SHIMPO INSTRUMENTS

921B Force Displacement Test Station

The 921B Force Displacement Test Station 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. It is ideal operating as a stand alone production line tester. The operator is presented with a pass/fail indication for the devices being tested. The Model 921B may also communicate with a PC and provide data for analysis and storage. The analysis includes numerical (tabular) results as well as graphical display of the tested parameters. This line of displacement-force switch test stations has a positional resolution of 0.0001 inches (0.0025 mm). Quality test departments will appreciate the high accuracy readings provided over the complete travel range.

Interchangeable force sensors with ranges up to 50 lb. (22.7 kg)are available. The 921B also permits the user to change the probe tip. The test station performs a calibration on the complete test fixture. This calibration removes the deflection and compression effects that can reduce reading accuracy. The calibration is performed over the range of forces specified in the specifically configured setup.

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

The 921B is provided with a user friendly application software that runs on Microsoft Windows[™] based PCs. The output data is in Microsoft Excel format that allows easy import of data for statistical process control (SPC).





Force-Displacement Graph



Force-Displacement-Resistance Graph

Features

- Accurate, fast, repeatable testing of displacement and force parameters
- Test to ASTM standards F1570, F1597
- · Optional resistance channel to check switches
- · PC-interactive or standalone operation
- · Provides in-depth test data to fulfill customer requirements
- Up to 5000 data points per test
- · Displays test data in tabular or graphic formats
- · Head can be mounted in various way to meet user's production line needs
- Typically reduces test times by 50% or more
- Eliminates deflection errors through automatic deflection compensation
- Application software is fast enough to store data files when used on production lines
- Graph displacement verses force. Resistance option comapre resistance, force and displacement on the graph

A Nider Group Company SHIMPO -All for dreams

921B Specifications

ForceRangeb to 3.60 kg (0 to 127 oz); other available ranges include 0-75.0 g 0-2.65 oz), 0-360 g (0-12.7 oz), 0-2.00 kg (0-70.6 oz) and 0-22.68 kg (0-50.0 lb)ForceResolution1 g (0.035 oz)Ab Accuracyi g (0.035 oz)Ab Accuracyi 0.025% of full scale maxAnge0 to 62.51 mm (0 to 2.46 inches) programmableAnge0 to 62.51 mm (0 to 2.46 inches) programmableAnge0.00254 mm (0.0001 inch) programmableAbs Accuracyi 0.00762 mm (±0.0003 inch) maxAppeabalityi 0.00762 mm (±0.0003 inch) maxForer Requirement15/220 V ac, 50/60 Hz, 230 VAMeasurement115/220 V ac, 50/60 Hz, 230 VAControl Unit:111/1/4 H x 19-1/4 W x 20 D inches (28.6 x 48.9 x 50.8 cm) 37 lb (16.7 kg)Software (Origonal Compatible Power Requires an BIBM-compatible Power Requires an 6 lb (2.9 kg)Software (Origonal Compatible Power Requires an (5 lb (2.9 kg)<			
Force Resolution 1 g (0.035 oz) Abs Accuracy ±0.25% of full scale max Repeatability ±0.1% of full scale max Repeatability ±0.0525 mm (0.002 inch) programmable Resolution 0.00254 mm (0.0001 inch) programmable Abs Accuracy ±0.00762 mm (±0.0003 inch) max Repeatability ±0.00762 mm (±0.003 inch) max Power Require 115/20 V ac, 50/60 Hz, 230 VA Measurement V Netric or English - user selectable Control Units 10 x4 x3.1/4 inches (25 4 x 10.2 x 8.3 cm) c5 1b (2.5 4 x 10.2 x 8.3 cm) c5 1b (2.5 4 x 10.2 x 8.3 cm) c5 1b (2.9 kg) Software (NT) Switch Tester Application for Windows TM control and analysis software package requires an IBM-compatible PC with Pentium processor running Windows TM XP or later' Fested Parameters (FD Mode) FMAX = actuation force TMIN = travel @ FMIN TMAX = travel @ FMIN TMAX = travel @ FMIN TMAX = travel @ FMIN TMAX = travel @ FMESTORE FelstoRE Release RESTORE = FMIN @ release TRESTORE = travel @ FRESTORE Calculation Tactile ratoi = (FMAX - FMIN) / FMAX	Force	Range	0 to 3.60 kg (0 to 127 oz); other available ranges include 0-75.0 g 0-2.65 oz), 0-360 g (0-12.7 oz), 0-2.00 kg (0-70.6 oz) and 0-22.68 kg (0-50.0 lb)
Abs Accuracy±0.25% of full scale maxRepeatability±0.1% of full scale maxRepeatability±0.1% of full scale maxRange0 to 62.51 mm (0 to 2.46 inches) programmableRange0 to 62.51 mm (0 to 2.46 inches) programmableResolution0.00254 mm (0.0001 inch) programmableAbs Accuracy±0.00762 mm (±0.0003 inch) maxRepeatability±0.00762 mm (±0.0003 inch) maxTest SpeedAs fast as 8 mm/s (0.32 inch/s); as slow as 0.0254 mm/s (0.001 inch/s)Power Requirements115/220 V ac, 50/60 Hz, 230 VAMetric or English - user selectableControl Units11.1/1 H x 19-1/4 W x 20 D inches (28.6 x 48.9 x 50.8 cm) 37 lb (16.7 kg)Software (Ort)0.0 x 4 x 3.1/4 inches (25.4 x 10.2 x 8.3 cm) 6.5 lb (2.9 kg)Software (ort)Switch Tester Application for Windows™ control and analysis software package requires an BM-compatible PC with Pentium processor running Windows™ XP or laterTest HeadLeaseFMAX = actuation force FMIN = minimum force TMIN = travel @ FMAXReleaseFRESTORE = FMIN @ release TRESTORE = travel @ FRESTOREFRESTORE = fRESTOREReleaseFRESTORE = FMIN @ release TRESTORE = travel @ FRESTOREFRESTORE = travel @ FRESTORE		Resolution	1 g (0.035 oz)
Image: Partial state40.1% of full scale maxParameter SpeedRange0 to 62.51 mm (0 to 2.46 inches) programmableDescription0.00254 mm (0.0001 inch) programmableAbs Accuracy40.00762 mm (±0.0003 inch) maxRepeatability±0.00762 mm (±0.0003 inch) maxTest SpeedAs fast as 8 mm/s (0.32 inch/s); as slow as 0.0254 mm/s (0.001 inch/s)Power Requirems115/220 V ac, 50/60 Hz, 230 VAMeasurementrityMetric or English - user selectableControl Units11-1/4 H x 19-1/4 W x 20 D inches (28.6 x 48.9 x 50.8 cm) 37 lb (16.7 kg)Software (Ontrol Comparing the comparity of the		Abs Accuracy	±0.25% of full scale max
PageRange0 to 62.51 mm (0 to 2.46 inches) programmablePoseResolution0.00254 mm (0.0001 inch) programmableAbs Accurace±0.00762 mm (±0.0003 inch) maxRepeatability±0.00762 mm (±0.0003 inch) maxTest SpeedX as fast as 8 mm/s (0.32 inch/s); as slow as 0.0254 mm/s (0.001 inch/s)Power Requirems115/220 V ac, 50/60 Hz, 230 VAMeasurementMetric or English - user selectableControl Units11-1/4 H x 19-1/4 W x 20 D inches (28.6 x 48.9 x 50.8 cm) 37 lb (16.7 kg)Rest Head10 x 4 x 3-1/4 inches (26.4 x 10.2 x 8.3 cm) 6.5 lb (2.9 kg)Software (Ov)Switch Tester Application for Windows™ control and analysis software package requires an IBM-compatible PC with Pentium processor running Windows™ XP or laterPested ParametersActuation FMIN = minimum force TMIN = minimum force 		Repeatability	±0.1% of full scale max
Pisplacement Resolution 0.00254 mm (0.0001 inch) programmable Abs Accuracy ±0.00762 mm (±0.0003 inch) max Repeatability ±0.00762 mm (±0.0003 inch) max Test Speed As fast as 8 mm/s (0.32 inch/s); as slow as 0.0254 mm/s (0.001 inch/s) Power Requiremts 115/220 V ac, 50/60 Hz, 230 VA Measurement / T Metric or English - user selectable Control Units Metric or English - user selectable Test Head 11-1/4 H x 19-1/4 W x 20 D inches (28.6 x 48.9 x 50.8 cm) 37 lb (16.7 kg) Software (Onity) 10 x 4 x 3-1/4 inches (25.4 x 10.2 x 8.3 cm) 6.5 lb (2.9 kg) Software (Onity) Switch Tester Application for Windows™ control and analysis software package requires an IBM-compatible PC with Pentium processor running Windows™ XP or later Persenters (FD Mode) Actuation FMAX = actuation force FMIN = minimum force TMIN = travel @ FMIN TMAX = travel @ FMIN TMAX = travel @ FMAX Release FRESTORE = FMIN @ release TRESTORE = travel @ FRESTORE Galuation Tactile ratio = (FMAX - FMIN) / FMAX	Displacement	Range	0 to 62.51 mm (0 to 2.46 inches) programmable
Abs Accuracy±0.00762 mm (±0.0003 inch) maxRepeatability±0.00762 mm (±0.0003 inch) maxTest SpeedAs fast as 8 mm/s (0.32 inch/s); as slow as 0.0254 mm/s (0.001 inch/s)Power Requirements115/220 V ac, 50/60 Hz, 230 VAMeasurement UnitsMetric or English - user selectableControl Units11-1/4 H x 19-1/4 W x 20 D inches (28.6 x 48.9 x 50.8 cm) 37 lb (16.7 kg)Test Head10 x 4 x 3-1/4 inches (25.4 x 10.2 x 8.3 cm) 6.5 lb (2.9 kg)Software (Only:Switch Tester Application for Windows™ control and analysis software package requires an IBM-compatible PC with Pentium processor running Windows™ XP or laterTested Parameters (FD Mode)FMAX = actuation force FMIN = travel @ FMIN TMAX = travel @ FMAXReleaseFRESTORE = FMIN @ release TRESTORE = travel @ FRESTORECalculationTactile ratio = (FMAX - FMIN) / FMAX		Resolution	0.00254 mm (0.0001 inch) programmable
Repeatability±0.00762 mm (±0.0003 inch) maxTest SpeedAs fast as 8 mm/s (0.32 inch/s); as slow as 0.0254 mm/s (0.001 inch/s)Power Requireents115/220 V ac, 50/60 Hz, 230 VAMeasurement UTSMetric or English - user selectableControl Units11-1/4 H x 19-1/4 W x 20 D inches (28.6 x 48.9 x 50.8 cm) a7 lb (16.7 kg)Test Head10 x 4 x 3-1/4 inches (25.4 x 10.2 x 8.3 cm) 6.5 lb (2.9 kg)Software (Only:Switch Tester Application for Windows™ control and analysis software package requires an 		Abs Accuracy	±0.00762 mm (±0.0003 inch) max
Test Speed As fast as 8 mm/s (0.32 inch/s); as slow as 0.0254 mm/s (0.001 inch/s) Power Requirements 115/220 V ac, 50/60 Hz, 230 VA Measurement Units Metric or English - user selectable Control Units 11-1/4 H x 19-1/4 W x 20 D inches (28.6 x 48.9 x 50.8 cm) 37 lb (16.7 kg) Test Head 10 x 4 x 3-1/4 inches (25.4 x 10.2 x 8.3 cm) 6.5 lb (2.9 kg) Software (Only: Switch Tester Application for Windows™ control and analysis software package requires an IBM-compatible PC with Pentium processor running Windows™ XP or later Test Head FMAX = actuation force FMIN = minimum force TMIN = travel @ FMIN TMAX = travel @ FMIN TMAX = travel @ FMAX Release FRESTORE = FMIN @ release TRESTORE = travel @ FRESTORE Release FRESTORE = travel @ FRESTORE TRESTORE = travel @ FRESTORE Calculation Tactile ratio = (FMAX - FMIN) / FMAX		Repeatability	±0.00762 mm (±0.0003 inch) max
Power Requirements 115/220 V ac, 50/60 Hz, 230 VA Measurement Units Metric or English - user selectable Control Units 11-1/4 H x 19-1/4 W x 20 D inches (28.6 x 48.9 x 50.8 cm) 37 lb (16.7 kg) Test Head 10 x 4 x 3-1/4 inches (25.4 x 10.2 x 8.3 cm) 6.5 lb (2.9 kg) Software (Only: Switch Tester Application for Windows™ control and analysis software package requires an IBM-compatible PC with Pentium processor running Windows™ XP or later Test Head FMAX = actuation force FMIN = minimum force TMIN = travel @ FMIN TMAX = travel @ FMAX Release FRESTORE = FMIN @ release TRESTORE = travel @ FRESTORE Calculation Tactile ratio = (FMAX - FMIN) / FMAX	Test Speed		As fast as 8 mm/s (0.32 inch/s); as slow as 0.0254 mm/s (0.001 inch/s)
Measurement Units Metric or English - user selectable Control Units 11-1/4 H x 19-1/4 W x 20 D inches (28.6 x 48.9 x 50.8 cm) 37 lb (16.7 kg) Test Head 10 x 4 x 3-1/4 inches (25.4 x 10.2 x 8.3 cm) 6.5 lb (2.9 kg) Software (Only Switch Tester Application for Windows™ control and analysis software package requires an IBM-compatible PC with Pentium processor running Windows™ XP or later Fested Parameters (FD Mode) Actuation FMAX = actuation force FMIN = minimum force TMIN = travel @ FMIN TMAX = travel @ FMIN TMAX = travel @ FMIN TMAX = travel @ FMESTORE Release FRESTORE = FMIN @ release TRESTORE = travel @ FRESTORE Calculation Tactile ratio = (FMAX - FMIN) / FMAX	Power Requirements		115/220 V ac, 50/60 Hz, 230 VA
Control Units 11-1/4 H x 19-1/4 W x 20 D inches (28.6 x 48.9 x 50.8 cm) 37 lb (16.7 kg) Test Head 10 x 4 x 3-1/4 inches (25.4 x 10.2 x 8.3 cm) 6.5 lb (2.9 kg) Software (Only: Switch Tester Application for Windows™ control and analysis software package requires an IBM-compatible PC with Pentium processor running Windows™ XP or later Fested Parameters (FD Mode) Actuation Release FMAX = actuation force FMIN = minimum force TMIN = travel @ FMIN TMAX = travel @ FMIN TMAX = travel @ FMIN TMAX = travel @ FMESTORE Release RESTORE = FMIN @ release TRESTORE = travel @ FRESTORE Calculation Tactile ratio = (FMAX - FMIN) / FMAX	Measurement Units		Metric or English - user selectable
Test Head 10 x 4 x 3-1/4 inches (25.4 x 10.2 x 8.3 cm) 6.5 lb (2.9 kg) Software (Only Switch Tester Application for Windows™ control and analysis software package requires an IBM-compatible PC with Pentium processor running Windows™ XP or later Fested Parameters (FD Mode) Actuation FMAX = actuation force FMIN = minimum force TMIN = travel @ FMIN TMAX = travel @ FMAX Release FRESTORE = FMIN @ release TRESTORE = travel @ FRESTORE Calculation Tactile ratio = (FMAX - FMIN) / FMAX	Control Units		11-1/4 H x 19-1/4 W x 20 D inches (28.6 x 48.9 x 50.8 cm) 37 lb (16.7 kg)
Software (Only) Switch Tester Application for Windows TM control and analysis software package requires an IBM-compatible PC with Pentium processor running Windows TM XP or later Fested Parameters (FD Mode) Actuation FMAX = actuation force FMIN = minimum force TMIN = travel @ FMIN TMAX = travel @ FMAX Release FRESTORE = FMIN @ release TRESTORE = travel @ FRESTORE FRESTORE = travel @ FRESTORE Calculation Tactile ratio = (FMAX - FMIN) / FMAX	Test Head		10 x 4 x 3-1/4 inches (25.4 x 10.2 x 8.3 cm) 6.5 lb (2.9 kg)
Tested Actuation FMAX = actuation force FMIN = minimum force FMIN = travel @ FMIN TMIN = travel @ FMIN TMAX = travel @ FMAX Release FRESTORE = FMIN @ release TRESTORE = travel @ FRESTORE FRESTORE = travel @ FRESTORE Calculation Tactile ratio = (FMAX - FMIN) / FMAX	Software (Only)		Switch Tester Application for Windows [™] control and analysis software package requires an IBM-compatible PC with Pentium processor running Windows [™] XP or later
(FD Mode) Release FRESTORE = FMIN @ release TRESTORE = travel @ FRESTORE Calculation Tactile ratio = (FMAX - FMIN) / FMAX	Tested Parameters (FD Mode)	Actuation	FMAX = actuation force FMIN = minimum force TMIN = travel @ FMIN TMAX = travel @ FMAX
Calculation Tactile ratio = (FMAX - FMIN) / FMAX		Release	FRESTORE = FMIN @ release TRESTORE = travel @ FRESTORE
		Calculation	Tactile ratio = (FMAX - FMIN) / FMAX

Ordering Details

921	Force/Displacement Test Station with Switch Application Software and one range sensor. (Specify required range per below options.)			
Force Sensor Ranges: One included with each test station. Note: Additional sensors may be ordered seperately.				
02	(0-360 g; 0.1 g resolution)			
03	(0-75 g; 0.1 g resolution)			
05	(0-750 g; 0.2 g resolution)			
06	(0-2 kg; 0.5 g resolution)			
01	(0-3.6 kg; 1 g resolution)			
07	(0-9 kg; 2.5 g resolution)			
04	(0-20 kg; 6 g resolution)			

.....

.....

Options

Resistance/Voltage Channel (FDR Mode)

Resistance range of 0 - 16 k Ω or voltage range of 0 - 4 V; other resistance/voltage range available. Measures resistance for tactile and non-tactile switches. Tests the following additional parameters: FMAKE, FBREAK, FLOW, TMAKE, TBREAK, TLOW, RMAX, RMIN, RMAKE, RBREAK, RRESTORE, RLOW

109	0 – 4.095 Ω ; 1m Ω resolution, 10 mA
110	0 – 4.095 Ω ; 1m Ω resolution, 25 mA
107	0 – 1 k Ω / 0.25 Ω resolution
101	0 – 16 k Ω ; 4 Ω resolution
102	0 – 4 V; 1 mV Cable Included
270	Platform: holds test actuator assembly (18" x 18")
271	Platform: holds test actuator assembly (12" x 12")

Windows[™] and Excel are registered trademarks of MicroSoft Corporation.

DISTRIBUTED BY	:	
----------------	----------	--

