mode:

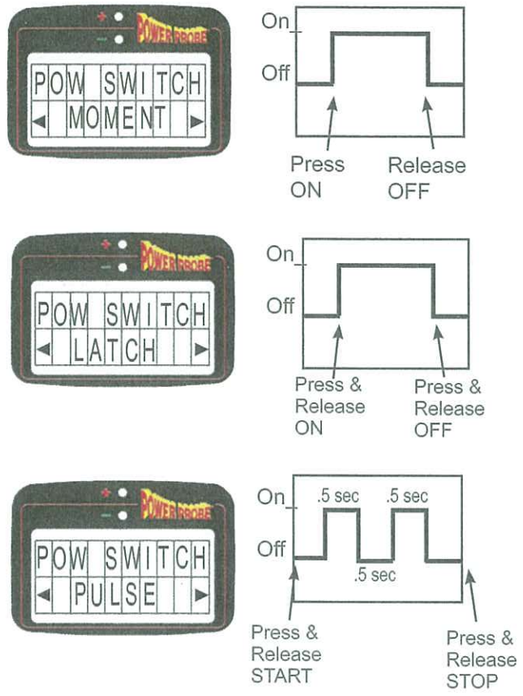
1. Press SEL once.
2. Press D once. Display shows POW SWITCH.
3. Press L or R to select the desired Power Switch preference: LATCH, PULSE or MOMENT.
4. Press SEL to return to **Power Probe Hook Mode**
5. Notice the new Power Switch Setting in the preference line. (page 5 Fig. IIIa.)

Power Switch Behaviors when in Power Probe Hook Mode:

Moment: When the Power Switch Setting is set to Moment, battery source power or ground is supplied to the probe tip when you press and hold U(+) or D(–).

Latch: When the Power Switch Settings are set to Latch, you can hold continuous battery positive or ground to the probe tip, by pressing the U(+) or D(–). To release power, press U(+) or D(–) again.

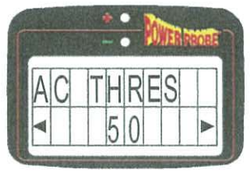
Pulse: When the Power Switch Setting is set to Pulse, the Hook will cycle battery positive or ground to the probe tip by pressing U(+) or D(–).
It cycles ON for 1 second, then OFF for 1 second repeatedly. To stop the power cycling, press U(+) or D(–) again.



e) AC Threshold Preferences

To adjust and set the AC Threshold Preferences while in Power Probe Hook Mode:

1. Press SEL, once.
2. Press D, twice. Display shows AC THRES.
3. Press L, or R, to select the desired AC Threshold preference: .1, .2, .5, 1, 2, 5, 10, 20, or 50 (Recommended).
4. Press SEL to return to **Power Probe Hook Mode**



f) LED Voltage Drop Preferences

Long extended circuits/wire runs such as trailers and heavy equipment may require a larger voltage drop setting for proper testing

To adjust and set the LED Voltage Drop Preferences while in Power Probe Hook Mode:

1. Press SEL once.
2. Press D, 3 times. Display shows LED V DROP.
3. Press R or L, to select the desired Voltage Drop preference: .2, .5, 1, 2, or 3.
4. Press SEL to return to **Power Probe Hook Mode**
5. Notice the new LED Voltage Drop Setting in the preference line. (page 5 Fig. IIIa.)

IV - POWER PROBE HOOK MODE

the Smart-Tip! *advantage!*

In Power Probe Hook Mode the "Smart Tip Advantage" gives you several new powerful tools to help you fix electrical problems faster than any other circuit tester in its class. Why?

Because it automatically selects the:

RIGHT METER and the RIGHT FUNCTION for the RIGHT CIRCUIT condition.

NEVER: Perform any tests on any SRS system without the system being completely disabled, modules unplugged and simulators installed in place of all pyrotechnics. Doing so can lead to injury do to unwanted deployment and permanent module damage.

a) Voltage Testing in Power Probe Hook Mode

Voltage testing is as easy as contacting the probe tip to a circuit and reading the display. There is no need to select the voltmeter before probing because the Hook does that automatically. The Hook also provides both the battery source voltage and the probe tip voltage on the display screen for easy voltage comparing.

To test for voltage in Power Probe Hook Mode:

1. Take note of the preference parameters in the display.
2. Contact the probe tip to a voltage potential.
3. Take note of the difference between VOLT and BATT on the display.

If the voltage difference is within the LED Voltage Drop Preferences, the Red LED will light and the HOT SHOT` symbol will be present.
If the voltage difference is greater than the LED Voltage Drop Preferences, the LED will not light.

4. Voltage is measured from 0 to 99.9 volts.

Voltage Testing
11.8V

b) Resistance Testing in Power Probe Hook Mode

Resistance testing is as easy as contacting the probe tip to a circuit or a component and reading the display. There is no need to select the Ohm Meter before probing because the Hook does that automatically. It will also auto-range the decimal point.

To test for resistance in Power Probe Hook Mode:

1. Contact the probe tip to a circuit or component with resistance to ground. Resistance is measured and displayed from 0 to 15 mega ohms. When Resistance is less than 1 Ohm the Green LED will be on.

It is necessary to connect the ground lead to a chassis or other common ground point to accurately measure 2 Ohms or less. This will eliminate voltage drops within the 20 ft cable and improve the accuracy.

Resistance Testing
100Ω

When testing resistance on some chassis grounds even though the ignition is turned off, you may experience a millivolt potential present. When that happens, The Hook will display a Dual Meter.

Please see "Dual Meter Feature" on page: 9-IV f

c) Activating Components, Current Draw Testing and Calculated Resistance in Power Probe Hook Mode

Activating Electrical Components in Power Probe Hook Mode is one of the main features that make the Hook very useful. The Power Switch (+) and (–) behave differently according to the Switch Preferences. Notice the Power Switch Settings on the preference line (see section III-a), for Power Switch Behaviors (see section III-d).

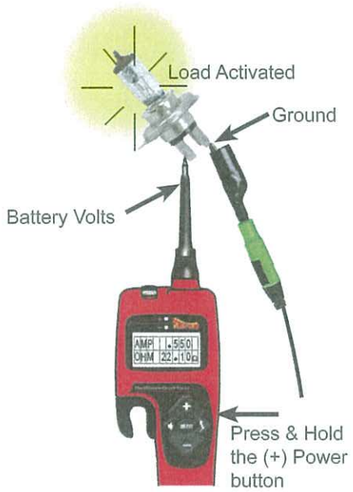
On 12 volt systems the incidence of arcing is low for ease of operation. Arc Detect has been disabled in all modes. Arc detect is functional in Power Probe mode only when the source voltage exceeds 16V. Arc detect can interfere with the function of some devices. When using the HOOK on vehicles with 24V and above source voltage. It may be necessary to use Power Plus mode when the devices you are powering are electrically very noisy as on some motors or horns. Use caution and follow instructions on how to properly power up a circuit. Because of the danger present with higher voltages to the vehicle and you, it is recommended to use Power Plus mode for powering up in these higher voltage systems when possible.

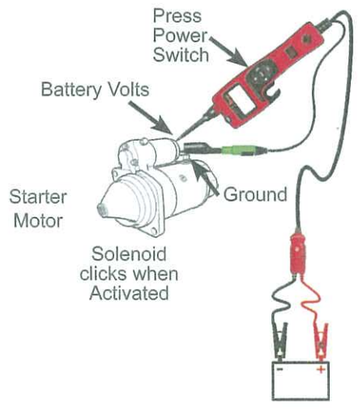
Current Draw Testing and Calculated Resistance are dynamic tests that are performed by activating circuits or electrical components with the vehicle's battery power through the Hook and measuring the Amps and Ohms. Since the measurements are made while under power you are getting a true indication as to its real operating integrity.

To test the current draw and calculated resistance of an electrical component in Power Probe Hook Mode:

1. Contact the probe tip to the positive terminal of an electric component that is properly grounded.
2. Press and hold (+). The Hook supplies power to activate it. During activation the Hook displays the AMMETER and OHM METER simultaneously.
3. Read the Current Draw displayed as AMP on the screen.
4. Read the Calculated Resistance displayed as OHM on the screen.
5. If the display shows CIR BREAKR TRIP when you attempt to activate the electrical component, you will need to increase the trip point by adjusting it in the Circuit Breaker preferences. (See section: III-c)

NOTE: The same measurments also can be taken on a battery (+) referenced circuits by pressing the (-) button.





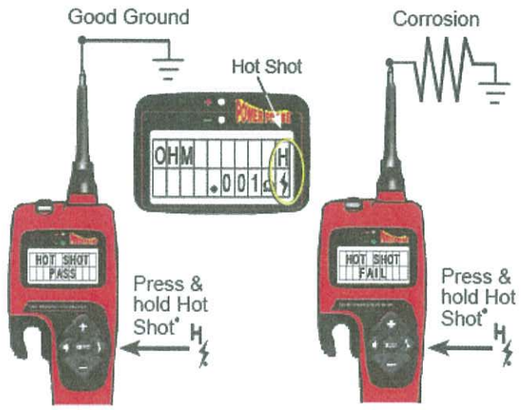
d) Hot Shot® Testing in Power Probe Hook Mode

Hot Shot® is available at all source voltages from 12 to 48. The rule of thumb is that when the Hot shot feature is available, you can verify the resistance of that circuit is > or < 1 ohm. If you get a pass result you know the resistance is < 1 ohm and you have a good power feed connection. A fail result indicates >1 ohm. For reference, the source voltage does affect the outcome of the pass result. All pass results reflect less than 1 ohm but there is a value difference depending on the source voltage. Pass at 12V = <.2 ohms, 24V = <.4 ohms, 36V = <.6 ohms, 48V = <.8 ohms. All are less than 1 ohm, but understanding this may help in your diagnosis.

WARNING: HOT SHOT® is only designed for supply powers and grounds. HOT SHOT® should never be used on any sensitive electronics such as modules, sensors etc.

NEVER: Perform any tests on any SRS system without the system being completely disabled, modules unplugged and simulators installed in place of all pyrotechnics. Doing so can lead to injury do to unwanted deployment and permanent module damage.

WARNING: When working on computer grounds or any other sensitive circuits, HOT SHOT® should not be used. The components need to be unplugged (modules, relays, sensors, switches, etc.) Now HOT SHOT® can be used to load the wiring not the component. This is the true method that HOT SHOT® is intended for, the wiring not the components.



e) Dual Meter Feature

The Dual Meter feature is available only in Power Probe HOOK Mode. When diagnosing chassis grounds it is possible to have voltage drops caused by systems within the vehicle operating when the key is off. It can take several minutes for the systems to shut down. If you are turning the key on and off for diagnosing purposes, it can be difficult to get accurate resistance readings due to the voltage drops. Typically ohmmeters will give you a reading that is skewed by these voltage drops and if you are unaware they are there, you could spend time fixing problems that don't exist.

If there are millivolts present on a chassis ground the Power Probe HOOK will display a unique feature we call Dual Meter. You will get a resistance reading on the bottom of the screen and a millivolt reading on the top of the screen at the same time. The ohm reading displayed when this feature is active will have a coarse correction factor intended to improve accuracy. In Power Probe HOOK mode, this feature will automatically display when the voltage on ground is between .002 and .200 millivolts and ohms is less than 250. If the voltage drops below .002 volts, normal ohmmeter will display. If there is between .002 and .200 volts present and the ohms exceed 250, normal ohmmeter will display. Above 250 ohms, millivolts will have no affect on the ohm reading. If the voltage exceeds .200 volts,

normal voltmeter will automatically kick in. With Dual Meter feature, you can better diagnose grounds in the presence of voltage drops without having to waste time waiting for the systems to shut down! Now that's a Smart Tip Advantage!

Interpreting the data: The intention of this data is to inform you that accurate resistance measurements cannot take place when millivolts are present. Standard ohmmeter readings will provide completely unusable data under this condition.

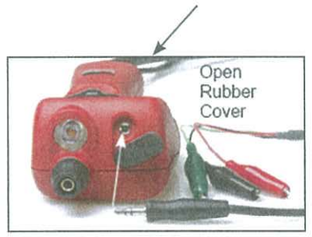
Is your high resistance reading due to a poor connection or a voltage drop? The Power Probe HOOK is the first in the industry to answer this question in one simple test. With the Dual Meter feature you are now alerted to the voltage drop while conducting a resistance test. The HOOK will supply you a more accurate resistance reading during this scenario. The fact remains that if you see a voltage drop during the resistance test, you will need to remove the voltage drop to acquire the most accurate resistance reading, however, now you can continue testing using the Dual Meter with the voltage drop present and the resistance value as a guide since The HOOK is displaying a more accurate reading under this condition.

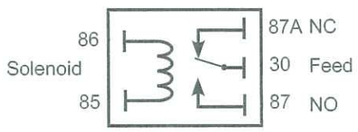
Note: Due to voltage drops inherent in the 20 foot power cable the ohm meter may experience some error below .30 ohms depending on the distance from battery to your measurement.

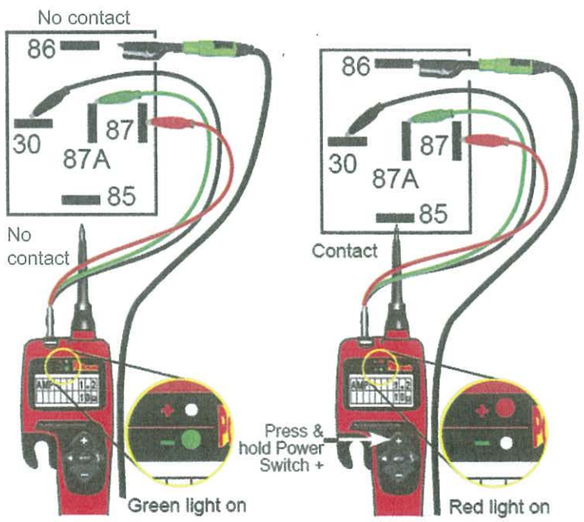
V - CONTINUITY TESTER AND RELAY TESTER

The Hook has a built in two channel Continuity Tester for testing relays and electrical switches. You will also be applying power to the relay coil using the auxiliary ground lead and the probe tip.
When the 3 wire continuity plug is inserted into the jack, the Red/Green LED's are now dedicated to the Continuity Tester. You can still use the Hook normally to power up or read voltage, ohms or amps.

To test a 5 terminal relay in Power Probe Hook Mode:
1. Pull the Rubber Cover from the Continuity Jack and swivel it out of the way.
2. Insert the 3 Wire Continuity Plug into the Continuity Jack.
3. Connect the Black lead to relay terminal #30.
4. Connect the Green lead to relay terminal #87a. (the Green LED should light)
5. Connect the Red lead to relay terminal #87.
6. Connect the Hook Auxiliary Ground Lead to terminal #86
7. Contact the Hook Probe Tip to terminal #85.
8. Press (+). (the Red LED should light and the Green LED should go off)
9. Release (+). (the Red LED should turn off and the Green LED should light)





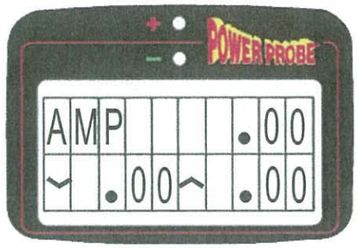


VI - POWER PLUS MODE

ARC DETECT IS DISABLED! Use CAUTION

This is an active mode used for activating electrical components similar to Power Probe Hook Mode except the Arc Detect feature is disabled. The Power Switch and Circuit Breaker Preferences apply here in Power Plus Mode as they do in Power Probe Hook Mode. Power Plus Mode will measure and display the Min/Max Current draw so you capture in rush and stabilized current. High current can be an indication of a sticking or dragging motor or pump.

To access Power Plus Mode from Power Probe Hook Mode:
1. Press SEL once.
2. Press U once
3. Press SEL.
4. You should see AMP in the display.



To activate an electrical component in Power Plus Mode:
1. If the electrical component is already grounded in the vehicle, you can skip step 2.
2. Connect the auxiliary ground lead to the ground of the electrical component.
3. Contact the probe tip to the positive terminal of the component.
4. Press (+). The component should activate.
5. Read the display for the average current draw along with the Min/Max measurements.
6. To reset the Min/Max Press R

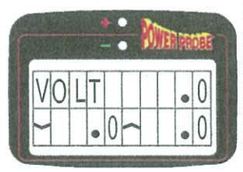
(a) Arc Detect

On 12 volt systems, the incidence of arcing is low therefore, for ease of operation the Arc Detect has been disabled in all modes. Arc detect is functional in Power Probe mode only when the source voltage exceeds 16V. Arc detect can interfere with the function of some devices. When using the HOOK on vehicles with 24V and above source voltage, it may be necessary to use Power Plus mode if the device you are powering are electrically very noisy as on some motors or horns. Use caution and follow instructions on how to properly power up a circuit. Because of the danger present with higher voltages to the vehicle and you, it is recommended to use Power Probe mode for powering up in these higher voltage systems when

VII- VOLT METER MODE

The Volt Meter Mode is a passive mode. The (+) Power and (–) Power buttons are not active so dynamic circuit testing cannot be performed. This means, no Power will be activated to the probe tip even when you press the Power buttons.
Volt Meter Mode monitors the probe tip and displays 3 voltage measurements, Average, Min. and Max.
Min/Max can be reset by pressing the R button.

To access Volt Meter Mode from Power Probe Hook Mode:
1. Press SEL once.
2. Press D, 4 times.
3. Press SEL once.
4. Connect the probe tip to the circuit you want to monitor and test.
5. Press R to reset the Min/Max

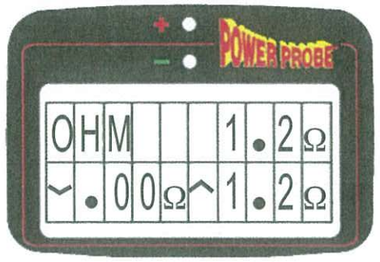


When you touch the tip to the positive battery post the average reading and the max will read the same. The Min will remain 0 since it recorded the previous low.

Now reset by pressing the RIGHT ARROW button. Min is now the same as Max.

VIII - OHM METER MODE

Ohm Meter Mode monitors the probe tip and displays 3 resis tance measurements, Active, Min. and Max. The Ohm Meter Mode is a passive mode. This means no Power will be activat ed to the probe tip even when you press the Power buttons.



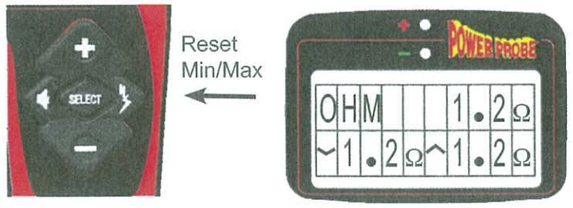
To access Ohm Meter Mode from Power Probe Hook Mode:

1. Press SEL once.
2. Press D, 5 times.
3. Press SEL once.
4. Connect the probe tip to the circuit you want to monitor and test.
5. Press R to reset the Min/Max.

This mode can only display ohms. In order for Ohm Meter Mode to operate there must be no voltage on the circuit. If the probe tip comes in contact with voltage the Over Voltage alert will sound.

It is necessary to connect the ground lead to a chassis or other common ground point to accurately measure 2 Ohms or less. This will eliminate voltage drops within the 20 ft cable and improve the accuracy.

APPLICATION: If you have a wire bundle and suspect the wiring may have a short or open, you can connect the tip to the circuit and check that the resistance is within the expected limits. If it is, reset the Min/Max by pressing the R button, then move or wiggle the wire bundle. If a wire has an intermittent open, you will see a sudden change in the Max reading. Its exact reading may not be of value as much as the change in reading. If there is a sudden short in the wire, it will be cap tured on the Min reading. Again, it is the sudden change more than the actual reading that tells you there is a problem with that wire.



Once you have captured Min/Max data, the data will remain on the display until a new Min/Max either overrides it or until you press the R button, which will reset the Min/Max to Average. Ohms Min/Max is a feature of the Ohm Meter Mode only. It is not available in Power Probe Hook Mode. To return to Power Probe Hook Mode, press SEL button once or press the L but ton to return to the menu. To return back to Ohm Meter Mode, follow steps described previously.

IX - INJECTOR MODE

Injector Mode serves two purposes.
First the ability to test the fuel injector driver and second to test the injector circuit itself.

First, unlike standard Noid lights that require you to disconnect the injector harness, The HOOK can be back probed into the fuel injectors control circuits at any location. Once connected, select the Injector Mode. Now if you have a no start, crank the vehicle and you will see the LEDs flash and hear the speaker at the same rate the driver is controlling the injector.

Many vehicles today need to have the injector connected for the driver to function and are impossible to access. A standard Noid light will not work as a tester because of these limitations. The flashing LED's and audio monitoring of the injector driver are designed for cranking and lower rpm's.

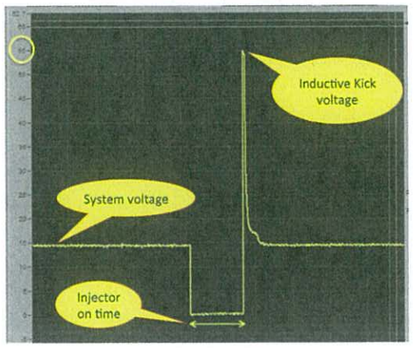
Second, the display will indicate the inductive kick voltage of the injector circuit. This is a direct result of the strength of the injector coil. When comparing all of the injector inductive kick voltages, the weak coil or circuit with high resistance will stand out. Think of this as the quickest injector circuit tester on the planet, scope like data without the scope.

When the inductive kick voltage exceeds 35V, both red and green LED's will flash simultaneously at the rate the injector is firing based on cranking or idle speed letting you know it is operating. This is not to be confused with a Noid light. If you see voltage dropping below an expected level or an unexpected disruption in the audible and visual indicators, you will have the information as to the condition of that injector or circuit.

Let's understand how to use this data. No flashing LED's and no speaker tone can mean the driver is not working or an open circuit. LED's flashing/speaker tone means that at least 35 volts has been measured in the inductive kick. This means the injector driver is working. Now we can pay attention to the actual voltage reading. Normal inductive kick voltages vary from manufacturer to manufacturer. With that said, you can expect a range from approximately 50 to 80 volts. The important point here is to compare all the voltage readings from the vehicle's injectors. The one that is different from the rest will be revealed. The lower voltage indicates a weak injector coil or high resistance in the circuit. When cranking the engine it may be necessary to use an extension lead if you do not have a method to turn the key outside the vehicle

NOTES: Counter mode including pulse width and duty cycle is not intended for use on fuel injectors. Injector mode will not provide any usable data on the 12volt supply to the injector. It is designed to read the fast rapid rise of the inductive kick only.

Typical Injector Pattern Basics

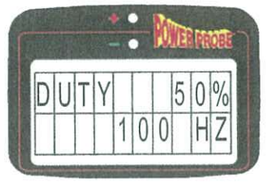


X - COUNTER MODE

Counter Mode is a passive mode. The (+) Power and (–) Power buttons are not active so dynamic circuit testing cannot be performed. This means, no Power will be activated to the probe tip even when you press the Power buttons. Frequency Counter is a feature of Counter Mode. In Counter Mode you can check Pulse Count, Duty Cycle and both Positive and Negative Pulse Widths. These extra features are useful for measuring signals that are used for sensors, injectors and other signal related components. Each feature will display the selected meter on the top of the display and frequency on the bottom except in Pulse Count.

a) Duty Cycle/Frequency

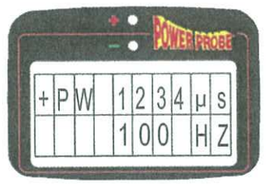
Duty Cycle is used for checking Cruise Controls, Idle Air Control Motors and Fuel Metering Solenoids.



To access Duty Cycle/Frequency from Power Probe Hook Mode:
1. Press SEL once.
2. Press D, 6 times or U, 5 times. It displays COUNT MODE DUTY CYC
3. Press SEL once.

b) Positive Pulse Width/Frequency

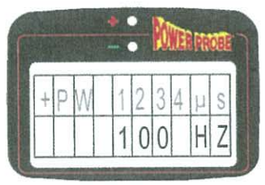
Use Positive Pulse Width to check the time a fuel injector is ON, which is the time the ECM/ECU transistor is being pulled to ground. On time. In seconds.



To access Pulse Width/Frequency from Power Probe Hook Mode:
1. Press SEL once.
2. Press D, 6 times.
3. Press R, once.
4. Press SEL once.

c) Negative Pulse Width/Frequency

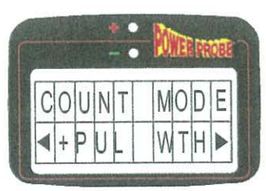
Use Negative Pulse Width to check the time a fuel injector is OFF. Off time. In seconds



To access Negative Pulse Width/Frequency from Power Probe Hook Mode:
1. Press SEL once.
2. Press D, 6 times.
3. Press R, twice
4. Press SEL once.

d) Pulse Counter

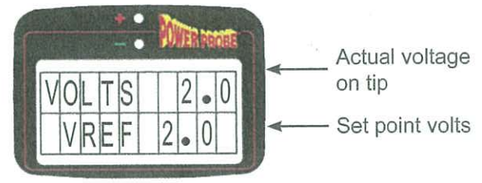
Counter can be used to check Knock Sensors, Wheel Speed Sensors, Cam Sensors, Crank Sensors and other similar devices where number of counts may be valuable. The maximum pulse rate for the pulse counter is 5 kHz.



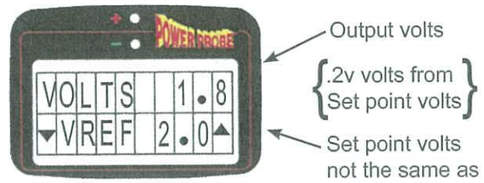
To access Pulse Counter from Power Probe Hook Mode:
1. Press SEL once.
2. Press D, 6 times or U, 5 times.
3. Press R, three times. It displays COUNTER.
4. Press SEL once.

XI - VOLTAGE REFERENCE SUPPLY MODE

Voltage Reference Supply Mode is an active mode but it does not function the same as the normal Power Probe Hook Mode activation. It has selectable voltage output to the probe tip that is limited to 20 mA.



To access Voltage Reference Supply Mode from Power Probe Hook Mode:
1. Press SEL once.
2. Press D, 7 times or U, 4 times. The display shows VOLTAGE REFERENCE.
3. Press SEL once.
4. Press U repeatedly to increase the voltage on the probe tip and press D repeatedly to decrease voltage on the probe tip.
5. Press R once to turn off reference voltage at the probe tip The reference voltage peaks at 5 volts max.



Set Point voltage alarm sounds.Remove and check circuit for shorts or other malfunction.

APPLICATION: This can be useful when checking the wiring to an ECM/ECU. After you have checked out your sensor using the voltmeter and or ohmmeter, if there is still a problem, you can simulate the voltages that are put out by sensors in order to verify the wiring going to the ECM/ECU. Using an OBD scanner you can verify the results out of the ECM/ECU. You can select voltages from 0 to 5 VDC in .5-volt increments (Default is 0 volts)
The actual voltage on the tip will be displayed on the top of the screen and the set point voltage displayed on the bottom. There is a Set Point Voltage Alarm in case the circuit connected to the probe tip forces the voltage above or below the set point voltage by .1 volts. This is separate from the Over Voltage Alarm that trips at >99.9 Volts. The Set Point Voltage alarm will emit a short tone and you will notice the difference from the actual voltage at

XII - CONTRAST

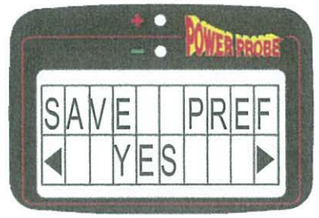
If the contrast between the characters and the display need adjusting you can do this in CONTRAST.

To access Contrast from Power Probe Hook Mode:
1. Press SEL once.
2. Press U, 3 times. The display shows CONTRAST.
3. Press R or L to the desired Contrast.
4. Press SEL once.

XIII - SAVE PREFERENCES & DEFAULT SETTINGS

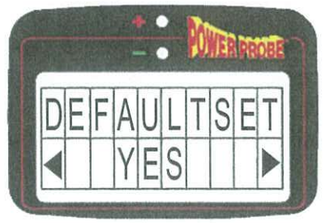
Save Preferences: If you have certain preferences you would like to save because you use them often. You can select SAVE PREF. All preferences will default to these saved preferences on Start-Up.

To access Save Preferences from Power Probe Hook Mode:
1. Press SEL once.
2. Press U, 2 times.
3. Press R, once.
4. Press SEL.



Default Reset: If you want to reset the Default to factory presets. You can use DEFAULTSET.

To access Default Reset from Power Probe Hook Mode:
1. Press SEL once.
2. Press U, 2 times.
3. Press R, 3 times.
4. Press SEL.



Safety

Safety Information: ALWAYS USE SAFETY GLASSES, OR EYE PROTECTION.

There are a number of safety features built in to the Power Probe Hook to protect the tool, the test circuit and you! Below is a list and brief description of all the safety features.

1. Circuit Breaker:
Shuts off current to the tip if set value is exceeded. Plays tone specific to Circuit Breaker trip. In momentary you must re-energize the Power Up buttons, in Latch Mode and Pulse Mode, power re-energizes automatically. Only available in Power Probe Hook Mode (HookM) and Power Plus Mode.

2. Thermal Overload Trip feature
Powering up loads generates heat within a circuit depending upon the load and the duration. The Power Probe Hook has built in calculated thermal protection. This means the higher the load and longer the duration, the higher the Power Probe Hook will assume its internal temperature. The Power Probe Hook can drive a 25 amp load continuously but can only drive a 65 amp load for about 8 seconds. If the thermal overload is tripped, the power will be terminated and the thermal overload warning, "OVER TEMP" will appear on the display with a count down bar that will countdown for 10 seconds. You will hear a tone specific to Thermal Overload. If the load is immediately repowered again after the Thermal Overload, the run time will continue to shorten before Thermal Overload triggers again.

3. Overvoltage Alarm
If the voltage on the tip exceeds 99.9 Volts AC or DC the display will read Overvoltage and you will hear a specific tone. The Hook has been rated for + or - 500VDC maximum to protect the tool. Available in all modes.

4. Sleep Mode
Sleep Mode is designed to preserve the life of your Display Back Light. Sleep Mode only works in Power Probe Hook Mode when not being used. If you leave your meter in any other mode the Hook will stay active. The life of the Backlight is 10,000 hours. Leaving the Hook Powered Up in any mode other than Power Probe Hook Mode will subtract from the overall life and is not recommended. If you have powered up the Hook and it is sitting in Power Probe Hook Mode with no action being taken for 10 minutes, your Hook will enter into Sleep Mode. At this time the Flashlight and Backlight will be turned off and SLEEPING will appear on the display. If the tip senses a change or any button is pressed, the Hook will wake up. It is ok to press any button when in sleep mode to wake it up. If a button is pressed when asleep no action will be taken for the button pressed at that time only. The next press will be active. Available only in Power Probe Hook Mode.

5. Set Point Voltage Alarm
In Voltage Reference Mode only, if the voltage on the tip is different from the set voltage, a tone will sound.

6. Reverse Polarity Hook Up
The Hook has built in protection against reversing the polarity of the Hook Up Clips.

7. Fuse protection
The Power Probe Hook Up Clip set has built in fuse protection. Never try to connect your Power Probe Hook to a battery without the proper supplied connector. Fire can occur! If the Hook Up Clip set is in proper working order, a light can be seen glowing within the side of the connector body. If your Power Probe Hook is not powering up, check to see that the light is lit. If not and the polarity is correct, you need to replace your Hook Up Clip set and have your Power Probe Hook inspected for possible damage before using again.

The Ground Cable also has a fuse protection in the event that the Ground Cable comes in contact with a positive battery source or it exceeds 25 amps continuous when using the Ground Cable as ground source. It has a replaceable 20mm x 5.5 mm automotive fuse. To replace fuse, pry out fuse cover from Ground Cable connector body, remove old fuse and insert new. Press back into Ground Cable connector body.

Facts & Tips

• Don't forget to warranty your product by going to www.powerprobe.com/warranty/ or fill out & mail in the warranty card.

• Power Probe Hook Mode is Auto Selecting and Auto Ranging. This means you don't have to figure out which button to press to get Volts or Ohms and Amps will display when you press the power button.

• Take the time to get very familiar with the preference line of the Hook. (See section III-a)
The symbols at the top of the display after boot up are the default preference values. If you change the preference values, the values at the top will change accordingly. This way you always know how your Hook will operate.

• Battery voltage will always be displayed on the lower line in Power Probe Hook Mode when the tip is unloaded. The first thing you must do after power up is look at the battery voltage and decide if it is within operational voltage of the Hook, 9-48 VDC. If the Hook doesn't power up, check your battery first, then make sure your battery clips are on the correct polarity and the LED in the battery clips is lit.

• The menu system is like a corridor. When you first power up, you will be put into the room Power Probe Hook Mode. You can enter into to the corridor by pressing the SELECT button. You can move up and down the corridor using the UP or DOWN ARROW buttons to reach different doors. You can enter any room along the way by using the RIGHT ARROW button. You can exit these other rooms by pressing SELECT or the LEFT ARROW button.

• All preferences will return to default on the next power up unless you use the Save Preferences function. If you like where you have set your preferences and want to save them, use the Save Preferences Option. (see section XII)

• If you don't like your saved settings, use Default reset to restore factory settings. (see section XII)

• Min/ Max are NOT found in Power Probe Hook Mode. It is only found in Volt Meter, Ohm Meter and Power Plus Modes.

• There is an Arc Detect function that is designed to preserve your tip and circuit. It is active in Power Probe Hook Mode but is not in Power Plus Mode.

• Components that depend on arcs such as horns and motors can be affected by the Arc Detect circuit. Most horns and motors should not be affected but depending on the component and its age, there may be interference caused by Arc Detect. If you intend to power up something like a motor or horn you can go directly to Power Plus Mode and apply full power. Caution must be used on high current devices. Always use the Power Probe Hook safely as described in the manual.

• The larger the current draw the less run time before Thermal Overload Protection is activated. It is not a sign of component failure. The Hook is protecting itself. The longer the cool down time the longer the subsequent run time and vise versa. Thermal overload will shut down power for 10 seconds if triggered. The Hook can run 25 amps continuously.

• There are 4 types of meters in Counter Mode including a simple pulse counter, positive and negative pulse widths and duty cycle. All but pulse counter display frequency with the selected meter.

• There can be AC signals in DC systems. If you want to measure them, lower your AC threshold setting to the lowest setting to display a peak to peak voltage when an AC voltage greater than that setting becomes present on the tip. Increase the sensitivity to only detect higher levels of AC voltage when present. AC Peak to Peak will override Volt Meter when in Power Probe Hook Mode. Set the AC Threshold preference to the highest setting if you find that unimportant AC signals are interfering with your DC voltage readings.

• This device is NOT intended for AC voltage measurements other than those in DC systems from 12-48VDC.

AC Peak to Peak and Frequency are the same function.

• The speaker can only be turned on and off in Power Probe Hook Mode.

• The Red and Green LED's will not detect Voltage Drop unless in Power Probe Hook Mode.

• You may have to adjust your Voltage Drop preferences to get the Red/ Green LED's to work as a Voltage Drop Meter.

• When the 3 wire continuity plug is inserted into the jack, the Red/Green LED's are now dedicated to the Continuity Tester. They will respond to either the red or green wire respectively when touched to the black. You can still use the Hook normally to power up or read voltage, ohms or amps.

• The auxiliary ground has a replaceable 25 amp fuse. Always touch it to the tip for continuity before using it to make sure the fuse is not blown.

Specs...

Product Specifications

Min Operating Voltage	12 VDC
Max Operating Voltage	48 VDC
Voltage Measurement	0-99.9 VDC/ VAC
Ohms Measurement	.001 Ohms – 15 Mega Ohms
Amps Measurement	.001 Amps – 99.9 Amps
Max Continuous Load	25 Amps
Max Intermittent Load	65 Amps for 8 Sec.
Hook Up Cables	10 Gauge
Input Impedence	1 Mega Ohm

Environmental...

Operating Temperature	-10C to 50C (14F to 122F)
Storage Temerature	-40C to 65C (-40F to 149F)
Humidity	95% RH 10C to 30C (50F to 86F)
	75% RH 30C to 40C (86F to 104F)
	45% RH 40C to 50C (104F to 122F)