



Instruction Manual: FTV & FTH MOTORIZED TEST STANDS

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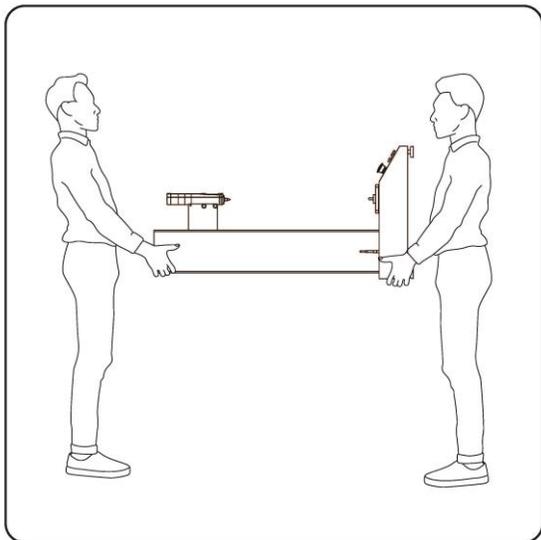
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Chapter 1: Cautionary Notes and Warnings

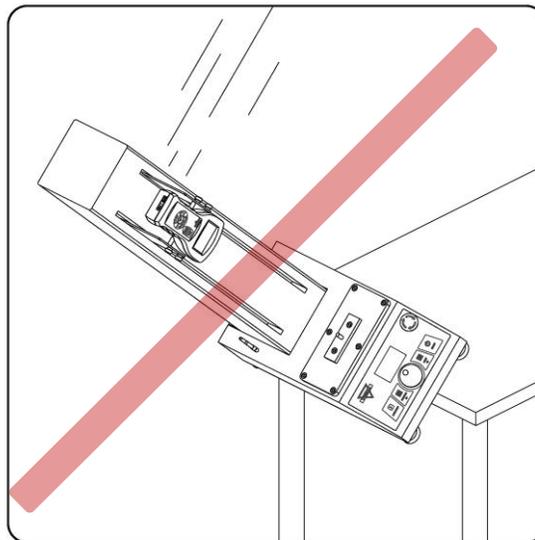
Cautionary Notes and Precautions

<p style="text-align: center;">CAUTION:</p> 	<ul style="list-style-type: none"> • The test stand is designed for indoor use only. • Do not operate the test stand in hazardous areas or under dangerous conditions. • Do not use the test stand in locations subject to high humidity or dust. • Do not connect cables in ways other than those mentioned in this manual. • Never stand on or lean on this product. Equipment may fall or collapse, causing breakage and possible injury. • Before moving the product, unplug it and unplug all cables connected to it. • When storing, transporting or returning the test stand for service, always use the original packaging.
<p style="text-align: center;">WARNING:</p> 	<ul style="list-style-type: none"> • Never attempt to repair, disassemble or modify the test stand. Tampering with the test stand may result in injury and cause greater damage to the equipment. • Be sure to use the specified power source. • Do not allow foreign matter to fall onto the test stand. • If water or other liquid spills onto the test stand, unplug the power cord immediately and contact technical support.
	<ul style="list-style-type: none"> • Disposal of electronic equipment in waste containers is forbidden by law.

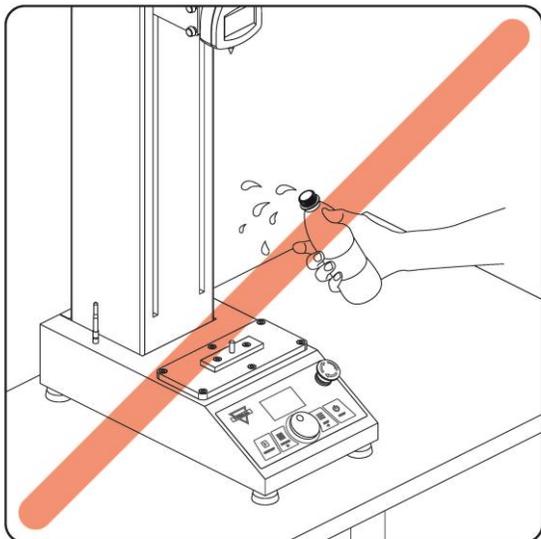
Important Handling Cautions and Warnings



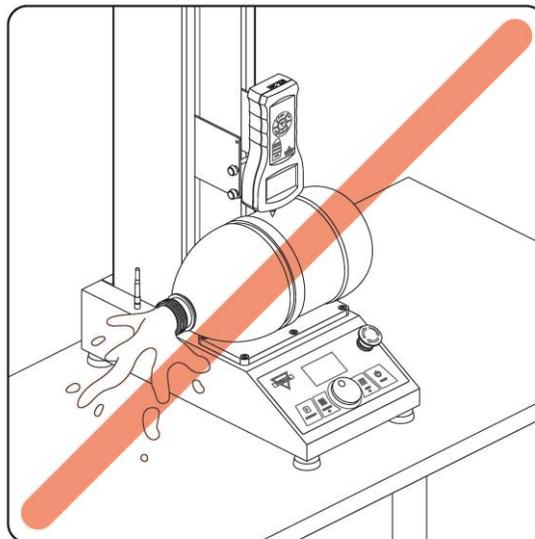
The test stand is very heavy. Two-person lift is required when unpacking or moving.



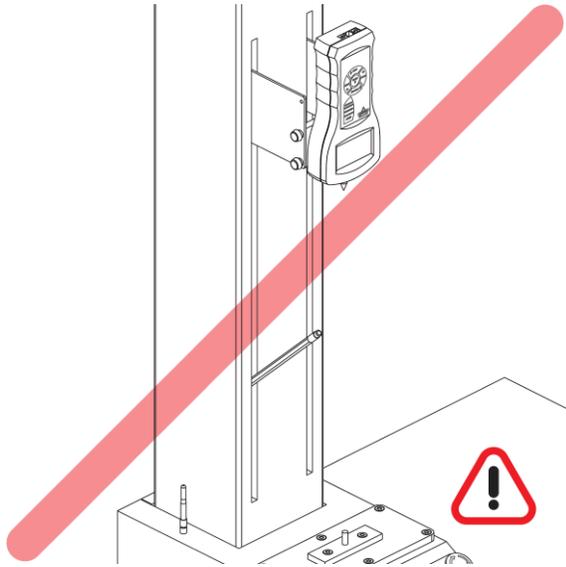
DO NOT let the test stand fall or drop onto the ground!



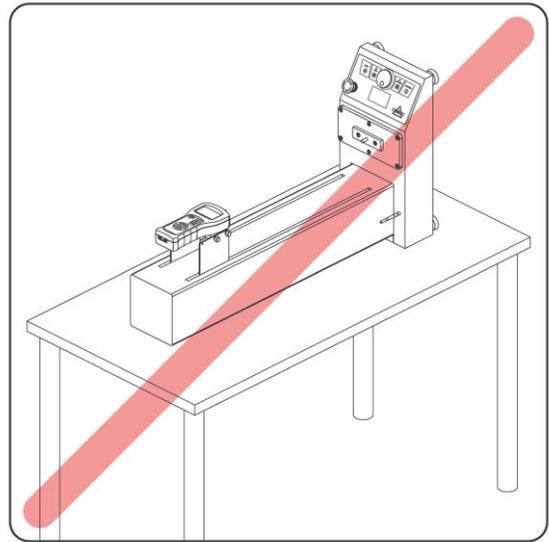
DO NOT pass or handle liquids near the test stand to prevent spillage and liquid damage!



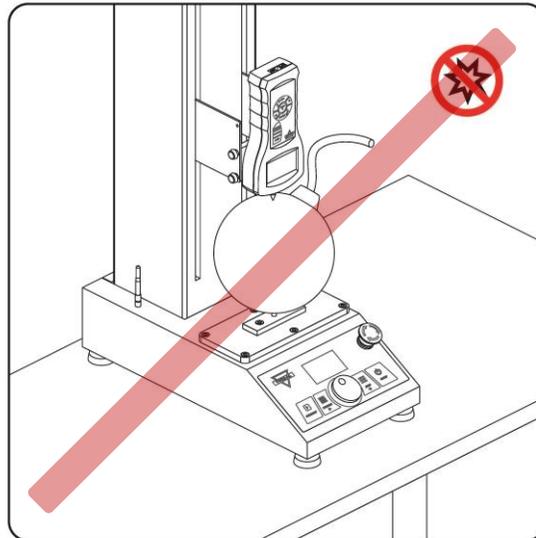
DO NOT attempt to test objects that contain liquids!



Never use the test stand if there is an object or material wedged in the column guide tracks!

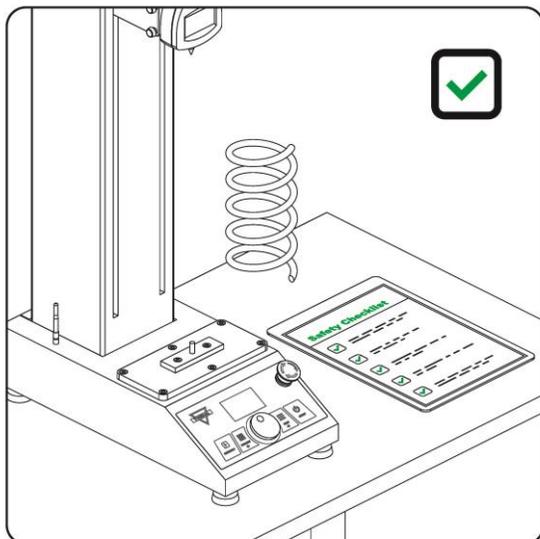


Always install the test stand in its intended orientation only!

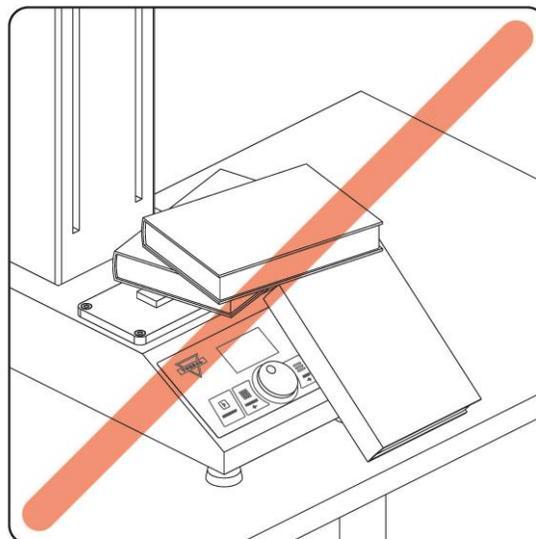


Never test explosives or hazardous materials!

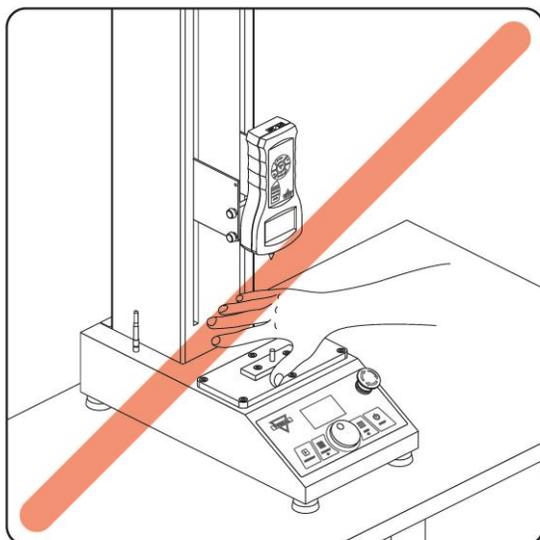
Safety



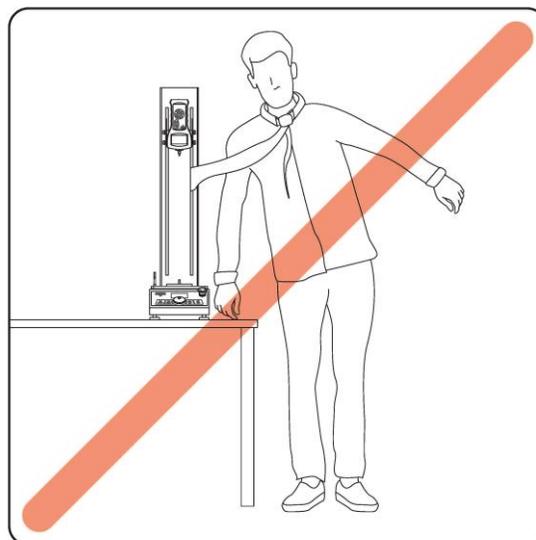
Always evaluate sample characteristics before testing and perform a detailed risk assessment to ensure utmost safety precautions have been implemented.



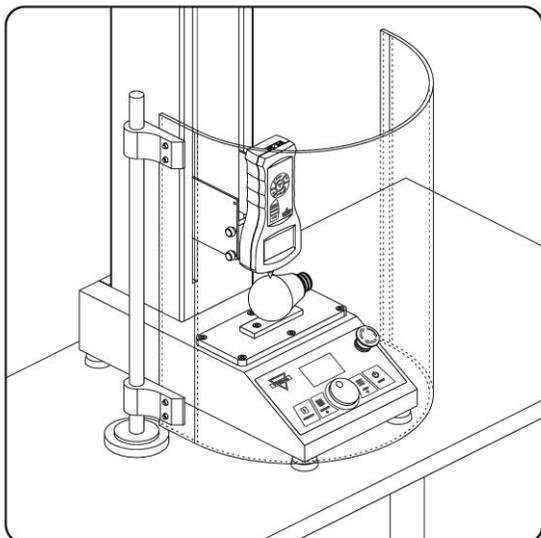
Never obstruct access to the Emergency Stop Button!



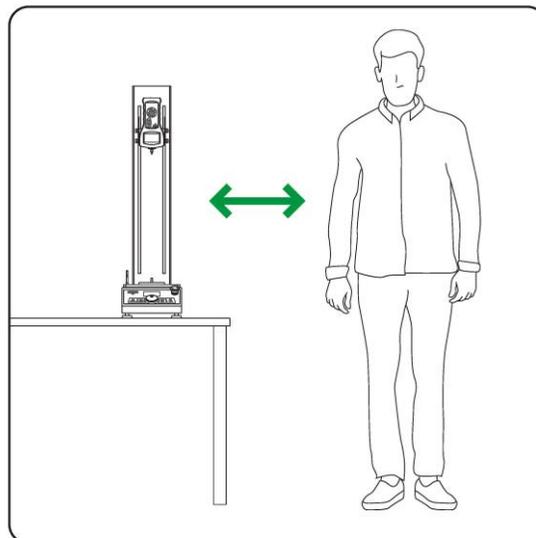
Never put hands on or near the mounting plate during operation!



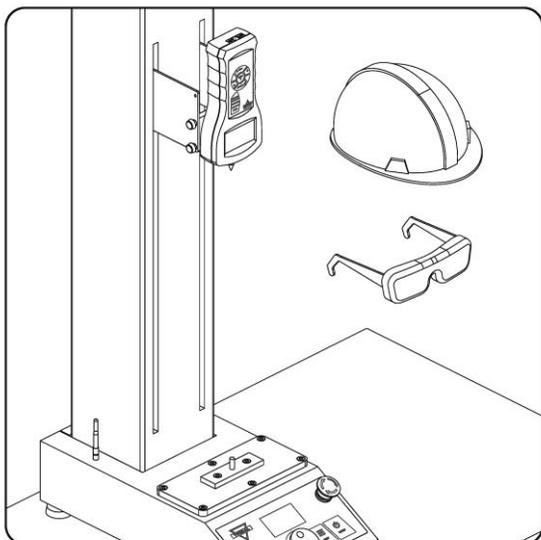
Do not wear loose clothing or any loose articles when operating the test stand!



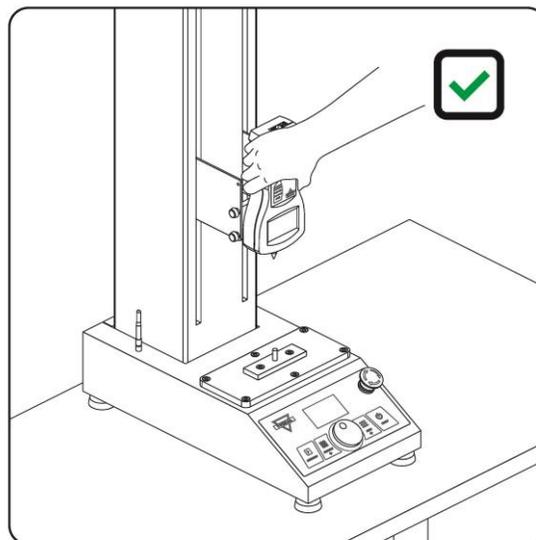
Use machine guards when testing samples that shatter!



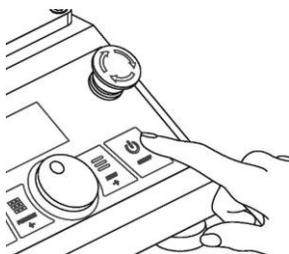
Keep a safe distance from sample and moving parts during operation!



Always wear eye and face protective gear and follow common sense precautions!



Before operating and each test check for any loose parts, screws, or attachments.



Always turn power off when not in use to avoid accidental engagement.



Chapter 2: Specifications

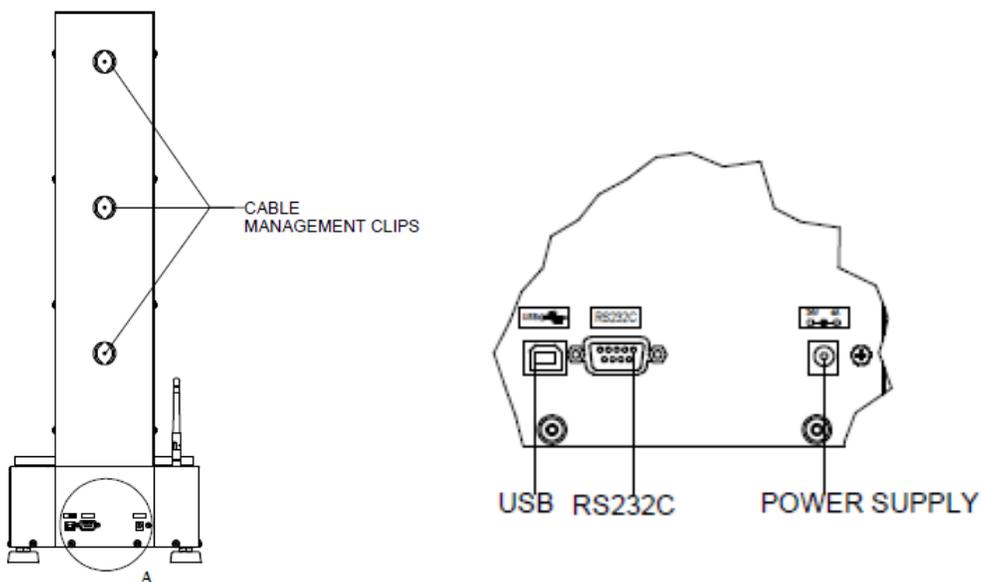
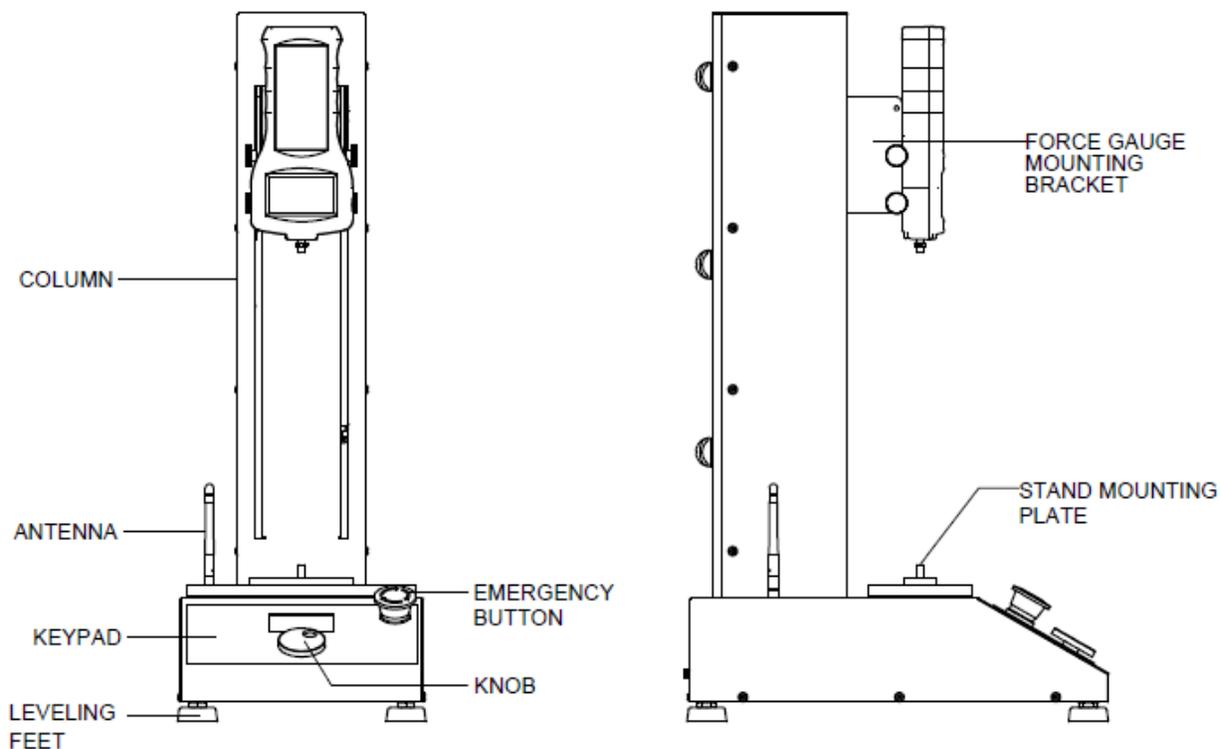
Specification Table:

MODEL	FTV – 100L	FTV – 100	FTH – 100
Load Capacity	112lbf 500N		
Speed	0.4 in/min – 11.8 in/min 10mm/min - 300mm/min		
Travel Distance	19.6in 500mm	11.8in 300mm	
Distance: Force Gauge Shaft to Column	2.75in 70mm		1.77 in 45mm
Speed Accuracy	+/- 1%		
Travel Accuracy	+/- 0.008 in +/- 0.2mm		
Speed Resolution	0.1 in/min 1 mm/min		
Travel Resolution	0.001 in 0.01mm ()		
Rigidity *	0.07 in 1.8mm	0.05 in 1.4mm	0.028 in 0.7mm
Memory Profiles	50 / application		
Interface	BT Wireless, USB (B Type), RS232		
Measuring Units	in/min, mm/min		
Operating Temperature	50F – 104F 10C – 40C		
Power	100-240VAC 50/60Hz 120W / 24VDC 4A		
Dimensions	238mm x 407mm x 880mm	9.37in x 15.95in x 26.77in 238mm x 405mm x 680mm	28.27in x 9.84 x 6.50in 718mm x 250mm x 165mm
Weight	55.5lbs 25kg	50lbs 22.5kg	
Box Weight	99.5lbs 45kg	84lbs 39kg	

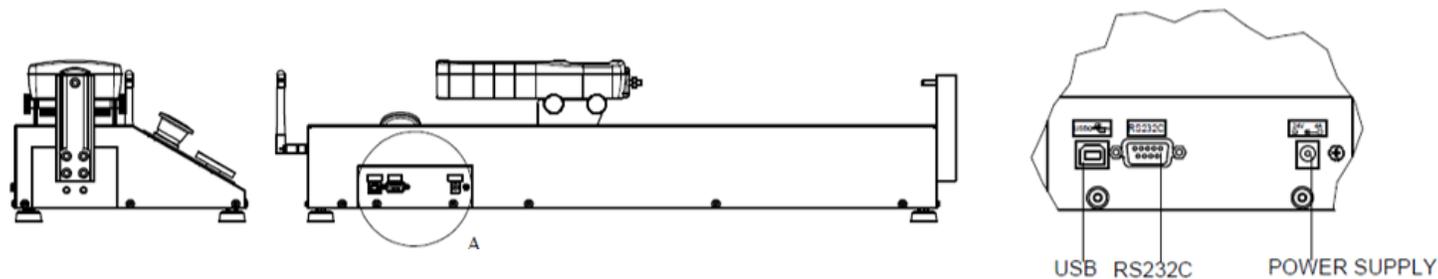
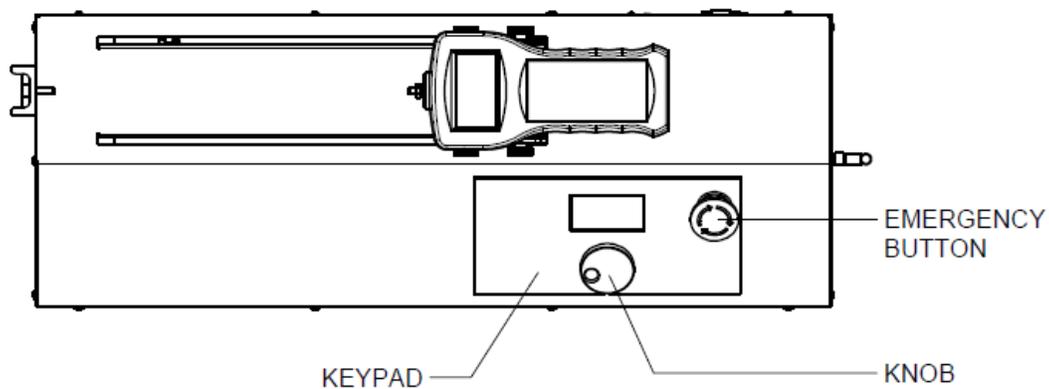
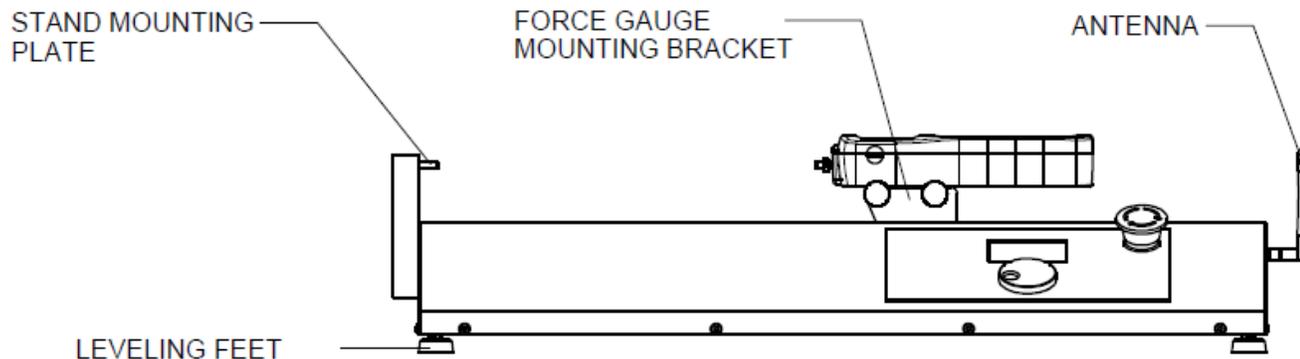
* Rigidity - Difference between distance from test stand mounting plate shaft to force gauge shaft under full load and no load

Chapter 3: Parts Description

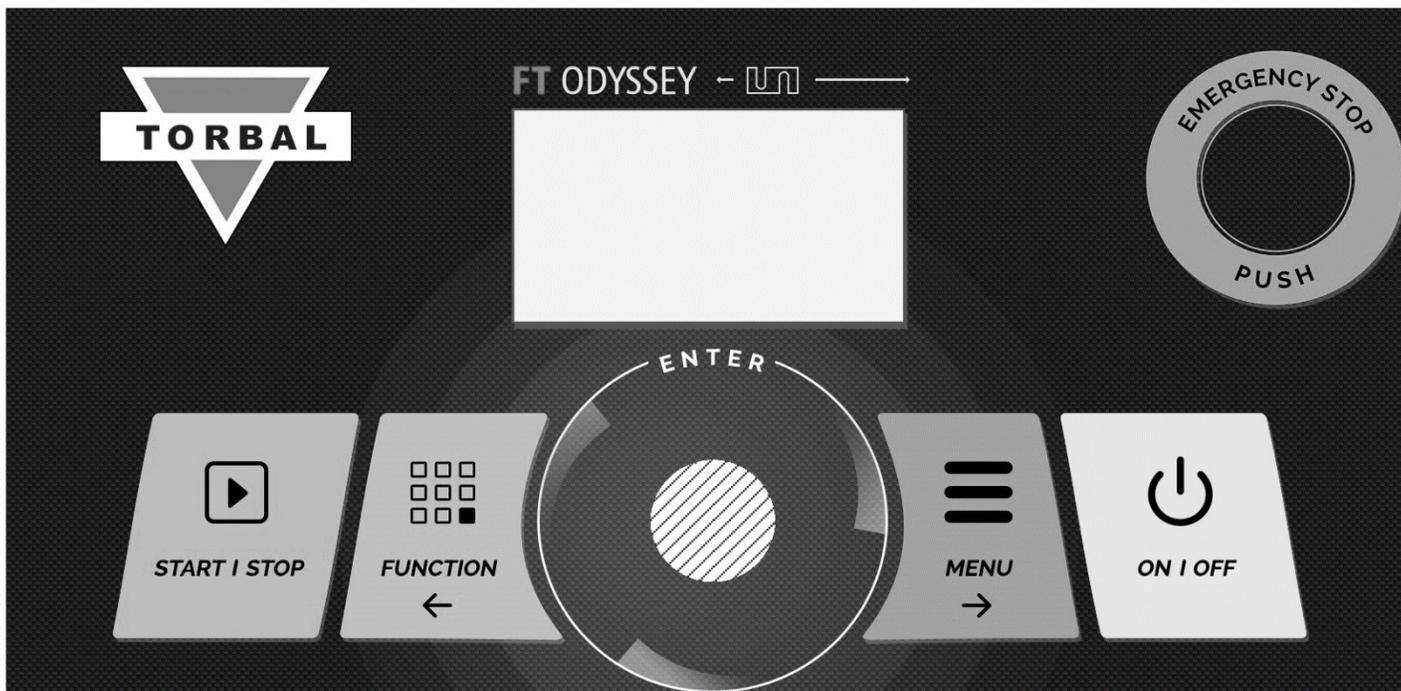
3.1 Vertical Models



3.2 Horizontal Models



Chapter 4: Keys, Display Indicators, and Commands

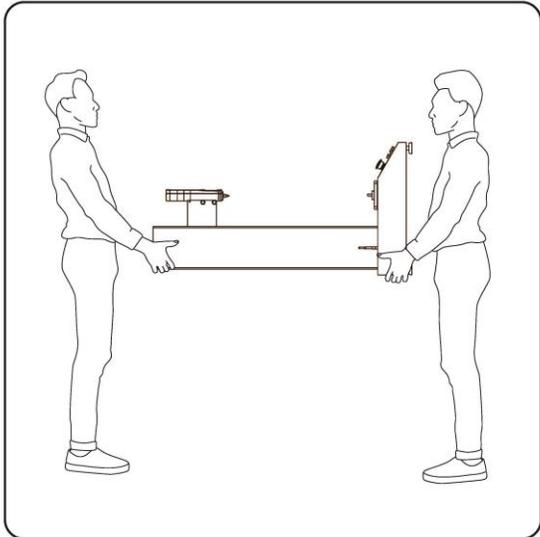


Key	Primary Function	Secondary Function
ON / OFF	Powers the test stand on and off.	-
START / STOP	Starts and Pauses test.	-
FUNCTION	Allows to select an application mode and configure test profile.	Toggle to Left
MENU	Access to configuration and settings of the test stand	Toggle to right
ENTER / Knob	Select or confirm an option	Toggle up and down
Display Indicator	Description	
G	Force gauge connected and paired with test stand	
-	Cross-head not in motion	
✘	Cross-head in motion	
⌘	Bluetooth Enabled	

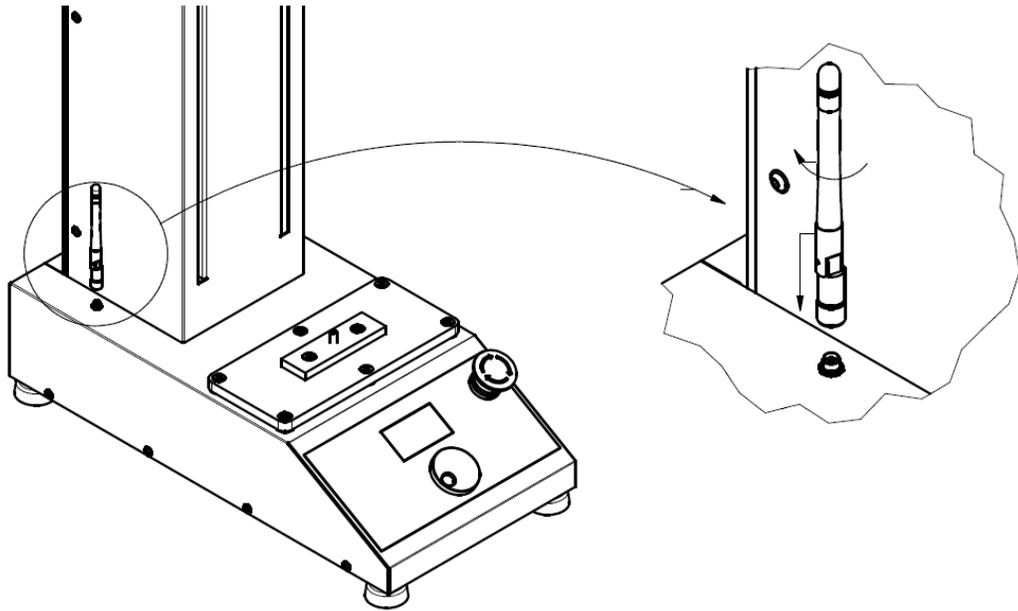
Chapter 5: Unpacking and Getting Started

5.1 Vertical and Horizontal Models

1. Carefully remove the test stand, and all components out of the packaging. The test stand is very heavy so use caution. Two-person lift is required.
2. Place the stand on a stable leveled surface where it won't be affected by mechanical vibrations or disturbances.
3. Attach the antenna to the antenna port located on the left side of the stand column.

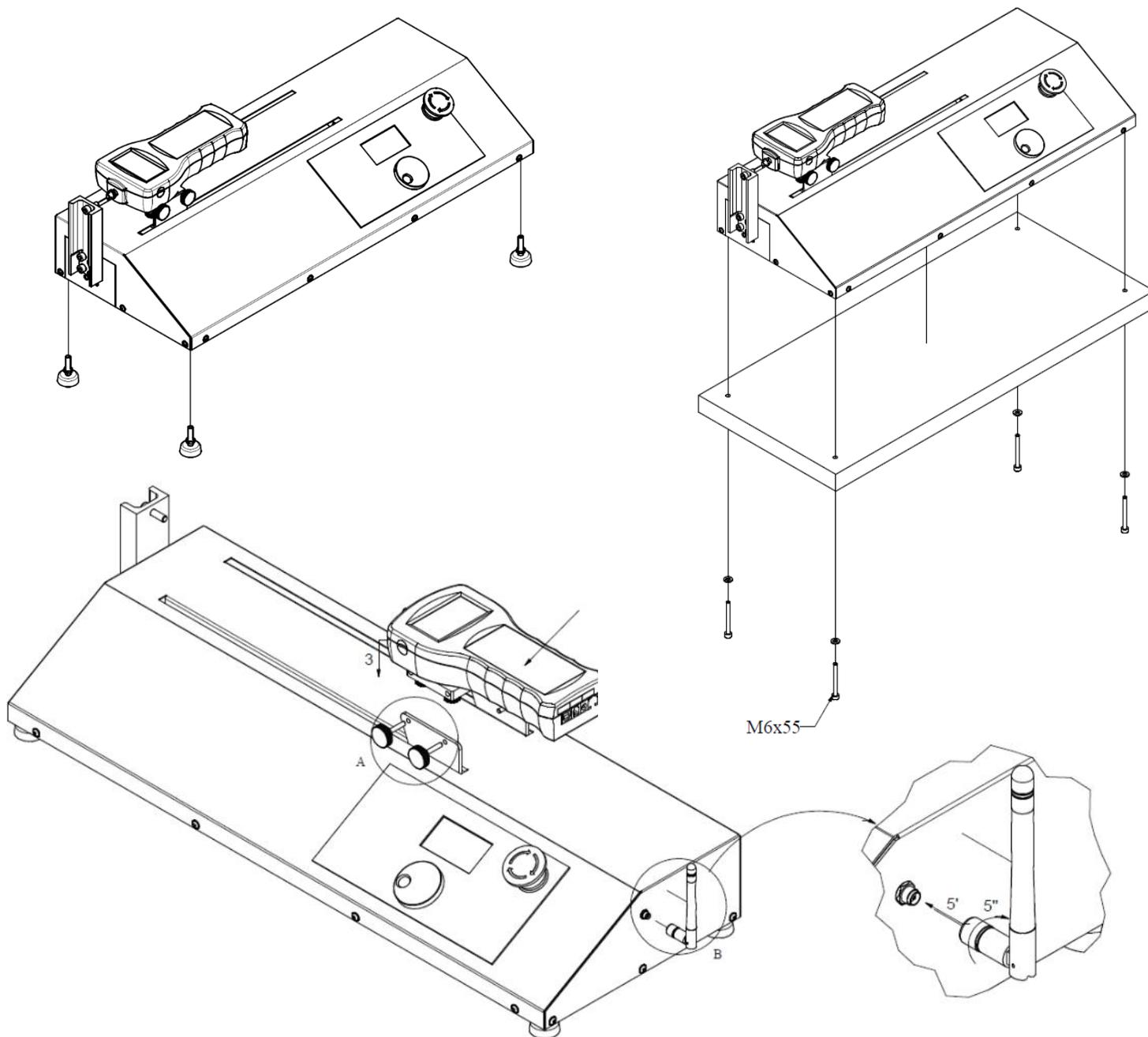


4. Plug the AC adaptor to the AC adaptor socket located in the rear of the stand. Do not press the power ON / OFF button at this time.



5.2 Horizontal Model Surface Mounting

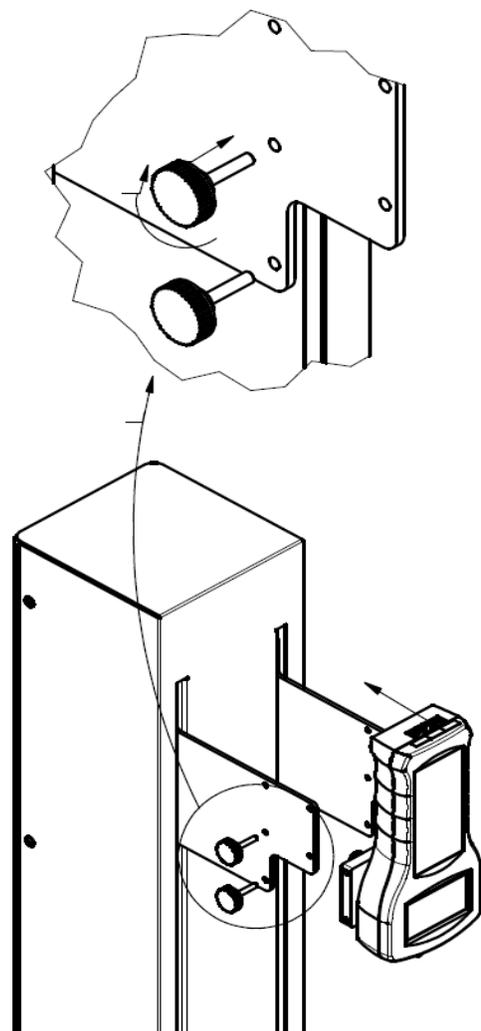
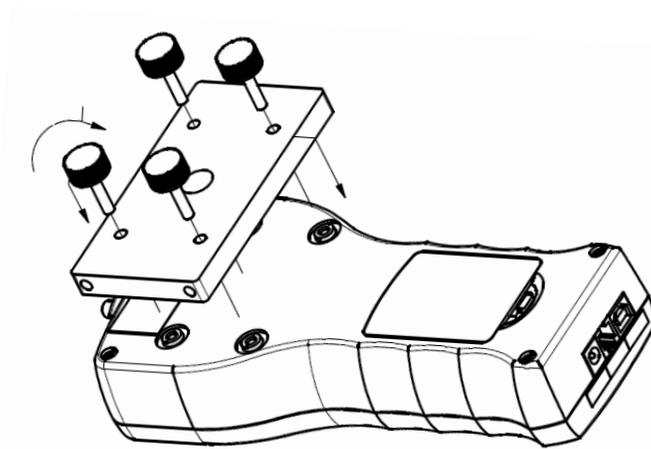
The STAH horizontal test stand can be permanently mounted to a tabletop surface or platform. To affix the test stand to a tablet top, unscrew all 4 test stand leveling feet from the base and use 4 M6 X 55 screws to permanently attach the test stand. (surface mount screws not supplied with the test stand).



Chapter 6: Force Gauge Mounting and Connection

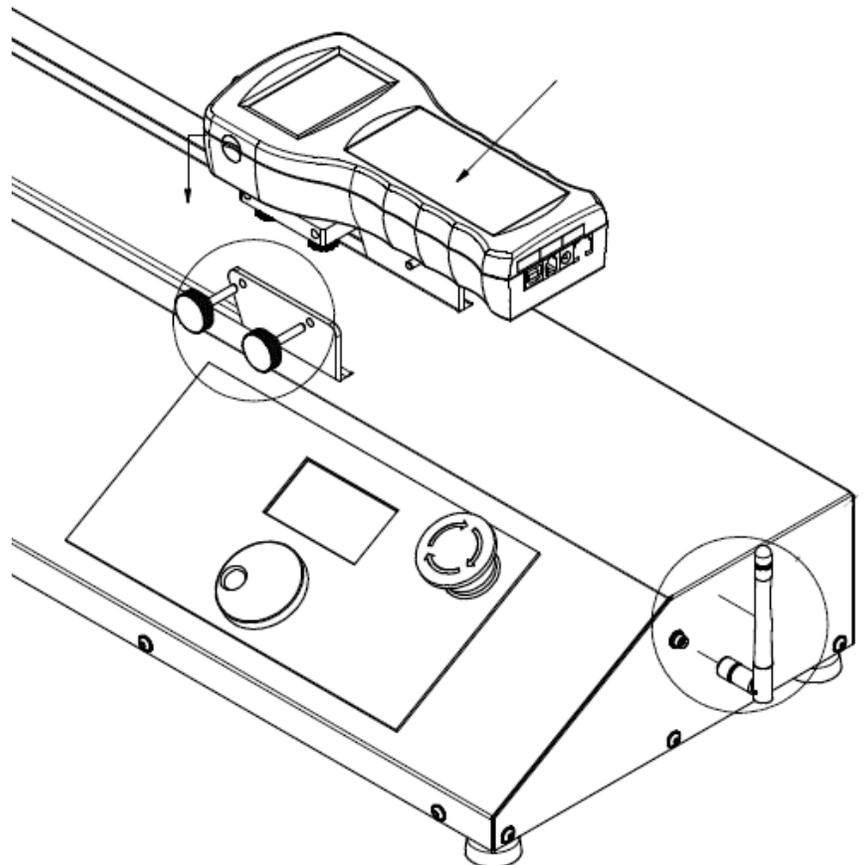
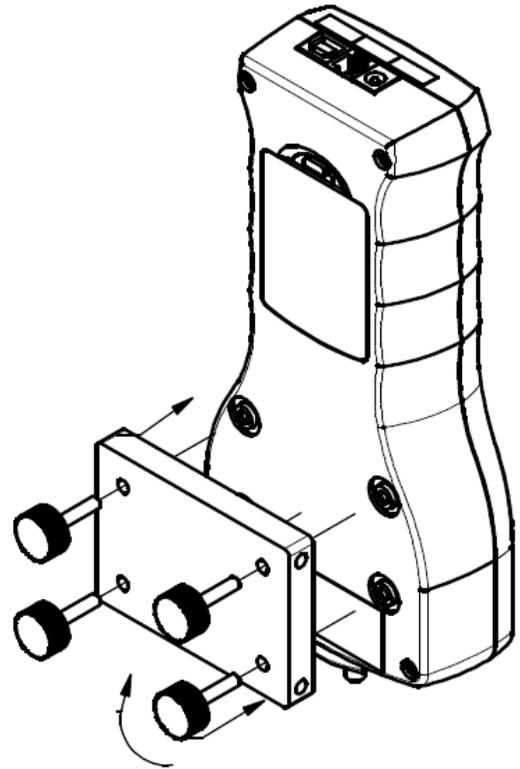
6.1 Vertical Configuration

1. Place the force gauge on a stable surface with the back housing facing up.
2. Place the test stand mounting plate on the force gauge and align the plate openings with the mounting screw holes of the force gauge housing.
3. Use all 4 grip knobs to secure the mounting plate on the force gauge as tightly as possible. Use a wrench if necessary.
4. Align the side screw holes of the mounting plate with the test stand mounting bracket openings and use all 4 grip knobs to firmly secure the force gauge on the test stand.
5. Check for wobble or looseness and retighten if necessary.



6.2 Horizontal Configuration

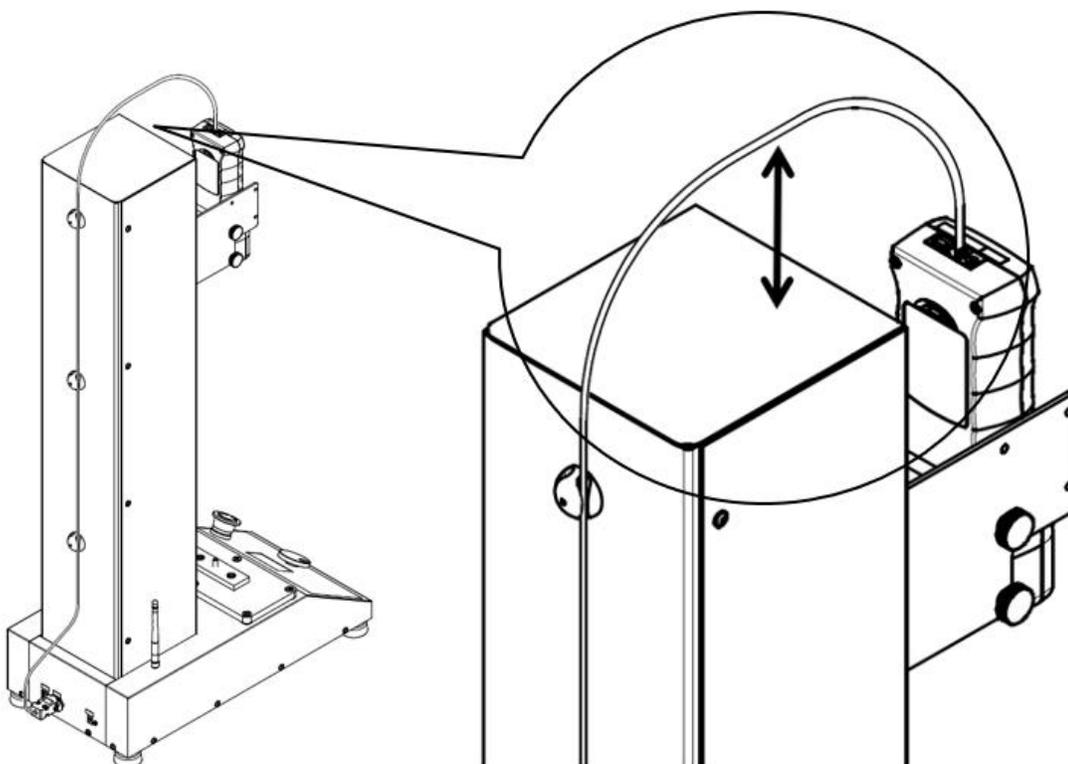
1. Place the force gauge on a stable surface with the back housing facing up.
2. Place the test stand mounting plate on the force gauge and align the plate openings with the mounting screw holes of the force gauge housing.
3. Use se all 4 grip knobs to secure the mounting plate on the force gauge as tightly as possible. Use a wrench if necessary.
4. Align the side screw holes of the mounting plate with the test stand mounting bracket openings and use all 4 grip knobs to firmly secure the force gauge on the test stand.
5. Check for wobble or looseness and retighten if necessary.



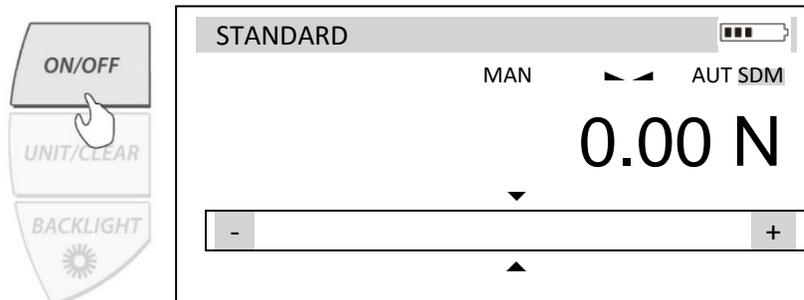
Chapter 7: Initial Start

7.1 Wired Connection

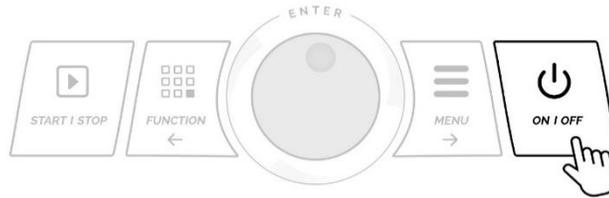
1. Use the supplied RS232 cable to connect the force gauge to the test stand. Firmly secure the RS232 cable to the test stand port with locking screws.
2. Connect the force gauge power adapter cable to the force gauge.
3. Run both cables through the cable clips located on the back of the test stand column. Leave enough cable slack to make sure the force gauge can move smoothly up and down across the entire distance of the column.



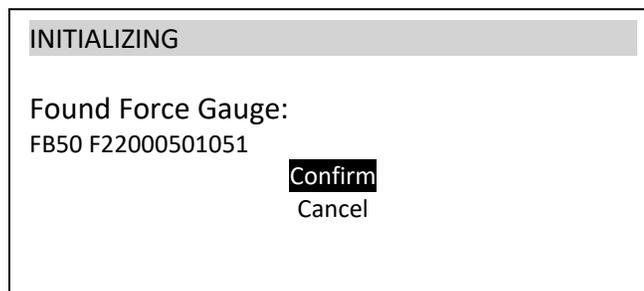
4. Turn the force gauge ON and wait for it to start in its measuring mode.



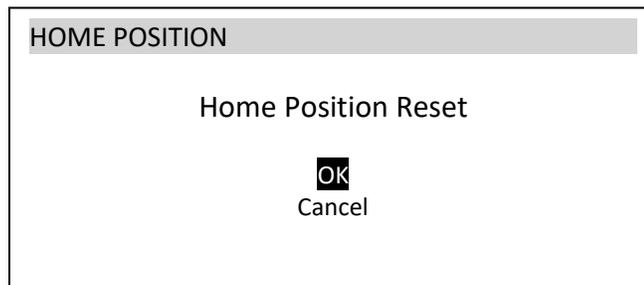
- Turn on the Test Stand by pressing the ON / OFF key.



- The test stand will automatically search for connected force gauges. Wait for the force gauge model and the serial number to appear on the LCD.

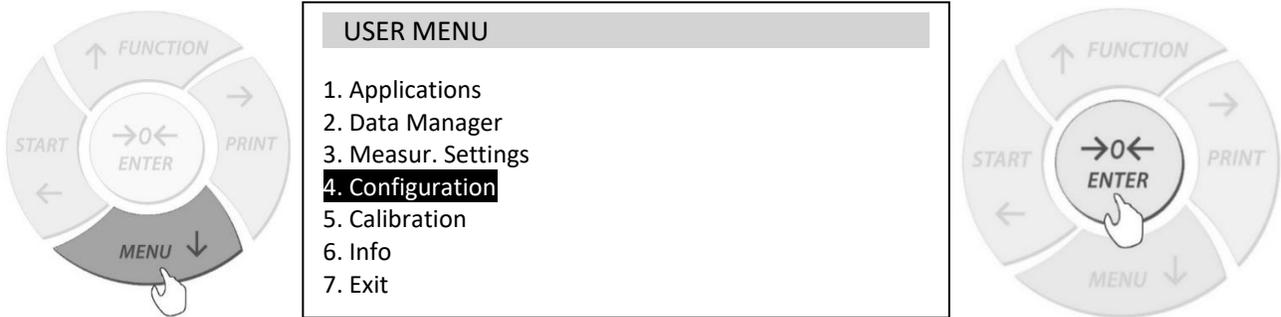


- To initialize the connection select Confirm to continue. Home Position Reset may be required to prepare the test stand for operation.



7.2 Wireless Connection (FC Force Gauge models only)

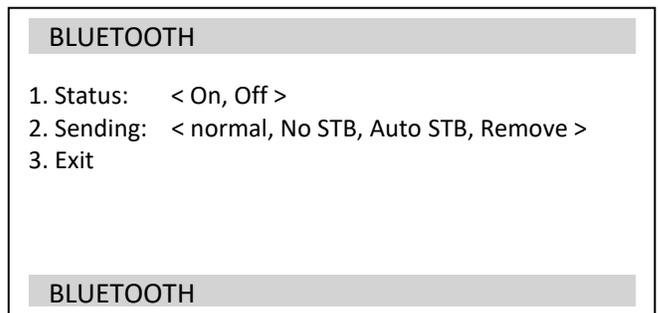
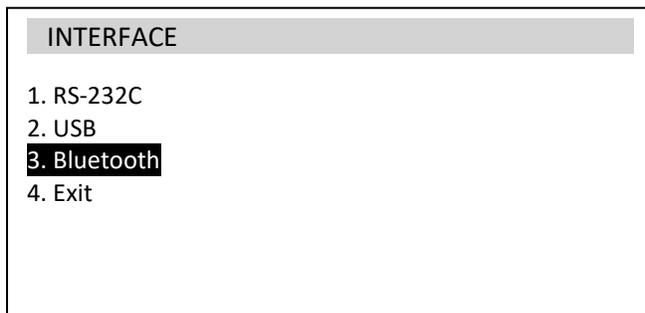
1. Enable the Wireless connection on the force gauge. Press the Menu key and select Configuration.



2. Use the navigation keys to select Interface and press the Enter key

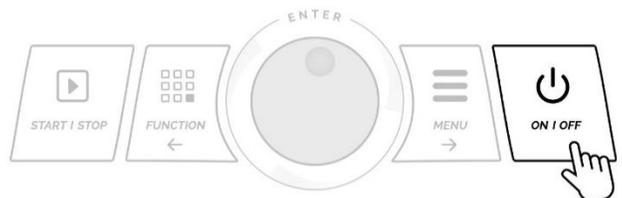


3. To enable the Wireless transmitter, select Bluetooth and press the Enter key. Select Status and use the navigation keys to select ON.



4. Press the CLEAR key until the force gauge enters the measuring mode.

Important: Do NOT connect the RS232 cable between the force gauge and the test stand when using wireless configuration.

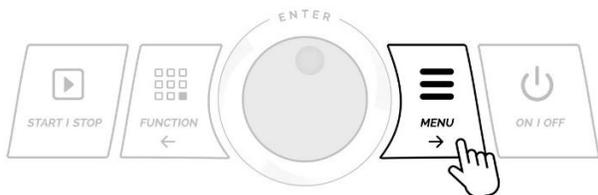


5. Turn on the Test Stand by pressing the ON / OFF key.



6. The test stand will automatically search for connected force gauges. When the “No Force Gauge Connected” message is displayed, select SKIP. Home Position Reset may be required to prepare the test stand for operation.

7. To enable wireless connection, press the Menu key, and use the KNOB to select Configuration.



MAIN MENU

1. Home Position
2. Force Gauge
3. Applications
- 4. Configuration**
9. Info
10. Exit

8. Select INTERFACE from the configuration menu and press KNOB Enter.



Configuration

1. Settings
- 2. Interface**
3. Printout
4. Time & Date
5. PIN
6. Firmware Update
7. Restore Defaults
8. Format Profiles
9. Exit

9. To enable the Wireless transmitter, select Bluetooth and press the KNOB ENTER. Select ENABLE and use the KNOB to select ON. For wireless connection between the test stand and force gauge set the mode to FORCE GAUGE.

INTERFACE

1. USB
- 2. Bluetooth**
3. Exit

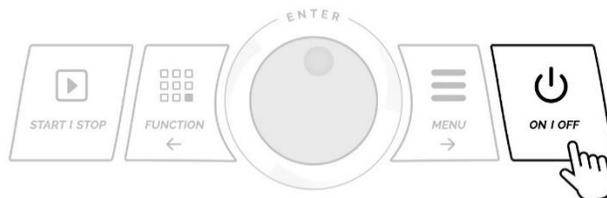
INTERFACE

BLUETOOTH

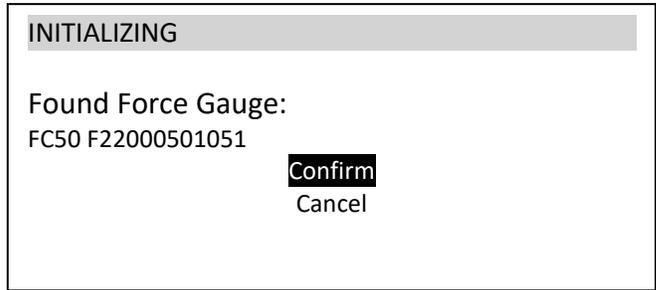
1. Enable: < On, Off >
2. Mode: < Force Gauge, PC/Tablet >
3. Exit

BLUETOOTH

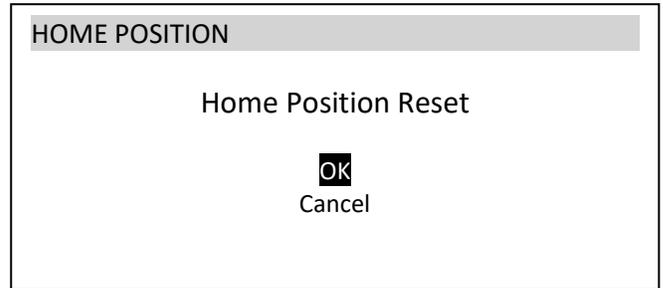
10. Turn the test stand OFF and ON again pressing the ON / OFF key.



- The test stand will automatically search for connected force gauges. Wait for the force gauge model and the serial number to appear on the LCD.



- To initialize the connection select Confirm to continue. Home Position Reset may be required to prepare the test stand for operation.



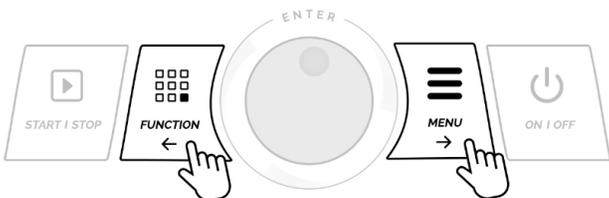
Chapter 8: Navigating Menus

To navigate the test stand menus, use the DIAL KNOB to scroll through vertical menu options, and the LEFT and RIGHT keys to navigate horizontal menu option. To select press on the DIAL KNOB.

UP / DOWN



Left (Function) / Right (Menu)



ENTER



PEAK	
ID:	Profile1
Ref. Pos. Set	
Ref. Pos.:	0.000 in
Speed:	11.8 in/min
Direction:	<Up> <Down>
Load Stop:	<Off> <Set lbf>
Distance:	<...in> <Off>
Auto Return:	<On> <Off>
<div style="border: 1px solid black; padding: 2px;"> Save Load & Save Exit </div>	

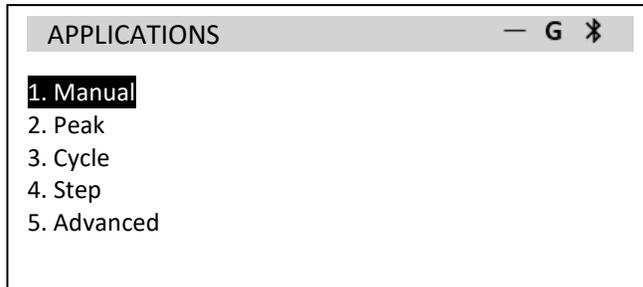
Chapter 9: Application Modes and Profiles

9.1. Manual

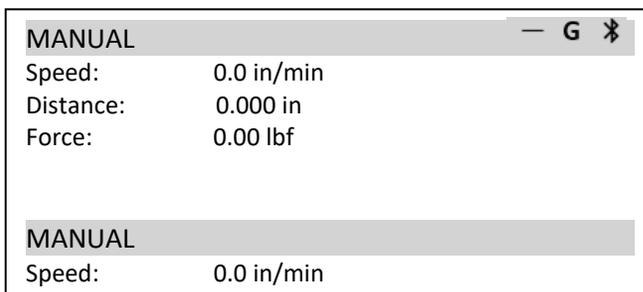
The manual mode allows to control the test stand cross-head movement with the dial knob. Turning the dial to the left moves the cross head-up. Turning the dial to the right moves the cross-head down. The cross head can be set to move continually in a desired direction.

Compatible Force Gauge Mode: *All Modes*

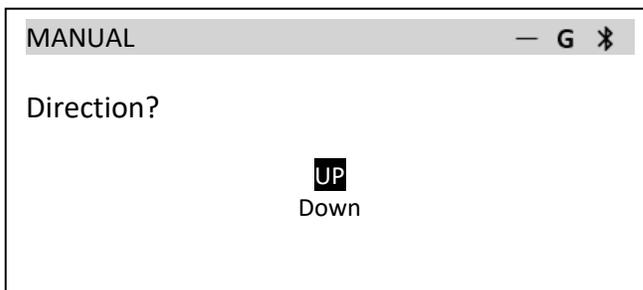
1. To select the MANUAL, press the FUNCTION key, use the dial-knob to select MANUAL.



2. To move the cross-head down rotate the dial knob to the right. To move the cross-head up rotate the dial knob to the left.
3. To select the cross-head direction and initiate continuous movement press on the dial knob.



4. Rotate the dial to select the direction. Press on the dial-knob to put the cross-head in motion. Press on the dial or the START / STOP button to stop the cross-head.





9.2. Peak

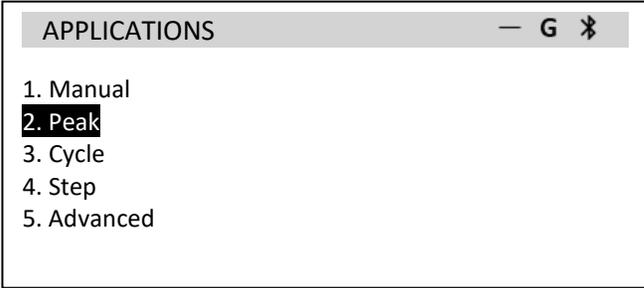
The Peak application is used to measure peak force of a sample while controlling speed and distance of the cross-head. Test stops when the installed force gauge detects a peak. The test stand records the detected peak and distance at which the peak occurred.

Compatible Force Gauge Mode: Standard, *Peak*

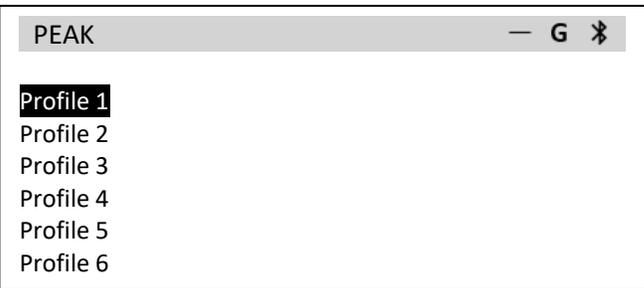
Programmable Parameter	Description
Profile ID	Profile name or number (9 characters)
Ref. Pos. Set. - Reference Position Set	Sets the starting position of the cross-head by moving the cross-head manual to the desired position with the dial-knob. Press on the dial-knob to put the cross-head in motion.
Ref. Pos. - Reference Position	Starting position of the test. Once a test profile has been selected the test automatically travels to the reference point. (in, mm)
Speed	Moving speed of the cross-head (in/min, mm/min)
Direction	Starting direction of the cross-head from the reference position. (Down / Up)
Load Stop	Test stops when a set load value is reached. (Off, Set lbF)
Distance	The distance required for the cross-head to travel. Cross-head will stop if traveled distance is reached before a peak occurs. (Off, Set "in" "mm")
Auto Return	Cross-head automatically returns to the reference point after a peak has been detected or the test has been completed.



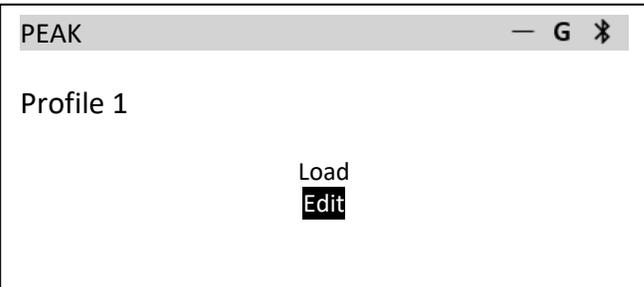
1. To select or edit a PEAK mode profile press the FUNCTION key, use the dial-knob to select PEAK.



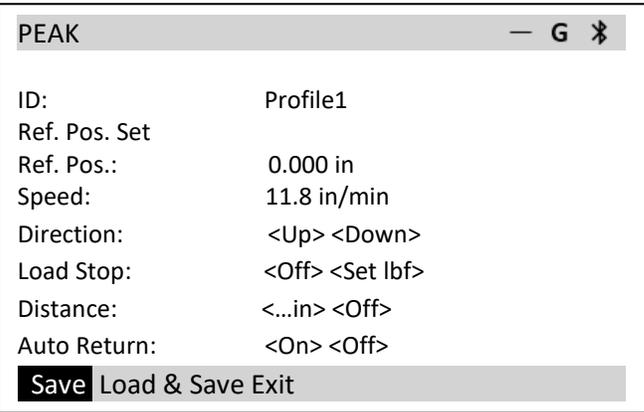
2. Chose a profile location from the list.



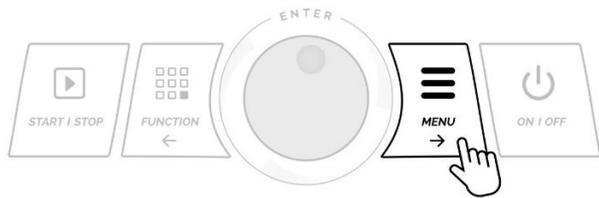
3. If the profile is configured, select LOAD to initiate the profile, or select EDIT to configure.



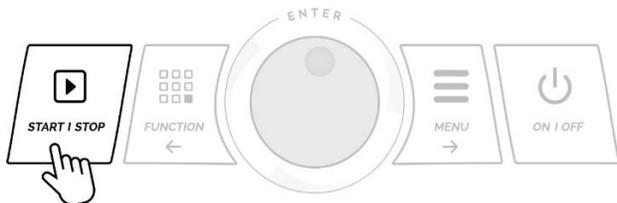
4. Use the dial-knob and the arrow keys to configure the profile parameters.



5. To save the profile use the right arrow key to select SAVE or SAVE & LOAD, and press the KNOB ENTER to continue.



- Prior to starting the test, you can zero the force gauge by selecting ZERO. To start the test, press the START / STOP button, or select START and press KNOB ENTER



PEAK / Profile1		— G *
Speed:	0.0 in/min	
Distance:	0.000 in	
Force:	0.00 lbf	
PeakDist.:	0.000 in	
Peak:	0.00 lbf	
Start Select Zero		

- To stop or pause the test, press the START / STOP button or KNOB ENTER. After pausing the test, you can choose to continue or reset.

PEAK / Profile1		* G *
Speed:	11.9 in/min	
Distance:	3.324 in	
Force:	2.63 lbf	
PeakDist.:	0.000 in	
Peak:	0.00 lbf	
STOP		

- When the test is finished select RESET to clear results and or SELECT to choose a new profile. Select PRINT to send test results to a printer or PC



PEAK / Profile1		— G *
Test Paused		
Continue		
Reset		

PEAK / Profile1		— G *
Speed:	0.0 in/min	
Distance:	0.000 in	
Force:	0.00 lbf	
PeakDist.:	3.328 in	
Peak:	2.75 lbf	
Reset Select Print		



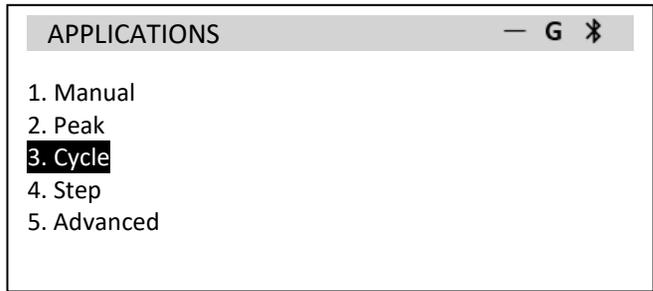
9.3. Cycle

The Cycle application includes two modes: Cycle and Time. The test stand will repeat the programmed cycle over a set number of cycles (Cycle mode), or over a preset time duration (Time mode). Up and Down travel speed of the cross-head may differ. The test stand displays Cycle No, Time Remaining, Cross-head Speed, Travel, Force, and Hold Time.

Compatible Force Gauge Mode: Standard, Multi-Peak

Programmable Parameter	Description
Profile ID	Profile name or number (9 characters)
Mode: <Cycles> <Time>	Cycle: test will run for the specified numbers of cycles. Time: test will run for a specified amount of time.
Cycles / Time	Number of Cycles or Time required.
Reference Position Set	Sets the starting position of the cross-head by moving the cross-head manual to the desired position with the dial-knob. Press on the dial-knob to put the cross-head in motion.
Reference Position	Starting position of the test. Once a test profile has been selected the test automatically travels to the reference point. (in, mm)
D. Speed – Down Speed	Moving speed of the cross-head in the “Down” Direction. (in/min, mm/min)
U. Speed – Up Speed	Moving speed of the cross-head in the “UP” Direction. (in/min, mm/min)
Direction	Starting direction of the cross-head from the reference position. (Down / Up)
Distance	The distance required for the cross-head to travel. (Off, Set “in” “mm”)
Hold Time Ref. – Hold Time at Reference	The amount of time the cross-head pauses at the reference point.
Hold Time End	The amount of time the cross-head pauses after traveling the distance amount.
Load Stop	Test stops when a set load value is reached. (Off, Set lbf)
Auto Return	Cross-head automatically returns to the reference point after a peak has been detected or the test has been completed.
Break Stop	When enabled the cross-head stops if a sample break is detected. The test stand performs its own break (peak) calculation from the measurements it receives from the force gauge.

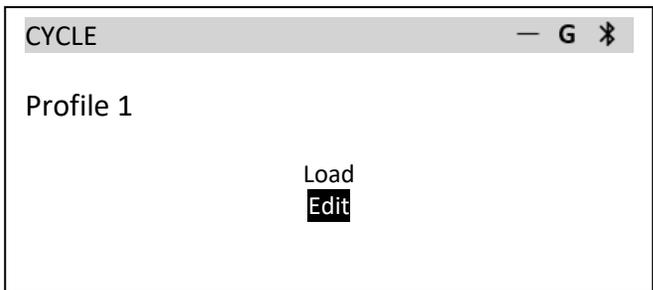
5. To select or edit a CYCLE mode profile press the FUNCTION key, use the dial-knob to select CYCLE.



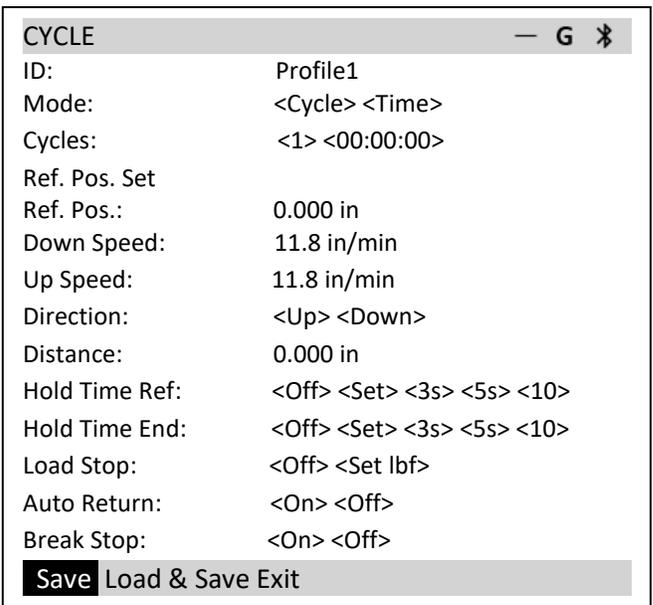
6. Chose a profile location from the list.



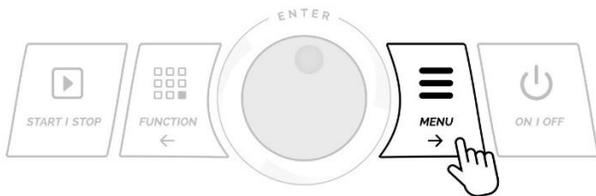
7. If the profile is configured, select LOAD to initiate the profile, or select EDIT to configure.



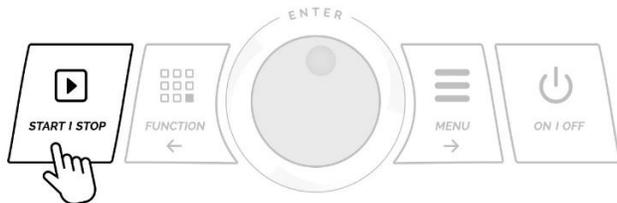
8. Use the dial-knob and the arrow keys to configure the profile parameters.



9. To save the profile use the right arrow key to select SAVE or SAVE & LOAD, and press the KNOB ENTER to continue.



10. To start the test, press the START / STOP button, or select START and press KNOB ENTER



CYCLE / Profile1		— G ✖
Cycles:	0	
Speed:	0.0 in/min	
Distance:	0.000 in	
Force:	0.00 lbf	
Hold Time:		
Start Select		

11. To stop or pause the test, press the START / STOP button or KNOB ENTER. After pausing the test, you can choose to continue or reset.

CYCLE / Profile1		✖ G ✖
Cycles:	1	
Speed:	11.8 in/min	
Distance:	2.000 in	
Force:	2.50 lbf	
Hold Time:	4 s	
Start Select		

12. When the test is finished select RESET to clear results and or SELECT to choose a new profile. Select PRINT to send test results to a printer or PC



CYCLE / Profile1		— G ✖
Test Paused		
Continue		
Reset		

CYCLE / Profile1		— G ✖
Cycles:	0	
Speed:	0.0 in/min	
Distance:	2.000 in	
Force:	0.00 lbf	
Hold Time:		
Reset Select		



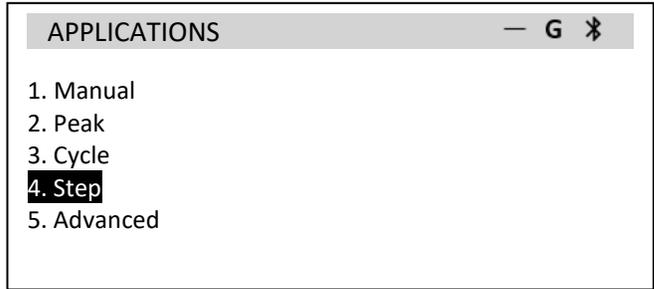
9.4. Step

Test is performed in steps. Each test can consist of maximum 12 steps. The sequence of steps can be set to cycle (repeat). Each step can differ in travel distance, speed, and hold time. The test stand displays the Step No., Speed, Travel, Force, and Hold Time (Countdown).

Compatible Force Gauge Mode: Standard, Multi-Peak

Programmable Parameter	Description
Profile ID	Profile name or number (9 characters)
Steps	Number of steps in the test. Parameter can differ for each step.
Ref. Pos. Set. - Reference Position Set	Sets the starting position of the cross-head by moving the cross-head manual to the desired position with the dial-knob. Press on the dial-knob to put the cross-head in motion.
Ref. Pos. - Reference Position	Starting position of the test. Once a test profile has been selected, the test automatically travels to the reference point. (in, mm)
Cycles	All steps of the test will run for the specified numbers of cycles.
Auto Return	Cross-head automatically returns to the reference point after a peak has been detected or the test has been completed.
Break Stop	When enabled the cross-head stops if a sample break is detected. The test stand performs its own break (peak) calculation from the measurements it receives from the force gauge.
Step Parameters	
Direction	Starting direction of the cross-head from the reference position. (Down / Up)
Speed	Moving speed of the cross-head. (in/min, mm/min)
Distance	The distance required for the cross-head to travel. (Off, Set "in" "mm")
Hold Time	The amount of time the cross-head pauses after completing a step.
Load Stop	Test stops when a set load value is reached. (Off, Set lbf)

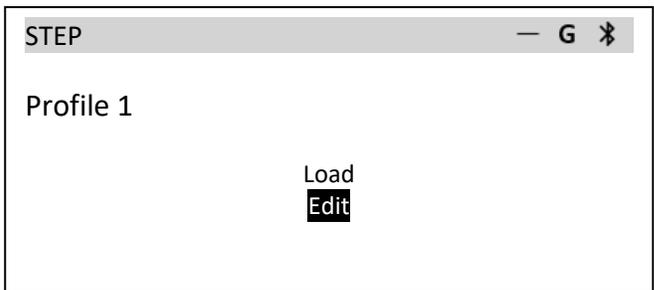
1. To select or edit a STEP mode profile press the FUNCTION key, use the dial-knob to select STEP.



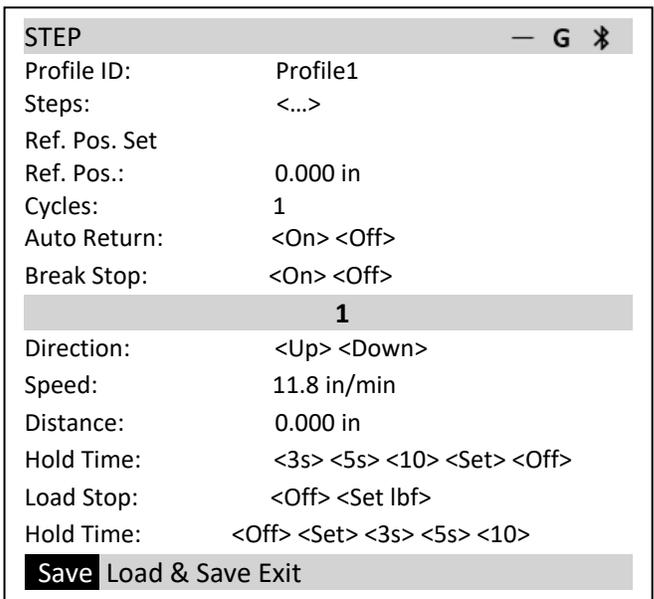
2. Chose a profile location from the list.



3. If the profile is configured, select LOAD to initiate the profile, or select EDIT to configure.



4. Use the dial-knob and the arrow keys to configure the profile parameters for each step.



5. To save the profile use the right arrow key to select SAVE or SAVE & LOAD, and press the KNOB ENTER to continue.

6. To start the test, press the START / STOP button, or select START and press KNOB ENTER



STEP / Profile1		— G *
Step No:	0	
Speed:	0.0 in/min	
Distance:	0.000 in	
Force:	0.00 lbf	
Hold Time:		
Start Select		

7. To stop or pause the test, press the START / STOP button or KNOB ENTER. After pausing the test, you can choose to continue or reset.

STEP / Profile1		* G *
Cycles:	1	
Speed:	11.8 in/min	
Distance:	2.000 in	
Force:	2.50 lbf	
Hold Time:	4 s	
Start Select		

8. When the test is finished select RESET to clear results and or SELECT to choose a new profile. Select PRINT to send test results to a printer or PC.

STEP / Profile1		— G *
Test Paused		
Continue		
Reset		



STEP / Profile1		— G *
Cycles:	0	
Speed:	0.0 in/min	
Distance:	2.000 in	
Force:	0.00 lbf	
Hold Time:		
Reset Select		



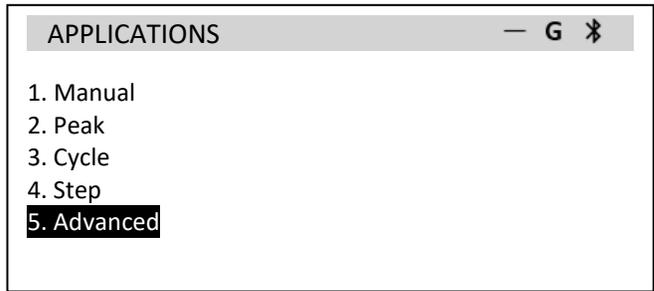
9.5. Advanced

The advanced mode offers maximum programming flexibility. The mode compiles all programmable parameters of the test stands allowing the user to create complex testing profiles with conditions that may not be achieved in standard application modes.

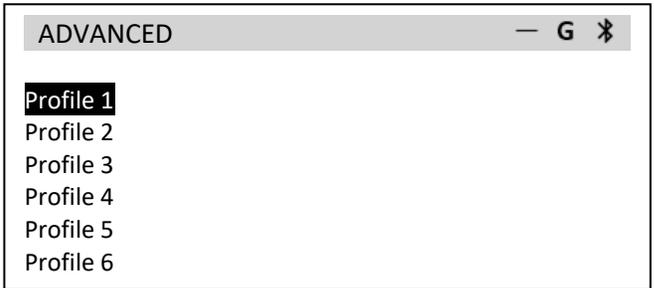
Compatible Force Gauge Mode: Standard, Multi-Peak

Programmable Parameter		Description	
Profile ID		Profile name or number (9 characters)	
Steps		Number of steps in the test. Parameter can differ for each step.	
Ref. Pos. Set. - Reference Position Set		Sets the starting position of the cross-head by moving the cross-head manual to the desired position with the dial-knob. Press on the dial-knob to put the cross-head in motion.	
Ref. Pos. - Reference Position		Starting position of the test. Once a test profile has been selected the test automatically travels to the reference point. (in, mm)	
Cycles		All steps of the test will run for the specified numbers of cycles.	
Auto Return		Cross-head automatically returns to the reference point after a peak has been detected or the test has been completed.	
Break Stop		When enabled the test stand stops if a sample break is detected. The test stand performs its own break (peak) calculation from the measurements it receives from the force gauge.	
Step Parameters			
Action	Move Up	Starting direction of the cross-head from the reference position.	
	Move Down		
	Hold	Time: The amount of time the cross-head paused.	
	Constant Force	The cross-head maintains specified constant force. The cross head performs minimum movements required to maintain a constant force applied within a specified tolerance range for a specified amount of time.	Duration: The amount of time required to maintain the specified constant force. Force: The amount of force which will be maintained for a specified time. Tolerance: Force tolerance specified in percent +/- used to maintain the position of the cross-head in order to maintain the specified force.
Speed		Moving speed of the cross-head (in/min, mm/min)	
End	Travel	Distance: The distance required for the cross-head to travel.	
	Time	Duration: Step will run for a specified amount of time.	
	Sample Break	Step stops if a sample break is detected. The test stand performs its own break (peak) calculation from the measurements it receives from the force gauge.	
	Force	Step ends when a set force condition is met.	Condition: Greater than or less than condition for the force value at which the step will end. Force: Specified force condition value.
	Position	Step ends when cross-head reaches the set position.	

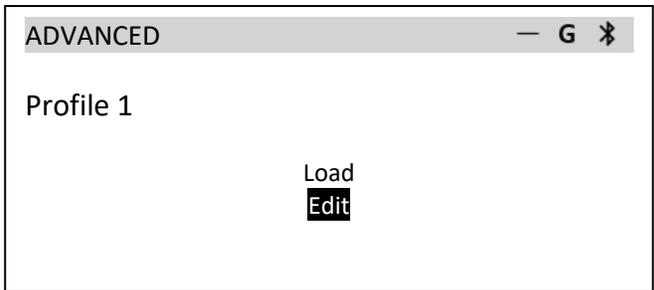
1. To select or edit an ADVANCED mode profile press the FUNCTION key, use the dial-knob to select ADVANCED.



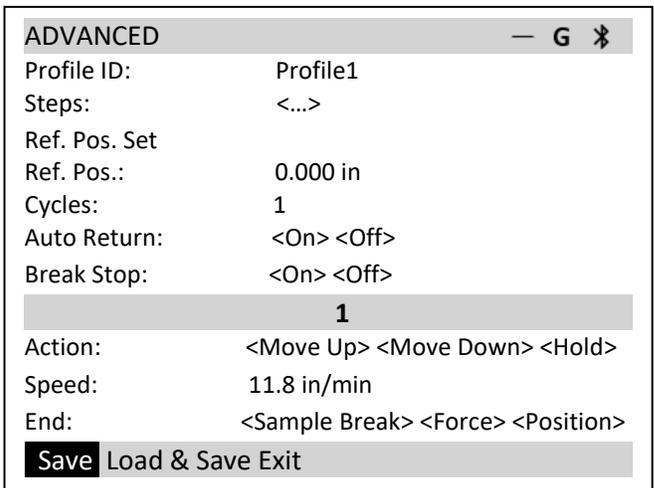
2. Chose a profile location from the list.



3. If the profile is configured, select LOAD to initiate the profile, or select EDIT to configure.

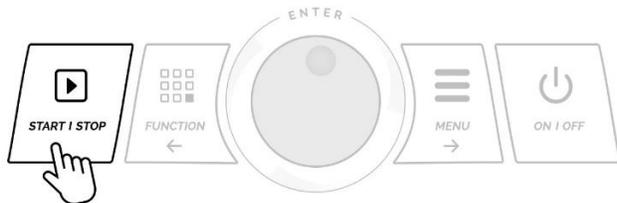


4. Use the dial-knob and the arrow keys to configure the profile parameters for each step.



5. To save the profile use the right arrow key to select SAVE or SAVE & LOAD, and press the KNOB ENTER to continue.

- To start the test, press the START / STOP button, or select START and press KNOB ENTER



ADVANCED / Profile1		— G ✖
Cycle No:	0	
Step No:	0	
Speed:	0.0 in/min	
Distance:	0.000 in	
Force:	0.00 lbf	
Start Select		

- To stop or pause the test, press the START / STOP button or KNOB ENTER. After pausing the test, you can choose to continue or reset.

ADVANCED / Profile1		✖ G ✖
Cycle No:	1	
Step No:	1	
Speed:	11.8 in/min	
Distance:	2.000 in	
Force:	2.50 lbf	
Start Select		

- When the test is finished select RESET to clear results and or SELECT to choose a new profile. Select PRINT to send test results to a printer or PC.

ADVANCED / Profile1		— G ✖
Test Paused		
Continue		
Reset		



ADVANCED / Profile1		— G ✖
Cycle No:	1	
Step No:	1	
Speed:	0.0 in/min	
Distance:	2.000 in	
Force:	0.00 lbf	
Reset Select		



Chapter 10: Notifications and Errors

Notification	Description
<p>NO SUPPLY</p> <p>Check Emergency Stop Switch</p> <p style="text-align: center;">OK</p> <p>NO SUPPLY</p>	<p>Check Emergency Stop Switch: Interrupted test stand motor power supply. Engaged “Emergency Stop” switch, or faulty fuse.</p>
<p>WARNING — G ✖</p> <p>Load Stop Reached</p> <p style="text-align: center;">OK</p> <p>WARNING</p>	<p>Warning, Load Stop Reached: The load stop parameter was set, and the load value was reached prior to detecting a peak or reaching the set travel distance.</p>
<p>HOME POSITION — G ✖</p> <p>Home Position Reset</p> <p style="text-align: center;">OK Cancel</p>	<p>Home Position Reset: Cross-head must return to its home position in order to calibrate distance, prior to starting a test.</p>
<p>OPERATION STOPPED — G ✖</p> <p>Force Exceeded</p> <p style="text-align: center;">OK</p> <p>OPERATION STOPPED</p>	<p>Force Exceeded: Overload Setting value has been exceeded or force gauge maximum capacity has been reached.</p>
<p>OPERATION STOPPED — G ✖</p> <p>Error: Unresponsive Drive</p> <p style="text-align: center;">OK</p> <p>OPERATION STOPPED</p>	<p>Unresponsive Drive: The motor shaft did not rotate properly. Maximum load capacity exceeded or possible mechanical damaged.</p>

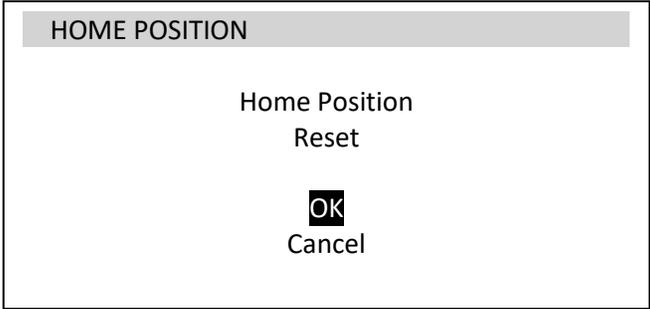
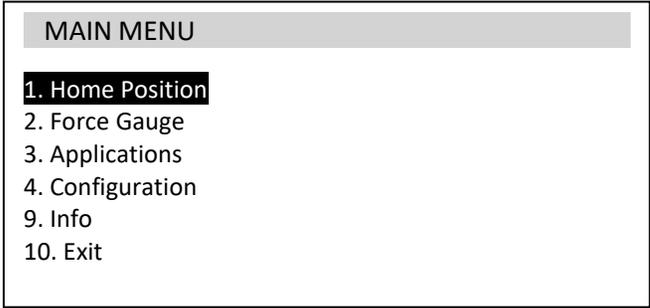


<p>OPERATION STOPPED</p> <p>Motor Overload</p> <p style="text-align: center;">OK</p> <p>OPERATION STOPPED</p>	<p>Motor Overload: Maximum load capacity exceeded.</p>
<p>CONNECTION LOST — G ✎</p> <p>Force Gauge Connection Lost</p> <p style="text-align: center;">Search Skip</p>	<p>Force Gauge, Connection Lost: Test stand and force gauge connection, has been interrupted, or lost. Use the force gauge search function to reconnect.</p>
<p>BT FAILURE</p> <p>BT Configuration Failed</p> <p style="text-align: center;">OK</p>	<p>BT Configuration Failed: The module responsible for wireless BT communication failed to initialize. Please turn the BT module OFF and ON again. (Main menu> Configuration> Interface> Bluetooth> Enable > On / Off).</p>
<p>OPERATION STOPPED</p> <p>Thermal Shutdown</p> <p style="text-align: center;">OK</p> <p>OPERATION STOPPED</p>	<p>Thermal Shutdown: Motor controller overheated. Stop operation of the test stand and wait for the motor to cool down before continuing.</p>
<p>RTC FAILURE</p> <p>Real Time Clock Failure</p> <p style="text-align: center;">OK</p>	<p>Real Time Clock Failure: Internal clock malfunction. You can continue to use the test stand, but time and date features will be disabled. Please contact technical support.</p>

Chapter 11: Main Menu

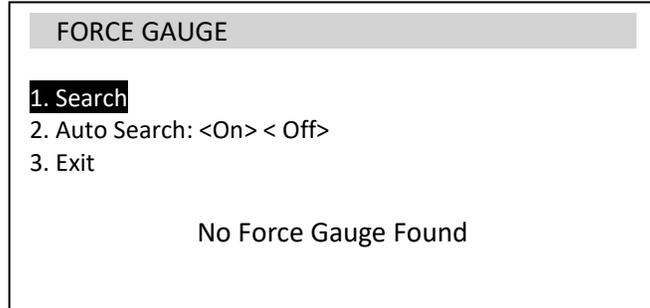
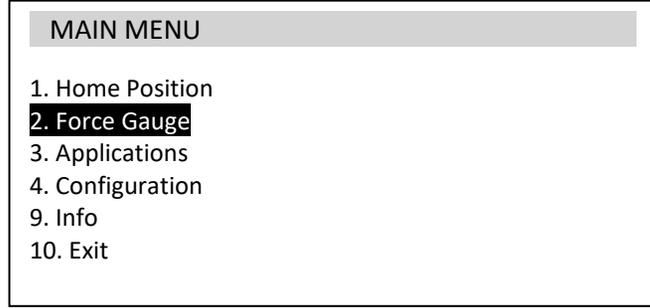
11.1 Home Position

1. To reset the cross-head to its “home position” press the MENU key and select HOME POSITION.
2. Select OK to confirm HOME POSITION reset and press KNOB ENTER.



11.2 Force Gauge Connection

1. To establish a connection between the test stand and a force gauges press the MENU key and select FORCE GAUGE.
2. Make sure the force gauge is connected to the test stand via RS232 (Wired Models) or Bluetooth is enabled on both the Force Gauge and the Test Stand.
3. Select SEARCH, wait for the Force Gauge model serial number to appear and select it by pressing KNOB ENTER.



4. The test stand is set to automatically search for a force gauge at each startup. To disable Auto Search and power on without a force gauge connection set AUTO SEARCH to OFF.

11.3 Applications

1. Application modes can be disabled from appearing in the list of available functions. To disable unused applications, use the select an application name, and choose DISABLE.



MAIN MENU

1. Home Position
2. Force Gauge
3. Applications
4. Configuration
9. Info
10. Exit

APPLICATIONS

- | | |
|--------------|----------------------|
| 1. Manual: | <Enabled> <Disabled> |
| 2. Peak: | <Enabled> <Disabled> |
| 3. Cycle: | <Enabled> <Disabled> |
| 4. Step: | <Enabled> <Disabled> |
| 4. Advanced: | <Enabled> <Disabled> |

11.4 Configuration

11. To access the Configuration menu, press the Menu key, select configuration and press the KNOB ENTER.
12. Use the KNOB to navigate through the features and configure the function.



Configuration

1. Settings
2. Interface
3. Printout
4. Time & Date
5. PIN
6. Firmware Update
7. Restore Defaults
8. Format Profiles
9. Exit

11.4.1 Settings

1. To configure or change the test stand default global settings such as Units of measure or Speed, select SETTINGS and press KNOB ENTER.
2. Use the knob to select and configure the settings.



Configuration

- 1. Settings**
2. Interface
3. Printout
4. Time & Date
5. PIN
6. Firmware Update
7. Restore Defaults
8. Format Profiles
9. Exit

SETTINGS

1. Units <in/min> <mm/min>
2. Speed.: 11 in/min
3. Peak Detect: 10%
4. Min Peak: 0.2lbf
5. Overload: 112lbf
6. Send Start: <Off> <On>
7. Send Zero: <Off> <On>
8. Exit

Programmable Parameter	Description	
Units	Allows to change the test stand unit of measure from imperial to metric: in/min, mm/min. Default: in/min	
Speed	Default global maximum speed of the cross-head.	
Peak Detection	Sensitivity of test stand Peak Detection and Break Stop features.	Amount of force (in percent) that must decrease in relation to the last recorded maximum force value in order to assume that the peak value was detected, or the sample was broken.
Min Peak		Minimum value of the last maximum recorded force required to determine that the peak value was detected, or the sample was broken.
Overload	Default global overload limit. Cross-Head stops when the overload force limit has been reached.	
Send START	Test stand sends the START command to the force gauge. Pressing START on the test stand will initiate a start of the test on the force gauge.	
Send ZERO	Test stand send ZERO command to the force gauge. Force gauge can be zeroed from the test stand.	

11.4.2 Interface

- 12 To configure baud rates and other PC interface parameters, select INTERFACE from the configuration menu and press the ENTER key.



Configuration

1. Settings
2. Interface
3. Printout
4. Time & Date
5. PIN
6. Firmware Update
7. Restore Defaults
8. Format Profiles
9. Exit

- 13 Use the KNOB to select port parameters and press the KNOB ENTER to save the settings.

INTERFACE

1. USB
2. Bluetooth
3. Exit

INTERFACE

USB

1. Baudrate: < 115200, 57600, 38400, 19200, 9600 >
2. Bits: < 8, 7 >
3. Parity: < none, odd, even >
5. Exit

USB

- 14 To enable the Wireless transmitter, select Bluetooth and press the KNOB ENTER. Select ENABLE and use the KNOB to select ON. For wireless connection between the test stand and force gauge set the mode to FORCE GAUGE. For a wireless connection between the test stand and a PC or Tablet se the mode to PC/TABLET.

INTERFACE

1. USB
2. Bluetooth
3. Exit

INTERFACE

BLUETOOTH

1. Enable: < On, Off >
2. Mode: < Force Gauge, PC/Tablet >
3. Exit

BLUETOOTH



11.4.3 Printout

1. To configure printing parameters and print details select PRINTOUT from the Configuration menu and press the KNOB ENTER.
2. To enable or disable printable parameters use the KNOB to select a desired parameter and press the KNOB ENTER to place or remove a checkmark corresponding to the parameter. Disabled parameters will not appear on the receipt printout and will not be transited via interface ports.

Configuration

1. Settings
2. Interface
- 3. Printout**
4. Time & Date
5. PIN
6. Firmware Update
7. Restore Defaults
8. Format Profiles
9. Exit

Header	Test Stand Model and Serial Number
Profile	Name of the profile used in the test
Date	Current Date
Time	Current Time
Unit	Unit of measure used
Travel	Cross-head traveled Distance Value
Cycle	Number of Cycles (Cycle Mode)
Force	Force Captured (Peak Mode)

PRINTOUT

- Header
- Profile
- Date
- Time
- Unit
- Travel
- Cycle No.
- Force.

11.4.4 Time & Date

1. To adjust the test stand Time and Date select Time & Date from the configuration menu and press KNOB ENTER.
2. Use the KNOB to select and change time settings.



Configuration

1. Settings
2. Interface
3. Printout
- 4. Time & Date**
5. PIN
6. Firmware Update
7. Restore Defaults
8. Format Profiles
9. Exit

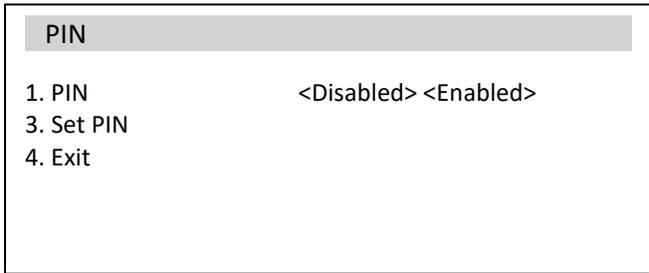
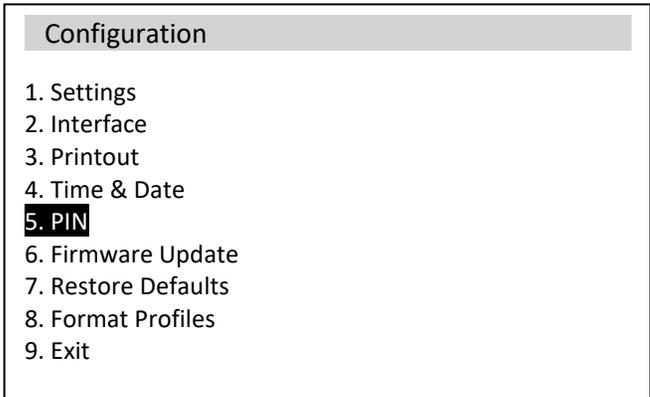
TIME & DATE

1. Time: 11:45:30 AM
2. Date: 11 – 29 – 2016
3. 12 / 24: < 12H, 24H >
4. Format: < MM-DD-YYYY, DD-MM-YYYY >
5. Exit

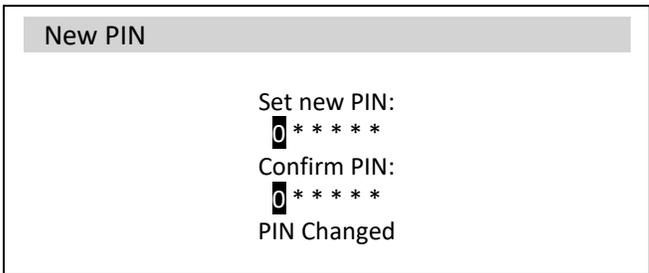


11.4.5 PIN

1. To enable PIN protection of the test stand menus, select PIN from the Configuration menu and press KNOB ENTER.
2. Select PIN and choose ENABLE. The set pin number will be displayed. Default factory PIN is set to 000000. Confirm the PIN by pressing KNOB ENTER.



3. To set a new PIN number, select SET PIN and press KNOB ENTER. Key in the new PIN twice.

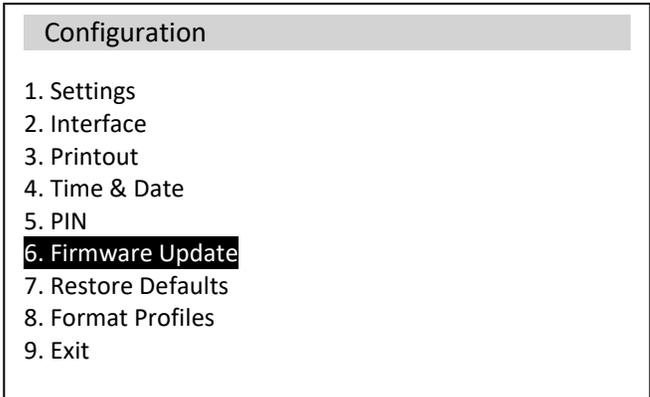


11.4.6 Firmware Update

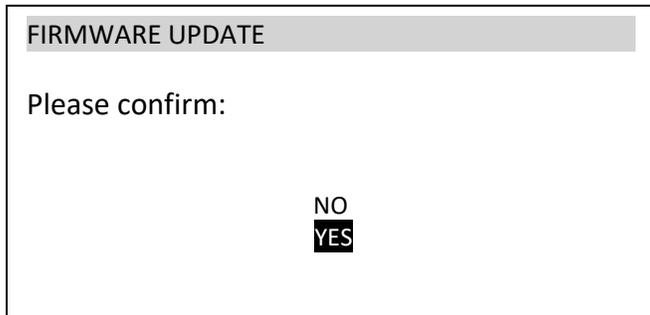
Prior to updating the test stand firmware please contact technical support for assistance.

To update the firmware, the test stand must be connected to a PC via the USB port. A firmware update must be enabled simultaneously through Torbal Utility software on the PC as well as the Firmware option on the test stand.

1. To initiate the firmware update, select Firmware Update from the Configuration menu and press the KNOB ENTER.



2. Use the KNOB to select Yes and press the KNOB ENTER.



11.4.7 Restore Defaults

1. To reset all modes and applications as well as restore default factory settings of the test stand, select Restore Defaults from the Configuration menu and press KNOB ENTER.
2. Use the navigation keys to select Yes and press the Enter key to proceed.



Configuration

1. Settings
2. Interface
3. Printout
4. Time & Date
5. PIN
6. Firmware Update
- 7. Restore Defaults**
8. Format Profiles
9. Exit

DEFAULTS

Restore defaults?

NO
YES

11.4.8 Format Profiles

1. To delete saved profiled and profile parameters, select FORMAT PROFILES and press KNOB ENTER.
2. Select YES to confirm and continue.

WARNING: Formatting profiles will permanently delete all profile names and parameters. Deleted profiles CAN NOT be restored.

Configuration

1. Settings
2. Interface
3. Printout
4. Time & Date
5. PIN
6. Firmware Update
7. Restore Defaults
- 8. Format Profiles**
9. Exit

FORMAT PROFILES

Continue?

NO
YES

11.4.9 Info

1. To verify the test stand firmware version and serial number, press the Menu key, select INFO and press KNOB ENTER.



MAIN MENU

1. Home Position
2. Force Gauge
- 3. Applications**
4. Configuration
9. Info
10. Exit

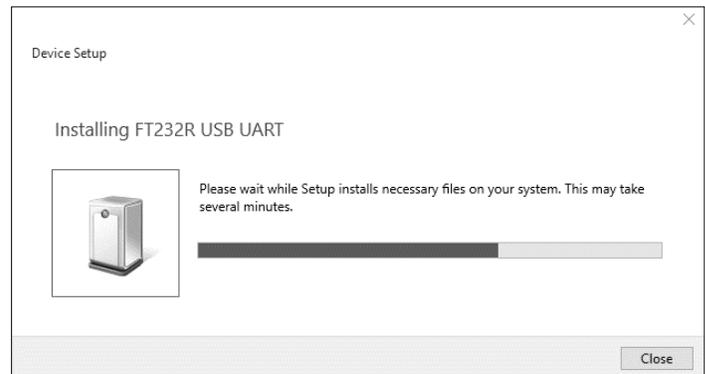
INFO

Model : FT-V100
SOFT. : STA0041
DATE : 2019-03-28
S/N : F6100100051
TORBAL

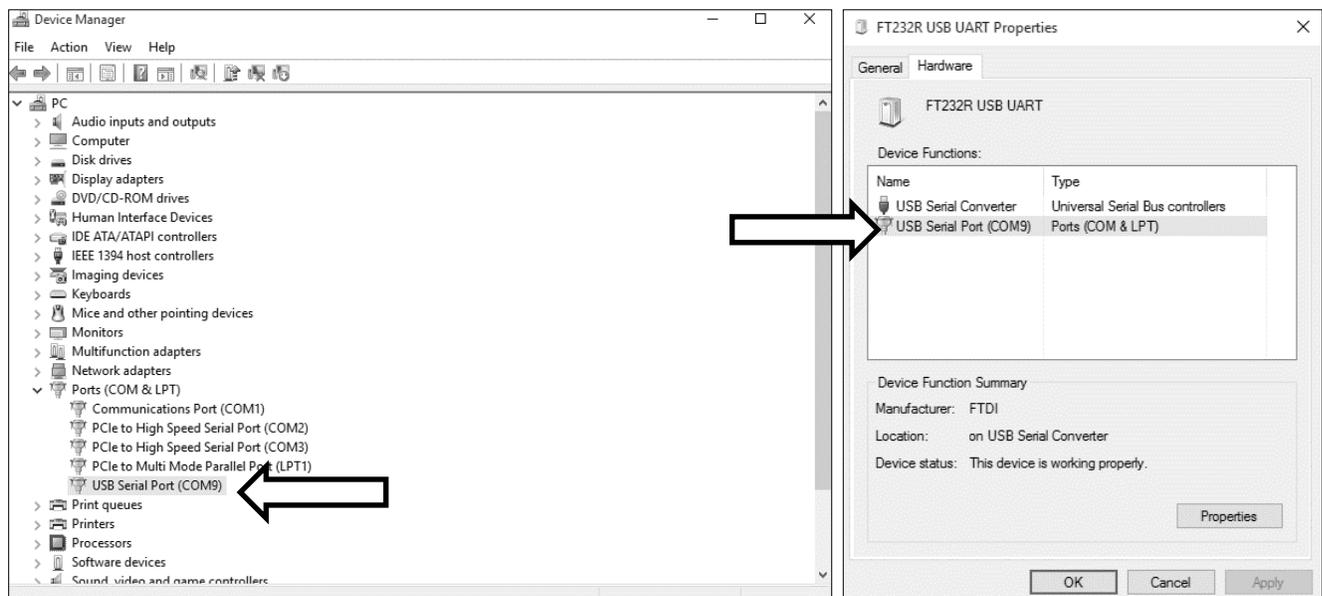
Chapter 12: Connecting to PC

1. Before connecting the test stand to a computer, the USB Port must be configured with the appropriate baud rate and other necessary parameters.
2. Make sure you PC or Laptop is connected to the internet and allows drivers to be installed automatically.
3. Connect the test stand to the PC with a Standard A/B USB cable.

4. Allow the USB drivers to install automatically. If the driver does not install automatically, visit torbalscales.com to download and install the driver manually.



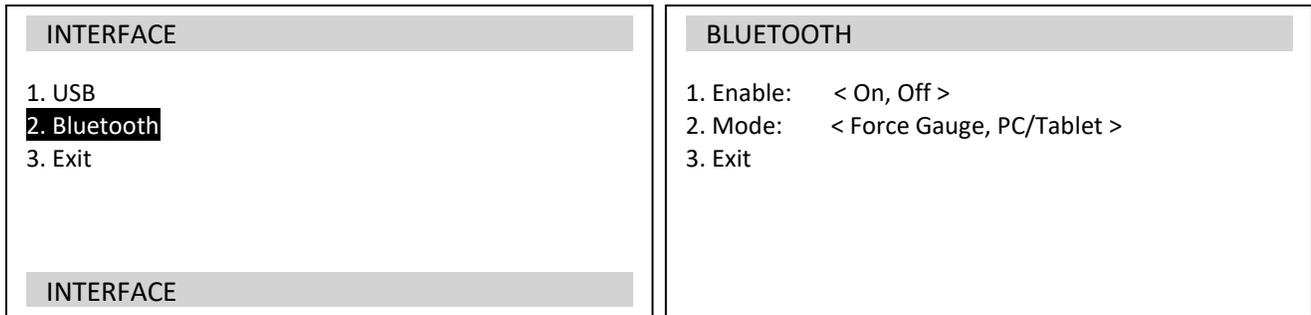
5. Verify the COM port number assigned to the test stand. Open the PC Device Manager, expand the Ports (COM & LPT) tab and locate the USB Serial Port (Note the COM port listed). The COM port is also listed in the FT232R USB UART device properties, which is visible in the Devices and Printers list, accessible from the computer's control panel.



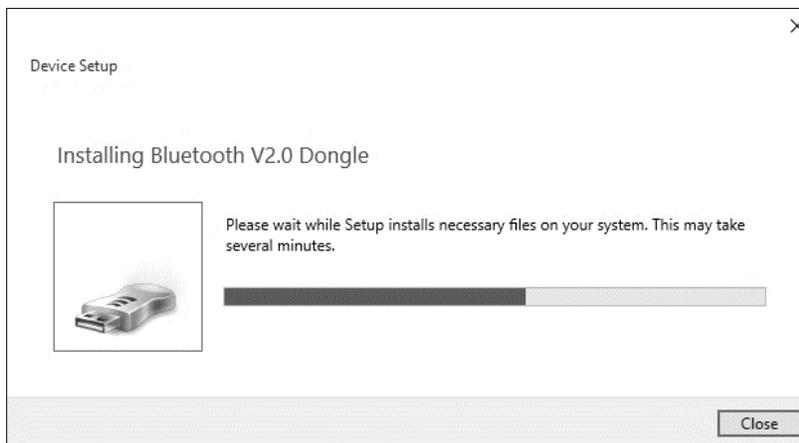
6. Once the COM port number assigned to the force gauge has been verified, open the software application and set the software connection to the COM port number listed in the PC device manager and the Baud Rate set in the force gauge.

Chapter 13: Wireless PC Connection

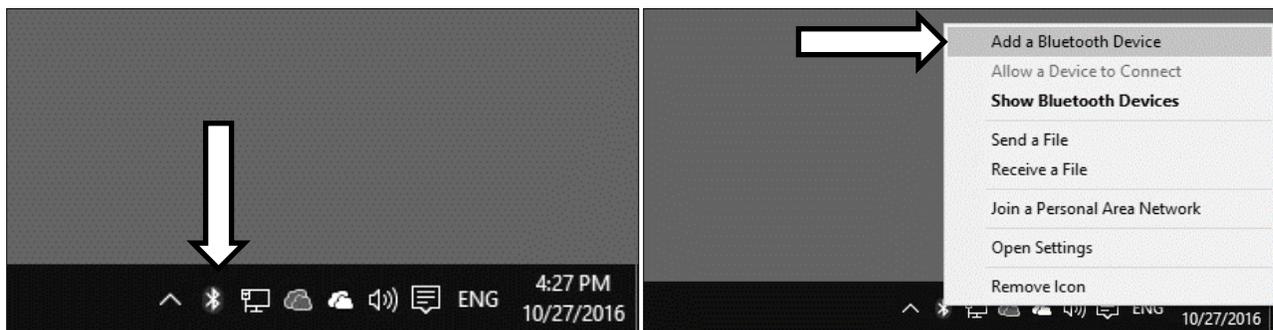
1. To enable the Wireless transmitter, and connect the test stand to a PC wirelessly, select Bluetooth and press the KNOB ENTER. Select ENABLE and use the KNOB to select ON.
2. Set the Bluetooth mode to PC/TABLET.



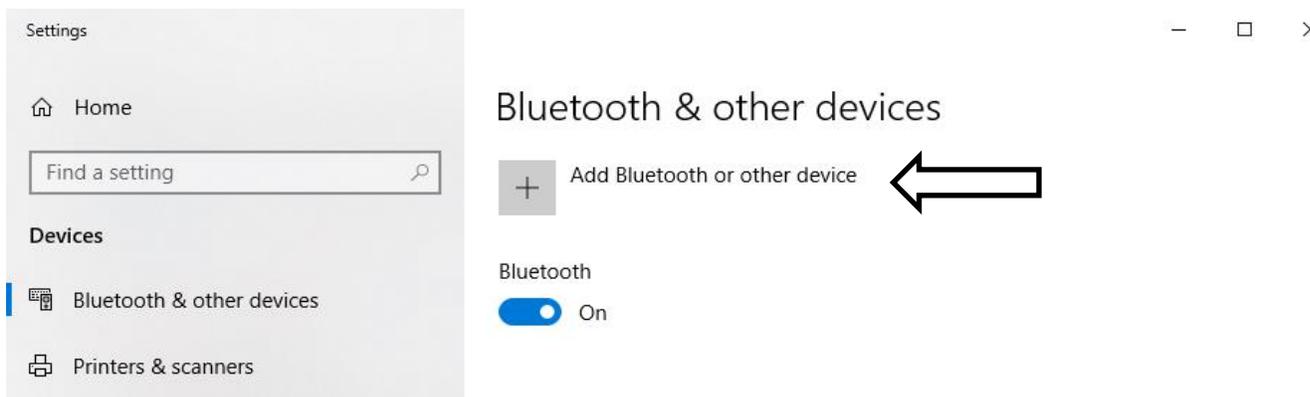
3. Make sure your PC is connected to the internet and allows drivers to be installed automatically. Plug in the dongle to an available USB slot in your PC. Windows will begin automatic installation of device driver software.



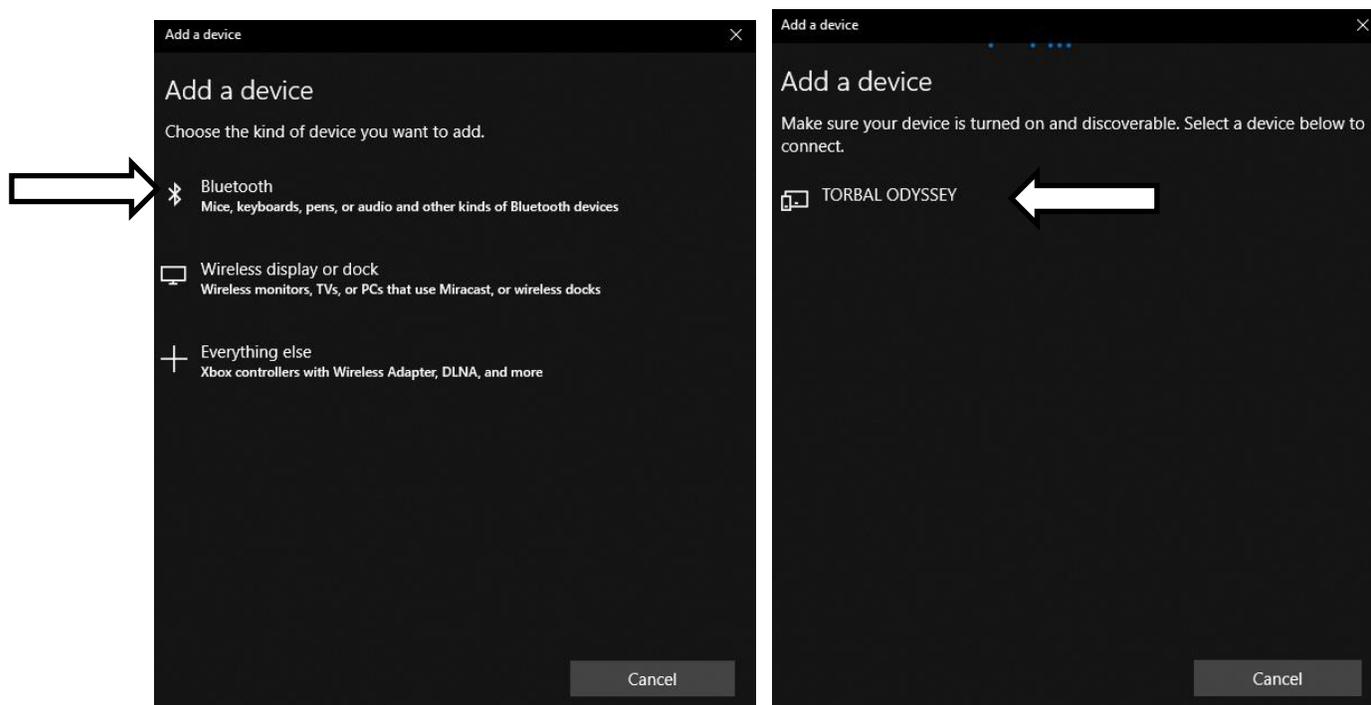
4. Once the driver is installed, a Bluetooth icon will be visible in the task bar. Right click on the Bluetooth icon. The icon may be hidden, in which case expand your task bar to show all inactive icons. From the icon function menu select "Add a Bluetooth Device" to start the pairing wizard.



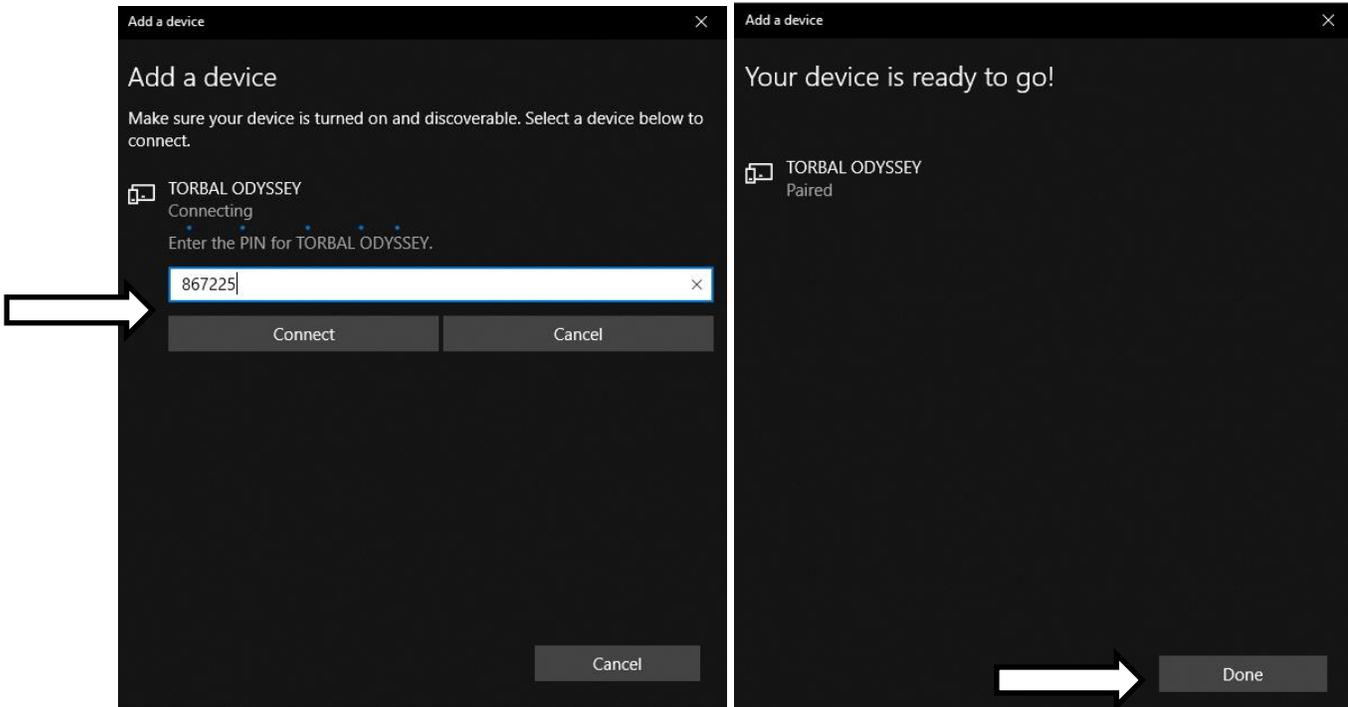
- 5. Settings window will appear on PC screen. Click on “ + Add Bluetooth or other Device”.



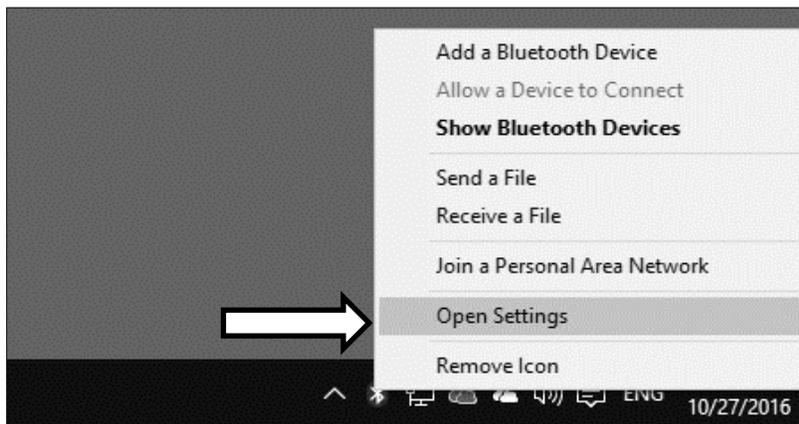
- 6. “Add a device” window open. Click on “Bluetooth” to display available devices. Locate device “TORBAL ODYSSEY” test stand device, click once to select it.



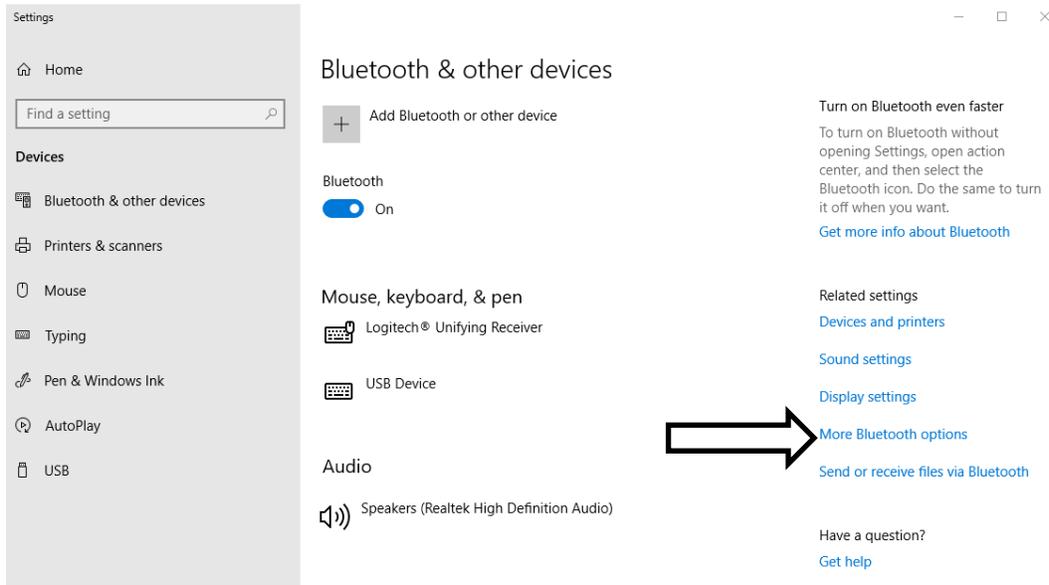
- 7. Key in the paring code: 867225. Click Connect to pair the force gauge with your computer.



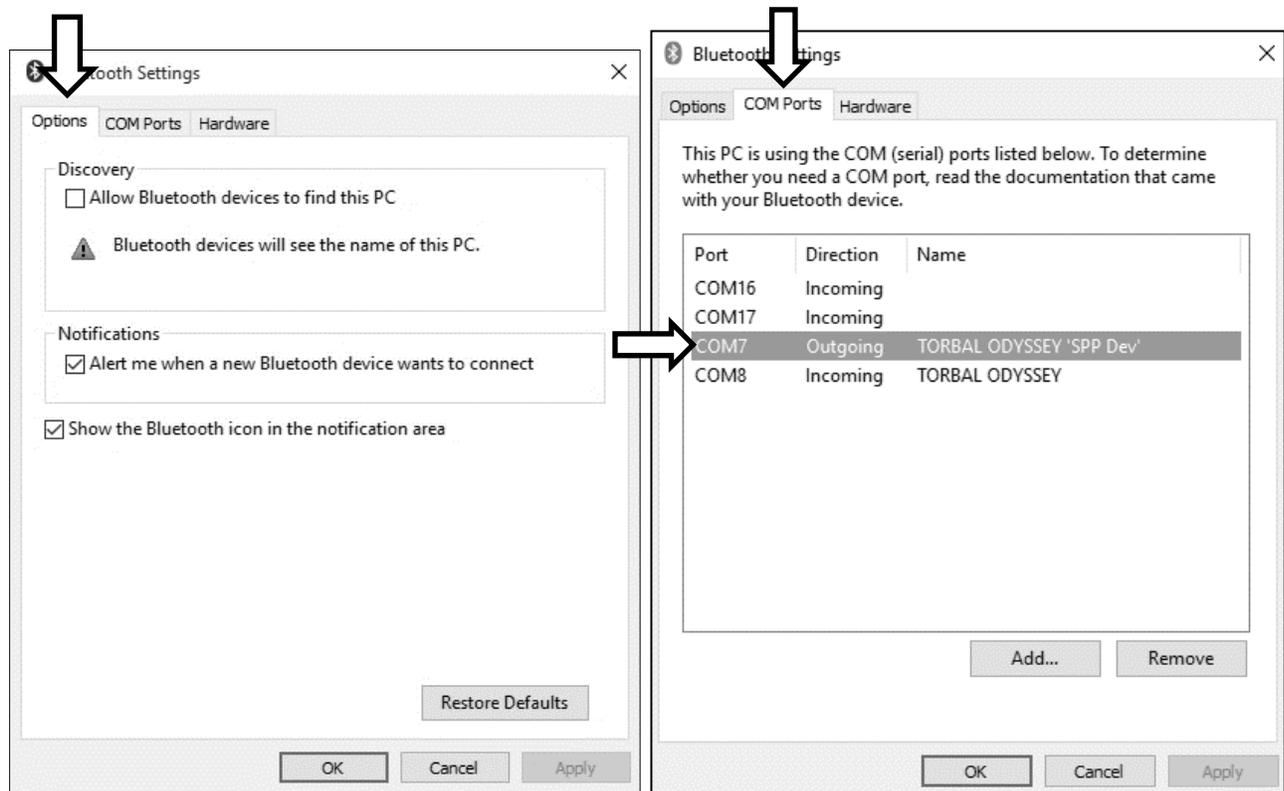
8. Click on the Bluetooth icon located in your task bar and select “open settings”.



9. In the settings window click on “More Bluetooth options”.



10. For convenience check off option “show the Bluetooth icon in the notification area” in the Options tab. Click on the tab “COM ports”, the serial COM ports used by your computer for Bluetooth will be displayed. Note the outgoing COM port number for “TORBAL ODYSSEY ‘SPP Dev’”. This is the COM port used by the PC computer to transmit data between the test stand and the PC.



11. Once the COM port number assigned to the test stand has been verified, open the software application and set the software connection to the COM port number listed in COM Ports Bluetooth settings. Use Baud Rate 115200.

Chapter 14: Maintenance

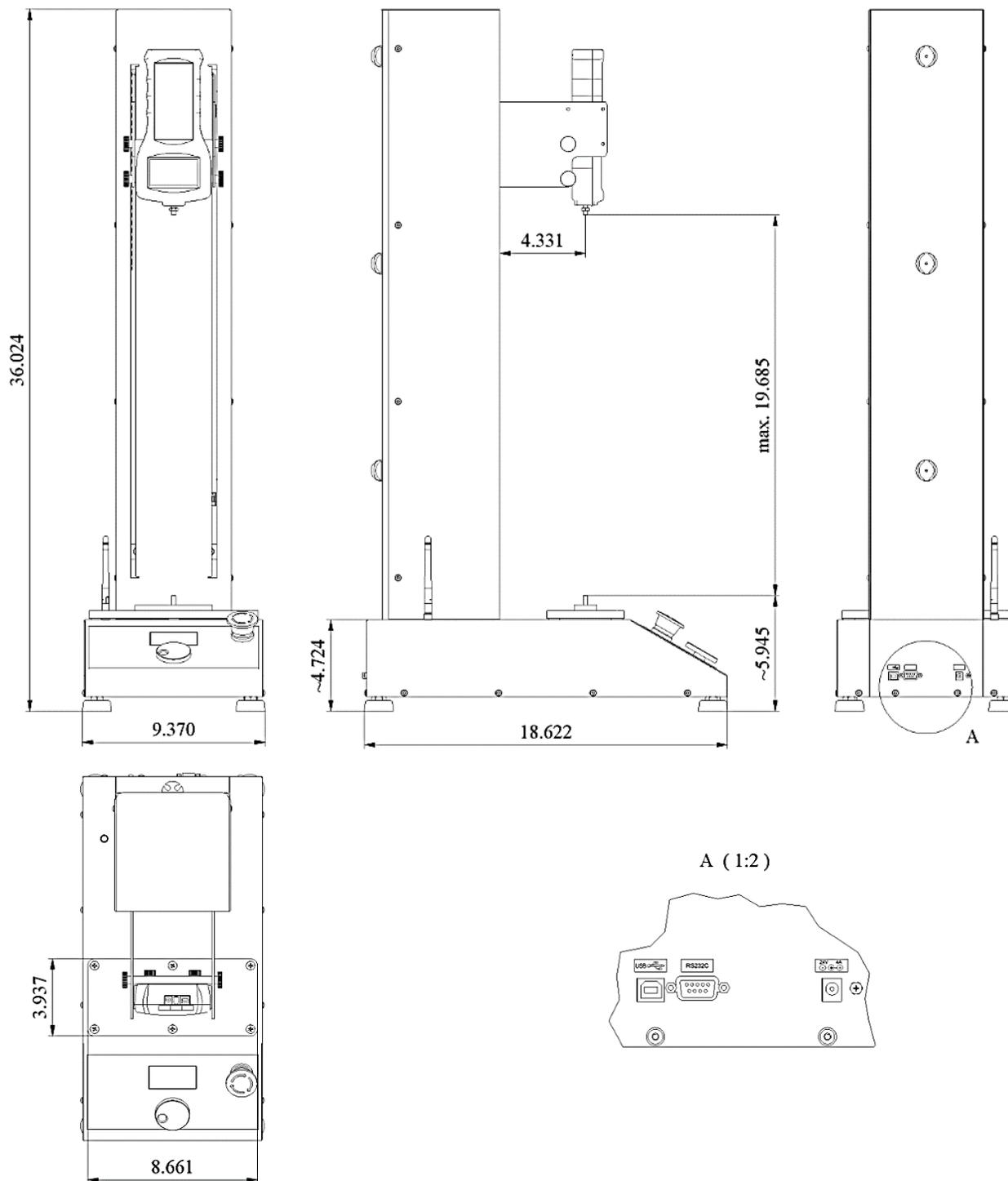
Cleaning and maintaining your force gauge test stand:

- Before cleaning the test stand always unplug the A/C adapter from the electrical outlet and remove the batteries.
- Use a soft, slightly damp cloth to clean the exterior housing of the test stand.
- Wipe the test stand gently. Do not allow any liquid to enter into the force gauge.
- Do not apply extensive pressure to the LCD display.
- Do not use chemicals or benzene when cleaning the surface. Corrosive chemicals may damage the finish.

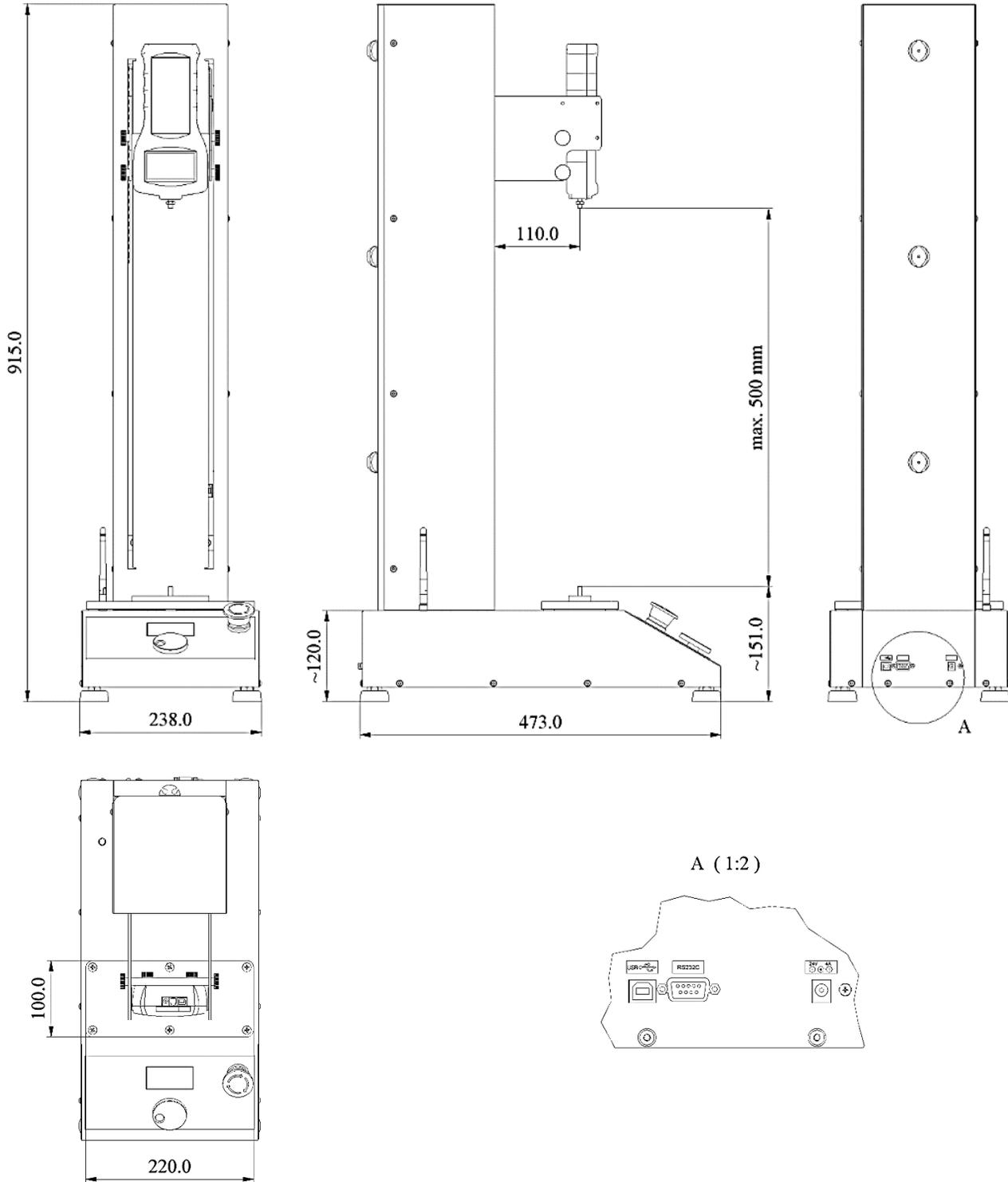
Chapter 15: Technical Information, Measurements and Dimensions

FTV100L Vertical: 19"

Imperial (in)

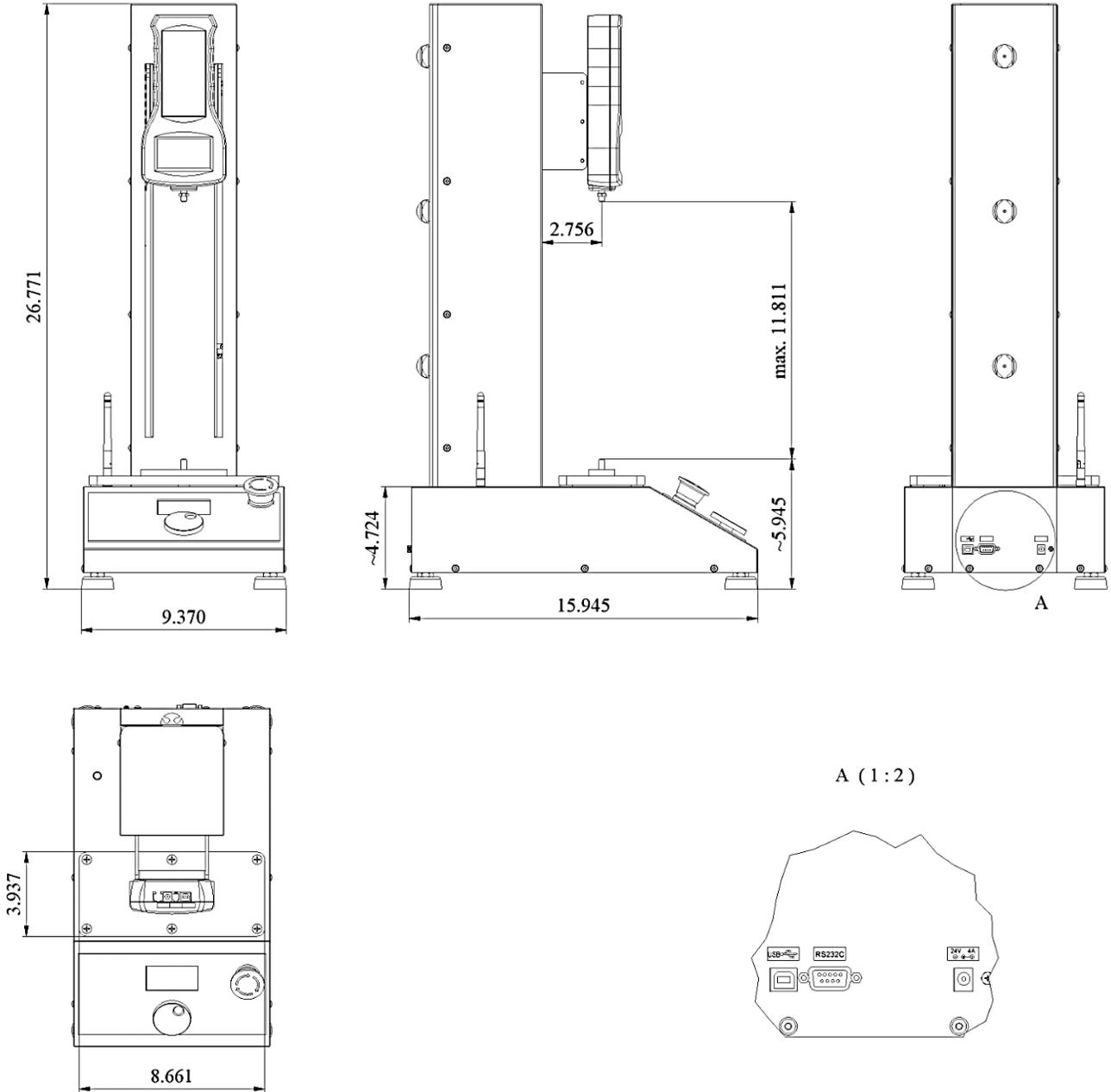


FTV100L Vertical: 19"
Metric (mm)



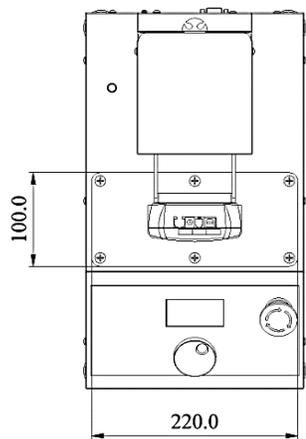
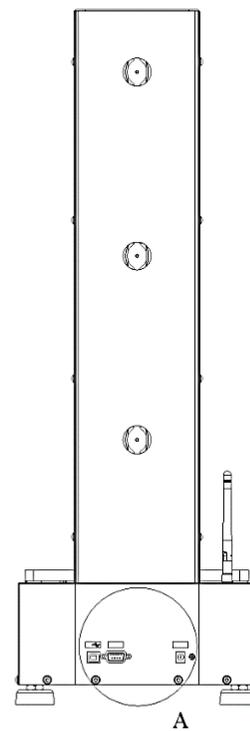
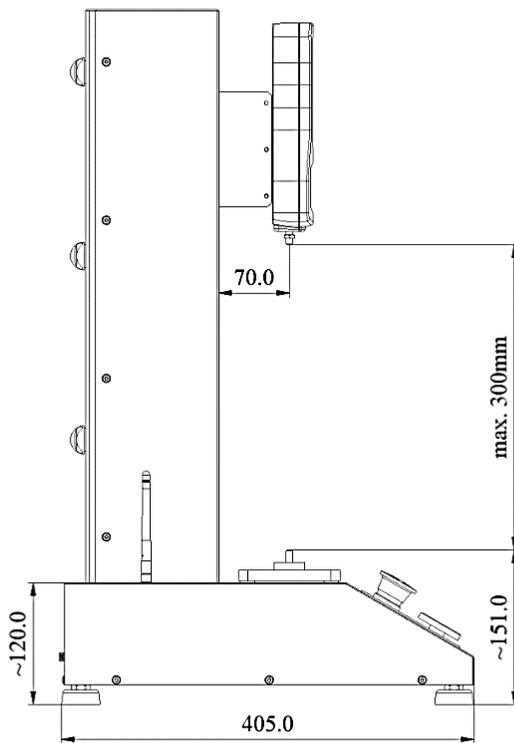
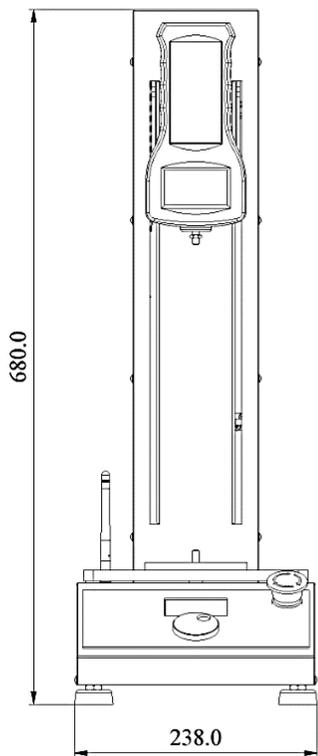
FTV100 Vertical: 11"

Imperial (in)

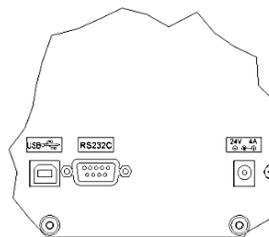


FTV100 Vertical: 11"

Metric (mm)

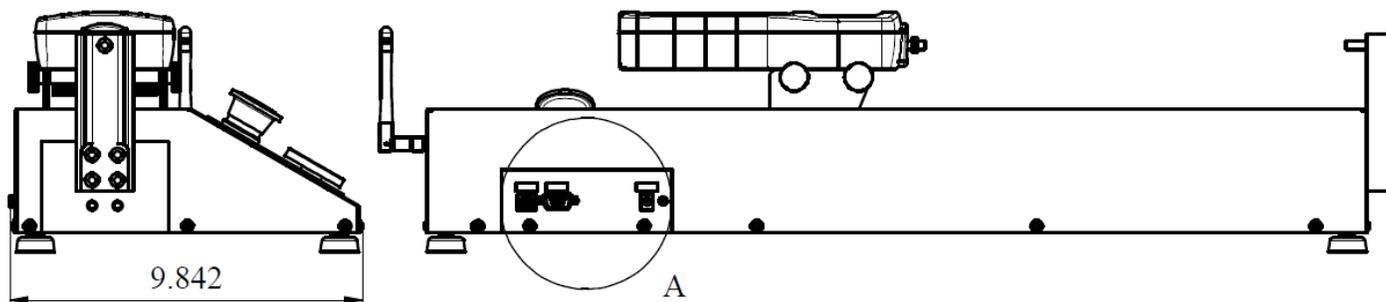
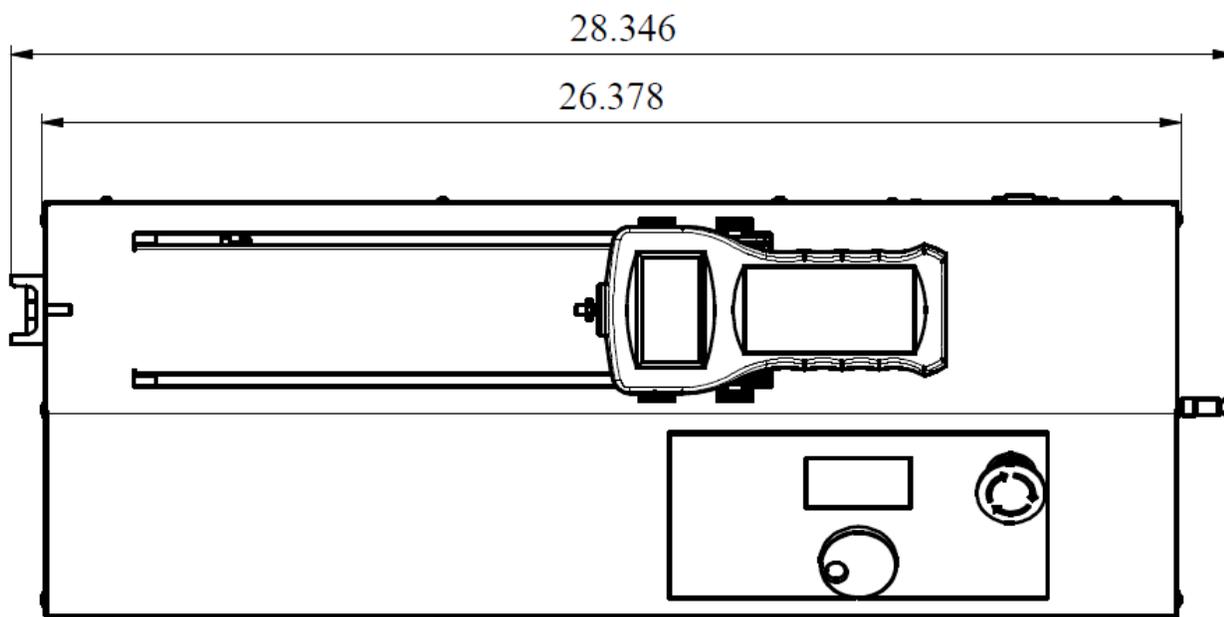
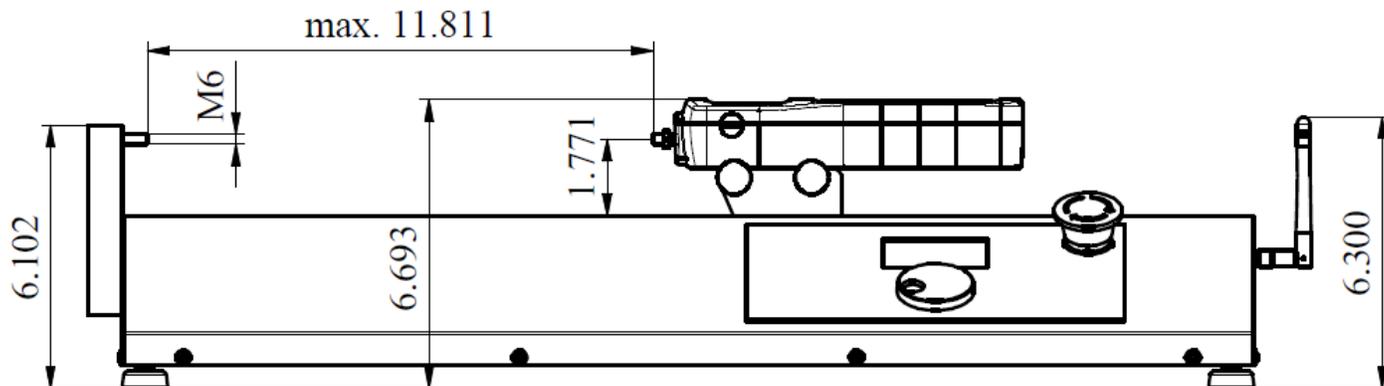


A (1:2)



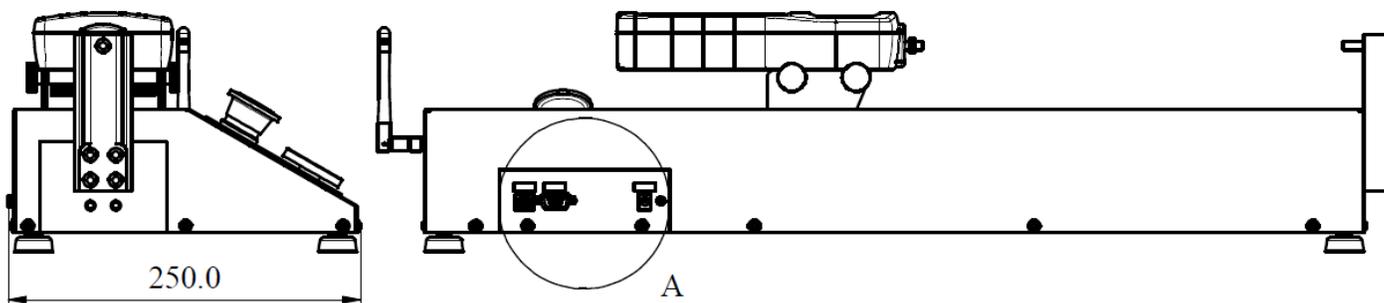
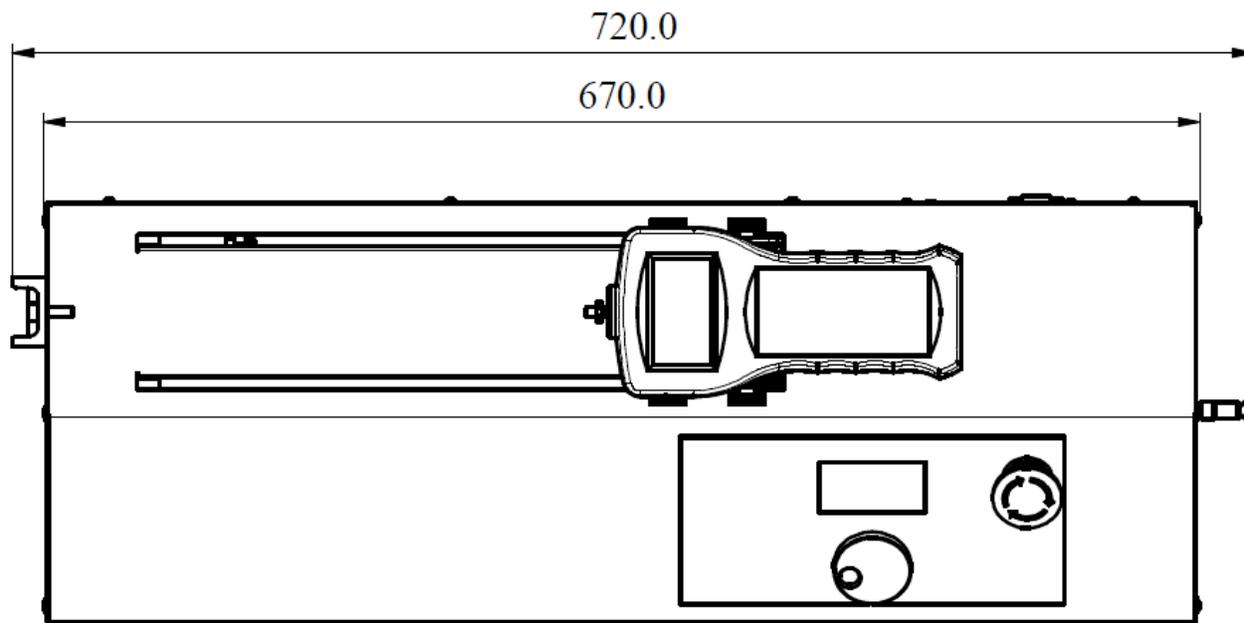
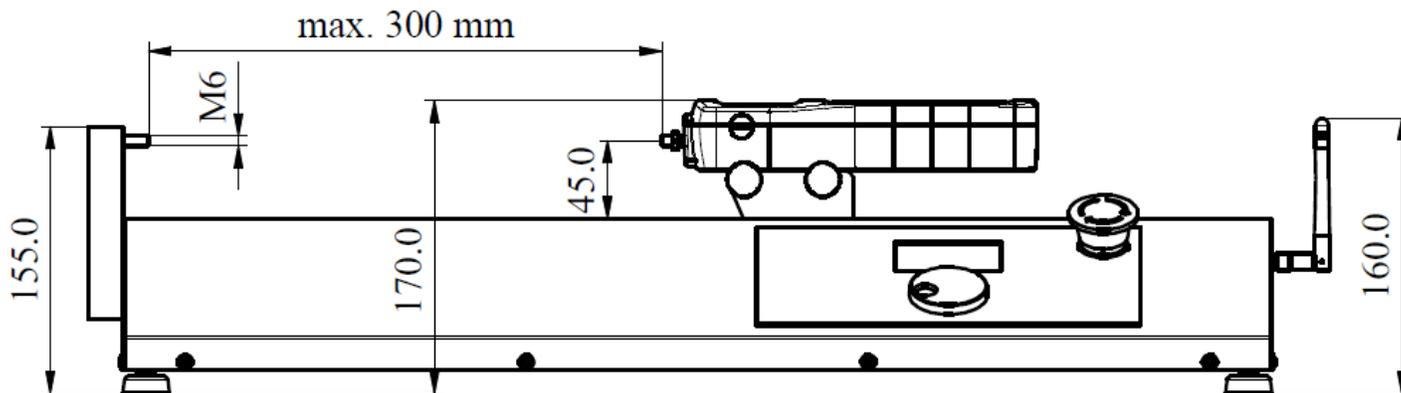
FTH100 Horizontal: 11"

Imperial (in)



FTH100 Horizontal: 11"

Metric (mm)





Chapter 16: Limited Warranty

PURCHASER'S WARRANTY

Warranty is valid only if your product has been registered within 30 days of receipt

This product is a precision device made to exacting standards of scientific accuracy. It is guaranteed to have been adjusted and inspected for proper workmanship and performance, and certified for its currently advertised specifications before shipment. Scientific Industries' Products are warranted against defects in material and workmanship under normal use and service. This warranty is extended only to the first purchaser. This limited warranty will not apply if, upon inspection, it is found that the product was tampered with, misused, overloaded, or abused, mishandled, placed in an improper environment, improperly installed or adjusted, used for a purpose other than that for which it was designed, or repaired by unauthorized personnel. Scientific Industries' liability under this warranty is limited to furnishing labor and parts necessary to remedy the defect covered by this warranty and restore the product to normal operating condition. Purchasers may be charged a minimum repair fee for in-warranty products returned for repair if those products are determined to be problem-free. To make a claim under this limited warranty, you must first obtain an RMA number from Scientific Industries and return the product carefully packed, in its original packaging, shipping prepaid, with the RMA number written on the return package.

EXCEPT FOR THE LIMITED WARRANTY PROVIDED HEREIN, ALL OTHER WARRANTIES, EXPRESS AND IMPLIED, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE DISCLAIMED. In all events, consequential, incidental, special and other damages are excluded and Scientific Industries, Inc. shall have no liability beyond the repair or replace limited warranty provided above.



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Bohemia, NY 11716