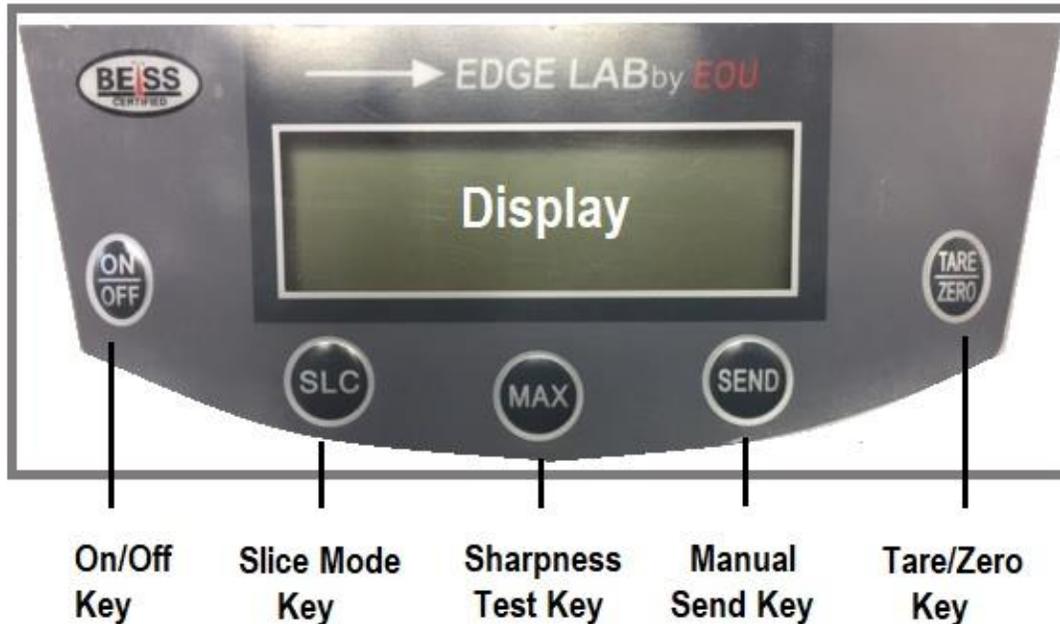


Operating Instructions For EDGE LAB A · EDGE LAB B · EDGE LAB C

WARNING! Handling and testing sharp edges can result in cuts and lacerations if proper care and precautions are not taken. Wear cut-proof gloves and long sleeves when testing edges and make certain that the points of knives are shielded with protective coverings (i.e. layered tape) to avoid puncture wounds.



Congratulations on your purchase of Edge Lab®! Edge Lab is the most comprehensive edge testing and discovery tool ever offered. Not only does Edge Lab enable the user to measure the sharpness of an edge but can ascertain the slicing efficiency of that same cutting edge/blade as well. Additionally, if you have purchased our CNC10 accessory fixture separately, a whole new and even larger world of experimentation and discovery awaits you.

Force, time and depth of cut data are all captured in Slice Mode. This permits in-depth analysis and examination of the cutting ability of edges under different test conditions and turns even ordinary folks into edge scientists.

So, let's get started expanding our knowledge of edges and blades, what benefits us and what doesn't, what matters a lot and what matters a little... and precisely how much of each.

Installing Software · Some Edge Lab functions may be completed without installing the Edge Lab user interface but full use requires a connection to a PC. The Edge Lab user interface is easily installed.

Two versions of the user interface are available – Standard and Professional. If you purchased Edge Lab C – Standard was shipped with your instrument. If you purchased Edge Lab A or B, Professional was shipped with your instrument. Standard software may be upgraded to Professional at any time by ordering from our on-line store. Follow these steps to install either user interface on your Windows 7 – 10 OS computer.

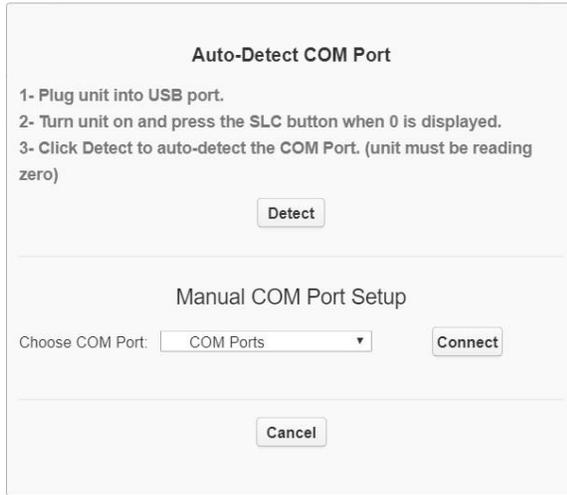
- 1 · Insert provided thumb drive into PC USB port.
- 2 · You can install right off the thumb drive or create a new folder on your computer and then transfer installer file (either Edge Lab Pro Setup or Edge Lab Std. Setup) from the thumb drive and into the new folder.
- 3 · Double click the new file in the new folder/thumb drive to begin installation and follow installation steps.
- 4 · If the Windows Firewall and/or virus software balks at installing the user interface because it contains an executable file, then click "info" or "options" and confirm that the source of the software is trusted.



Once software installation is complete, an Edge Lab program icon should have been installed on your desk top. Double click this icon whenever you want to start the program

Now connect your Edge Lab instrument to your PC via the provided DB9/USB cable. Use of the retaining screws on the DB9 connector may be useful in order to make and maintain a good cable connection at the instrument. **Make certain that the DB9 connector at the instrument is fully seated!**

Open the Edge Lab user face using the icon on your desk top and at this screen:

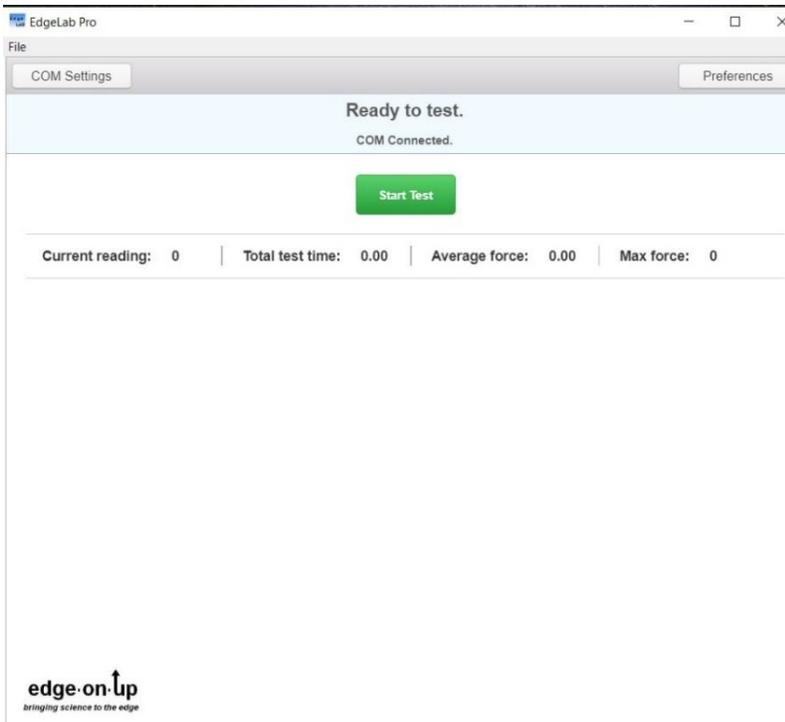


Power up Your Edge Lab instrument and once it has fully booted, press the Slice key (SLC). Now click on the “Detect” key. If the instrument is unable to locate the comport that Edge Lab is connected to then check your cable connections. When the instrument does detect the comport successfully then click “Done”.

Trouble finding the comport? We test every E · Lab’s com capability and cable before it goes in the box so you probably just got off on the wrong foot somewhere. Check your cable connections (make certain that the DB9 connector at the E ·

Lab instrument is fully seated), power down your Edge Lab instrument, power it back up, press the SLC key again, close the Edge Lab program, reopen the Edge Lab Program and then Detect

The screen should now look like this after a successful com port connection:



Under Preferences you’ll be able to select whether the slicing test ends automatically (when data values drop below the preset value you have selected) or whether you choose to end the test manually.

User selectable **start and stop** set the minimum values (in grams) where the test begins and where the test ends. The program will not begin recording values until the **start value** has been reached nor continue to log data after the **stop value** has been reached.

Choose your preferences

Auto-Stop: OFF

Start test at this value: ?

Stop test at this value: ?

Sound: OFF

Save files to: C:\Users\Mike Office\Documents/

Timeout: 60 (5 second intervals)

Sound may be turned on or off.

Select directory allows users to store edge data files generated by Edge Lab in the computer file location of choice.

Timeout sets the maximum test period length in seconds.

All test data is saved with the file extension **.csv**. CSV files may be opened readily in Excel as well as most Windows based word processing programs such as WordPad and Notepad

Begin a Slice Test by clicking the *Start Test* button on your computer main test screen and then perform the test. There is no particular rush to begin the test after *Start Test* has been clicked because logging of data (time and grams of force) will not begin until the minimum threshold of force set by you (default 10 grams) in Preferences has been met. The test will end automatically if you have selected the “Auto” option in preferences. If in Manual mode, you will need to click the *Stop Test* button to end the test.

Current Reading • Reflects the current reading on the Edge Lab Display. This is a good way to make certain that all systems are operating correctly

Total Test Time • Reflects the total elapsed time that the test required.

Average Force • Average of all gram readings from beginning to end of the current test.

Max Force • The maximum force reading recorded during the current test.

Save your test data by clicking on the *Export Data* key.

Enter Test Information

Test Name:

Media Type:

Notes:

Export Data:

Export Graph:

When you do, this handy form will appear: The **Test Name** will become your title for the saved file. The file will be saved in the location you specified in Preferences but may be changed in the File Saved dialog box.

If using a **Test Media** other than that provided by EOU then describe it here.

List any other pertinent information that you may want to make a record of in **Notes**. All of this information will be saved along with your test data. If you have the **Professional** software version you may save the graph image as a jpeg file along

with your csv. data files. Once complete, click *Export*. If you are using **Professional**, a graph of your most recent test will be generated automatically at the conclusion of each test.

You may use the *Adjust Graph* feature here to trim unwanted data from either the beginning of the test and then the end of the test or vice versa. As each trimming function is completed, the



graph will automatically redraw itself and a new average force number will be calculated.

To reset the graph to it's original form, click *Reset Graph*.

Why Trim Data? Trimming data yields a truer indication of the force and time required for any slice test. We're not normally interested in the data that preceded the actual penetration of the edge into the test media nor the data

that follows after we cut through the test media. The end of the test is quite easy to detect on the graph. The true beginning of the penetration, not quite as easy but more on that later.

Grams of force are displayed in the graph's vertical column and time in seconds are displayed along the bottom line of the graph. Data points are displayed, roughly, every 100ms (10 per second).

Place your cursor arrow over any data point along the top line of the graph slope to display both force and time.

With **Professional** you may also **copy data to your clipboard** along with any notes you may wish to add.

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Taking Edge Sharpness Readings With EDGE LAB



Edge sharpness readings may be taken in much the same way as they are with our PT50 Series units and utilize the same ATF-10G fixture and test media. Press the *MAX* mode key on the instrument keypad. Place the test media fixture on the weigh plate and magnetic base **KF-10L** (elongated version of the KF-10R) knife fulcrum on the Edge Lab cover plate as indicated in the photo below. The instructions that follow are adapted from the PT50 Series **Quick Start Guide**.

Make certain that your E · Lab unit's rechargeable battery is charged adequately and/or powered by the provided AC/DC wall transformer.

1. Place the ATF-10G and Knife Fulcrum as shown in the photograph.

2. Position the magnetic base Knife Fulcrum (KF-10L) close to the ATF so that the slot in

the fulcrum aligns with the center of the slot in the ATF.

3. Power on the instrument using the ON/OFF key and after fully booted, press the *MAX* key on the E · Lab keypad.

4. The display backlight turns on automatically once a measurement sequence begins.

Tare/Zero the unit if needed.

6. Place the tip of the knife in the fulcrum with the knife handle held up at an angle, then lower the knife handle slowly. Keep the descending knife blade/edge as close to vertical as possible during the measurement.

7. Once the knife edge contacts the test media the force applied will immediately begin to register on the display. Apply downward pressure to the knife handle while holding the tip of the knife down in the fulcrum slot. Apply downward pressure to the knife handle very slowly and gradually. If the display numbers are flying by then you're going too fast and the accuracy of the measurement can be affected. You should be able to literally count the numbers up on

the display as the measurement proceeds. On average, the actual measurement time for this process might take 4 - 6 seconds.

8. You will feel the test media sever. Stop applying downward force to the knife and set it aside. Your BESS sharpness number will be frozen on the display. This information may be sent to the PC user interface manually by pressing the *SEND* key on the keypad.

9. Remember! You cannot take a measurement too slow but you can take it too fast.

10. Always use the Knife Fulcrum when possible. The fulcrum provides control over the measurement speed and helps keep the knife blade vertical during the measurement process.

11. You may download or view additional edge sharpness testing information by reading the PT50 Series manual in the Library section at www.edgeonup.com

12. To take another measurement, rerun the test media in the ATF. View a video tutorial for rerunning test media in the ATF-10G on the Library page of our website.



Here is another tip to remember when rerunning test media:

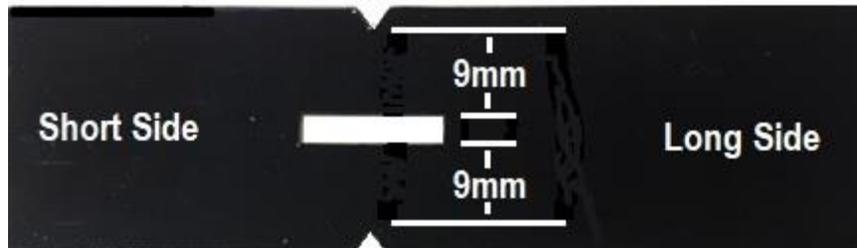
ATF-10G supplemental instructions. Your ATF-10G includes a washer and thrust bearing that acts as a rolling barrier between test media and the beveled seating surface of your ATF-10G. This arrangement prevents accidental over-tensioning and potential damage to the test media during the clamping process. Over-tensioning results in artificially low (10-20 pt.) BESS scores.

To re-run test media; loosen the plastic feed screw a full turn and then pull/feed-out the necessary amount (approximately 2.5 inches, 65mm) of test media. Snug the plastic feed screw back down. Crack the clamping nut open allowing just enough room for the test media to pass between washer and fixture bevel. With one hand, grasp end of test media and "slide" test media under washer until test media drops into slot. Pull all the slack out of the test media gently (no remaining hump or dip across the measurement gap of the ATF) and then tighten clamping nut moderately. Now you're ready to take your next edge measurement.

Can edge sharpness readings be taken in Slice (SLC) mode while using BESS TM02 test media and the ATF10G fixture? Yes they can but the benefit of doing so is likely only valuable in verifying good edge sharpness test measurement procedure and only the maximum force value achieved, not average force value, is useful information. Additionally, the Edge Lab hardware instrument calculates and displays (instrument display) data at a much higher rate than is transmitted via the RS232/USB data link to your computer. In this case, faster equates to more accurate. **With your computer link established and a version of the Edge Lab User Interface running, press the *Send* key to transfer display information from your instrument to your PC.**

Slice Measurement Test Media and Fixtures

Slice Test Media (SL100)



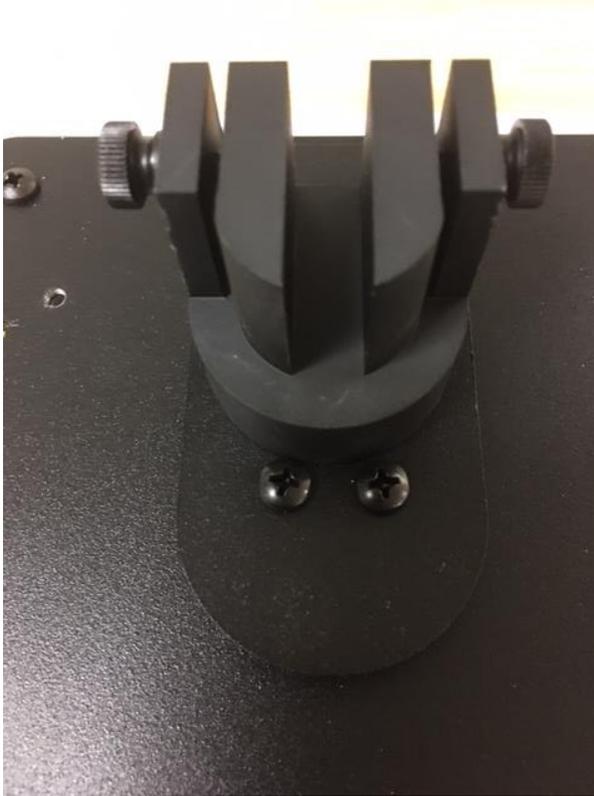
SL100 Test Media is packaged in bundles of 50 and can be used to conduct 100 tests. After completing one test, flip the strip over and conduct the next test. SL100 test media is designed to be used in conjunction with the SLF10 Test Media Fixture.

Loading Test Media into the SLF fixture. Insert the short side of the test strip into the fixture until it is flush with the rear of the fixture then pinch that side with the clamping screw. Bend the long end of the strip around and into the other slot. Use the excess strip material at the rear of the fixture to grip and tighten the test media against the radius of the SLF10 fixture, then pinch with the other clamping screw. Using this method insures a quick and correct alignment of the test media in the SLF10 fixture.

Let's talk a bit about SL100 test media and the SLF10 fixture. EOU provides SL100, a polymer compound, nominally .010" (.25mm) thick and notched so that it may act as standard for sharpener to sharpener and edge to edge comparisons. SL100 test media is not BESS certified but we hope, soon, that it will be. Your E · Lab A, B, or C instrument are BESS Certified instruments but only when conducting edge sharpness tests using BESS certified test media and the ATF10G fixture.

In addition to being highly reproducible and very resistant to **tear propagation**, SLF100 test media is strategically notched to insure that each depth of cut is the same but neither the SLF fixture, or you, are limited to testing with SLF100 test media. Any material that is less than 2mm (.079") thick and flexible enough to bend around the radius of the SLF fixture is a potential candidate for experimentation and testing. Industrial users will find this capability very useful as will the simply curious.

Taking a Manual Slice Measurement



1. Make certain that your E · Lab instrument has been powered up using either AC/DC wall transformer and/or charged battery, the cable between PC and instrument is connected, and you've read and understand the operation of the Edge Lab software user interface. Press the SLC key. Pressing the SLC key insures that a stream of data is flowing from the instrument to the PC. This allows the user interface to detect the correct com port.

2. Open the Edge Lab user interface on your PC.

3. At the test home screen, you can test to make sure everything is ready by pressing on the E · Lab force plate (where the ATF10G or SLF is situated during a test) and watch the current reading value change.

4. Load the SLF fixture with SL100 test media and position on the force plate as shown in the picture. The SLF's magnetic base will suffice to hold the fixture in place for most tests.



5. Click "Begin Test" and then place knife edge in the "v" shaped notch and then slowly draw/pull knife handle toward the user (keypad) while applying downward force to the blade. Make certain that the blade is held vertical throughout the process and that the slice is straight.

6. When the edge drops into the test media's horizontal notch, the test is complete.

Tips for taking manual slicing measurements. Tests may be conducted in numerous ways but generally, the goal is to apply the minimum amount of force required to begin and then maintain the slice progress through test completion.

Don't worry too much if the force data indicates a relatively wide fluctuation throughout the test because the E · Lab interface averages the data readings and you can further refine that data in Excel and/or by trimming in the Professional version of the interface.

The slower you slice, the more extended the time interval for completion of the test and the more data you accumulate. More data points equals a more detailed picture of the edge that you are testing.

Yes, tests may be conducted by pushing rather than pulling the knife edge into the test media but the effects of edge geometry are very much magnified when using this method.

Yes, plunge cuts may be made into the SL100 test media in either SLC or Max mode but edge geometry and friction begin to play a real role here.

