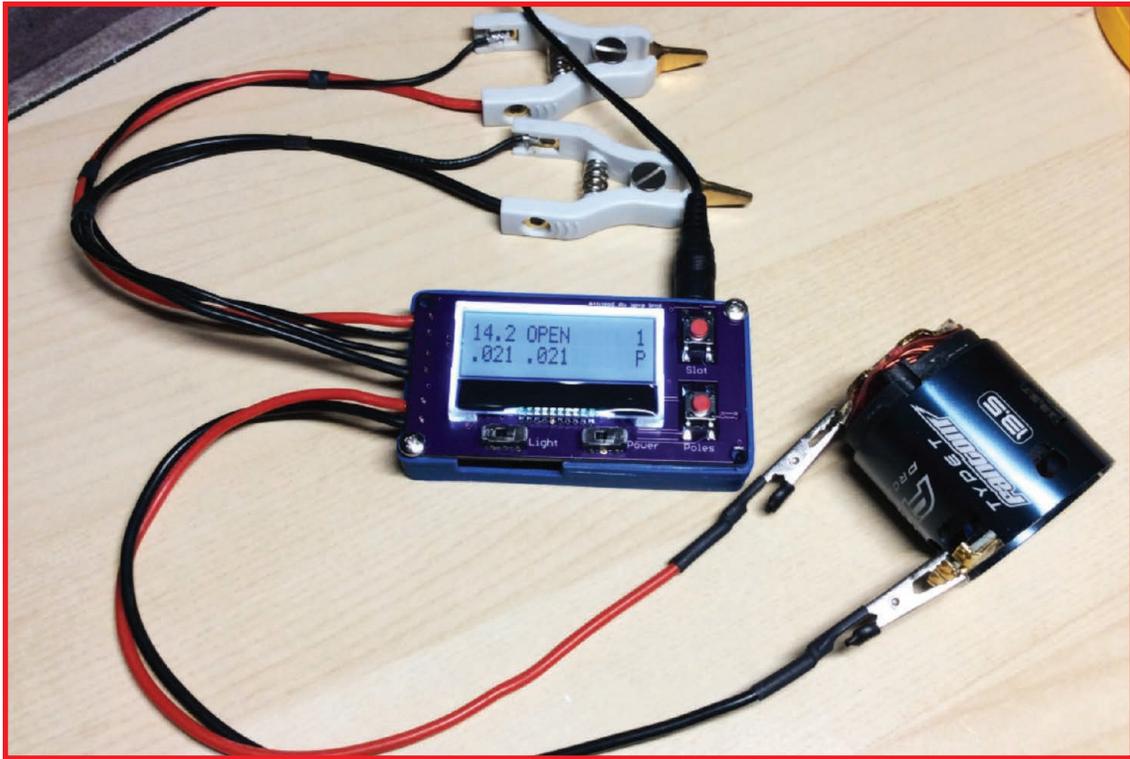


FANTOM

FACTS MACHINE 3S

PRECISION BRUSHLESS RESISTANCE / INDUCTANCE METER

USERS MANUAL



The Brushless Stator L/R meter measures resistance (R), and Inductance (L) of high-performance motor stator windings. The resistance range is zero to 999. milliohms. The inductance range is zero to .999 milliHenries.

The supplied power adapter is rated at 6vdc. The meter checks the supply voltage upon startup and will not operate if the supply is less than 4.5vdc or greater than 7vdc. It is recommended to turn the meter off and unplug the adapter from the AC outlet when not in use.

The display can be operated with or without the backlight turned on.

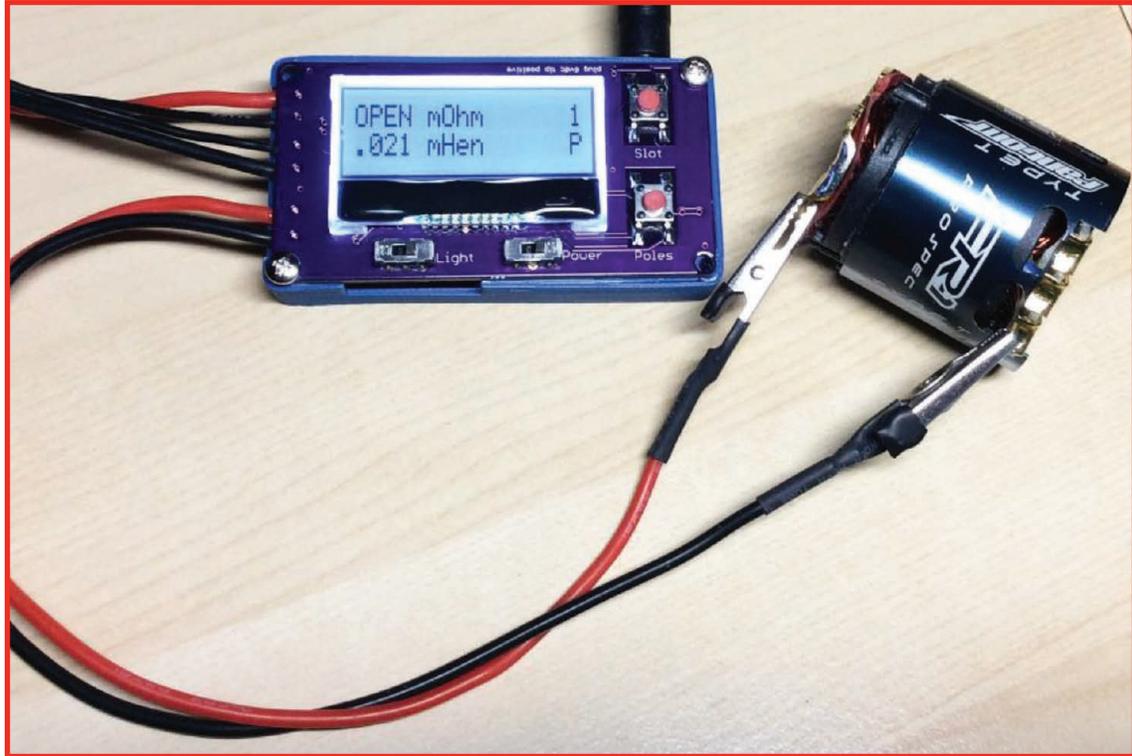
The display is divided into three sections, or slots, so that three sets of measurements can be captured and displayed at one time. The **Slot** button activates the next display slot, leaving the measurements of the previous slot on the screen.

You can also do a long-press of the **Slot** button to erase the values in the current slot without moving to the next slot. This allows you to re-measure the current pole before moving on to the next.

The **Poles** button can be used to toggle between 1 and 2. The 2 setting causes the R value to be divided by 2 for when measurements are taken across two stator poles. The poles setting does not affect the L reading.

The meter is factory zeroed and calibrated so the user should never have to perform these tasks.

WWW.FANTOMRACING.COM



MEASURING INDUCTANCE ON FIRST POLE

Using the Meter

1. Insert the power adapter into a 110v outlet or power strip and insert the barrel plug into the meter.
2. Flip the power and backlight switches to the right.
3. After displaying the supply voltage, the meter goes into measurement mode and displays "OPEN" on the top line (R) and the bottom line (L). The "1" and "P" on the right side show the meter has defaulted to single pole measurements. The values displayed will blink to remind you which of the three display slots is active.
4. Connect the two smaller alligator clips across one pole of your stator as shown in the photo above. It doesn't matter which clip goes to common and which goes to the solder terminal.
5. The value might change as the meter captures the lowest value it sees, so wait for a few seconds for it to stabilize.



MEASURING R ON FIRST POLE

6. Remove the L clips. NOTE: Occasionally, the removal of the L clips will cause the value to drop even lower. If this occurs, you can do a long press of the slot button to reset the value, and reattach the L clips to take the measurement again.
7. Once you have an L measurement, you can now attach the larger R clips across the same pole, as in the photo above.
8. Try to get as much contact area between the clips and the common and terminals as possible, and wiggle them to make sure they are well-seated.
9. This is where the contact resistance of the clips can be significant, causing the R value to vary, so watch for the lowest value to ensure the clips have a good grip.
10. With the clips still attached, hit the Slot button. This will activate the second display slot and freeze the R value on the first slot, as well as the L value.
11. Remove the kelvin clips from the stator. The R reading in slot 2 should go to "OPEN".

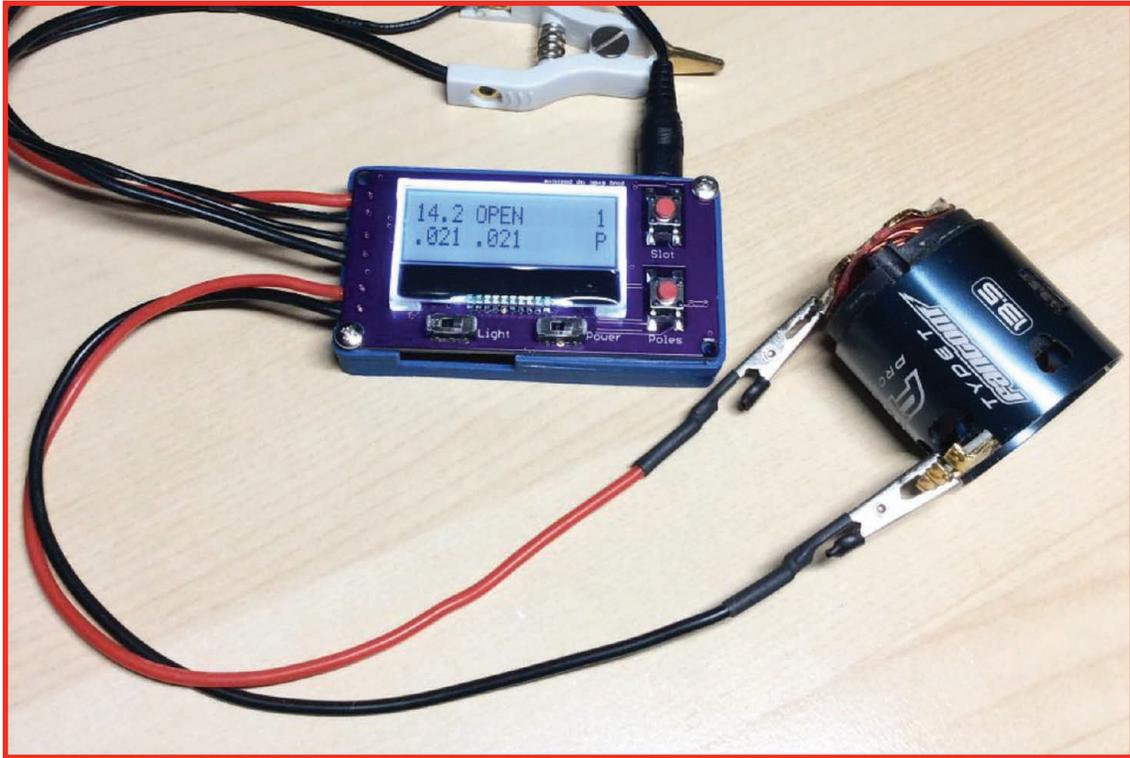


DONE MEASURING FIRST POLE, READY FOR SECOND POLE

Now you can repeat the process starting at Step 4 to measure the next two poles of the stator.

Just remember that you have to hit the **Slot** button BEFORE removing the R clips to capture the reading for that pole.

How you label the poles and the sequence in which you measure them is up to you.



MEASURING SECOND POLE

If you are only interested in R values, you can skip using the L clips entirely, but you still need to hit the Slot button before removing the R clips from the previous pole.

You can also do a long-press of the Slot button to erase the values in the current slot without moving to the next slot. This allows you to re-measure the current pole if you feel you need to double-check the measurement.



MEASURING ACROSS TWO POLES WITH POLES SETTING AT 2

If you want to make measurements across two poles, which does not require access to the common, you can use the Poles button to set Poles to 2, and connect the clips to two of the solder terminals.

The 2 setting simply causes the R reading to be divided by 2, effectively showing you what a single pole would measure assuming the two poles are identical.

The 2 setting does not affect the L display.

Note that an L measurement across two poles will not necessarily be twice that of a 1-pole L measurement, since the inductance of two poles connected at 120 degrees is not a simple addition.