



# SKF Static Motor Analyzer Baker DX

## Quick Start Card

### Ensure safe operation

#### WARNING

Be sure to comply with all safety procedures prescribed by your organization, industry, and governing standards. Failure to heed safety precautions can result in injury or death from severe electrical shock.

Refer to the Baker DX User Manual for complete safety information.

Ensure that all power and cable connections are properly made before and during testing.

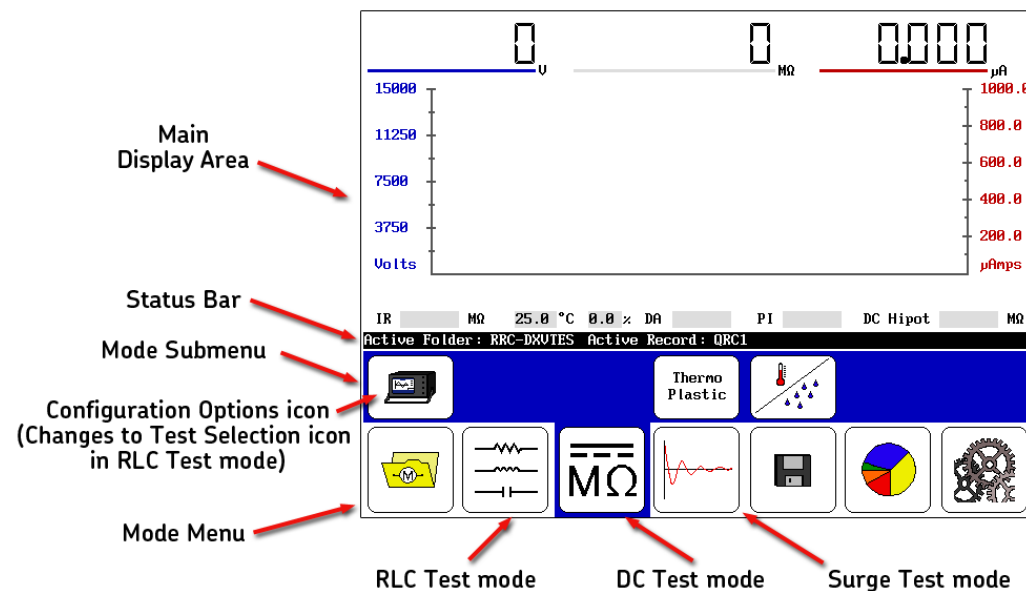
Acquaint yourself with the user interface elements so you can more easily navigate the software during testing. Touching the icons in the Mode Menu will show you the primary screens used during testing, software setup, and managing data.

### Select folder and record for saving data

1. Click on the **Data Folder** icon in the **Mode Menu** to load the **Folder** and **Record** lists into the **Main Display Area**.

2. Select the folder and record needed for your test, or create a new one.

3. As you execute your tests, ensure that test data are properly saved at practical intervals. Ensure that the **Active Folder** and **Active Record** shown in the **Status Bar** display the proper location for saving test data for your motor.



### Recommended testing sequence

1. Resistance, inductance/impedance, capacitance tests.
2. DC (insulation resistance, DC-HiPot, PI/DA, Step Voltage) tests.
3. Surge tests (with PD optional).

Perform a sequence of progressively more rigorous tests. If a test fails, you should troubleshoot, diagnose, and repair the problem before continuing with the next test in the sequence.



#### NOTE

When possible, remove or secure the rotor before testing to ensure accurate measurement.

### Resistance, inductance/impedance, capacitance tests

Uses low-voltage test leads.

1. Touch the **RLC Test Mode** icon.

2. The RLC Test Selection icon defaults to **Resistance Test** to start the sequence.

3. If performing temperature compensation, touch the icon for the proper type of conductor metal: aluminum or copper (**Copper** icon shown).

4. If you need to define temperature compensation, touch the **Temperature** icon, then use the popup keypad to input actual temperatures (default is 25° C).

5. Push and release the **Start** (PTT) button to run the test. The resistance test will be run for all three phases automatically. The "Leads Energized" message will appear at the top of the display.

6. If this resistance test was run as a standalone test, save the results. If you plan to collect inductance and/or capacitance test data as well, you can save all results at one time when the sequence completes.

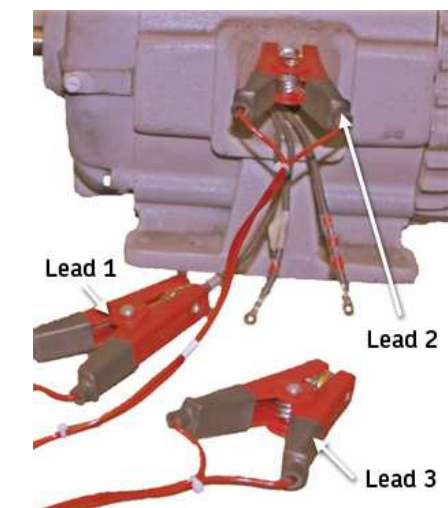
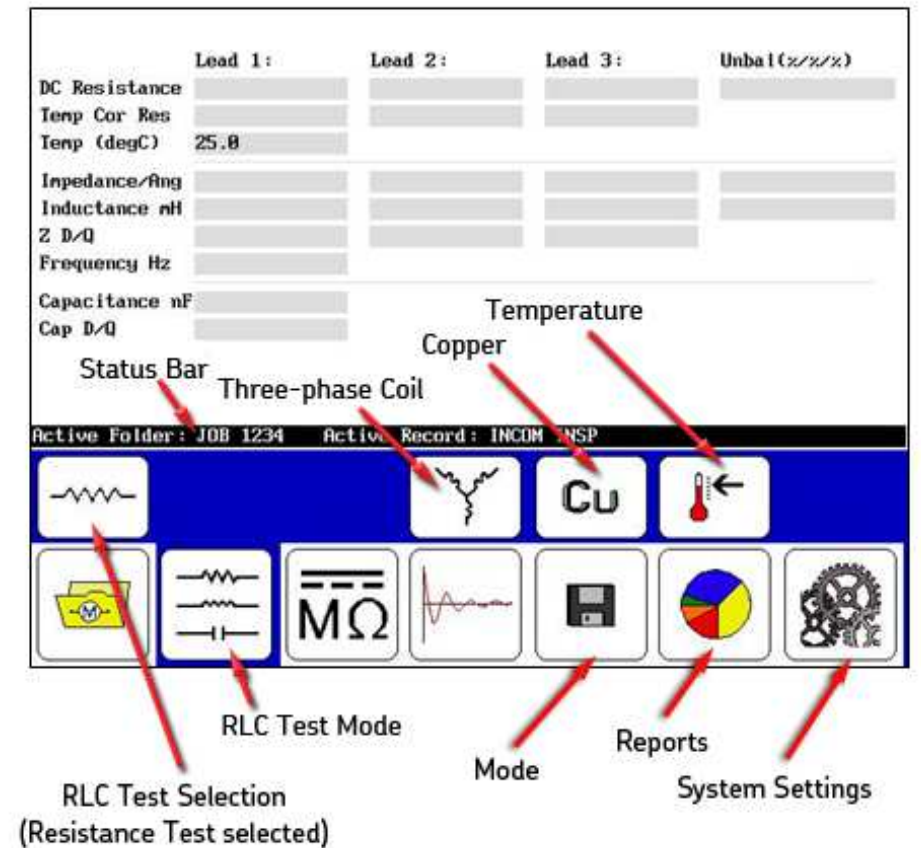
Inductance testing is conducted in a similar manner. Select the **Inductance Test** icon to run an inductance test (**Resistance Test** icon shown above) then select the frequency used to test inductance. Push and release the **Start** (PTT) button.

Capacitance testing is also conducted in a similar manner;. However, you must revise the test lead connection as follows:

1. Connect low-voltage RLC test lead 1 to any motor lead.
2. Connect RLC lead 2 to ground.
3. Disconnect RLC lead 3 and leave disconnected in a safe location.

Note that capacitance tests are restricted to 4 kHz.

View test results for RLC tests by touching the **Reports**, **Display** then **RLC Tests** icons.



## NOTICE

Because the motor's operating voltage is the basis for the test voltages used, you must determine the input values before starting DC or Surge tests.

Using VLL = 480 volts as an example, the base value for the DC and Surge tests would be:

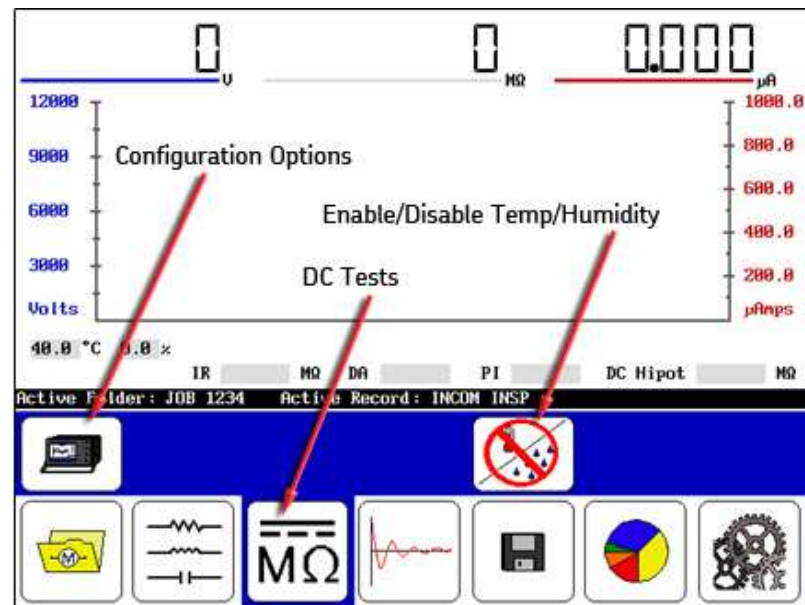
$$(2 \times VLL) + 1,000 = 1,960 \text{ volts (2000 volts)}$$

Refer to the *Baker DX User Manual*, "Appendix C — DC and surge tests voltages" for more information.

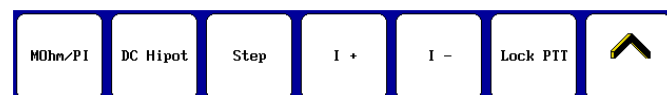
## DC tests

Uses high-voltage test leads.

1. Touch the **DC Tests** icon then the **Configuration Options** icon when it appears in the submenu. Icons for installed options will appear in a popup menu, presenting a choice of operation such as a standalone unit or power pack unit.
2. For the following example, touch the **Standalone Unit** icon.
3. Compensate for temperature and record humidity if needed by touching the **Temperature/humidity** icon. (Refer to the *DX Quick Reference Guide* for details.)



4. Push and hold the **Start (PTT)** button; the following controls appear in the **Mode Submenu**.



5. Rotate the **Voltage Output Control** knob on the front panel to raise the voltage level to the motor's target voltage (500 volts using the 480-volt motor example).
6. Touch the **MOhm/PI** icon to start the megohm insulation resistance (IR), dielectric analysis (DA), and polarization index (PI) tests.
7. Use the **Increase Current Display Scale (I+)** or **Decrease Current Display Scale (I-)** icons as needed to adjust the current's scale.
8. If hands-free testing is desired, touch the **Lock PTT** icon. When the icon changes to a yellow highlight, release the **Start (PTT)** button.



## WARNING

*Never leave the unit unattended when using the Lock PTT feature. High voltage may be present, which could result in injury or death from severe electrical shock.*

9. The **Status Bar** displays a countdown timer for the megohm, HiPot, and step voltage tests. As each test progresses, the **Main Display Area** shows the IR results after 60 seconds, the DA results after 180 seconds, and the PI results after 600 seconds.

## Conduct a step voltage test (optional)

1. Following the PI test, conduct a step voltage test if desired.
2. For this example, use 4 steps of 500 volts each (based on the 2000 volt test voltage noted above for a 480-volt motor).
3. Touch the **Fast** or **Slow** icons as needed to control ramping rate.
4. Alternately use the **Fast/Slow Ramp Rate** icons to control the rate of voltage change while turning the **Voltage Output Control** knob.
5. Touch the **Step** icon to run the first 60-second test. Repeat the steps for each 500-volt increment until you reach the maximum voltage.

## Conduct DC HiPot test

1. The HiPot test can be run by itself or to supplement the results of the step voltage test.
2. Touch the **Fast** or **Slow** icons as desired.
3. Use the **Voltage Output Control** knob to set the voltage to the desired HiPot voltage (2000 volts to continue with this example).
4. Touch the **DC Hipot** icon to run the 60-second test.
5. When the test completes, touch the **Lock PTT** icon to disable the lock. The test leads will de-energize, but allow the unit to discharge completely before disconnecting test leads.
6. Touch the **Save** icon to save the test results to the active folder and record.

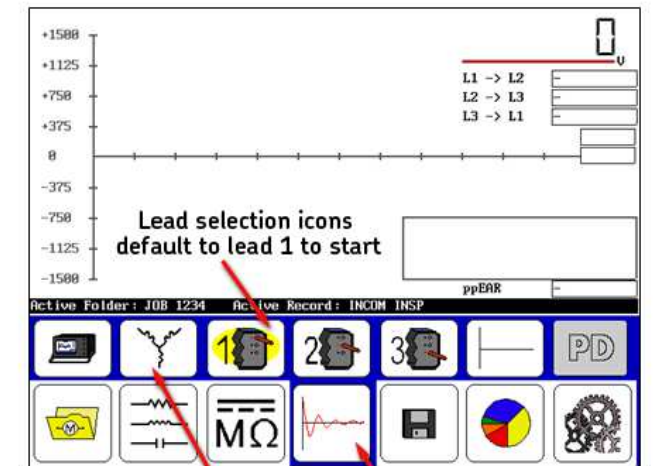
*Note that the example DC tests presented here were chained together in a recommended best-practice approach. You may separate and perform them individually or in other combinations as required or preferred.*

View test results for DC tests by touching the **Reports, Display**, then **DC Tests** icons.

## Surge tests

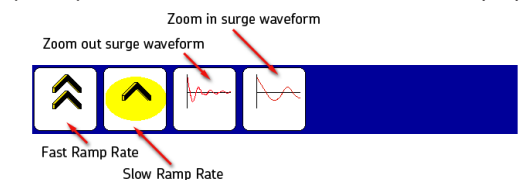
Uses high-voltage test leads.

1. Touch the **Surge** icon to bring up the *Surge Test Start* screen as shown below. The first submenu item is the **Configuration Options** icon, which should already show the **Standalone Unit** icon for this example.



2. Touching the **Coil Mode Selection** icon in the **Mode Submenu** brings up the popup menu needed to select the proper test mode. For this example, touch the **Three-phase coil mode** icon.

3. The **Lead Selection** icons default to coil No. 1 to start the test.
4. Press and hold the **Start (PTT)** button and the *Scale Control* popup menu appears.



5. Alternately use the **Fast/Slow Ramp Rate** icons to control the rate of voltage change while turning the **Voltage Output Control** knob.
6. Use the **Surge** waveform zoom icons to adjust the display scale of the surge waveform.
7. Release the **Start (PTT)** button when you reach the test voltage level (2000 volts for this example) and can see the first waveform.
8. If the motor being tested uses windings with wye or delta configuration, touch **Lead Selection** icon 2 and repeat steps 4–7 then repeat for **Lead 3**.
9. When you have completed testing all three phases, save your results.

View test results for Surge tests by touching the **Reports, Display**, then **Surge Tests** icons.

