

FORCE TESTING SYSTEMS

L1 SYSTEMS

Starrett L1 Systems represent our most-basic, computer-based force testing solution. Optimized for production and quality control testing, they are designed to be easy to setup, operate and maintain.

L1 Systems can be used to perform a wide variety of testing methods including:

- Load Limit Testing
- Distance Limit Testing
- Break Limit Testing
- Cyclic Count Testing
- Cyclic Duration Testing
- Constant Load Testing
- Constant Distance Testing

BASIC ARCHITECTURE

Your Starrett L1 System is comprised of the following:

- FMM Digital Force Tester
- Base clevis adapter kit
- USB 2.0 communication cable
- BLC Load Cell Sensor
- Load cell mounting block
- 2-in-1 Windows® 10 Tablet Computer
- Table computer to column mounting fixture
- L1 Application Software

Communication between the hardware is USB 2.0.

The 2-in-1 L1 tablet features a 10", high-resolution, touchscreen, color display with three USB 2.0 ports.

The L1 application software lets you create your test methods quickly using test templates that guide you through the test setup process. Create common test methods in seconds.

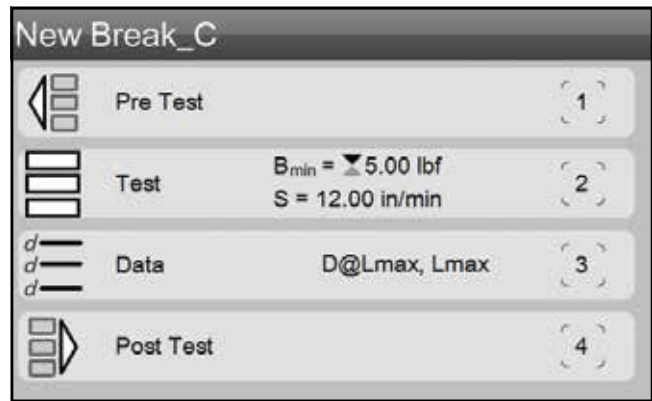


L1-550 system with FMM-550 test frame and L1 tablet and software. Test fixture and BLC Series load cell sensor are optional.

L1 TEST TEMPLATES

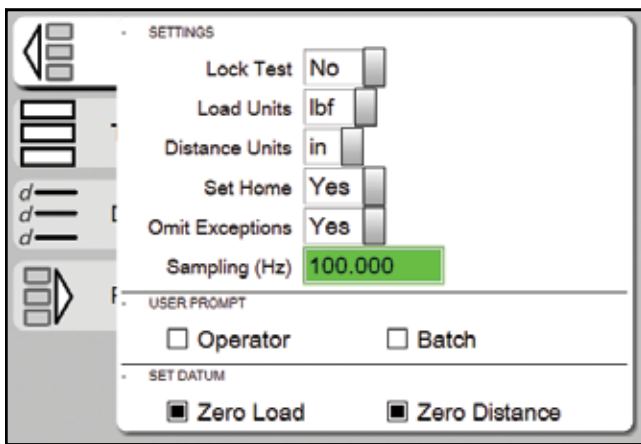
The L1 System includes a set of common force measurement test templates. The templates have a common format consisting of these four test setup stages.

- Pre Test
- Test
- Data
- Post Test



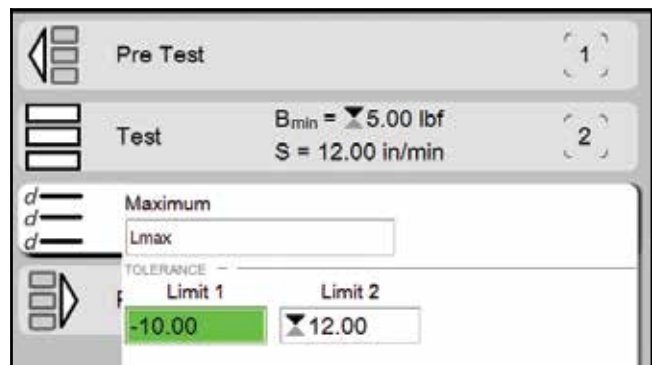
TEST SETUP ARCHITECTURE

All test setups include four common, easy-to-understand, menu-guided stages: Pre Test, Test, Data and Post Test.



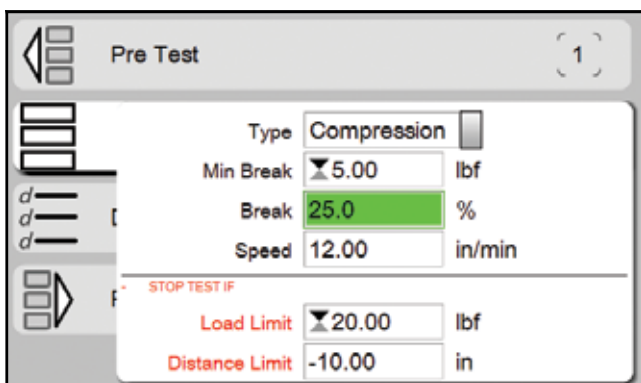
PRE TEST STAGE

The Pre Test stage supplies options you would perform prior to testing, for example, specifying the units needed to measure load and distance.



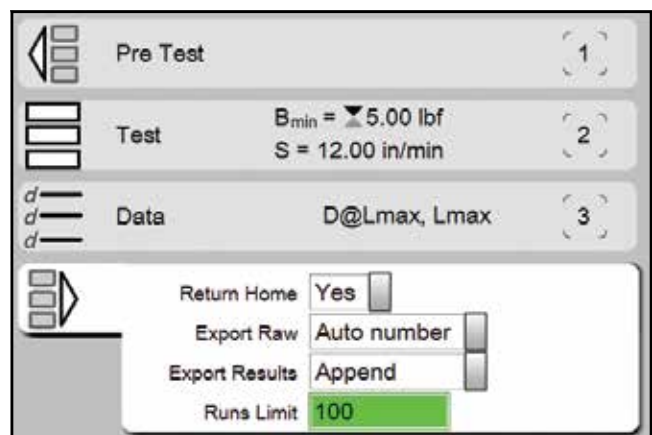
DATA STAGE

The Data stage is where you specify what results you want. For example, you can select Maximum Load, Distance @ Maximum Load, Distance @ Load Limit, Load @ Distance Limit and more. A list of values is displayed and you simply select the result you want. The Data stage is also where you can utilize tolerance limits for immediate "Pass/Fail" identification.



TEST STAGE

The Test stage is where you specify your testing requirements- what load you are using, what distance your crosshead will move, how fast your test speed is. Plus, you can easily add "exceptions". Exceptions are events that can be used to automatically stop your test, if they occur.



POST TEST STAGE

The Post Test stage lets you define what you want to do when the test concludes. You can export raw data or just the results and send to a network server. You can easily export directly to Microsoft® Excel® for custom report generation or analysis. Export information is saved as a .csv format for easy integration.

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L1 ACCURATE MEASUREMENTS

When your L1 test method concludes, you can see the results you specified in your setup. Your L1 System will display results in these formats:

- Results View
- Graph View
- Data View
- Tolerance View
- Statistics View

RESULTS VIEW

Your results are displayed in a large, easy-to-read format organized for quick interpretation. The result and associated units of measure are displayed. During testing the active load and distance measurement is displayed. The crosshead speed and direction of travel is also displayed so the operator is aware of the current test status.

GRAPH VIEW

Load, Distance and Time can be used to view the data points used for your test. You may sample at rates up to 1000Hz and display your graph profile for your test. You can select a point on the graph and see the associated load, distance and time. You can also overlay multiple graphs to make graphical comparisons.

Your Test Name is displayed as well as the type of test: compression or tension.

DATA VIEW

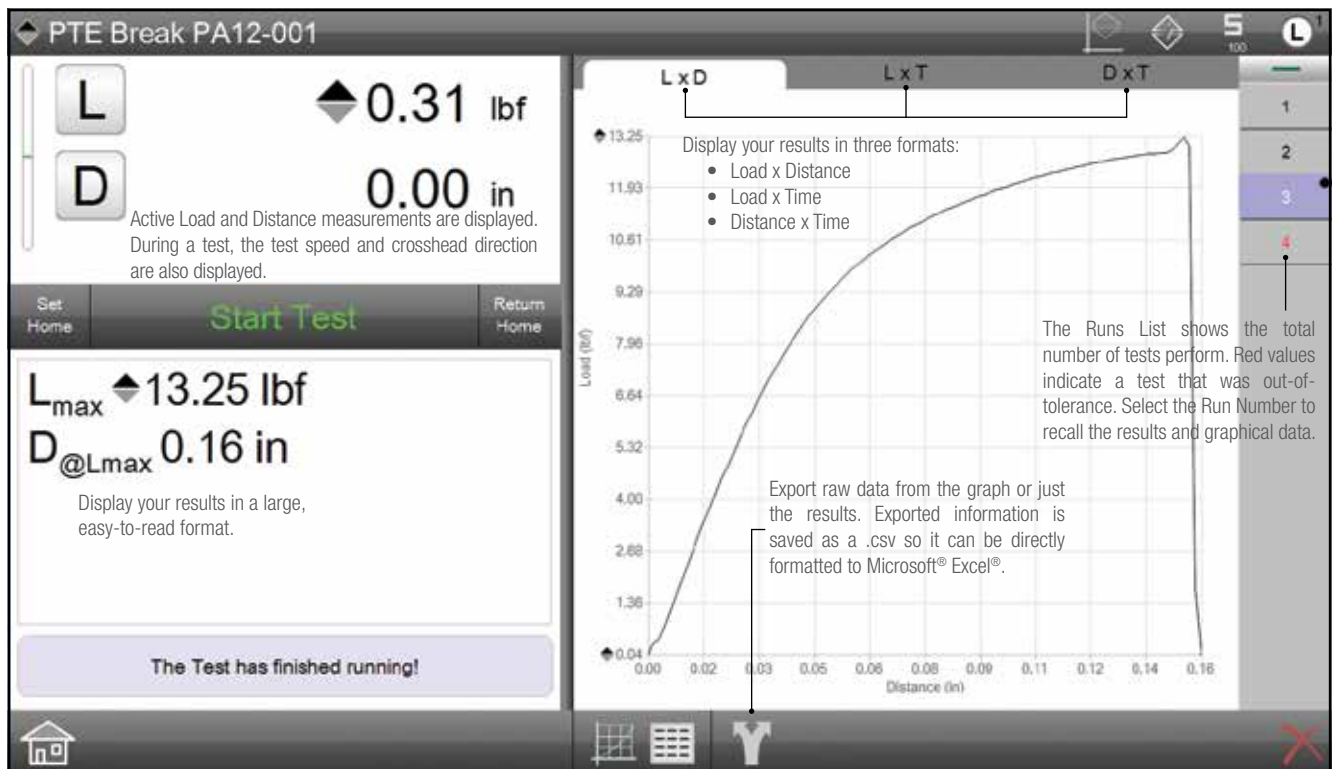
Results can be displayed in a tabular format. This is ideal for a quick comparison of each test in a batch of tests performed throughout the shift or day. You can export directly from the Data view to Microsoft® Excel®.

TOLERANCE VIEW

When tolerance limits are used for "Pass/Fail" analysis, you can see your tolerance limits compared to actual results. You also see "Pass" or "Fail". Failed results are displayed in red text. And we supply a deviation bar graph that shows where your results measured compared to your tolerance limits.

STATISTICS VIEW

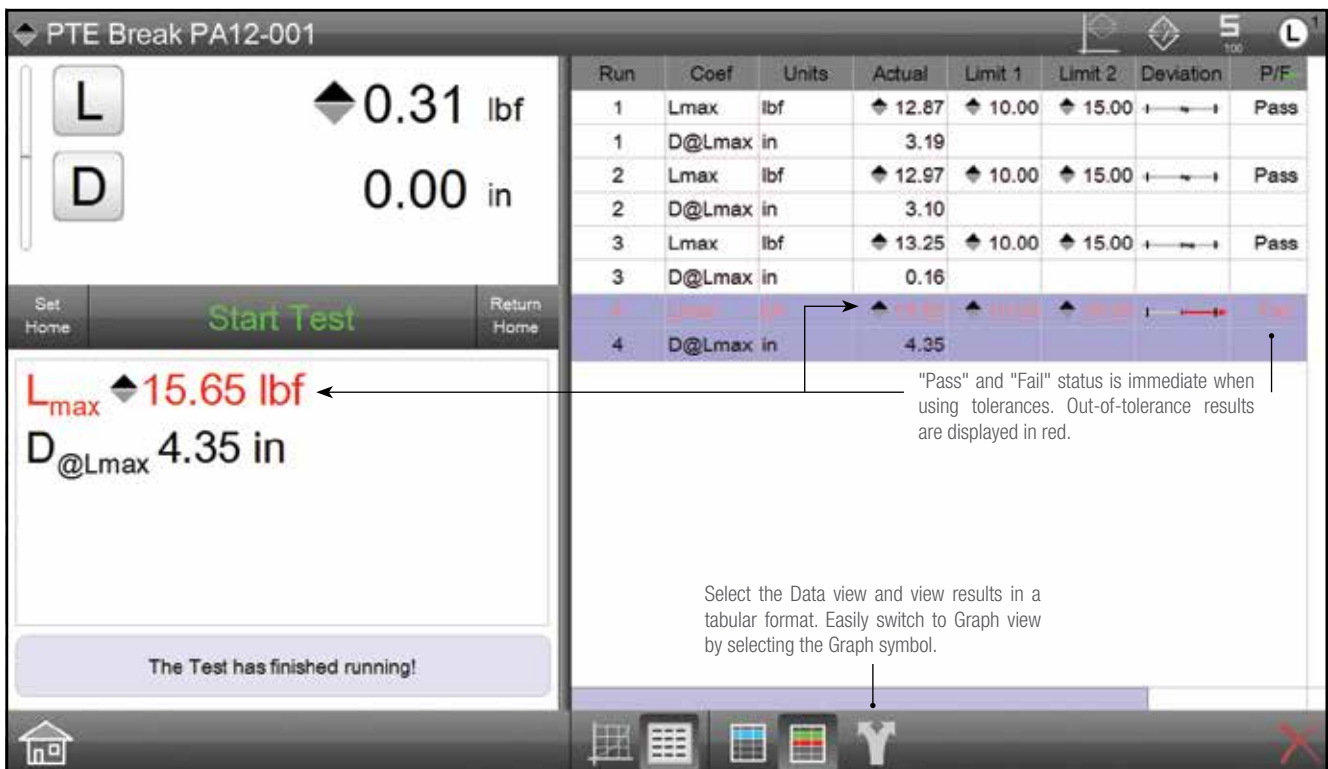
Common statistics such as mean, maximum, minimum, standard deviation and six sigma may be displayed for all test results.



When the test concludes, your L1 software shows your results in numerical and graphical formats. Essential measurements are displayed in easy-to-interpret formats. You can Start and Stop a test using the touchscreen display; manually set the home position and return the crosshead to home position, and zero your load (L) and distance (D) measurements.



Compare the graphical results of multiple tests that you select. Individual graphs are color-coded and referenced to the test in the Runs List. You can also retrieve archived tests for making a graphical comparison. For example, you can compare a "benchmark" result from a year ago to a current result.



Display results in a tabular format complete with your tolerance limits. Test results that are out-of-tolerance are prominently displayed in red. Out-of-tolerance results are identified in the table, large results view and on the graph view in the Runs List. You can also display statistics on selected test runs. Calculate and display Minimum, Maximum, Mean and Standard Deviation with a single click.