

BOT-3000E

Digital Tribometer Operating Manual

VERSION 2.0

2026

FIRMWARE 3.00.08+



Please read before operating the device.
Keep this manual with the instrument.

About this manual

This manual covers the setup, operation, care and maintenance of the BOT-3000E digital tribometer. Version 2.0 applies to devices running firmware revision 3.00.08+ (3.00.08 and newer). The most current version is always available at walkwaymg.com.

BEFORE YOU BEGIN

Read this manual in full before operating the BOT-3000E, and keep a copy with the instrument.

Revision history

VERSION	YEAR	CHANGES
2.0	2026	Full redesign. New Battery and charging chapter: NiMH chemistry, 2000 mAh capacity, 500-cycle life rating, 12-hour charging limit, monthly maintenance charge, air travel and shipping rules. Added case contents, validation surface guidance, SLS mixing ratio, calibration shipping instructions, parts and services list, and expanded FAQ. Corrected battery capacity (previously listed as 3.8 Ah) and USB drive limit (previously listed as 8 MB). Redrawn menu map. Updated service contact to Walkway Management Group. Added sensor validation tolerances and troubleshooting, and verification troubleshooting. Sensor discard thickness aligned to ANSI A326.3-2021 (2.5 mm). Case contents list includes the USB flash drive; added case packing orientation note.
1.52	2019	Previous edition.

Manufacturer and support

The BOT-3000E is designed and built by **Regan Scientific Instruments**, a Walkway Management Group company. Sales, calibration, service, parts and training are provided by **Walkway Management Group, Inc.**, 400 Gerault Road, Flower Mound, TX 75028, USA. Phone 1-866-964-9255 or +1-940-464-9100. walkwaymg.com.

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01 Introduction

The BOT-3000E is the third generation of the most recognized portable digital tribometer in the world, and the only device qualified for use with ANSI A326.3.

About the instrument

The BOT-3000E (Binary Output Tribometer) measures the **static coefficient of friction (SCOF)** and the **dynamic coefficient of friction (DCOF)** of walkway surfaces, wet or dry, in the field and in the laboratory.

It is designed to avoid springs, actuators, dials, heavy weights and other components that lead to premature wear or mechanical fatigue. Test results are exported as secure PDF files that include a numerical input traceability mechanism.

It is designed primarily for hard-surfaced interior flooring, and has also been used on paints, waxes and coatings over flat metal, plastic, wood, laminate, concrete and stone.



The BOT-3000E digital tribometer.

Standards

STANDARD	RELEVANCE TO THE BOT-3000E
ANSI A326.3	American National Standard test method for measuring the dynamic coefficient of friction of hard surface flooring materials (first published 2017, updated 2021). The BOT-3000E is the only device qualified for use with it, and the device automates the full test procedure and report.
ASTM F2508	Standard for the validation and certification of walkway tribometers. The BOT-3000E meets it, verified by an independent laboratory, and meets the current revision (F2508-23) as confirmed by an inter-laboratory study conducted in 2024.
ANSI A137.1	Selectable DCOF test method in the device menu.

Getting started

Read and fully understand this manual before using the instrument. A tribometer is one of many tools in an overall floor safety program; decisions about the safety of employees or the public must be made with a high degree of care. Wherever a **standard test method** applies, treat it as the primary source of methodology and result analysis. Training is available online and in person (Chapter 17).

02 What's in the case

Every BOT-3000E package ships in a custom-fitted protective Pelican case with the consumables needed to start testing.



The BOT-3000E package with printer. Case contents are subject to change without notice.

#	ITEM
1	BOT-3000E digital tribometer, Bluetooth enabled
2	Verification mass
3	Collapsible bucket (under the unit)
4	Two smart battery packs, 12V 2000 mAh NiMH
5	Empty bottle for SLS and water mixture

#	ITEM
6	Sensor sanding tool with 3 sandpaper strips
7	2 SBR sensors, 2 vials of SLS, 2 paper rolls (printer models), chip brush, long brush, safety cone, 4 replacement bumpers, 1 USB flash drive with this manual
8	Battery charger and power cord
9	Reference surface (behind the foam lid)

REQUIRED FOR ANSI A326.3 AUDITS

Sensor validation for ANSI A326.3 uses the **2024 TCNA validation tile strip** in its frame. If your kit has the older Formica reference surface, upgrading is recommended. See Chapters 09 and 17.

03 Safety and care

Personal protective equipment

Wear latex or nitrile gloves against repeated exposure to surfactant solution, and a dust filter mask when sanding sensor materials.

At the test site

- Use cones, flags or distinct barriers to keep people from walking into the test area and slipping or tripping on test equipment.
- Wipe up wet test spots as soon as testing in that area is complete. **Never leave a wet test spot or spill unattended.**
- Do not operate the device near forklifts or other motor vehicles, or near flammable gases or liquids.
- Do not allow the device to run into objects or people. Keep hands and feet clear once a test run has started.
- Do not allow liquids or dust to enter the bottom opening of the unit.

Caring for the instrument

- Keep the tribometer clean, calibrated and properly maintained.
- The LCD display is thin glass under a protective polycarbonate layer. Excessive force can crack it and void the warranty. Clean it only with a soft, damp cloth.
- **Pack the BOT in the correct orientation:** wheels down, display and handle facing up, seated fully in its foam cutout (Chapter 02). In any other position the foam does not protect it in transit.
- Never place anything on top of the tribometer in its case. Closing the lid on an object can damage the display or control switches.
- The tribometer and its accessories must not be modified except by the manufacturer.

WARNING

There are no user serviceable components inside the tribometer, the battery pack or the charger. **Never open them for any reason.** Service is performed only by the factory or an authorized agent.

WARRANTY CONDITIONS

- Always ship the device in the approved transport case with the batteries stowed in their foam slot. Shipping or transporting it in any other container voids the factory warranty.
- Each unit contains an internal shock monitor that records if the unit has been dropped or subjected to extreme sudden force. Activation of this monitor voids the factory warranty.

04 Battery and charging

How long a battery pack lasts is driven by how it is used and maintained. The most common causes of early failure are storing the pack in the tribometer, leaving it in the charger, and not charging it between jobs.

SMART BATTERY PACK

Chemistry	Nickel metal hydride (NiMH), not lithium
Voltage / capacity	12V nominal / 2000 mAh
Cycle life	80% or more of initial capacity at the 500th cycle
Use and storage	Within the device rating: 5 to 40°C (41 to 104°F), 5 to 90% RH non-condensing
Part numbers	Battery pack 9016212 / Charger 9015613



Smart battery pack, P/N 9016212.

The five rules

1

Take it out after every job

A pack left inside the device or in the charger when not in use drains to an unusable state.

2

12 hours maximum in the charger

Charging overnight is fine. Then remove the pack from the charger.

3

Charge it every month

Put the pack in the charger at least once a month, even when the BOT is not in use, to keep the chemistry active.

4

Protect the contacts

Metal or liquid across the contacts can short the pack, arc and ignite surrounding material.

5

Let it cool before use

Packs get warm while charging and must cool completely before they go in the tribometer.

+

Rotate your packs

Your kit includes two packs. Alternate them so both are charged and used regularly.

Charging procedure

- 1 Place the charger in an open area free from excessive heat, dust, and flammable gases or liquids.
- 2 Seat the battery pack in the charger. The indicator illuminates **red** while charging.
- 3 When the indicator turns **green**, the pack is fully charged.
- 4 Remove the pack. Never leave it in the charger longer than **12 hours**.
- 5 Allow the pack to cool completely, then insert it in the compartment at the front of the device until the latch engages.

CHARGER LIGHT	MEANING / ACTION
● Red	Charging. Leave the pack in place.
● Green	Fully charged. Remove the pack.
● Fault	Usually an overheated pack. Remove it, let it cool completely, then charge again.

Storage between jobs

- Out of the tribometer and out of the charger, stowed in its foam slot in the transport case.
- Dry and indoors, within 5 to 40°C (41 to 104°F). A parked vehicle in summer heat exceeds this range.
- Never where metal objects or liquids can contact the connection interface.
- In the charger at least once a month, for up to 12 hours, even when the BOT is not in use.

Travel and shipping

The pack is nickel metal hydride (NiMH), not lithium, so the lithium battery restrictions that airlines and carriers have been tightening do not apply to it.

- **Flying with the BOT:** the FAA allows NiMH batteries in carry-on and checked baggage, provided the terminals are protected from short circuit. The foam slot in the transport case, a protective pouch or non-metallic tape over the contacts all qualify. A pack left in its charger is not considered protected.
- **Air freight:** under IATA Special Provision A199, NiMH batteries and equipment containing them ship as not restricted when the terminals are insulated and the device cannot activate in transit.
- **Always** remove the pack from the tribometer and stow it in its foam slot before shipping.

Airlines and carriers may apply stricter policies of their own. Check with yours before you travel.



Battery care guide online

Scan for the full guide, charger light meanings and common questions, or visit walkwaymg.com/battery. The same QR code is on the label of every battery pack.

05 The operating menu

The multi-level menu is designed to be intuitive for a new operator and to shorten the learning curve while making data collection more efficient.

Standard test methods such as ANSI A326.3 are selected within the menu. The device then automates the full procedure, performs the calculations and formats the results into a clear summary or report, which saves time and reduces operator error. New test methods are added to the menu through firmware updates, loaded into the unit from a file on a USB flash drive.

When the tribometer is powered on, the main screen appears (Figure 1). Press the switch next to a menu item to select it. Within the sub-menus you can adjust settings, print or download test results and run a system verification. After changing a setting such as the date and time, save it. The battery charge level is shown in the upper right corner of every screen.

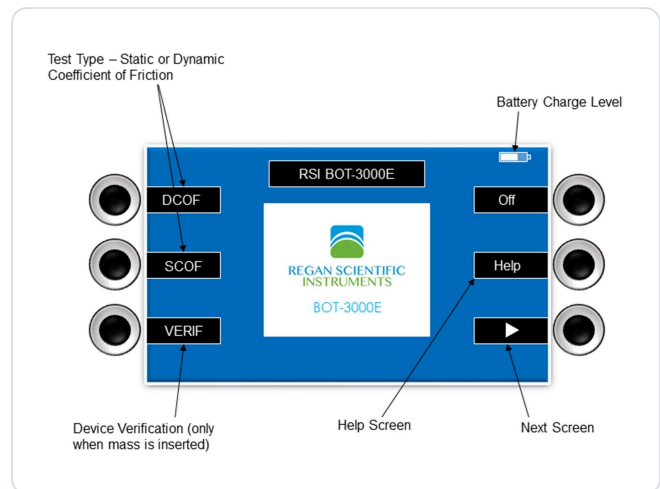


Figure 1. The main screen. VERIF appears only when the verification mass is inserted.

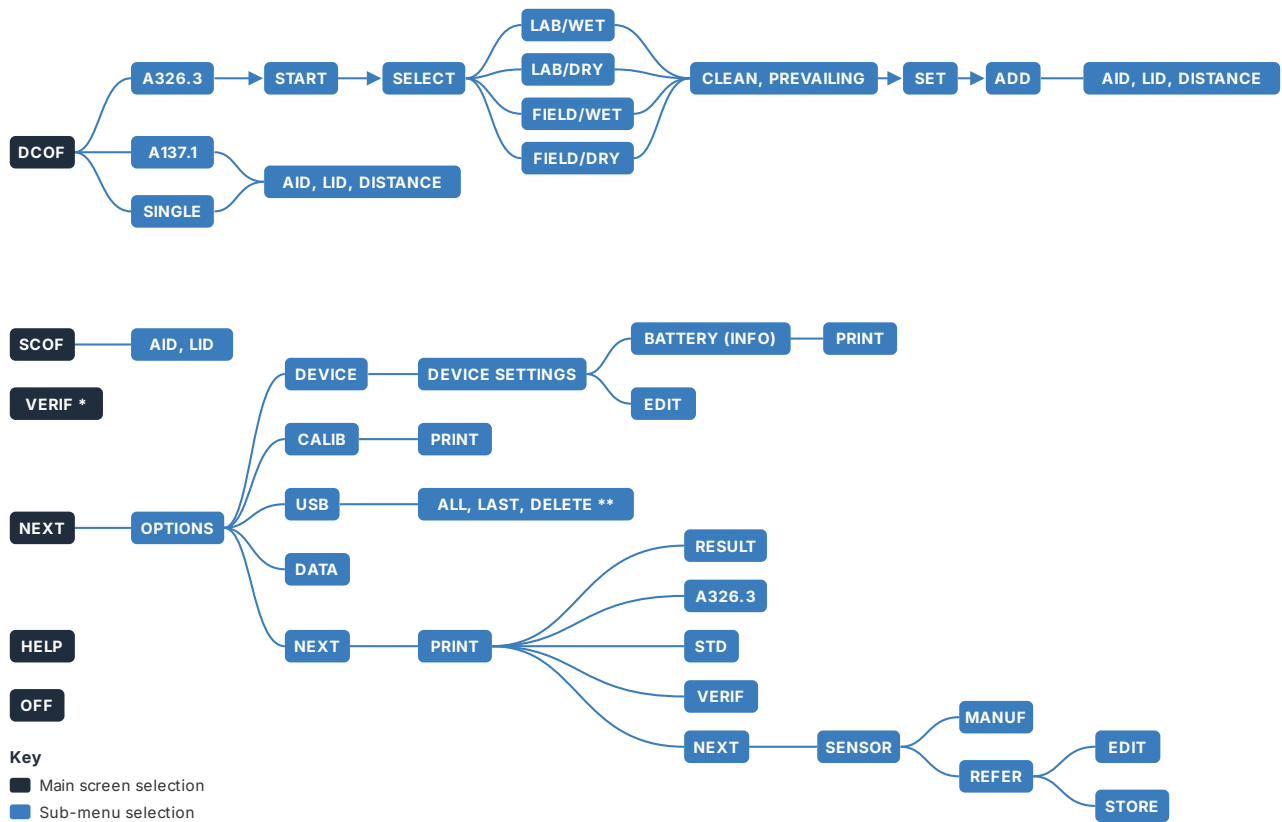


Figure 2. The BOT-3000E menu system.

06 Device verification

Verification confirms that the internal force measurement system is within specification. It is not a calibration.

WHEN TO VERIFY

Verify the device **at every test site**. The procedure takes only seconds and ensures proper tribometer results.

- 1 Allow the tribometer to acclimate to the ambient temperature of the test area.
- 2 Press any one of the six panel switches momentarily to power up the device.
- 3 Place the device on a very stable, level surface.
- 4 Stand the device on its aft (printer) end, then carefully insert the verification mass into the sensor port. Rubber bumpers protect the unit while it stands.
- 5 The **VERIF** option appears at the lower left of the screen (Figure 1).
- 6 Press the switch next to **VERIF**. Two tilt indicators appear near the bottom of the screen. Aim for **90° ± 1°** and **0° ± 1°**; if they read outside this, find a more level surface.
- 7 Leave the device untouched for at least **5 seconds**, then press **START**. Keep the device level and stable while it runs. When complete it shows **PASS** or **FAIL**; press **PRINT** or **DONE**.
- 8 Wait several seconds before removing the verification mass so the device can reset.

A **PASS** means the force measurement system is within factory specifications.

Troubleshooting a failed verification

Work through these checks in order, then run the verification again.

#	CHECK	WHAT TO DO
1	Matching mass	The verification mass is married to your specific BOT-3000E. Its label shows the serial number of the BOT it was calibrated with. If you own more than one mass, use the one that matches this unit.
2	Position and surface	The device must stand vertically on its printer end, battery facing up, on a sturdy surface. Vibration from the surroundings affects the reading.
3	Tilt	The screen must show $90^{\circ} \pm 1^{\circ}$ and $0^{\circ} \pm 1^{\circ}$. Ideal is Tilt = 90.0, 0.0 .
4	Settling time	Leave the device untouched for at least 5 seconds before pressing START, so movement does not influence the test.
5	Full insertion	Insert the mass fully into the slot. Even a slightly incomplete insertion changes the perceived mass.
6	Exit before removing	Exit the test before removing the mass. If you repeat the test, remove and reinsert the mass before each new cycle.

STILL FAILING?

If none of these checks fix the issue, the strain gauge or another internal mechanism likely needs attention; this can happen while traveling with the device. Contact us at **1-866-964-9255** or **info@walkwaymg.com** to arrange service by our certified technicians (Chapter 11).



Watch the verification video
Scan to see the full procedure.

07 Basic operation

From a charged battery to a printed result.

- 1 Insert a fully charged battery pack into the compartment at the front of the device until the latch engages.
- 2 Tip the device onto either side or its back panel and fully insert the sensor (slider) into the receiver in the bottom of the device. Return the device to its operating position, wheels down.
- 3 Center the device over the test area, using the arrow labels on the sides to locate the sensor. For wet tests, make sure the sensor touches down in the applied liquid film and **keep the wheels dry** to avoid wheel slip. Press any switch to power up; there is a short delay before the display lights.
- 4 Press **DCOF** or **SCOF** for the test type.
- 5 In DCOF mode, choose **SINGLE** for one test, or select a standard test method (Figure 3).
- 6 Use the navigation switches (arrows, + and –) to set the test run distance (DCOF only), area and location codes (Figure 4).
- 7 Press **GO**. The unit beeps, lowers the sensor and moves forward. **Do not lift or move the instrument until the beep stops.**
- 8 After each run, press **GRAPH** to view the friction graph; press it again to return. A graph for every run is included in the PDF test result file.
- 9 Orient the device to each starting position and direction and press **GO** again, until all fields are complete and the final result is shown.
- 10 Press **PRINT** for a hardcopy of the result (data only).
- 11 Transfer stored data (with graphs and photos) under **OPTIONS / USB**: choose data since the **LAST** download or **ALL** stored data, or **DELETE** stored records. Large transfers can take several minutes. **Do not remove the flash drive until DONE is shown.**
- 12 Power down with the **OFF** switch on the main screen.

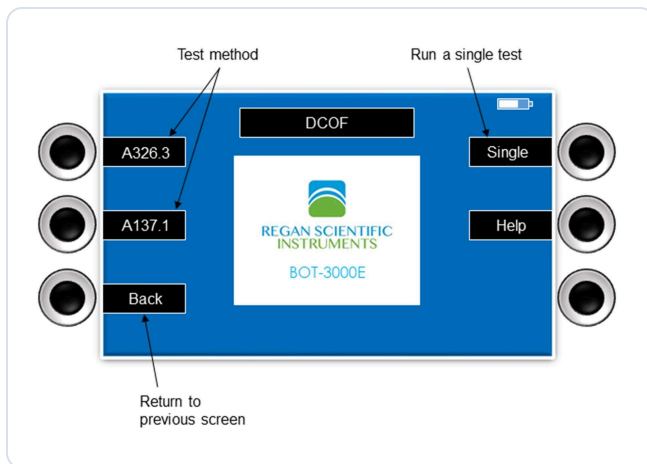


Figure 3. Choosing a DCOF test method.

TIP

Run a single pre-test first. It helps acclimate the sensor material to the surface being tested.

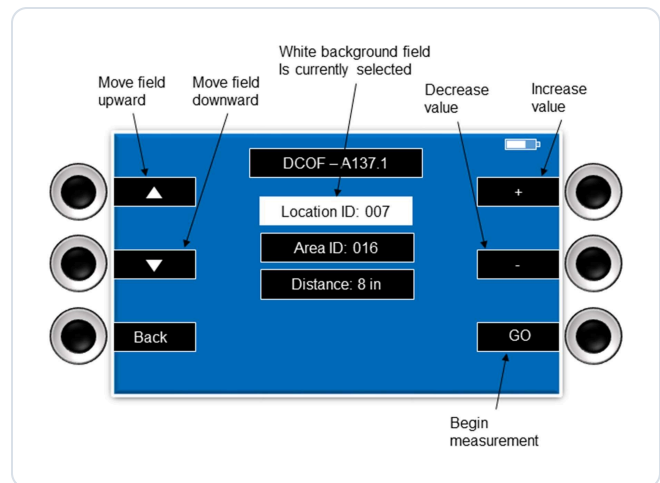


Figure 4. Setting location, area and distance before a test.

WET TESTING SOLUTION

ANSI A326.3 wet tests use a 0.05% SLS solution: **6.5 ml of SLS per 1 US gallon** of distilled water, or 8.5 ml per 5 liters.

USB flash drives up to 8 GB are supported. Drives that do not conform to the strict USB technical specifications may not be recognized.

08 Additional testing features

Traceability codes and location photos make every result easy to tie back to the exact spot it was measured.

Test traceability codes

Before testing, enter identification codes for each test location. These numeric codes provide traceability to previously site-mapped areas and appear on test results and reports.

- **Area ID (AID)** identifies a building, facility or work site. Up to 999 Area IDs.
- **Location ID (LID)** identifies a test location within an AID. Up to 999 Location IDs per Area ID.

Before each test the screen shows the last AID and LID entered; adjust them with the up/down and +/- keys. Assigning unique codes helps you organize results, track trends and apply remediation where needed. Site maps can be sketched on graph paper or drawn in any CAD or diagramming program.

MEMORY

Change the AID or LID numbers periodically so the system can store the maximum number of results (500 PDF reports), and delete internal memory periodically to keep the device operating at peak efficiency.

Test location photographs

- Photographic evidence of the test location can be saved within each test result file.
- By default, a forward-facing photo is taken at each 90° orientation when using a programmed test method. Single run tests record one photo.
- The camera can be disabled in the **Device Settings** menu. Graphs always remain in the report.

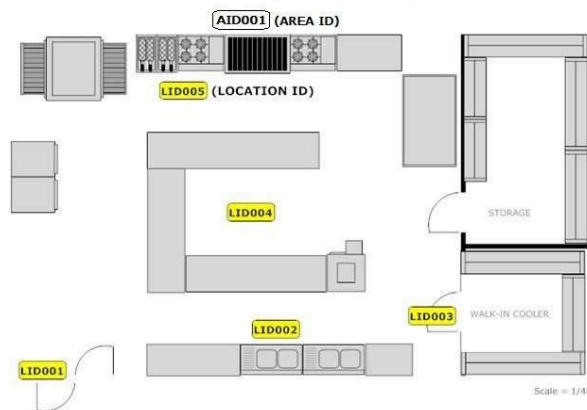


Figure 5. Example site map of a small commercial kitchen with an Area ID and five Location IDs.

09 Sensors

The sensor, also called the slider, is a key part of the friction measurement system and must be maintained properly to produce reliable results.

- Keep sensors clean, properly conditioned and free of damage. Avoid flat spots and deep scratches in the lining.
- New sensors must be sanded and checked until the validation surface target value is reached before use.
- Leather sensors must always be kept dry. Moisture makes the leather swell and ruins it; run leather only on completely dry surfaces.
- New SBR sensor rubber is 4.0 ± 0.2 mm thick. Per ANSI A326.3 (Section 5.2), **discontinue use when the rubber is 2.5 mm (0.10 in) or thinner**. Worn or damaged sensors can be relined by the factory for about half the cost of a new sensor.

SENSOR	BODY COLOR / USE
SBR rubber	Black body. Required for ANSI A326.3. P/N 9012839.
Leather	Red body. Dry surfaces only.
Neolite	Yellow or gold body.
Custom	Blue or gray body. Made from your material, at least 28×28 mm and 2 to 5 mm thick.
F2508	For ASTM F2508 testing only; the device will not run an ANSI A326.3 audit with it. P/N 9022839.



SBR sensor, P/N 9012839.

Sanding procedure

- 1 Use fresh sandpaper at each new test location. Brush the sandpaper thoroughly to remove loose particles.
- 2 Insert the sensor in the sanding tool and sand until any wear pattern or flat spot is gone.
- 3 Remove the sensor and wipe off debris with a clean, lint-free, oil-free paper towel or a clean brush.
- 4 Brush all debris from the sandpaper again.
- 5 Re-insert the sensor and sand for **10 more revolutions**.

ANSI A326.3

Recondition the sensor **after each sample**. One sample is the average of four runs in the four cardinal directions.

Wear a filter mask when sanding. Manual reconditioning without the sanding tool is not recommended; the tool maintains the sensor radius and avoids irregular sanding patterns.



Sensor sanding tool, P/N 9013057.

Sensor validation procedure

Validation confirms that your sensor and device read within the acceptable range on an approved **ANSI A326.3 validation surface**. Always validate on an approved surface, and validate before every audit.

- 1 Tip the device on its side or back and fully insert a freshly sanded, clean sensor into the receiver in the bottom opening.
- 2 For wet validation, apply a generous, continuous film of 0.05% SLS solution down the center of the validation tile with a clean brush, about 3 inches wide. The tile label states the expected value.
- 3 Return the device to its operating position centered over the validation surface, rear edge roughly even with the back edge of the tile (Figure 6). Work on a hard, level, flat surface, never over carpet.
- 4 Set the test run distance to **8 inches (20 cm)** and run one DCOF test, rotate the device 180° and run a second, for **two consecutive tests** in opposite directions. Average the two results.
- 5 Compare the average with the value printed under the tile. The sensor passes when it is within the tolerance below.

CONDITION	ACCEPTANCE, AVERAGE OF 2 CONSECUTIVE RUNS	ANSI A326.3
Wet DCOF	Within ± 0.03 of the value specified under the tile	Section 8.6
Dry DCOF	Within ± 0.04 of the value specified under the tile	Section 10.1

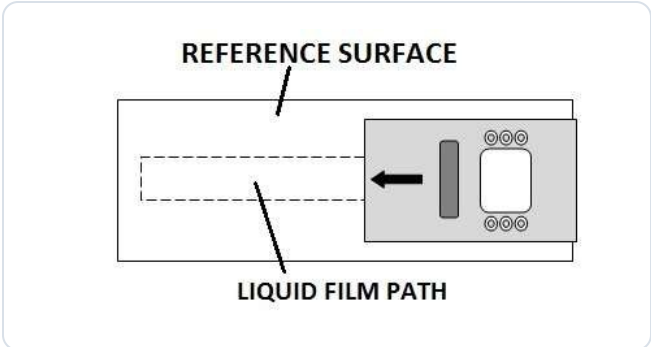


Figure 6. Device position and liquid film path on the validation surface.



Watch the validation video
Scan to see the full procedure on the TCNA validation tile.

Sensor offset: a limited positive or negative offset can be programmed to compensate for minute differences in sensor material against a known reference value. It is disabled by default and, when used, appears on the printout.

Troubleshooting a failed validation

Average reads HIGHER than the tile value

- 1 **Recondition the sensor again.** Improper sanding is the most frequent cause. Follow every step of the sanding video and repeat the full reconditioning cycle as many times as needed; some sensors have needed more than a dozen cycles.
 - Start with new sandpaper and change it frequently.
 - Brush off the dust as shown in the video.
 - The sensor must show no wear line across the center and its surface must look uniform (ANSI A326.3, Section 7.5 and Figures 1 and 2).
 - Sensors at 2.5 mm or thinner must be relined or replaced (ANSI A326.3, Section 5.2).
 - Try a different sensor.
- 2 **Wet tests:** use a generous amount of 0.05% SLS solution and spread it evenly with the brush.
- 3 **Clean the tile** thoroughly with denatured alcohol.

Average reads LOWER than the tile value

- 1 **Clean the tile** thoroughly with denatured alcohol. Low values usually come from SLS build-up on the tile.
- 2 **Check the SLS dilution** is 0.05%: 6.5 ml per US gallon of distilled water, as printed on the SLS vial.
- 3 **Replace a worn tile.** A heavily used validation tile wears down and reads low. Replacement strips are available at store.walkwaymg.com.



Watch the sanding video

Scan for the full ANSI A326.3 sensor reconditioning process.

STILL OUT OF RANGE?

If none of these steps bring the average within tolerance, the device may need to be checked by our certified technicians. Contact us at **1-866-964-9255** or **info@walkwaymg.com**.

LEGACY FORMICA REFERENCE SURFACE

If you still use the older Formica reference surface, clean it occasionally with Bona Stone, Tile and Laminate floor cleaner, dry it with plain white paper towels only, and polish it periodically with 12 micron lapping film. Upgrading to the 2024 TCNA validation tile strip is recommended.

10 Printing

Printer-equipped models print results at the test location with no laptop required.

- Print hardcopies of the most recent test results, calibrations and verifications from the **PRINT** screen (Figure 7), or immediately after a test run.
- To replace the paper roll, gently squeeze the plastic tabs on each side of the access cover and pull the hinged cover open. Remove the plastic core of the used roll.
- Drop in the new roll with the loose end facing up and outward. Leave a little paper protruding and close the cover gently until it snaps shut.

PAPER SIZE

Rolls must be **2¼ in wide and under 50 ft** long. Larger rolls can damage the printer. Most thermal printouts fade or darken over time; keep the PDF as the record.



Thermal printer paper, P/N 9020169.

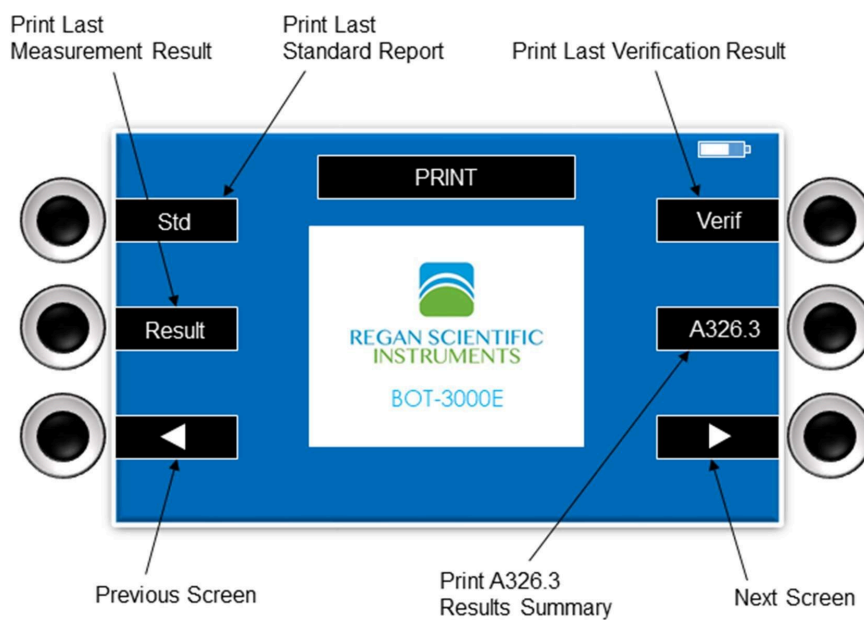


Figure 7. The PRINT screen.

11 Maintenance and calibration

The BOT-3000E needs very little maintenance by design. Three items need regular attention.

Batteries

Follow Chapter 04 in full. In short: remove packs from the device and the charger when not in use, charge for no more than 12 hours, charge at least once a month, keep contacts away from metal and liquids, and let packs cool before use.

Wheels

- 1 Remove a wheel by pushing the hub inward and turning it 90°. The wheel then separates from the axle.
- 2 Clean with isopropyl alcohol and a toothbrush, then rinse with clean water.
- 3 Dry completely before reinstalling, and check the orientation on the hub.

Annual calibration

- Calibration is **NIST traceable** and required **every 12 months, regardless of usage**. It cannot be performed by the user; the unit must be returned to the factory for calibration on a dedicated fixture.
- The device shows the last calibration date on printed results and warns you as the due date approaches (**CALIB. DUE IN xxx DAYS**).
- After the due date, every printout is marked as out of calibration, and data collected may be treated as unreliable.
- The calibration service includes a performance check that the instrument and its parts are fully functioning.

Sending your instrument for calibration or service

- 1 Order the calibration or troubleshooting service at **store.walkwaymg.com** and enter your serial number.
- 2 Pack the unit in its protective Pelican case with the **verification mass**. No other accessories are needed.
- 3 Leave validation tiles at home; they break in transit.
- 4 Put a copy of your paid order inside the case.
- 5 Close the case with plastic zip ties, not locks, and arrange shipping to the address on the back cover. Shipping insurance is strongly recommended.

12 General notes

Operating behavior and testing practices worth knowing.

- Each switch press may be followed by a short delay before the action starts.
- When inactive, the display dims; press any switch to wake it. After an extended period of inactivity the device beeps several times and powers down to conserve the battery. Previous results are saved.
- Use one dedicated flash drive per BOT so files from different devices are never overwritten.
- Set the time and date under **OPTIONS / DEVICE / DEVICE SETTINGS** and press **SAVE**.

Testing textured and profiled surfaces

Many textured or profiled floors can be tested without problems. Some can be challenging: grates, embossed metal plates, mosaic tiles, and random or patterned textures often found near pools, spas, patios and ramps. Figure 8 shows the limits.

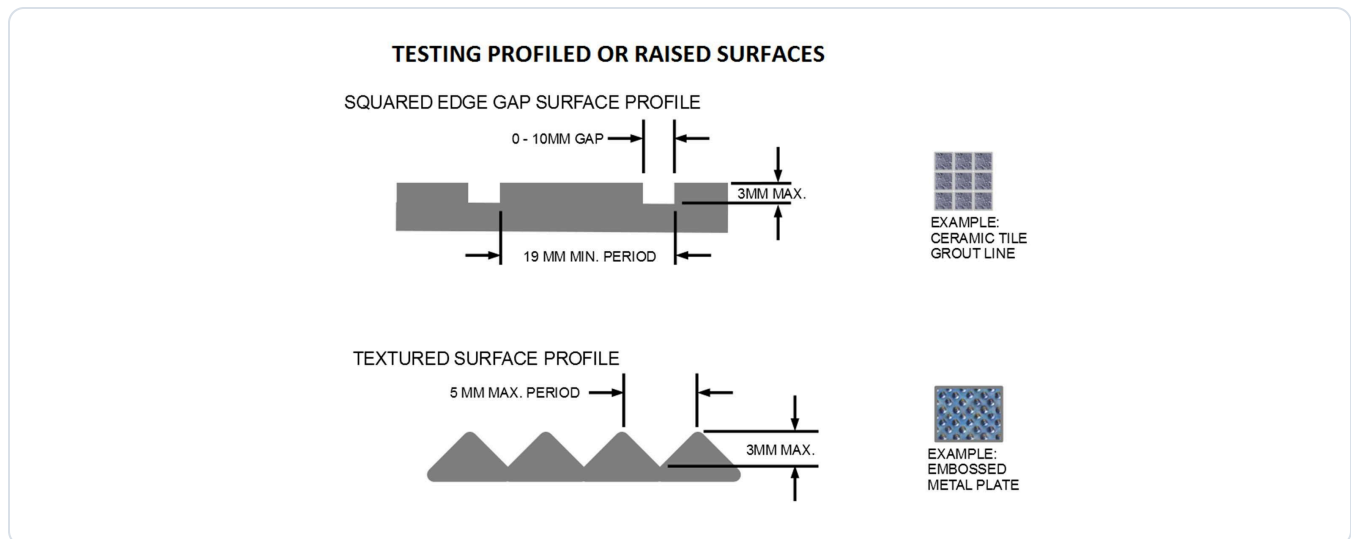


Figure 8. Surface profile limits: squared edge gaps up to 10 mm with a 19 mm minimum period and 3 mm maximum height; textured profiles with a 5 mm maximum period and 3 mm maximum height.

- On squared-edge surfaces such as mosaic tile, orient the device to cross the edges at or near **45°**. The transition between tiles is smoother.
- Properly installed tile with level grout joints is traversable at about 45°. The run distance can also be shortened to fit within a single tile. Avoid raised tile edges that protrude above the surface; the sensor can catch on them.
- If a third-party reference surface is supplied for a specific test method, follow that provider's procedure.

Figure 9 shows a typical ANSI A326.3 report (field/dry). It lists the four required measurements. Each graph represents one measurement; graphs show the degree of surface variation. The average DCOF of each measurement is the recorded result, and the **median of the four averages is the final result.**

How files are organized

- Folders are created by device serial number, then test date, then Area ID.
- PDF files are arranged by date, AID, LID and test sequence, and named **MMDDCCCC.pdf** (month, day, counter).
- DATA.LOG files are stored in a folder under the test date and Area ID. Rename them to .TXT or .CSV to import into a spreadsheet.

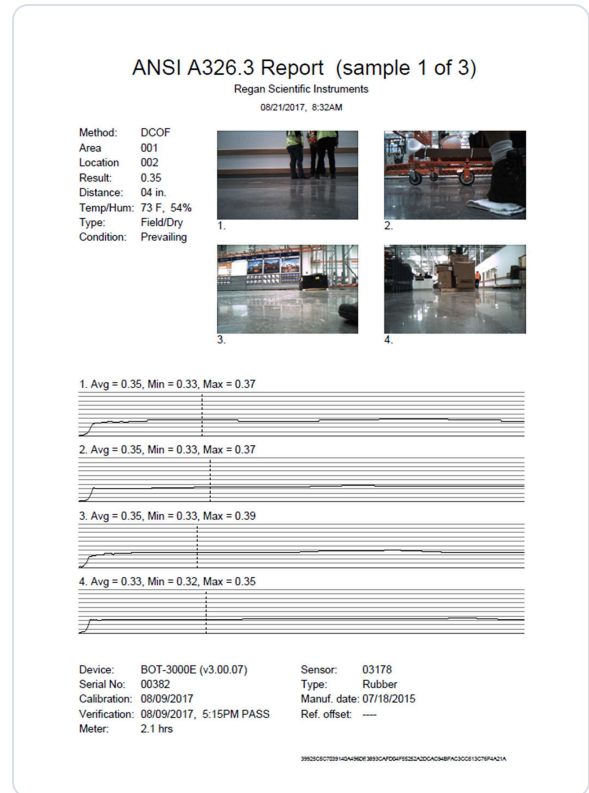


Figure 9. ANSI A326.3 report generated by the device (sheet one of three).

DATA.LOG files

Data files store test information as text for import into spreadsheets, trend tracking and analysis. Each line follows this structure (bracketed items are omitted for single DCOF or SCOF tests):

FIELD ORDER

Date, Time, Area, Location, [Sample no.], Standard / Test method, Test type, Condition, Average, Meas. 1, [Meas. 2], [Meas. 3], [Meas. 4], PDF filename

EXAMPLE LINES

08/21/17, 8:34AM,001,002, ,DCOF ,,,0.35,,,,,
08/17/17, 2:52PM,004,001,3,A326.3,Field/Wet,Prevailing,0.38,0.36,0.42,0.34,0.41
08/17/17, 2:48PM,003,001, ,A137.1,,,0.42,0.43,0.44,0.40,0.41

Log files can be viewed on the device data screen or transferred to a USB flash drive. A limited number of log files may remain in device memory after the PDF files have been transferred or deleted.

14 On-screen messages

What the display is telling you, and what to do about it.

MESSAGE	MEANING	ACTION
BATTERY AND POWER		
LOW BATTERY	Battery is low but will still take a measurement.	Finish the sample, then swap in a charged pack.
RECHARGE BATTERY	Too low to measure or print.	Swap in a charged pack.
DEAD BATTERY	Battery is essentially dead; the unit turns itself off.	Charge the pack (Chapter 04).
SHUTTING DOWN	Unit is about to turn itself off.	
TURNING OFF	OFF was pressed; unit is turning off.	
TESTING AND SENSOR		
INSERT SLIDER	Measurement attempted with no sensor inserted.	Insert a sensor.
INVALID SLIDER	Wrong sensor type for the selected standard.	Insert the correct sensor for the method.
RE-INSERT SLIDER	Sensor detected but its crypto chip cannot be read.	Remove the sensor, clean the contacts, cycle power. Replace the sensor if needed.
ERROR: DELTA > 0.06	Sensor offset out of range.	Recheck the sensor on the validation surface.
MEAS. TIMEOUT	Measurement did not complete, usually because the unit did not drive forward.	Check wheels and surface, then repeat.
WHEELSPIN	Wheel spin detected during measurement, or surface friction too high to overcome.	Remove, clean and dry the wheels; check orientation on the hub.
WARNING xxx mm/s	Measured speed out of range; test surface too steep.	Move to a flatter surface.

MESSAGE	MEANING	ACTION
ABORTED BY USER	Measurement stopped by the user.	
ROTATE 90 DEGREES	Instruction during standard testing.	Rotate the device and press GO.
UNIT NOT LEVEL	Unit not level during verification.	Move to a level surface.
REMOVE MASS	Alert to remove the verification mass.	Remove the mass.
CALIBRATION		
CALIB. DUE IN xxx DAYS	Calibration expiration approaching.	Schedule annual calibration.
CALIB. PAST DUE xxx DAYS	Calibration is past due.	Send for calibration now (Chapter 11).
USB, FILES AND DATA		
INSTALLING USB	USB drive detected and being initialized.	
DO NOT REMOVE USB	USB drive in use.	Wait for DONE.
DETACHING USB	Uninstalling the USB drive after removal.	
NO USB STICK	No USB drive inserted.	Insert a drive.
USB INSTALL FAILED	Could not initialize the USB drive.	Replace the flash drive.
TXFRING xxx of yyy	Transferring files to USB.	
INCOMPLETE xxx of yyy	Error transferring files to USB.	Retry the transfer.
ARCHIVE xxx of yyy	Archiving files transferred to USB.	
DELETING xxx of yyy	Deleting files from the archive.	
DELETING ARCHIVE	Deleting files from the archive.	
ARCHIVE DELETED	Archive deletion complete.	
BLUETOOTH TRANSFER	Transferring data or files via Bluetooth.	
CREATING REPORT	Creating the A326.3 PDF report.	
LOADING DATA	Loading previously saved A326.3 data.	
FILE ERROR	Unable to create the PDF.	Retry; contact service if it persists.

MESSAGE	MEANING	ACTION
NO DATA TO PRINT	No measurements have been taken to print.	
PRINTER		
PRINTING	Printer is printing.	
OUT OF PAPER	Printer out of paper.	Load a new roll (Chapter 10).
PRINTER ERROR	Unable to communicate with the printer.	Cycle power; contact service if it persists.
SYSTEM		
SET DATE/TIME	Clock is set before the software compile date.	Set time and date in Device Settings.
SYSTEM NOT READY	System busy.	Pause 1 second before switching functions.
RTC CLOCK FAILURE	Real time clock malfunctioning.	Cycle power; return to factory if it persists.
CAMERA COMM FAILURE	Unable to communicate with the camera.	Return to factory for repair.
COMMAND FAILED	Could not communicate with the slider crypto chip.	Re-insert the sensor.
MAIN DETECT ERROR	Unable to communicate with the main board crypto chip.	Contact service.
NO FILE SYSTEM	Internal file system not detected.	Contact service.
SERVICE NEEDED	Lift sensor malfunctioned.	Return to factory for service.

15 Technical data

BOT-3000E specifications.

PARAMETER	SPECIFICATION
Dimensions	29 × 20 × 17 cm (11.4 × 7.9 × 6.7 in)
Weight	6.8 kg (15.0 lb)
Measurement velocity (DCOF)	20 cm/s ± 5%
Measurement range	0.01 to 1.00 DCOF
Measurement normal force	22.4 N ± 2%
Contact patch	Approx. 3 mm x 28 mm
Measurement system tolerance	3%
DCOF measurement distance	10 to 50 cm in 5 cm increments (displays 4 to 20 in)
Ramp angle	9.6° maximum (declination)
Verification mass	1.36 kg (3.0 lb)
Operating / storage temperature	5 to 40°C (41 to 104°F)
Operating / storage humidity	5 to 90% RH, non-condensing
Internal memory	1000+ measurements, up to 500 PDF reports
Display	480 × 272 TFT LCD, 262K colors, LED backlit
Data transfer	USB flash drive (8 GB maximum); Bluetooth
File formats	PDF, TXT / CSV (.LOG files)
Printer (printer models)	Thermal, 48 mm print width, 8 dots/mm; paper 2¼ in wide, under 50 ft
Processor	ARM Cortex-M4, 32-bit, 120 MHz
Sampling rate	1000 samples/s
Protection class	IP20
Power source	Smart battery pack, NiMH, 12V nominal, 2000 mAh (P/N 9016212)
Battery cycle life	80% or more of initial capacity at the 500th cycle
Battery charger	120 to 240 VAC, 50/60 Hz input, UL listed (P/N 9015613)
Calibration interval	12 months, NIST traceable, factory only

16 Frequently asked questions

Why does the device need annual calibration when we hardly use it?

Any laboratory-grade measurement instrument should be calibrated on a period set by its manufacturer; ISO 9001 promotes this policy. Stress, time and environment affect accuracy regardless of use, so the BOT-3000E is calibrated every 12 months.

Why can't the device be shipped with a battery installed?

Air transport rules require that the battery cannot activate the device in transit. A pack installed in the device, or in the charger, is also constantly drained, which can leave it dead.

Is the battery a lithium battery? Can I fly with it?

No, it is nickel metal hydride (NiMH). The FAA allows NiMH batteries in carry-on and checked bags when the terminals are protected, such as in the case foam slot.

How long does a battery pack last?

It is rated to keep 80% or more of its initial capacity at 500 cycles. Actual life depends on use and maintenance (Chapter 04).

Is it necessary to verify the BOT at each new test site?

Yes. Verification at each site is strongly recommended and takes only seconds (Chapter 06).

Does the BOT-3000E perform dry testing?

Yes. It can test the same surface wet or dry.

Which tests can the BOT-3000E perform?

It is programmed for wet or dry ANSI A326.3 tests with reports as defined by the standard, and the menu also includes ANSI A137.1. In manual mode it can be used for other methods, including SCOF and DCOF.

Is the BOT-3000E ASTM F2508-23 compliant?

Yes. It meets all requirements of the current revision, tested and verified through an inter-laboratory study in 2024.

My sensor fails validation. What should I check?

Per ANSI A326.3 the average of two consecutive runs must be within ± 0.03 (wet) or ± 0.04 (dry) of the tile value. Too high usually means the sensor needs more reconditioning; too low usually means SLS build-up on the tile. See the troubleshooting guide in Chapter 09.

What does a wet DCOF below 0.42 indicate?

If a surface cannot meet the 0.42 threshold wet, the test can be repeated dry. If it meets 0.42 dry, the walkway must be kept dry to be considered slip resistant. If it is exposed to involuntary wetness, consider a friction increasing treatment.

What should I do if the value stays below 0.42?

If enhanced cleaning does not raise results to 0.42 or higher, call Walkway Management Group for a consultation on professional remediation treatments.

Can you replace worn or damaged sensors?

Yes. Sensors can be relined for about half the cost of a new sensor.

What does the WHEELSPIN message indicate?

The wheels must stay dry for traction. Remove and clean them if they have picked up contamination (Chapter 11).

Can the device cross tile grout joints during a DCOF test?

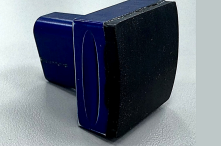
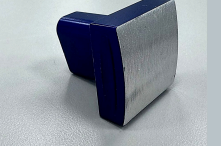
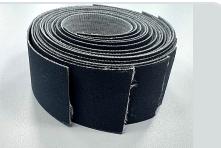
Yes, on properly installed tile, when it crosses the joints at about 45°. Avoid raised tile edges; the run distance can be shortened to fit within a single tile.

Why use a standard test method?

Different methods produce different results because of their variables. Standard methods apply controls and limits so results can be judged against accepted levels of risk.

17 Parts, accessories and services

Genuine consumables and replacement parts.

				
Smart Battery Pack P/N 9016212	Battery Charger P/N 9015613	SBR Sensor P/N 9012839	F2508 Sensor P/N 9022839	Blank Custom Sensor P/N 9013711
				
Sensor Sanding Tool P/N 9013057	Sandpaper Strips, 400 grit (10) P/N 9020170	F2508 Sandpaper, 1000 grit (10) P/N 9020171	Sensor Reconditioning Brush Set Two-brush set	ANSI A326.3 Validation Surface Tile strip and frame
				
SLS Solution P/N 2023064	Empty Bottle, 8 oz P/N 2023082	Thermal Printer Paper (3) P/N 9020169	Rubber Bumpers (20) P/N 2022845	

Services

SERVICE	WHAT IT COVERS
Annual calibration	NIST traceable factory calibration with a full performance check.
Troubleshooting and repair	Diagnosis by the team that builds the BOT-3000E; repairs quoted before any charge.
Training and certification	Online, on site or in Texas, plus UNT Walkway Safety Certification.



Order online

Scan to open the accessories store, or visit store.walkwaymg.com. Questions or purchase orders: 1-866-964-9255.

18 Warranty and disclaimer

Product warranty

One year parts and labor, excluding normal wear and tear parts such as sensors, batteries and tires, and any physical damage. Any warranty exclusion is solely determined by Regan Scientific Instruments, Inc. Defective products or materials may be repaired or replaced at our discretion. We reserve the right to make changes to product designs and specifications without notice.

The warranty is void if the device is shipped or transported in anything other than the approved transport case, if the internal shock monitor has been activated, or if the display is cracked by excessive force (Chapter 03).

Limitations on liability

BUYER SHALL NOT IN ANY EVENT BE ENTITLED TO, AND SELLER SHALL NOT BE LIABLE FOR INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY NATURE INCLUDING, WITHOUT LIMITATION, BUSINESS INTERRUPTION COSTS, REMOVAL AND/OR REINSTALLATION COSTS, REPROCUREMENT COSTS, LOSS OF PROFIT OR REVENUE, LOSS OF DATA, PROMOTIONAL OR MANUFACTURING EXPENSES, OVERHEAD, INJURY TO REPUTATION OR LOSS OF CUSTOMERS, EVEN IF SELLER HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. BUYER'S RECOVERY FROM SELLER FOR ANY CLAIM SHALL NOT EXCEED BUYER'S PURCHASE PRICE FOR THE PRODUCT GIVING RISE TO SUCH CLAIM IRRESPECTIVE OF THE NATURE OF THE CLAIM, WHETHER IN CONTRACT, TORT, WARRANTY, OR OTHERWISE. SELLER SHALL NOT BE LIABLE FOR AND BUYER SHALL INDEMNIFY, DEFEND AND HOLD SELLER HARMLESS FROM ANY CLAIMS BASED ON SELLER'S COMPLIANCE WITH BUYER'S DESIGNS, SPECIFICATIONS OR INSTRUCTIONS, OR MODIFICATION OF ANY PRODUCTS BY PARTIES OTHER THAN SELLER, OR USE IN COMBINATION WITH OTHER PRODUCTS.

Warranty disclaimer

We (seller) make no representations about the suitability of the products for any purpose. In no event shall we be liable for any special, indirect or consequential damages or any damages whatsoever resulting from loss of use, data or profits, whether in an action of contract, negligence or other tortious action, arising out of or in connection with the use or performance of the products it sells. We assume no responsibility for errors or omissions in this publication or other documents which are referenced or linked to this publication; nor do we make any commitment to update the information contained herein. This publication and other documents, and prices are subject to change without notice. We are not responsible or liable for any injuries, damages, or death caused by the use, misuse or failure of products purchased from us, nor from the use of any other materials, articles, or other published information.

Service and support

We design, build, calibrate and service the BOT-3000E. When you call, you reach the people who make it.

PHONE AND EMAIL

1-866-964-9255

+1-940-464-9100 · info@walkwaymg.com

ONLINE

walkwaymg.com

Store: store.walkwaymg.com

CALIBRATION AND SERVICE ADDRESS

WMG Service
400 Gerault Road
Flower Mound, TX 75028, USA

BATTERY CARE GUIDE

walkwaymg.com/battery

Charging, storage, travel and common questions.

BEFORE YOU SHIP THE INSTRUMENT

Order the service online with your serial number. Pack the unit in its Pelican case with the verification mass, leave validation tiles at home, include a copy of your paid order and close the case with zip ties, not locks.