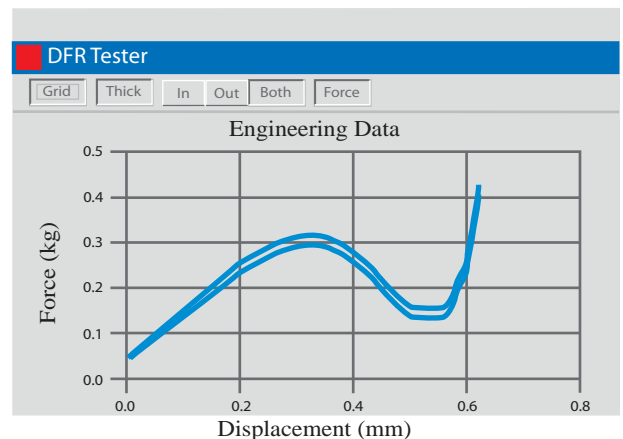




# Model 921A Displacement-Force Test Station



- Accurate, fast, repeatable testing of displacement and force
- Test to ASTM standards with optional resistance channel
- PC-interactive or standalone operation
- Provides in-depth test data to fulfil customer requirements
- User friendly Tactile Operations® for Windows™ control and analysis software package
- Up to 5,000 data points per test
- Displays test data in tabular or graphic formats
- Versatile test head can be mounted to meet user's needs
- Eliminates deflection errors by automatic compensation



### Engineering Mode

- In addition to providing test data for all tested parameters listed above, this mode:
- Provides access to test data having a displacement resolution of 0.00254mm (0.0001 inch); up to 5,000 data points per test
- Permits viewing and printing the engineering data graph and test results from the 921A software menu

### Resistance/Voltage Channel

- Resistance range of 0-16 kΩ or voltage range of 0-4V; other resistance/voltage ranges available
- Measures resistance for tactile and non-tactile switches. Tests the following additional parameters:  
 $F_{MAKE}$   $F_{BREAK}$   $F_{LOW}$   $T_{MAKE}$   $T_{BREAK}$   $T_{LOW}$   $R_{MAX}$   $R_{MIN}$   $R_{MAKE}$   $R_{BREAK}$   $R_{RESTORE}$   $R_{LOW}$

### ASCII Conversion Utility

Converts test data to comma-delimited ASCII text for easy transfer to database, spreadsheet and SPC programmes

### Test Fixtures

42.5H x 45.7W x 45.7D cm  
(16<sup>3</sup>/<sub>4</sub>H x 18W x 18D inches)  
14.2kg (31.5lbs)

42.5H x 30.5W x 30.5D cm  
(16<sup>3</sup>/<sub>4</sub>H x 12W x 12D inches)  
7.8kg (17lbs)

The Model 921A Displacement-Force Test Station is designed to obtain precise force measurements relative to displacement. It performs tests for separate operator-programmed parameters. An optional resistance/voltage channel may be added to test electrical parameters.

The 921A is used to test membrane switches (including polydomes, metal domes, elastometric and conventional keypads), rubbers, plastics, keyboards - virtually any component where accurate displacement-force measurements are required.

**Operating modes include:**

Local - Standalone (pass/fail) operation

PC - A personal computer interfaces with the 921A and is used to configure test parameters, as well as view, store and print test results. An optional engineering mode, where test data having a displacement resolution of 0.00254mm (0.0001inch) is accessible by the user

In the engineering mode, up to 5,000 data points are obtained and stored during a single test. Test data can be displayed and printed in tabular or graphic formats.

Interchangeable force sensors ranging from 0-75.0g (0-2.65oz) to 0-20.4kg (0-45.0lbs) are available. The 921A also permits the user to change and use different probe tips.

Invaluable as a test tool for qualifying first article product, audit testing, engineering investigation, inspection and life study tests, the 921A can also be used in automated production areas. When integrated with an automatic feed or an x-y positioner, the 921A functions as a cost-effective automated test station ideal for a wide variety of production applications.

The tactile Operations® for Windows™ software package controls and monitors the 921A test station. It provides for storage, viewing and printout of test results, as well as graphic representations.

Accurate, indepth test data is recorded to support statistical process control (SPC) systems.

This data can easily be transferred to a database, spreadsheet and SPC programmes using our ASCII conversion utility programme.

The 921A is one of the most versatile, accurate and cost effective test stations of its' kind. It features accuracy levels equal to or exceeding those of much more expensive, dedicated systems.

**Power Requirements - 115/220 V ac, 50/60 Hz 230 VA**

**Test Speed**

As fast as 8mm/s (0.32 inch/s); as slow as 0.0254mm/s (0.001 inch/s)

**Measurement Units - Metric or English - User selectable**

**Displacement\***

- Range: 0 to 62.51mm (0-2.46 inches) programmable
- Resolution: 0.00254mm (0.0001 inches) programmable
- Abs Accuracy: ±0.00762mm (±0.0003 inches) max
- Repeatability: ±0.00762mm (±0.0003 inches) max

**Force\***

- Range: 0-3.60kg (0-127oz); other available ranges inc. 0-75.0g (0-2.65oz), 0-360g (0-12.7oz), 0-2.0kg (0-70.6oz) and 0-20.4kg (0-45.0lbs)
- Resolution: 1g (0.035oz)
- Abs Accuracy: ±0.25% of full scale max
- Repeatability: ±0.1% of full scale max

**Tested Parameters**

- Actuation: F<sub>MAX</sub> = actuation force
- F<sub>MIN</sub> = minimum force
- F<sub>MIN</sub> = travel @ F<sub>MIN</sub>
- T<sub>MAX</sub> = travel @ F<sub>MAX</sub>

- Release: F<sub>RESTORE</sub> = F<sub>MIN</sub> @ Release
- T<sub>RESTORE</sub> = travel @ F<sub>RESTORE</sub>

Calculation: 
$$\text{Tactile Ratio} = \frac{F_{MAX} - F_{MIN}}{F_{MAX}}$$

\* Options available

**Control Unit**

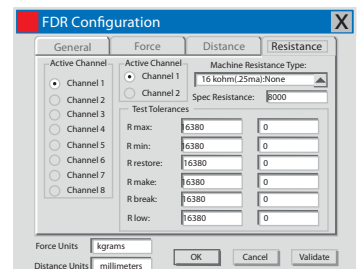
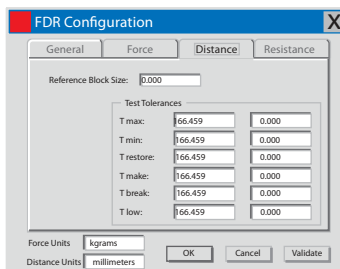
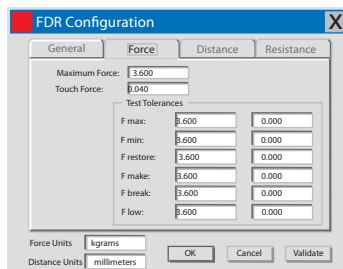
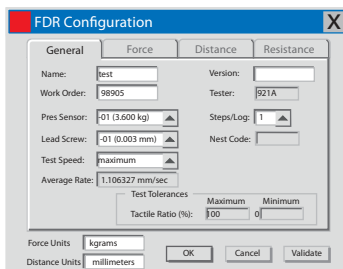
28.6H x 48.9W x 50.8D cm  
(11¼H x 19¼W x 20D inches)  
16.7kg (37lbs)

**Test Head**

25.4H x 10.2W x 8.3D cm  
(10H x 4W ¾D inches)  
2.9kg (6.5lbs)

**Software (only)**

Tactile Operations® for Windows™ control and analysis software package requires an IBM compatible PC with 80386 or higher processor, Microsoft Windows™ 3.1 or later.



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