MantisX Shooting Performance System

X2, X3, X10 Elite

Pistol/Rifle App User Manual

Table of Contents

Product Overview....1
Product Specifications....2
Firearm Safety....3
Clearing the Firearm–Pistol....3
Clearing the Firearm–AR-15....4
Getting Started....6
Charging the Device....7
Mounting the Sensor....7
Adapters....9
Downloading the MantisX App....9
Creating a Mantis Account....10
Profile Settings....11
Connecting to the App....12
Disconnecting & Removal....12
App Settings....13
Firearm Selection....13
Arsenal....13
Shot Detection Mode....14
Mount Direction....14
Mount Location....15
Shooting Hand....15
Training Schedule....15
Audio Feedback....16
Advanced Settings....17
Sync Status....18
Connect Bluetooth....18
Instruction Guide....18
Privacy Policy....18
Shot Detection Troubleshooter....18
Report Issue....19
Store....19
Mantis Web....19
Sensor Information....19
Groups....20
Training History....21
Train - Drills....23
Drills Configuration....24
Training Sessions....27
Score Summary....27
Segment Chart....27
Movement Trends....35
Trace View....35
Live View....38
Notes....39
Pistol Drills....40
X10 Elite Specific Drills....42
Rifle Specific Drills....42
Courses....43
Pistol Courses....45
Rifleman Courses....49
Miscellaneous Courses....50
Troubleshooting....53
Connection Issues....53
Charging Issues....54
Shot Detection Issues....55
Shot Detection Troubleshooter....55
Holster Recognition....56
Tight Mount....56
Courses....56
Product Policies....57
Warranty and Returns....57

Contact Us

Have any questions? We'd love to hear from you!

Our support agents are available:
Monday-Thursday , 9am-6pm CST
Friday 10am-6pm CST

Our Support and Sales teams are available to help with MantisX training systems. Our agents are based in the USA and are happy to help via phone, email or chat. During the holiday season, we may experience slight delays while responding to the increased service volume. We are proud to be a U.S.-based company and so you don't have to worry about getting answers or non-support from an international call center.

Consumer Support (Technical & Warranty Support)
Phone: (630) 551-8171 Email: support@mantisx.com

Sales (Product Questions, New Orders)
Phone: (630) 318-4468 Email: sales@mantisx.com

Specialty Sales & Support (Dealers, Government)
Phone: (630) 318-6644
Email: DealerSales@mantisx.com or GovSales@mantisx.com

Links within the document:

Red - other sections of this manual
Blue - links to specific MantisX URL

Product Overview

Congratulations on joining the thousands of shooters now training with the MantisX Shooting Performance System.

MantisX is a motion-based shooting system that analyzes movement during the firing process. Based on this movement, the system is able to give you feedback on likely errors in your technique and what you might be doing to cause those errors. These powerful MantisX sensors provide valuable feedback during training enabling the user to see the effects of their hold control and trigger control at a level of detail that is useful to every skill level.

MantisX offers several sensor models: X2, X3, X7, X8, and X10. All models, with the exception of the X8, are compatible with firearms and support dry-fire training. The X7 model has been discontinued, as the shotgun features have been integrated into the X10. The X8 is exclusively designed for archery and does not support dry-fire training; please refer to the MantisX User Manual - Archery (*coming soon*) for specific instructions.

MANTISX Model Comparison			
X2	**X3**	**X8**	**X10**
Dry fire *Only*	Dry Fire		Dry Fire
	Live Fire	Live Fire *Only*	Live Fire
	Airsoft		Airsoft
MANTISX Apps			
Pistol/Rifle	Pistol/Rifle		Pistol/Rifle
		Archery	Archery
			Shotgun

Dry fire training is known to be a highly effective training method in developing and maintaining shooting proficiency. There is no live ammo during dry fire training, which saves on the cost of ammo for training. Since there is no live ammo, the slide does need to be manually racked with each shot for most guns. To maintain their shooting proficiency, competitive shooters engage in daily dry-fire training. This practice enhances the effectiveness of live-fire training sessions, leading to more efficient use of time at the range. The X3 and X10 Elite models support live-fire training.

The Mantis X2, X3, X10, BlackbeardX and TitanX connect to the MantisX - Pistol/Rifle app (Android, iOS, and Kindle) on your smart device through Bluetooth connection. While connected to the app, the MantisX sensor generates real-time data based on the movement of the gun, and analyzes this movement data to generate feedback after the full press of the trigger. The MantisX app muzzle trace provides analytical feedback, based on motion data.

The feedback includes trigger control and hold control movement before, during, and after the complete trigger press. For the app to accurately calculate your aiming point, it assumes your firearm sights are properly zeroed and that you are using the correct sight picture and alignment. *Lasers are not required.*

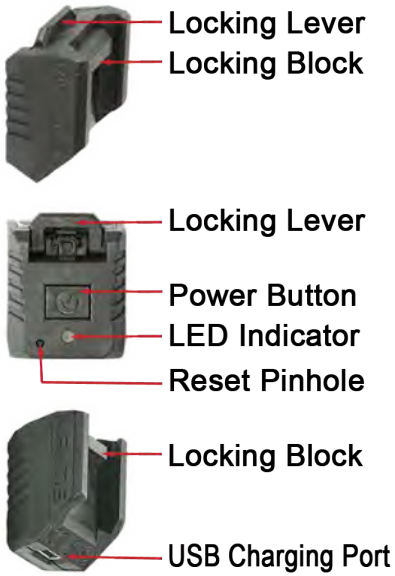
The MantisX sensor does not have a laser, therefore there is no visual feedback of a laser. The sensor calculates a new point of aim with each shot, which allows the user to use any target.There are no specific targets or lighting conditions required for the MantisX sensors.

If you would like the visual feedback from a laser, then consider the Laser Academy Training System. The two system apps may be used together on different devices or with split screen function to offer a broader scope of training.

Product Specifications

X2, X3, and X10 Elite

The X2, X3, and X10 Elite (the MantisX sensors) are designed to mount to a standard Picatinny rail. For most pistols, this rail is located on the forward section of the pistol frame, underneath the muzzle. The same style of Picatinny rail can also be found on many rifles, allowing you to train with both pistols and rifles. Mantis rail adapters work on most firearms that do not have a standard Picatinny rail.



Each rechargeable MantisX sensor weighs 14 grams. The overall length of the sensor is 1.3"L x 1"W x 0.75"H. The sensors collect movement data at 400 samples per second.

The sensors have a quick connect locking lever that locks the sensor onto a standard picatinny rail. The LED indicator will light up when the power button is pressed. An internal reset button can be accessed through the pinhole.

BlackbeardX

The BlackbeardX system is compatible with specific styles of rifles. The training system replaces the bolt-carrier group, charging handle, and magazine. BlackbeardX variants are available for AR style rifles. Check out the available BlackbeardX models on mantisx.com for more information. Additional variants are in development.

BlackbeardX resets the trigger on the rifle, so the user does not have to manually operate the charging handle to reset the rifle trigger. The MantisX sensor is integrated into the magazine. The MantisX Pistol/Rifle app has additional rifle diagnostic features that are only available with the BlackbeardX.

TitanX

The TitanX system is a laser training pistol with resetting trigger, two weighted magazines and the MantisX sensor integrated in the slide. The TitanX comes optic ready for practicing your sight alignment with a reflexive red dot optic. TitanX will include a USB-C charging cable. The mag release can be adjusted for left or right handed shooters.

The MantisX Pistol/Rifle app has additional multi-target transition diagnostic features that will only be available with the TitanX. Check out mantisx.com to see available TitanX model variations when the new product line is released.

Firearm Safety

Firearm safety is the responsibility of every individual with a firearm. Keep in mind that every accidental discharge is a negligent discharge in which one of the standard safety rules was not followed. Always follow all of the firearm safety rules when you are training.

Not all firearms are the same. Check with the manufacturer of your firearm to determine the safest way to dry fire train with a specific make/model of firearm.

Before starting each dry fire training session, set up the training space for maximum safety by following these rules:

- **ALWAYS treat the firearm as if it is loaded.** You must check your firearm to confirm that there is no ammunition in or around the training area including the firearm and the magazines. Remove all ammunition from the training area.
- **ALWAYS keep your finger off the trigger** until the conscious decision to fire has been made. Do not insert your finger into the trigger guard and make contact with the trigger unless you are ready.
- **ALWAYS keep the muzzle pointed in a safe direction.** Always be conscious of the direction the firearm is pointed, even if there is no ammunition in the firearm and you are the only one in the room. Do not point at any body parts (feet or hands). Remember bullets may travel through walls.
- **ALWAYS be aware of your target and beyond,** including the space behind the target as well as between the target and shooter. This applies to both dry-fire and live-fire training.

Clearing the Firearm–Pistol

If you plan to train with your firearm at home and not fire any live ammunition, make sure that the firearm does not have any live ammunition in or around the training area..

Please consult the owner's manual for your pistol to ensure proper unloading instructions. If the manufacturer instructions are not available, then the following steps may be helpful for clearing your pistol for training or live ammunition.

Note: The following illustrated example is demonstrated on a striker fired pistol.

Other action and safety mechanism types may vary from illustrations.

To clear the pistol, do the following:

1. Determine the safest direction to orient the muzzle as stated in the safety rules (a direction where there is no risk of injury or damage in case of an accidental discharge).

2. Grip the pistol with your dominant hand. Make sure your finger is not on the trigger.
3. Drop the mag: Press the Magazine Release with your primary hand while

grasping and pulling the bottom of the magazine with your support hand.

4. Work the slide: Grip the slide serrations with your support hand and pull back completely, then release. Repeat 3 times.

5. Grasp the rear of the slide with your support hand. With your primary hand thumb, press and hold the Slide Lock lever upwards (toward the sights). Pull the slide back completely.

6. While maintaining upward pressure with your support hand thumb, allow the slide to move forward. The Slide Lock lever should engage the slide. Release the upward pressure on the Slide Lock lever. The slide should be locked to the rear.

7. From the firing chamber-end of the barrel, visually confirm that the firing chamber is empty. Do NOT point the muzzle of the firearm toward you to look down the barrel. Always point the firearm in a safe direction.

8. Visually and physically inspect to confirm that the firing chamber is empty and safe for dry fire training in the area that you have designated for safe training.

9. Visually and physically inspect to confirm the magazine well/grip is clear.

10. Return the slide into the battery by taking an overhand grip on the rearmost portion of the slide, pull back and guide the slide forward.

11. Place the unloaded pistol on a flat and stable surface.

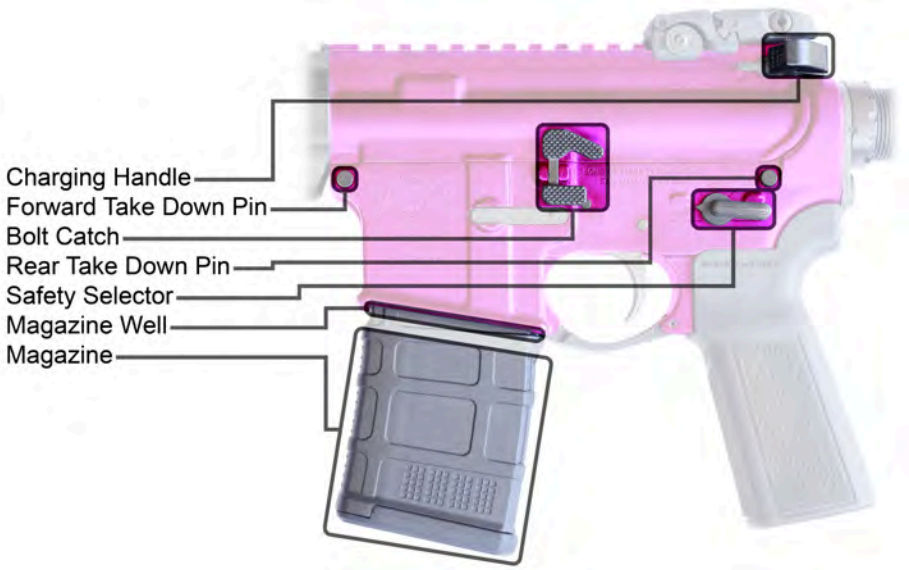
12. Unload any magazine that will be used during dry fire training. We recommend using TRT's if available in the correct caliber in a magazine to improve the dry fire training experience.

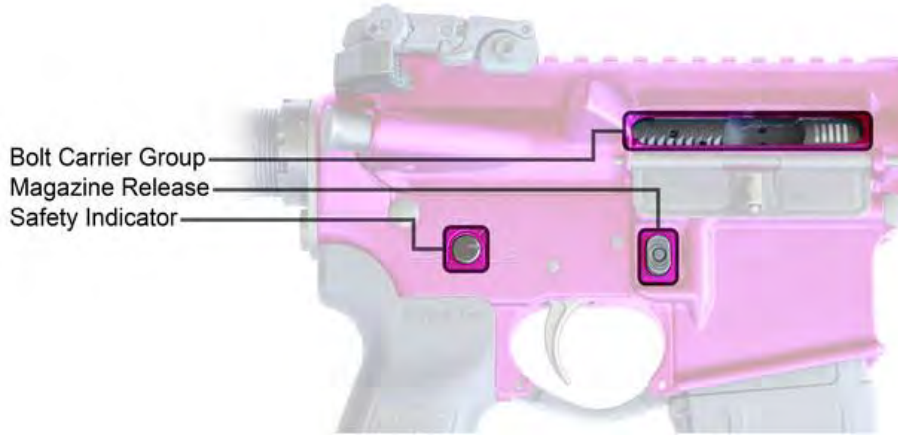
13. Move any loaded magazines and any additional live ammunition from the area to another room.

The pistol and your training room should now be free and clear of live ammunition and made ready for dry fire training.

Clearing the Firearm–AR-15

Please consult the owner's manual for your rifle to ensure proper unloading instructions. If manufacturer instructions are not available, the following steps may be helpful for clearing your AR-15 rifle of training or live ammunition.





To clear the AR-15, do the following:

1. Determine the safest direction to orient the muzzle as stated in the safety rules (a direction where there is no risk of injury or damage in case of an accidental discharge).
2. Grasp the rifle with your dominant hand, ensuring you have firm control of the rifle. Do NOT put your finger on the trigger.

3. Make sure that the rifle Safety Selector is set to the SAFE position.
4. Press the Magazine Release button on the rifle with your primary hand while grasping the bottom of the magazine with your support hand. Pull the magazine to remove the magazine from the rifle.

5. Pull the Charging Handle fully back before releasing it. This cycles the action of the rifle. Repeat and cycle the rifle 3 times to verify the chamber is empty.

6. Pull the Charging Handle fully back. Push down and hold the Bolt Catch to lock the charging handle in a disengaged position. Guide the Charging Handle all the way forward until you feel it catch..

7. Visually and physically inspect to confirm that the firing chamber is empty and safe for dry fire training in the area that you have designated for safe training.

8. Visually and physically inspect that there is nothing in the magazine well.

9. Close the action of the rifle by retracting the Charging Handle fully to the rear. The Bolt Catch will disengage. Release the Charging Handle.

10. Place the unloaded rifle on a flat and stable surface.

11. Move the magazine and any additional live ammunition in the area to another room.

The rifle and your training room should now be free and clear of live ammunition and made ready for dry fire training.

Getting Started

See the BlackbeardX and TitanX Manuals for complete details specific to those training systems. This manual will provide the information and instructions for the MantisX sensors and the Mantis Pistol/Rifle app to which the MantisX sensors connect.

Charging the Device

The MantisX sensor and BlackbeadX have rechargeable batteries. A micro-USB cable is included with both MantisX and BlackbeardX training systems.

It is recommended that you connect the cable and the MantisX to a dedicated charging block. Apple charging blocks are NOT recommended with MantisX sensors. A computer USB port may be used if your charging block does not support regular micro USB cables. The charging time may vary depending upon which charging block or source is used with the micro USB cable.

The sensor is fully charged in approximately one hour. The MantisX battery has a capacity of up to 8 hours of continuous use. The LED on the sensor will light up and flash a fast pulse when charging. The pulse on current sensor models will slow down when fully charged. Early sensor versions shut off or turned constant when fully charged.

The MantisX battery percentage can be checked by connecting the sensor to the MantisX - Pistol/Rifle app (see Connecting to the App). Select the SETTINGS tab, then Scroll down to the bottom of the screen for system specific device and app information. The MantisX battery level is only visible when the sensor is connected to the app.

Mounting the Sensor

Pistol

The MantisX sensor will mount to most firearms if they have a 1913 Picatinny or weaver-style rail. The rail will have a width of 0.835 inches and have at least one slot that is 0.206 inches deep. The following instructions show one way to mount the sensor. Please adjust the instructions based on any external factors that may impact your ability to mount the sensor on the firearm. Some rails are non-standard or proprietary rails and are not compatible.

Note: Several slim-line pistols feature an accessory rail that looks similar, but are not wide enough to hold the sensor.

Some pistols have a rail with a closed front end that prevents the sensor from sliding on the rail.

Mantis offers multiple rail and magazine adapter options. See the Adapter section of this manual for more information. Please see our online rail adapter finder tool or contact the Mantis support team to help determine if an adapter is needed for your pistol. https://mantisx.com/pages/rail-adapter-finder

Please review the Product Specification page to identify the names of the sensor parts, if needed. If you intend to train with live ammunition, mount the sensor prior to loading your firearm.

To mount the sensor on a pistol, do the following:

1. Ensure that all live ammunition is removed from the pistol and surrounding areas. See Clearing the Firearm: Pistol.
2. Locate the sensor and the mounting location on the firearm that you intend to train with.

3. Determine if the sensor will be mounted with the USB charging port facing the target (backward) or the shooter (forward). The sensor can be mounted in either direction.
4. Hold the sensor between your index finger and thumb and place your thumb on the locking lever.

5. Line up the rail of the sensor with the rail on your firearm.
6. Pull down on the locking lever until the locking block fully retracts into the sensor housing.
7. With the locking block retracted, apply pressure (toward the trigger guard) to slide the sensor onto the rail of the firearm.

8. Once the locking block is pushed past the flat edge of the firearm rail, release the locking lever.
9. As you slide the sensor toward the rear, the locking block will rise up and click into one of the grooves in the rail, locking the sensor in place and keeping the sensor from moving forward or backward.
10. If you need to further adjust the sensor, pull down on the locking lever and continue sliding the sensor back to the position that works best for you. If the sensor does not lock into place, it is not mounted properly.
11. **Live Fire only** - The sensor should be mounted so it is NOT positioned in front of the muzzle to protect the sensor from the live fire muzzle blast.

Long Guns

Similar to pistols, mounting the MantisX sensor to a rifle or shotgun requires a standard picatinny rail. If picatinny rail is not available,then an adapter will be required. Contact the Mantis support team to help determine if an adapter is needed for your rifle or shotgun.

The Mantis X10 includes the BR7 Barrel Adapter. The BR7 includes rubber spacers to fit a variety of barrel diameters and is also a universal adapter.

Adapters

Mantis offers a variety of adapter options for firearms that do not have a standard picatinny rail. For holster training, magazine adapters on a training magazine are highly effective.

Several model specific magazine floorplate adapters are available, like the MT-2070 for the CZ 75. The Universal MagRail Adapter MT-2001 adheres to magazines with a flat bottom surface with VHB adhesive.

The most common adapter for revolvers is one of the BR4 Barrel Adapters that insert into the barrel. For revolvers with barrels long enough for the 1.5-inch adapter strap to wrap around, the MT-2016 and MT-2017 Barrel Adapters are compatible. The MT-2016 fits wider barrels and MT-2017 fits barrels that are narrower in diameter. BR7 Barrel Adapter works with shotguns and rifles. The MLOK rifle adapter MT-MAG590 attaches to MLOK handguards to attach the MantisX sensor.

If you need assistance in determining which adapter option may be best for your guns, then contact our support team or check out the online Mantis Adapter Finder tool.

Downloading the MantisX App

The MantisX sensors and BlackbeardX connect to the MantisX - Pistol/Rifle app to view the training data with pistols, rifles and defensive shotguns. The X10 also connects to the MantisX Shotgun app and the MantisX Archery app. Download the MantisX app to your device from Google Play, Apple Store or Amazon app store: https://mantisx.com/pages/app

MantisX Pistol/Rifle

MantisX Shotgun

MantisX Archery

Minimum System Requirements

- Android: v 8.0*
- Apple v 13.0
- Kindle Fire 7

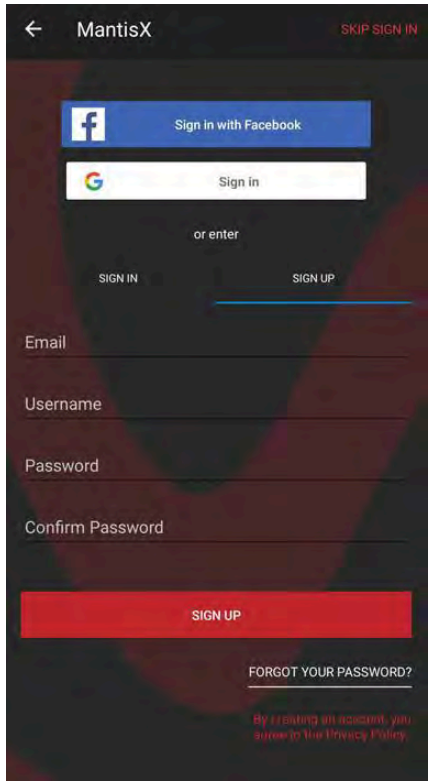
Mantis apps are not available on computer operating systems.

** Android OS versions 7-11 require location enabled and permission granted to connect to the app. MantisX does not collect or store any location information.*

Bluetooth 4.1 or greater with a Bluetooth Low Energy profile is required. Bluetooth must be enabled and permission given to the app to connect to the MantisX sensor.

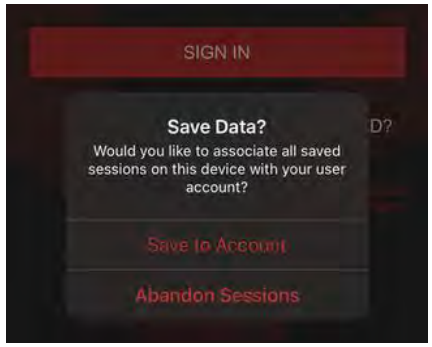
Creating a Mantis Account

A free Mantis training profile account is optional. A Mantis account allows users to store their training history on the Mantis servers. The account profile can be accessed from multiple devices or on the train.mantisx.com online profile. The online profile allows you access to additional analytics and more export options.



Training data loss is the greatest risk of not using a Mantis account. The data loss can happen if the app is uninstalled or the smart device is factory reset. Data can not be recovered once lost from a local device.

When the app is first launched, then a prompt pops up to create a Mantis account. If an account is not wanted, then Skip. To create an account, click Sign In/ Sign Up and follow the prompts.

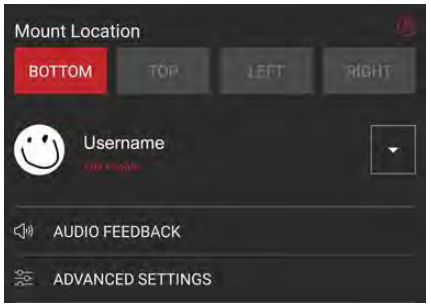


If you decide to set up an account after you have already started training (but before you close or log out of the app), you will be prompted to associate past sessions to the account you have signed into. This is a one-time prompt. If you click Abandon Sessions, those sessions will not be saved and cannot be retrieved at a later time. The support team is not able to recover training sessions from your smart device, because the data is only on your device.

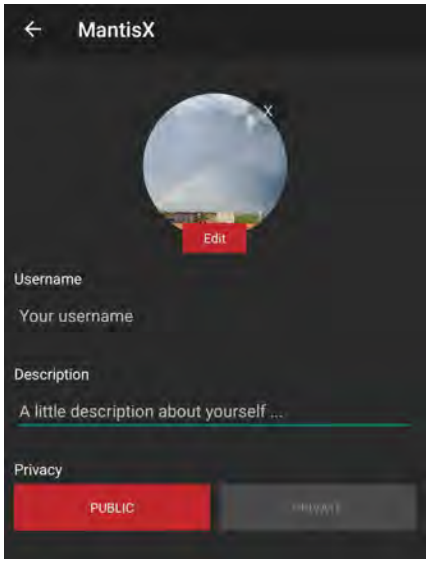
The data in a profile is for the user's recordkeeping. The shot data and firearm data are used in batch analytics to help drive future improvements of app design.

Multiple people can use a single Mantis sensor by creating individual Mantis accounts. It is recommended that each user have their own account to track individual training progress.

The current active user is displayed just below the Mount Location on the Settings tab. To change users or sign out of all accounts, tap the menu option to the right of the User Profile icon. Select Add Another Account or a different user.Training data generated while using the guest account is not permanently saved and does not impact the other user training history. The guest account training data is only stored on the local device and does not sync to online profile training data.



The User Profile can be viewed or changed in the app by selecting Edit Profile. The profile for all the Mantis apps can also be viewed or changed at train.mantisx.com.



Log in to the online User Profile using the same email address/ username and password that is used for any of the Mantis apps.

Profile Settings

From the app's main settings screen, you can edit your profile. Tap the "Edit Profile" button to add a picture, description, and adjust your privacy settings.

Profile Picture - Tap the “Edit” button at the top of the screen to add a profile picture. Camera permission, in device settings, will need to be given to take a picture. Permission to access the media on the device will be needed in order to upload an image. Then take a picture by tapping on the red camera icon or select the images icon in the lower left to add an image from your device as your Profile Picture. When you take a picture you can use the front or rear camera by tapping the camera icon in the top right corner beside the flash option button.

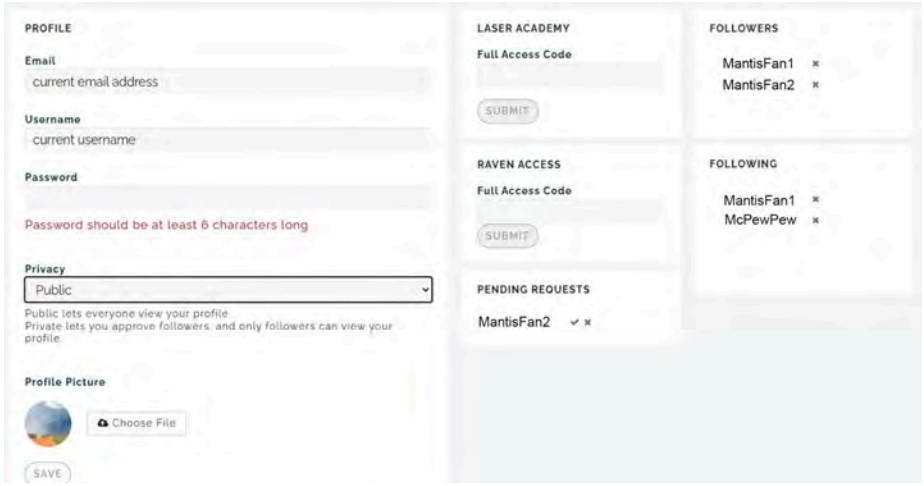
Descriptions are optional and can be viewed on your profile in the Groups section. Training profiles are visible to group members and followers. Share your training history with friends and family by using the Followers/Following options and by setting your Privacy Settings:

- **Public** allows anyone to follow your profile.
- **Private** gives the option to approve or deny followers.

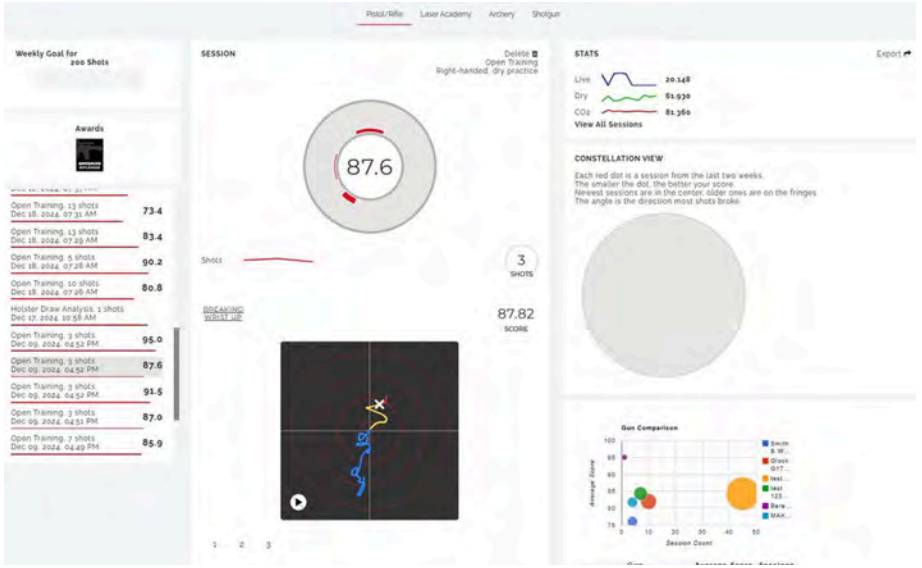
Followers and requests to follow are shown in the app and the online Training Profile at train.mantisx.com.

In the app settings, MantisWeb will open train.mantisx.com for the user currently signed in. The user profile can be viewed on a computer using the Mantis online account.

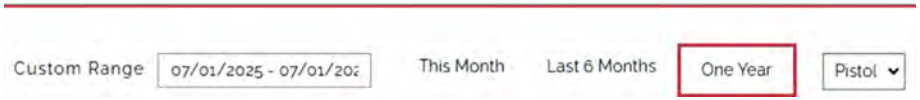
Online Profile



The online profile allows users to reset the profile password, email address, username, and other Profile Settings. The password field will be blank. This field is used to change your account password. Full Access codes for other MantisX apps are activated in the online profile settings. Similar to the password field, these fields will be blank and will not show an activated code.



Training History and additional charts are also available on the online profile. Training data can also be exported to a .csv file format for further analysis and recordkeeping.



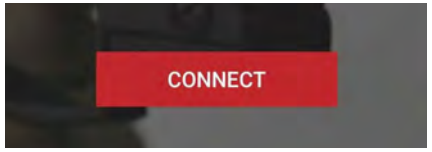
Select the date range and firearm type for the following charts:

- Analysis of Range of Shots
- Correction Chart Problem Areas - Web Chart
- Scoring Breakdown *This chart only includes shots made in drills that focus on the trigger control score (excludes HDA, Dynamic Drills, etc.).*
- Correction Chart Problem Areas - Pie Chart
- Session Scores with Trend Lines *This chart only includes shots made in drills that focus on the trigger control score.*

Connecting to the App

The MantisX sensors need to be connected to the app for each training session. To connect the MantisX sensor to the app:

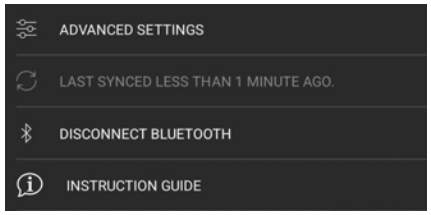
1. **Verify Bluetooth is enabled** - When the app has Bluetooth permission and the sensor is turned on, then the MantisX app will search for the MantisX sensor during connection prompt. (MantisX may not appear in the available Bluetooth devices list on Android devices).



2. **Open the app** - MantisX Pistol/Rifle.
3. **Sign In/Sign Up** to your MantisX profile account (The Sign In screen may be skipped, however the app features are limited without a training profile). Sign In to your Mantis account or Sign Up to create an account that can be used with all the Mantis apps.
4. **Review Firearm Safety** and clear your firearm before mounting the MantisX on your firearm.
5. **Connect** - In the Mantis app, press the red Connect button, near the center of the screen.The flashing LED will become a solid light when a connection has been established.
6. **Calibrate** - Place the gun with the sensor on a steady surface to allow the app to calibrate with the mounted sensor.

Alternate connection options:

A. Open the Settings screen of the MantisX app, scroll down and then select the Connect/ Disconnect Bluetooth near the bottom of the screen.



B. Starting a drill will prompt the red Connect button, if a sensor is not already connected.

Disconnecting & Removal

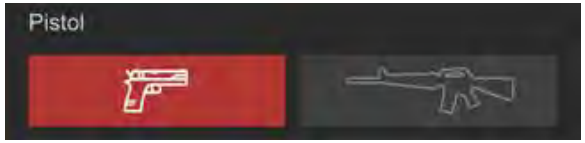
At the conclusion of your training, do the following:

1. Press and hold the power button for two seconds. The LED will turn off, indicating the sensor is off and will automatically disconnect from the app.
2. Remove the MantisX sensor from your firearm:
   - Grasp the sensor between your thumb and index finger
   - Rotate the locking lever all the way down to lower the locking block
   - Slide the sensor off the rail
   - Store the sensor in the small black case the sensor was shipped inside
3. Close the MantisX Pistol/Rifle app.

App Settings

The correct training settings need to be selected before each training session. There is a red question mark on the right side of the Settings screen, to help identify the correct settings needed for the sensor/firearm setup being used. Tap on the red question marks to help determine which option should be selected. Some settings may also be selected or changed at the beginning of a training drill. If the correct settings are not selected, then the shot data may not be recognized. Use the question marks to double-check which setting may be needed for your session.

Firearm Selection

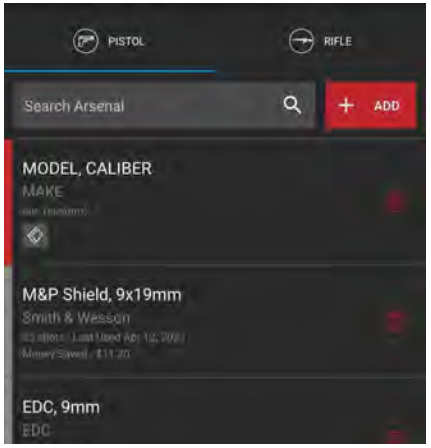


Select either Pistol or Rifle. This selection will impact the drills and shot detection modes that are available. If a BlackbeardX is connected, then Rifle will be automatically selected.

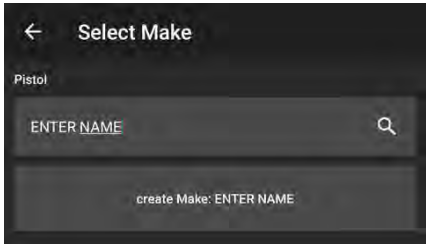
Arsenal

The Arsenal allows you to label, track, and filter your sessions by the firearm used. Selecting a gun in the arsenal does not impact shot detection. Select a Firearm for the arsenal list by tapping the “+ Add” button and selecting the manufacturer and model that matches the firearm. Firearms previously selected or entered will be shown at the top of the Arsenal list.

If the make and model of the firearm is not listed, then tap the “+ Add” button. The app allows you to create your own when you enter the make, model, and caliber of your firearm. Type the make and model name as you want to see it displayed in your arsenal list.



To remove a model from the selected list, tap the trashcan icon on the right side of the screen. This action does not permanently delete the firearm. It remains part of your completed session history, accessible on MantisX Web, and will reappear with a re-installation. To permanently remove the firearm, you must disassociate it from its sessions within the History section.

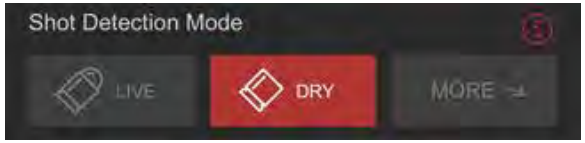


Ammo Savings

Each firearm listed in the Arsenal will show Money Saved. The app calculates cost based on an industry average of range ammo per round. If no gun caliber is selected in the arsenal, then calculated savings are not available. The cost of ammo by caliber will be updated as the market changes.

All Live Fire shots are ignored since ammo is used for those sessions. The shot count with other shot detection modes are included in the ammo savings.

Shot Detection Mode

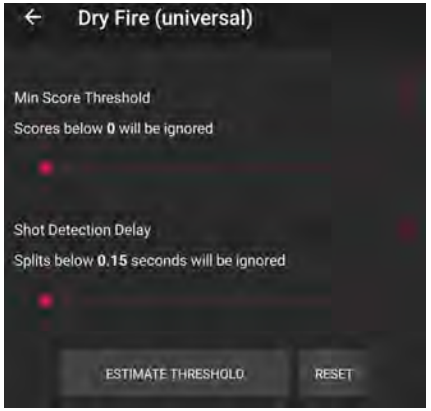


Shot Detection Mode determines the algorithm that is used to read the movements and determine when a shot occurs. The most common firing modes are Live and Dry.

The Shot Detection Mode does have additional choices under the MORE button, to the right of Live and Dry for additional settings. If shooting something other than a striker-fired pistol, selecting one of these options may greatly increase your shot detection. The selected mode has a red bar to the left of the mode title.

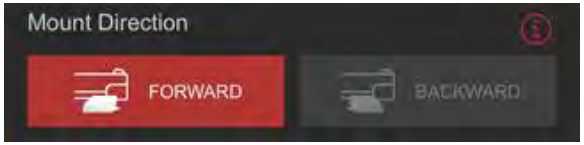
The Universal modes work for most guns. However, there are some guns that work best with a different mode or custom mode selected. See Shot Detection Troubleshooter for information on creating custom modes. Select SIRT/DFM/TTrigger when using a 3rd party resetting trigger device like DryFireMag.

The button under the name of each mode allows customizations when turned on. These settings are extremely beneficial when the app is detecting more shots than are actually occurring. Click the Back arrow on the top left corner of any of the Setting screens to return to the main Settings tab. Set a minimum shot score (Min Score Threshold) to help prevent false positives. Adjust the slider to a specified score, then the app will ignore scores less than what is specified. Set a minimum delay between shots (Shot Detection Delay) to help prevent the reset being detected as another shot. Adjust the slider if the app recognizes movement after a shot. A one second delay prevents shots being detected within one second of the previous shot.



The Estimate Threshold button is an option for automated assistance on setting a threshold for your gun. Follow the prompts and the app will estimate a solution at the end of the drill.

Mount Direction



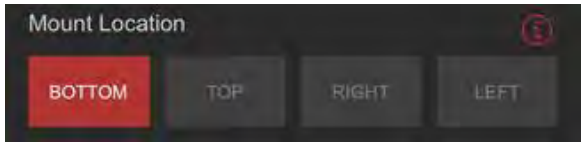
Mount Direction is the forward or backward orientation of the sensor when mounted on the firearm. See images on the button to help select the correct option.

Forward - USB charging port facing toward the shooter or the quick connect locking lever is on the front, away from the shooter.

Backward - USB port facing down range away from the shooter or the quick connect lever is on the back side, near the shooter.

When the Mount Direction or Mount Location changes, then the sensor will need to recalibrate. Use the Live View screen to verify that the correct settings are selected and the sensor is responding accurately.

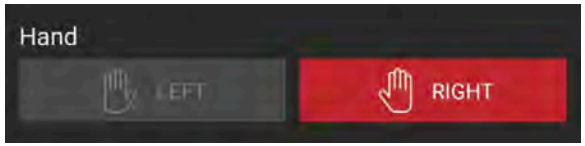
Mount Location



Mount Location is where the sensor is located on the firearm, based on the firearm orientation in a standard shooting position.

Bottom: Mount sensor under muzzle, on magazine, or barrel's underside.
Top: Mount sensor on top rail, above barrel.
Left: Mount sensor on left side rail.
Right: Mount sensor on right side rail.

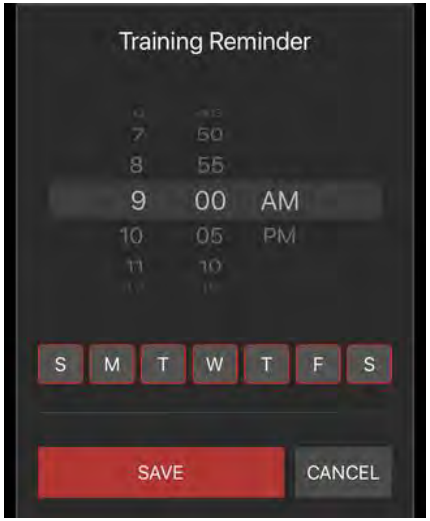
Shooting Hand



Select the hand you will use as your primary shooting hand (left or right). This selection determines how the feedback on the Segment Chart screen. App guidance will be tailored specifically to the hand you select in the settings.

Drill information screens will have a button to easily switch hand selections before starting the drill or starting a new session.

Training Schedule



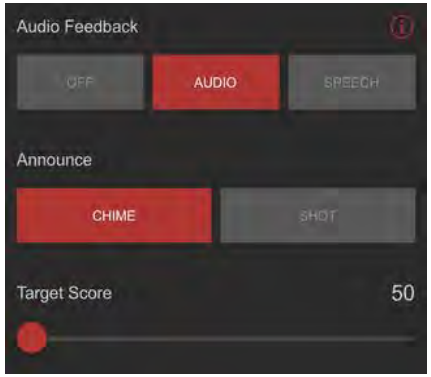
The Training Schedule allows you to set a preferred number of shots and then set a schedule with reminders to meet your specific goal. Set your weekly Training Days and your Off Days. Your results will be illustrated on the History Screen. The Training Streak will indicate a break for no practice scheduled for off days.

This feature requires permission for notifications within the smart device settings. The app will prompt you for this permission if the schedule is not already set up. These steps allow the app to send you training reminder notifications.

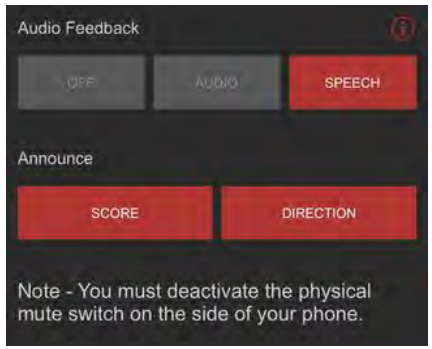
Audio Feedback

This setting feature provides optional instant audio feedback on your shots. The default Audio Feedback setting is Off.

Other available options are:

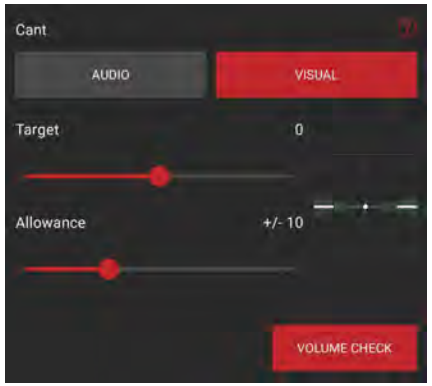


- **Audio** - Plays a sound for each shot that exceeds the shot score threshold set with the slider. Shots below that score make a negative buzzer sound.
  - **Chime** - Set a minimum target score. Shots equal to or greater than the score will make a chime sound.
  - **Shot** - Choose a minimum target score. Shots equal to or greater than the score will make a sound of a round hitting the target.



- **Speech** - Verbal feedback is given based on shot score and/or shot direction. At least one of the following options must be selected, if Speech is selected:
  - **Score** - Announces the shot score you receive, after each shot.
  - **Direction** - Announces the direction that the firearm moved at the time the shot was detected.

- **Announce Ready** - Activates a verbal “Shooter Ready” command prior to the start of a repetition in a drill.



- **Cant** - Set the preferred cant (Target) for your firearm and then define the acceptable Allowance range.
  - **Visual** feedback enables a red masking over the entire Live View screen, whenever you cant your firearm beyond the acceptable Allowance.
  - **Audio** feedback plays a tone during an active drill when the gun is canted past the set allowance.

Adjust the Target slider to set your preferred cant.

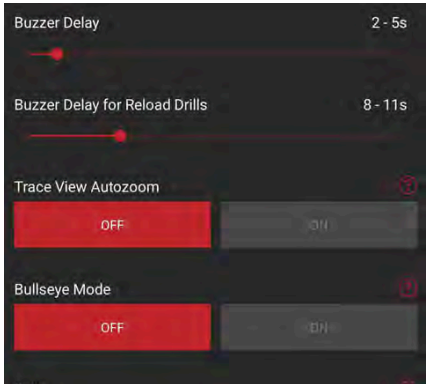
The degree of cant is shown at the top of the box. A negative indicates the gun is canted to the left of zero and a positive indicates the gun is canted to the right of zero. The green wedge indicates the set allowance for feedback.

The Cant Zero can be adjusted and set as needed on the Live View screen. See Live View section of this manual for instructions.

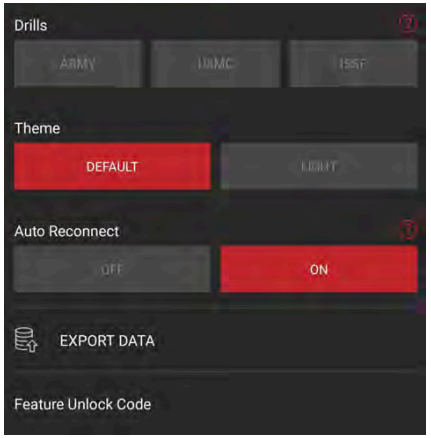
Advanced Settings

The Advanced Settings allow you to control advanced features of the drills within the app:

- Buzzer Delay - Add a randomized pause to the beginning of timed drills. Defines the minimum and maximum delay (in seconds) that can occur between pressing the Start button and the buzzer to begin shooting. This allows you to reset your timing.



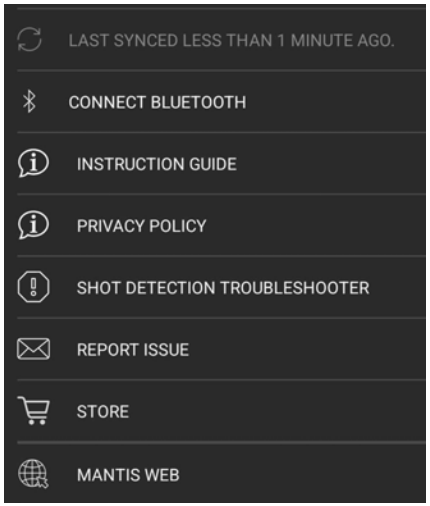
- Buzzer Delay for Reload Drills - Add a randomized pause to the beginning of Reload Drills. Defines the minimum and maximum delay (in seconds) that can occur between pressing the Start button and the buzzer to begin shooting. This allows you to reset your magazines and training conditions.
- Trace View Autozoom - Automatically sizes the Trace View screen to best fit the trace for that shot.
- Bullseye Mode - Increase the trace time displayed in Trace View from 0.8 seconds total to 4 seconds total (3 seconds before and 1 second after the shot). Enabling this resource intensive feature may slow down the app and increase battery consumption.
- Army Qualification - Adds Army Qualification to the list of drills available on the Train screen when in Rifle mode. This enables access to Table V, VI, VI CBRN, VI Night Fire, used by the US Army.
- USMC Qualification - Adds Marine rifle qualification drills to the Train drill list when in Rifle mode.



- ISSF Drills - Replaces the drills listed on the Train screen for both pistol and rifle with the International Shooting Sports Federation courses of fire.
- Theme - Toggle between the app interface default Dark theme (black background) and the Light theme (white background).
- Auto Reconnect - app will scan and automatically reconnect to the sensor.
- Export Data - Creates a local .csv file containing your training data for export. This option is also available on train.mantisx.com from your training profile.
- Feature Unlock Code - For development, support, and beta testing. All customer facing features are automatically enabled based on the capabilities of the hardware connected.
- Delete Account - Permanently deletes user profile

Sync Status

The SYNC status field shows when your device last synced with your training profile on the Mantis server. The name of this field changes as needed to reflect the most recent sync activity (status may display as “LAST SYNCED 30 HOURS AGO” for example).



The app automatically syncs during events like launching, closing, and signing out.

Manually sync by clicking the SYNC field, which is useful if you're signed in on multiple devices, ensuring all training data is available on each device.

Before uninstalling the app for troubleshooting, be sure to sync your data to avoid losing recent training sessions. After reinstalling, all synced data will be restored from your profile.

Connect Bluetooth

This button allows you to connect/disconnect (pairing) your sensor to and from your device. Bluetooth. This button is helpful when the Connect Sensor was skipped at the opening of the app.

Instruction Guide

Tapping this button will open this instruction guide in the app. Use two fingers and the pinching motion or double-tap screen for zoom functions. Page number(s) for the current view will be displayed on the right side by the dotted cursor. The dotted cursor allows you to scroll through the pages quickly. The instruction guide pdf file can also be found on the bottom banner of the mantisx.com website or https://mantisx.com/pages/manuals.

Privacy Policy

A summarized version of the data and privacy policies are provided in the app. The full privacy policy is available online at https://mantisx.com/pages/privacy-policy. If you have any specific questions about our privacy practices, please feel free to contact us by email via: privacy@mantisx.com.

Shot Detection Troubleshooter

The Shot Detection Troubleshooter is a tool that can be used to check your app settings and shot detection mode. The troubleshooter is used to help diagnose and improve shot detection. The troubleshooter begins with Standard Drills or Holster Draw Analysis. Begin with the Standard Drills if you are experiencing shot detection issues in more drills than just Holster Draw Analysis.

Confirm your settings and follow the prompts in the troubleshooter for false positives and failed detections. If experiencing false positives be sure to verify the active Shot Detection Mode in settings. Failed Detections will walk you through ten shots as the app analyzes shot detection mode and vibrations during the shot process.

Turn your volume up to hear the prompts and complete as instructed.

The app may prompt to create a personalized mode for your firearm. Some guns work better with a custom mode instead of the standard dry fire mode. When the app creates a new Shot Detection Mode (named after the firearm that was selected during this process) and

this new mode will be enabled. Use this new mode and if there are issues, let support know.

If the custom mode fails to improve shot detection, choose the option REPORT DATA to send us an email and a summary of the problem. Click SUBMIT and wait for the confirmation screen (this can take several seconds). The data report will be sent to our development team who will respond with more information. They usually respond within 2-3 business days.

Report Issue

Use this feature to send customer support an email when experiencing technical issues.

1. The app should prompt permission to send an email or open the email app on the device.
2. Type a description of the issue and the steps taken prior to experiencing the issue, as well as specify any of the troubleshooting steps completed. The Mantis app configuration and sensor details will automatically be pre-loaded in the report email.
3. Send the email to the Mantis Customer Support team. A reply from Mantis support will be sent to your email address.

Note: This function uses the email client of the smart device. Some operating systems require that the MantisX app has permission to access your email for Report Issue to function. **Please send only one report.** Sending multiple reports may slow down the response from the customer support team when reviewing reports. The support team typically responds within 2-3 business days. Check out the Troubleshooting section for possible solutions.

Store

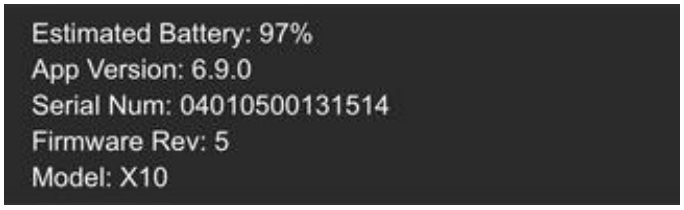
Mantis apps have a direct link to the mantisx.com online store.

Mantis Web

Your Training Profile can be viewed on train.mantisx.com. Tap this button to view additional comparison charts or export spreadsheet options. The training portal can also be accessed with a computer to view on a larger screen.

Sensor Information

The sensor and app information can be found at the bottom of the SETTINGS tab. Sensor details (serial and model info.) are shown when the sensor is connected to the app. This system information is helpful when contacting Customer Support for troubleshooting. The sensor information is the best place to look to determine if the sensor needs to be charged. The current available app version will be stated on the play store. Compare the version number on the play store to the version number listed to see if you have the latest version installed. If your app is not the latest version, then you can tap update in your playstore or reinstall the app to ensure you have the latest version. Be sure to SYNC your training profile before uninstalling the Mantis app.



Groups

The Groups feature facilitates interaction with other Mantis users by joining or creating groups. Being a part of a group shares your training results with others in the group to create accountability. Join a shooting group or create one with a group of friends, family members, or co-workers.

Groups have additional settings within the group: messages, new sessions, announcements, privacy, visibility, and sorting. Group goals may be set for weekly total shot count, or benchmark scores.

Each User Profile has the option to set privacy to public or private. Private allows you to approve the followers that are able to view your profile. Privacy set to Public allows everyone to see your training profile.

Follow Other Users

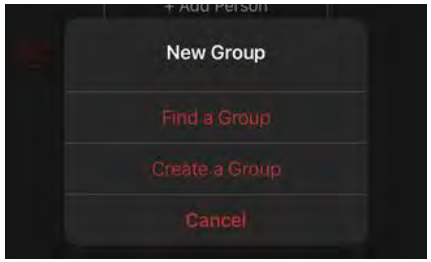
On the Groups screen, Following is the default group displayed. This view allows you to see and manage who you are following, who is following you, and the recent training results of those you follow.

To search for and follow a Mantis user, click Add Person and search for their username. Permission may need to be granted by the other person, for those with privacy settings.

Find a Group

To find and join a group, do the following:

1. Click Group at the top of the page.
2. Click Find a Group.
3. Search for the group you are interested in.
4. Click the group you want to join. You will be added to the group.

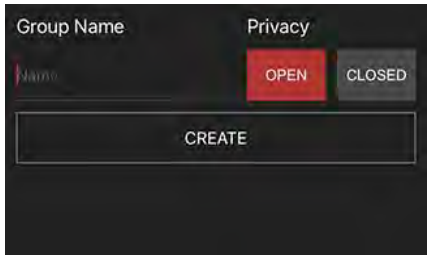


To see who you are following, tap Following at the top left. To stop following a user, tap the X to the right of the user's name.

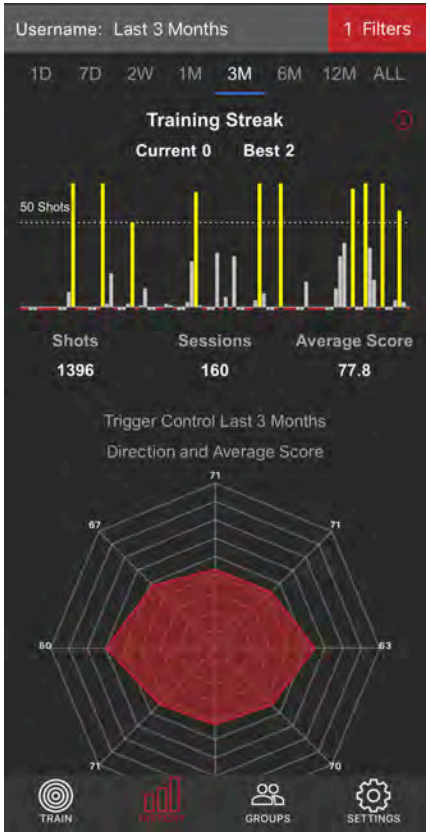
To see who is following you, click Followers at the top right. To follow a user, click Follow to the right of the user name. To stop them from following you, tap X.

Create a group

1. Click Group at the top of the page.
2. Click Create a Group.
3. Enter a unique name and choose the privacy settings (Open/Closed) for the group.
   Note: An Open group allows other Mantis users to find and join your group. A Closed group requires you to manually invite users to your group.
4. Click Create



Training History



The History tab is a way to review prior sessions and does not require a connection to a sensor to view the details.

The bar graph at the top illustrates your Training Streak for the current filtered view. The default filter is twelve months (12M). The horizontal dotted line will be the training goal set in the Training Schedule.

The image shows the history for three months (3M) and the Training Streak for that time period. The yellow bars are the days that the goal of 50 shots per day was achieved. The gray bars represent training days when the goal was not met. If there is no bar, a blank space, then no training occurred.

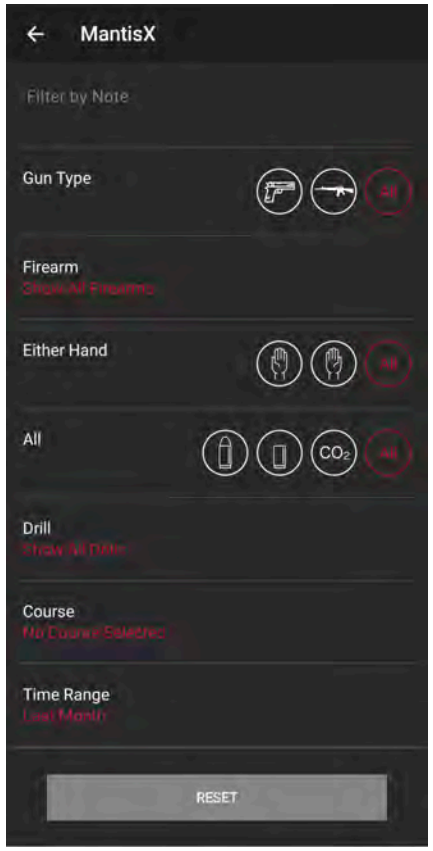
Filters

Change the Training Streak timeframe and date Filter by tapping on the filter views listed across the top (1D 7D 2W 1M 3M 6M 12M ALL) D=day, W=week, M=Month. Be sure that the correct user profile is selected on that device. The top right Filter button opens a menu of filter options. Tap the Filters button and choose one or multiple filters then tap Back at the top left of the page to view the filtered results.

Only sessions that meet each of your selected criteria will be visible. If no sessions match your filtered criteria, then no sessions will be visible in the History tab.

Focus the view of your training data according to the following filters:

- Filter by Note
- Gun type
- Firearm
- Shooting hand
- Shot detection mode
- Drill
- Course
- Time Range



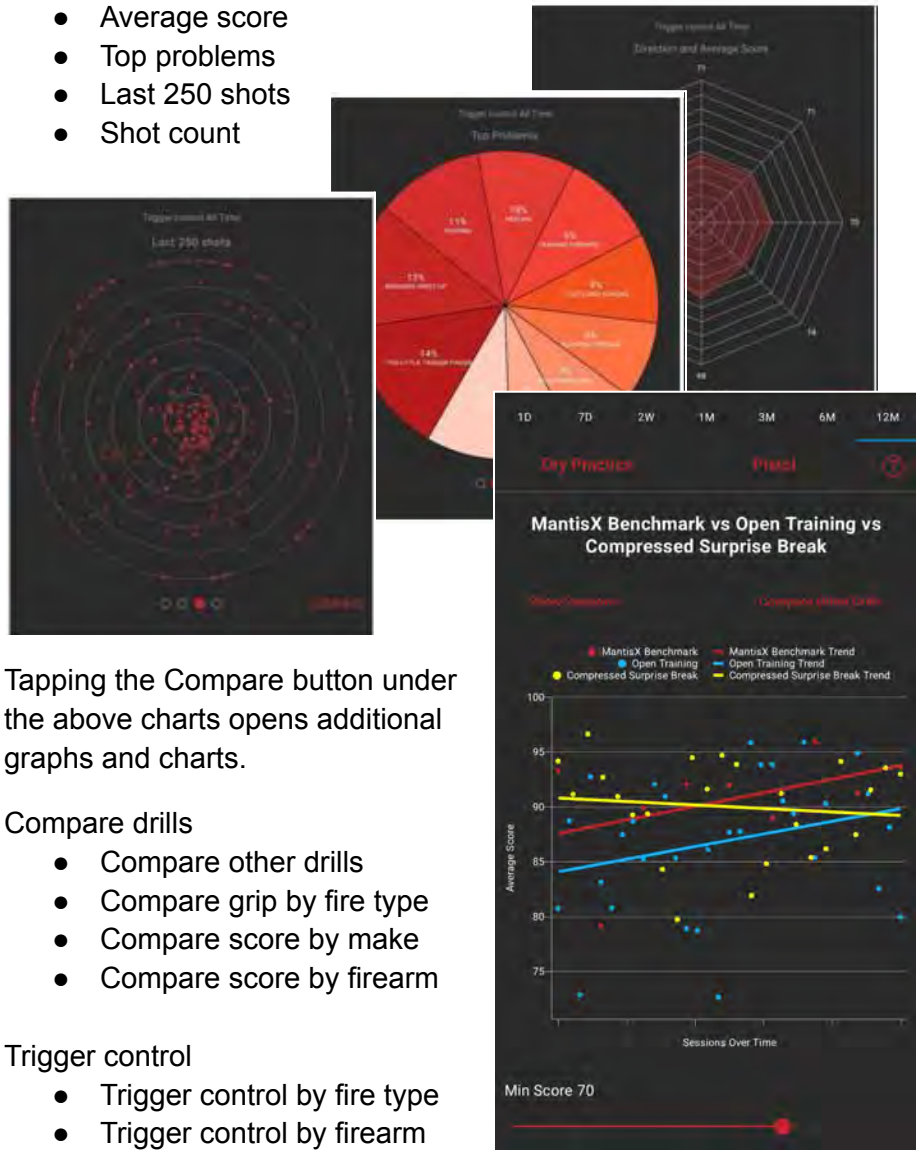
Note: If there is No Data for a filter, then a notification will appear. The Firearm filter displays the list of firearms listed in the Arsenal. The Drill filter will only display the drills that have been completed. The Course filter displays the list of completed courses.

The Reset Filter button restores all filters to their default settings. By default, the Time Range shows the past 12 months.

Analysis Graphs

The graphs in the center of the screen on the History tab visually display your shot data based on the active filters. Swipe right to left on the graph to view the next graph. The available graphs are:

- Average score
- Top problems
- Last 250 shots
- Shot count



Tapping the Compare button under the above charts opens additional graphs and charts.

Compare drills

- Compare other drills
- Compare grip by fire type
- Compare score by make
- Compare score by firearm

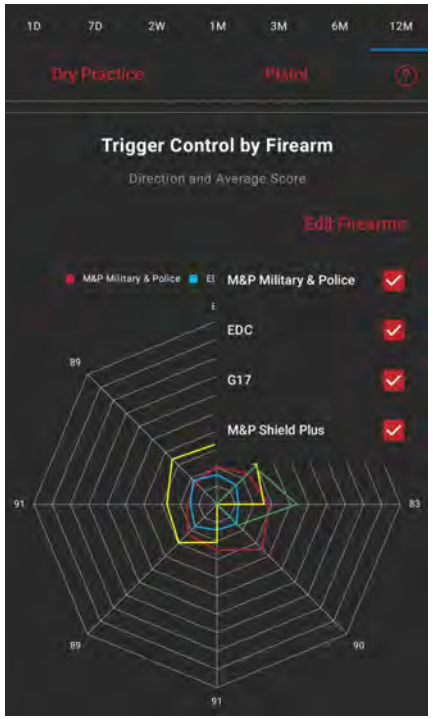
Trigger control

- Trigger control by fire type
- Trigger control by firearm
- Shot count by firearm
- Shot count by drill

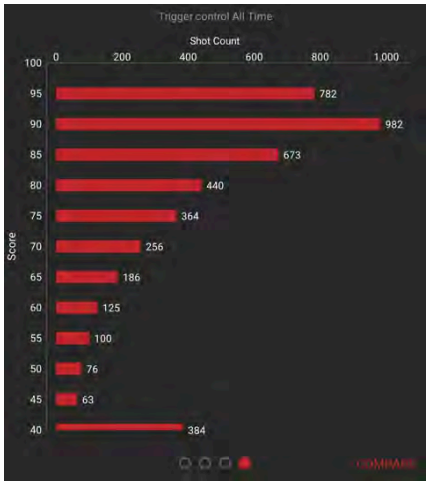
Compare charts illustrate shot count and scores according to the selected:

- ☐ Time Frame
- ☐ Gun Type
- ☐ Fire Type

Select the items to be viewed in comparison. Tap on graph details for additional information.



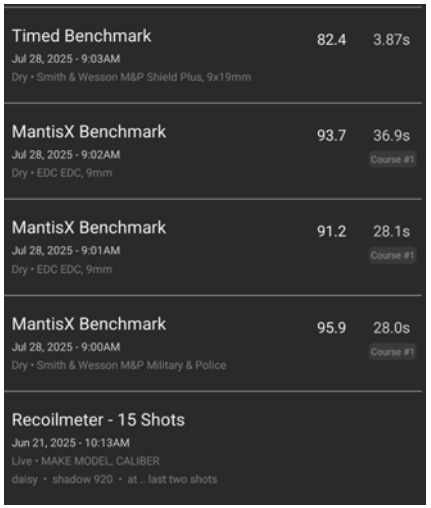
Compare Drills - Show Sessions are the session scores plotted around the lines. The lines are the score trend for a specific drill The trend lines are the drill score average over time for the time frame selected, gun type and fire type selected above.



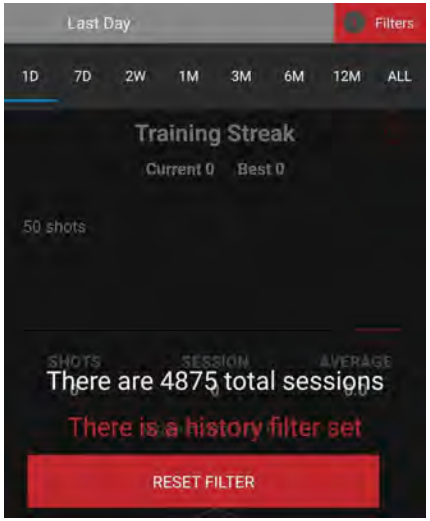
The dots are the session scores over the time frame selected, gun type and fire type selected above.

Drills with zero score will not be listed, so the only drills that they can select must have been previously done. The compare other drills - list of drills only applies to the top chart and not the others. Individual drill sessions are displayed below the analysis

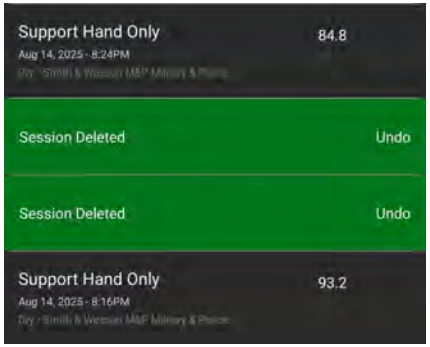
Train - Drills



graphs. Session history may be reviewed when the app is connected or when not in use with the MantisX sensor. Each session will show the date, time, fire type, firearm as listed in the arsenal, average score, average time, and the notes entered for that session. If the session was part of the course, then the “Course #" will appear to the right of the drill.



The selected filters at the top will determine the sessions in the history view. Tap a different number from the list at the top to adjust the date range. Tap the red filter button to adjust the list of sessions to view.

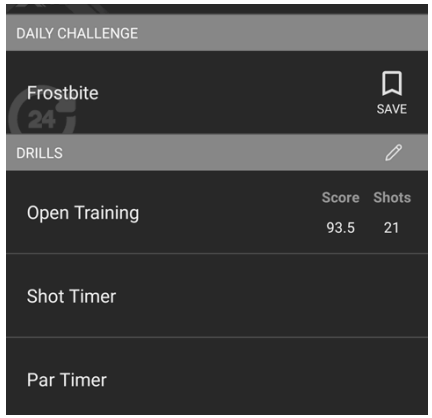


Swiping left or right will delete an individual session from the history list. The session segment will turn green for a few seconds with an Undo button. Tap Undo within that time to restore the session to the history list. Take care not to not swipe repeatedly or too quickly, or additional sessions may be deleted.

The train tab will have a list of drills available. Each drill is designed to work on different aspects of shooting skills: speed, trigger control, holster draw, recoil, or a combination of the above. Model specific drills, such as the X10 RecoilMeter and Holster Draw Analysis, will be listed at the top when an X10 sensor is connected to the app. If an X10 is not connected, then those drills will not be visible.

The Advanced Settings may change or add to the overall drill list. Army, USMC and ISSF settings will change the drill list.

The Daily Challenge Drill will change every day. The bookmark allows you to save your top five Daily Challenge Drill favorites. These drills are intended to test unique shooting conditions, positions, and scenarios.



The pencil icon on the Drills heading opens a menu to enable or disable drills from the main drill list. All drills are enabled by default. When a drill is disabled on the menu, then it will not appear in the main Drills list on the Train screen.

To start a drill:

1. Connect the MantisX app to the sensor (see Connecting to the App)
2. Tap Train
3. Select a Drill to start
4. Adjust Drill settings as needed
5. Tap Start - Sensor and app now communicate in real time

Drills Configuration

Drill Settings

Some drills have drill-specific settings that allow you to configure the drills to suit your training needs. These settings only change that specific drill.

Drill customizations can make one drill similar to another, for example the Open Training drill can be configured to behave like the Par Timer drill by tapping the DRILL button on the drill preview screen to configure the drill customization.

Access these drill specific settings after a drill is opened from the Train screen, tap DRILL and adjust the various configuration settings available for that drill. Fire type, gun hand, and sensor mount settings can also be adjusted on the Drill screen.

The drill-specific customized settings:

- **Buzzer Delay** - After the start button is pressed, the amount of delayed time before the drill begins.
- **Shot Count** - Limits the number of shots the drill allows. The drill will end when the shot count is reached.
- **Repeat** - Number of times the drill is repeated.
- **Passing Score** - Minimum score for a shot for pass/fail analysis. Shots under the threshold will still be counted, but will show in red on the Charts screen.
- **Ready Position** - The muzzle orientation in relation to the target. The drill will prompt for Ready position and will not begin until the selected position is recognized. Mount Orientation and Location settings need to be set correctly to ensure that ready positions are recognized.
  - Other [No Beep] - Start at your own discretion, no beep
  - Other [Beep] - Start on the beep from any position
  - On Target - Point the firearm at the target
  - Holster - Start with a firearm holstered
  - Retention - Strong-hand only, wrist close to body with a cant at least 10 degrees away from your body
  - Low Ready - Firearm angled downward at least 35 degrees
  - High Ready - firearm angled upward at least 35 degrees
- **Par Time**–Sets a specified amount of time to complete the shots. The drill will begin at the beginning of the buzzer sound. It will end when the par time is reached. The buzzer duration is .3 seconds.
- **Magazine** - Set the digital capacity for each magazine. See the next page for more details on this setting. (TitanX only)
- **Score Floor** - Allows or ignores negative shot scores (not available in all drills)
- **Hostage Rescue** - Sets 85% to pass, 4.0 par time with a holster ready position (not available in all drills)

Tap the RESET button to clear the settings and restore back to their default.

Drill Shot Detection Mode

Verify or select the Shot Detection Mode to be used on the current drill. Tap the button to change modes. If the mode you need is not illustrated, then go to the Settings screen and select the needed Shot Detection Mode and reselect the drill.

Camera Laser Hit Detection

Laser Academy Target Integration provides limited Laser Academy functionality within the Pistol/Rifle app. Users can train with any target from the Standard Smart Target set during drills. Laser Academy–specific drills are not supported, and a full access code is not required.

This feature is supported in Elite, Dynamic, Daily Challenge, and Standard drills. All MantisX features continue to operate normally when the camera is enabled. To activate target integration, simply add a Smart Target, a visible training laser device and enable the camera in the training session.

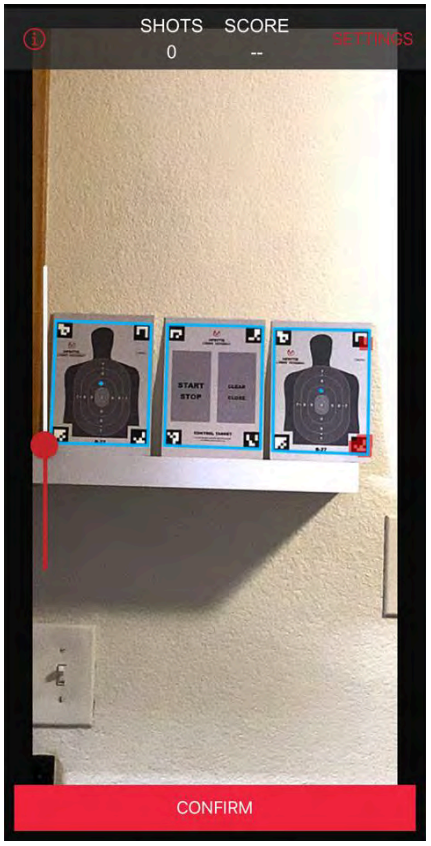
Courses may use the camera; however, results only count toward challenge completion if camera usage is explicitly stated in the challenge description.

To use Laser Academy integration, enable the camera and mount the phone or tablet on a tripod with the camera facing the target. The camera detects Laser Academy QR codes and displays a blue confirmation box around the target. The camera icon updates to show the number of targets successfully captured and confirmed.

Enable the camera by selecting the Camera button on the drill start screen. Disable the camera at any time from the Camera Settings menu.

The Camera Settings menu allows users to:

- Configure Laser Offset - The laser of your firearm may not align with your sights. This varies based on how the firearm is zeroed and the optic being used. Setting the laser offset will ensure that shot placement in the app is scored according to the offset. The app will configure your shot placement from your zeroed shots. Always verify the Laser Offset setting when switching firearms to maintain accurate scoring.
- Select automatic or manual camera adjustments - Manually adjust the ISO and Shutter Speed:
  - ISO controls how sensitive the camera is to light. Lower ISO values are less sensitive. Higher ISO is better in low light.
  - Shutter Speed controls how long the camera sensor is exposed to light. A faster shutter speed lets in less light, while a slower shutter speed lets in more light.
- Disable the camera



Important: Before confirming and starting the drill, ensure the target is correctly recognized by the camera. Verify that the target outline and hit zones are visible and aligned. If the target is not recognized before confirming, the drill will start without a camera view.

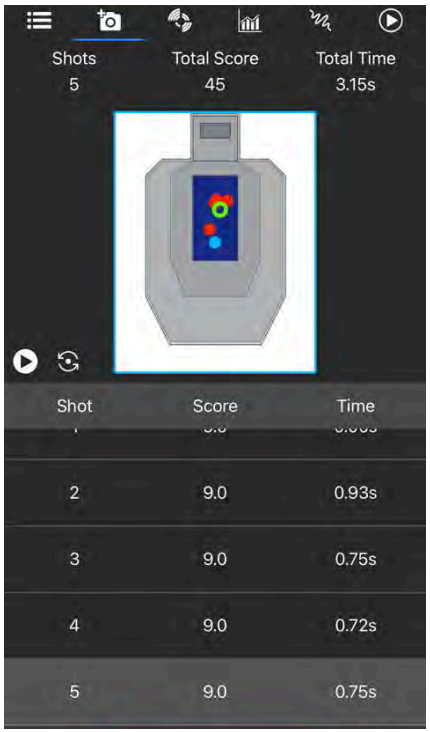
Single or multiple targets can be used and the Control Target and boxes work to start/stop, clear/close the session.

When enabled, the Camera tab appears as the second screen. It displays either a live target view (available only while a session is in progress) or a static target view. Use the Swap icon to switch between views.

Shots can be played back sequentially or selected individually. When a shot is selected, the corresponding hit zone is highlighted in blue on the target.

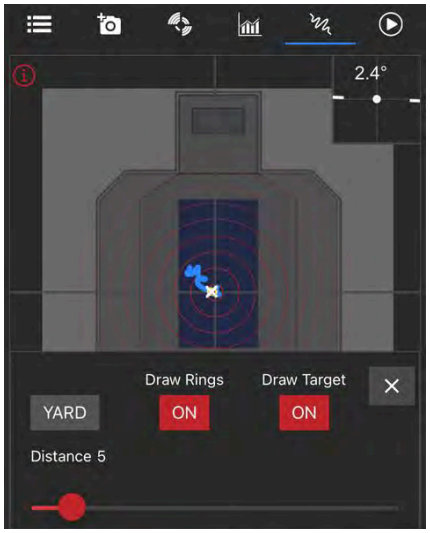
The top displays a session summary, including the Shot Count, Total Score, and Total Time. Below the summary, a detailed list shows each shot number, score, and time of each shot.

When enabled, the Trace View Tab displays the associated target and highlights the zone hit for each shot. All other elements on the tab continue to function as normal.



A Target Settings button appears on the tab. Selecting this button opens a sub-menu where you can:

- Toggle target rings on or off
- Toggle target visibility on or off
- Set the target distance in yards or meters using a slider



Ensure the correct distance is set at the start of each session, as this affects shot visualization and accuracy.

Shooting Hand

Verify or select the correct Shooting Hand for the drill being selected. Change this selection when you are switching hands to ensure the correct feedback is given.

Ending a Drill

Active drills have a STOP at the bottom of the screen to end the drill. The stop button becomes a RESET button to start a new session of the same drill.

Some drills have a set number of shots to be taken. When that number has been reached, the drill will automatically end. A pop-up window will give a summary of the session and a DONE button.

The top back arrow button will prompt a confirmation message to stop the active session before ending the session.

Training Sessions

Session analytics and feedback are separated into five views: Score Summary, Shot Direction & Analysis, Movement Trends Chart, Trace View, and Live View (Live View is only available during an active session). Any of these feedback screens may be viewed during an active training session.

Score Summary

The Score Summary view lists the shot order, as well as the shot score, and split time for each shot. Tapping on any of the shots will take you to the Trace View screen for that shot.

Depending on the drill you are training, the Summary view will display either total time or average split time at the top of the screen. Icons are used to indicate the following:

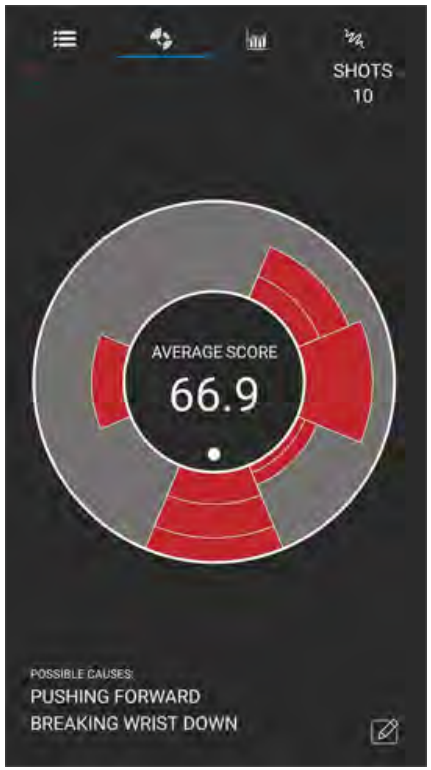
- Red trophy - Best shot score
- Flaming clock - fastest split time for a shot
- Gray clock - Slowest split time for a shot
- Gray trophy - Lowest shot score

The blue/yellow bar underneath the average score illustrates the Movement Trend.

Segment Chart

The Segment Chart shows the direction the muzzle of the gun moved from the aiming point during the firing process.

A bullseye hit is represented by a dot in the center below the average score.



Each red segment represents a shot in that direction. The width of the segment represents the distance away from the aiming point. The wider the red section, the further away from the aiming point. Shots in the same direction will stack upon each other and illustrate an area that may need correction.

Tap on a red segment to view the possible issue and the statistical explanation for the movement, as well as some potential corrective action. The red segments on this shot direction chart are tapable buttons that open informational screens of the possible corrections based on the analysis of movement. These information screens are very helpful when an instructor or training coach is not present to watch the shooter's movement and control.

Training with another person or with a camera recording the shooter (grip and stance) may help identify the corrections that need to be made to improve skills.

The shot analysis offers the most common reasons why shots go in a particular direction and offers suggestions to consider that may help determine why the shot missed the aiming point. The shot analysis may also be viewed by tapping on the words at the bottom left of the Segment Chart. Use the suggested information with the shot trace on the Trace View screen to understand when the movement occurs, the extent of the movement, and what reasons may have caused the shot inaccuracy.

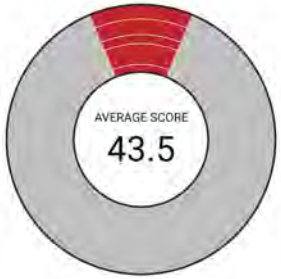
Some inaccuracies may be a combination of different issues. For example, Anticipating Recoil is one of the most common issues for missed shots; shot anticipation may include heeling, jerking, or pushing. Review all the information provided in the app to determine the reason for each individual shot movement.

Successful shooting skills depend upon mastering the fundamentals of marksmanship. These shooting fundamentals are aiming, breath control, trigger control, proper grip, follow-through and stance. The MantisX sensors analyze movement and do not detect everything that the shooter is doing or is not doing. However, the images and video clips in the app may be used as a reference to identify and visualize potential problem behaviors, while reinforcing proper fundamentals that help with understanding the potential problem areas.

The MantisX Laser Academy app includes short instructional videos to help learn and master these shooting fundamentals. While the Laser Academy app is not required with the MantisX Marksmanship app, the instructional videos are beneficial.

It is important that the Left/Right Hand setting is set accurately, to ensure that feedback is applicable to the dominant hand of the user. Issues that cause muzzle deviation to the left for a right handed shooter, will cause muzzle deviation to the right for a left handed shooter. These analytic diagnostics are for right handed shooters. For example: a right-handed shooter may have low left shots, but a left-handed shooter would have low right shots. So, shooting left-handed, please adjust accordingly.

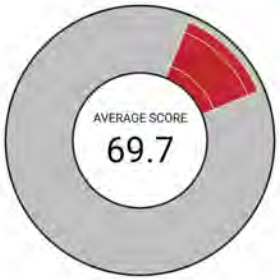
Shots that are **High** or upward of aiming point



Breaking Wrist Up - the wrists relaxed during the trigger press and the handgun moved up from the aiming position as it fired. To correct this issue, keep the wrists locked and straight during the trigger press. Make sure that the angle of the wrists stay the same throughout all the phases of the shot.

Breaking Wrist Up - Short Video Illustration

Shots that are **High Right** of aiming point (or Left-handed - high left of aiming point)



Heeling - the heel of the support hand is pushing the gun up and the firearm pivots around the shoulder joint of the dominant arm, which ultimately makes the weapon move up and towards the dominant side. To correct this issue, keep your dominant arm and shoulder in place to prevent any movement. Use the support hand to pull the firearm directly back toward your primary shoulder and down creating isometric tension in your arms to control the recoil.

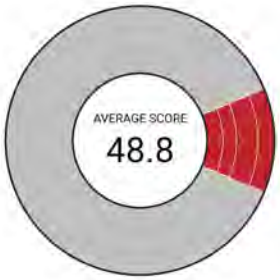
[Heeling - Short Video Illustration]

Anticipating Recoil - shooter was expecting the recoil and flinched at the time of the shot. Since a shot firing can be loud and startling, waiting for this to happen often distracts the shooter from keeping a solid grip and steady posture.To correct this issue, practice pressing the trigger so that the time of the shot breaking is a surprise. This does not require a lot of time to achieve, but the exact moment that the shot is fired should always come as a surprise instead of at the “now” moment.

[Anticipating Recoil - Short Video Illustration]

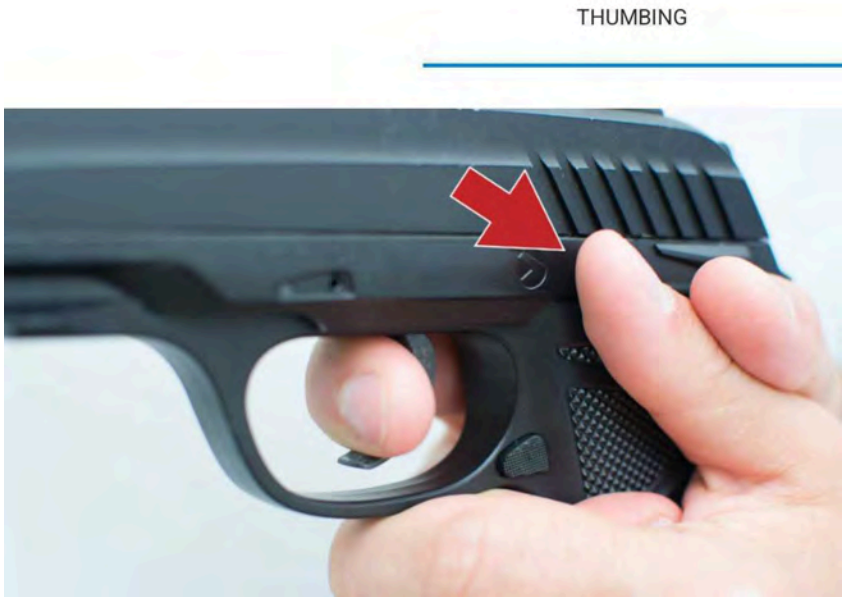
Additional practice will enable you to become accustomed to the recoil and press the trigger quickly. *Note: See also Low Left.*

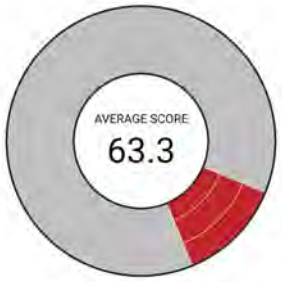
Shots that are **Right** of aiming point or (Left-handed - left of aiming point)



Too Much Trigger Finger - the pressure applied by the trigger finger during the trigger press was uneven. This issue is caused by an incorrect placement of the index finger on the trigger.\n\nTo correct this issue, place the center of the pad of the index finger in the middle of the trigger and press uniformly backward. Make sure that pressure is not applied on either side of the trigger and that the motion of the trigger finger is linear.

Thumbing - the gun was pushed to the dominant side by applying too much pressure with one or both thumbs on the side of the firearm. To correct this issue, grip the weapon firmly applying equal pressure at all points of contact. Make sure that the grip feels the same at all stages of trigger press and the thumbs are securing, but not pushing the firearm.





Shots that are **Low Right** of aiming point or (Left-handed - low left of aiming point)

Tightening Grip While Pulling Trigger - the grip gets progressively tighter during trigger press. Since pressing the trigger tends to flex all the hand muscles, the shooter often adds unneeded pressure. To correct this issue, keep your grip consistent throughout the trigger press. Resist the immediate impulse to tighten the grip as the trigger is being pressed – the grip is most likely tight enough to counter any extra pressure that may be caused by the trigger press.

[Tightening Grip - Short Video Illustration]

Shots that are **Low** or below the aiming point

Pushing Forward; Anticipating Recoil - the grip moved the firearm forward during the trigger press. Additionally, if the torso of the shooter is not fixed in the shooting position, even a slight movement at the waist can cause the weapon to move down. To correct this issue, maintain the firearm in the same place. Do not lean forward as you press the trigger. Also, do not try to counteract the recoil by pushing the gun.

Muzzle is pushed forward and down

Breaking Wrist Down - the wrists relaxed during the trigger press and the handgun moved down from the aiming position. To correct this issue, keep the wrists locked and straight during the trigger press. Make sure that the angle of the wrists stays the same throughout all the phases of the shot

[Breaking Wrist Down - Short Video Illustration]

Drooping Head - the shooter's head slowly moves down to the arms and causes the whole posture of the shooter to move. Bringing the head down also causes the shoulders to scrunch and the whole posture to be hunched.To correct this issue, keep your posture straight and hold your head up. Bring the gun to the level of the eyes, not vice versa.

Shots that are low left of aiming point or Left-handed - low right of aiming point

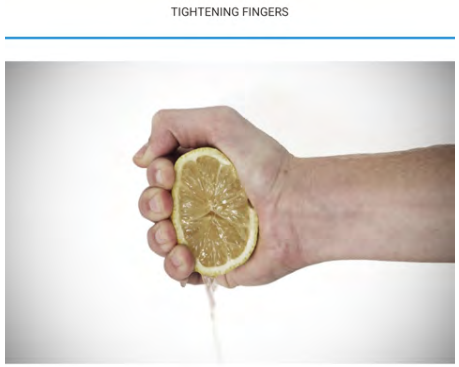
Slapping the Trigger -the trigger is pulled without paying attention to proper technique. Although attempts to rapid fire usually exaggerate this issue, the speed of the fire does not cause this issue. It is the hurried and sloppy movement of the index finger that causes the firearm to lose sighted position. To correct this issue, press the trigger slowly, steadily and directly to the rear, thus eliminating muzzle movement in any direction. There should be no additional movement from pressing the trigger. After the shot is fired, release the trigger steadily and only to the point of the trigger reset.

This issue can be a result of Anticipating the Recoil.

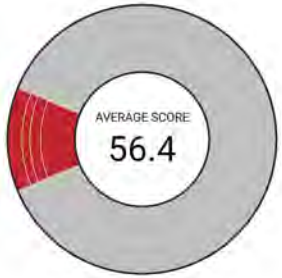
Slapping the Trigger - Short Video Illustration

Shots that are low left of aiming point or Left-handed - low right of aiming point

Tightening Grip While Pulling Trigger -The trigger is pressed and the grip gets progressively tighter. Since pressing the trigger tends to flex all the hand muscles the shooter often adds unneeded pressure.To correct this issue, keep your grip consistent throughout the trigger press. Resist the immediate impulse to tighten the grip as the trigger is being pressed – the grip is most likely tight enough to counter any extra pressure that may be caused by the trigger press.



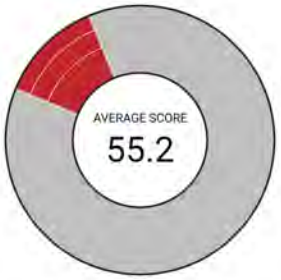
This issue can be a result of Anticipating the Recoil.



Shots that are left of aiming point or
Left-handed - right of aiming point

Too Little Trigger Finger - the pressure applied by the trigger finger during the trigger press was uneven. This issue is caused by an incorrect placement of the index finger on the trigger. To correct this issue, place the center of the pad of the index finger in the middle of the trigger and pull uniformly backward. Make sure that the motion of the trigger finger is linear.

Shots that are high right of aiming point or
Left-handed - high left of aiming point



Pushing - the dominant hand is pushing the gun up which ultimately makes the weapon move up and towards the support side. This is caused by anticipation of the recoil.To correct this issue, lock your dominant arm and shoulder in place to prevent any movement. Use the non-dominant arm to secure the firearm in place. Practice pressing the trigger so that the time of the shot breaking is a surprise.

[Pushing Forward - Short Video Illustration]

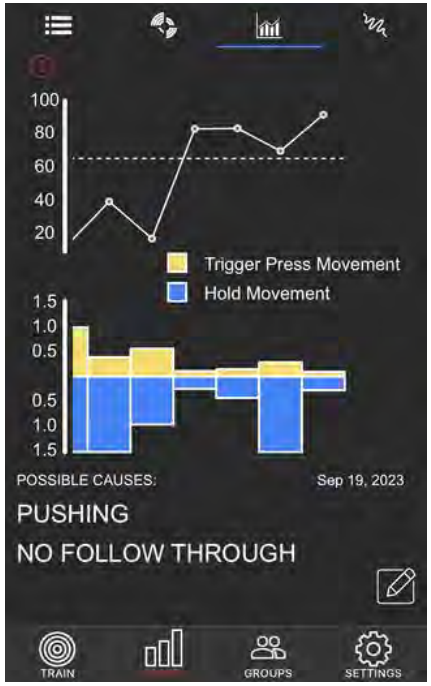
No Follow Through - the shooter removed the firearm from the aiming position too quickly when the shot was fired. Although the bullet accelerates quickly, even the slightest movement will change its trajectory. To correct this issue, remain in the aiming position as each shot is fired and return to that same position after the gun recoils. Be sure to obtain a proper sight picture after the shot.

[No Follow-Through - Short Video Illustration]

Movement Trends

The Movement Trend Chart illustrates an average for the session scores. The shot scores are represented on a line chart. The dotted line is the session average. Tap on a shot dot to see that shot on the Trace View screen.

The lower bar graph displays the amount of movement (magnitude in degrees) in seconds. The blue bars represent the hold movement before the trigger press; the yellow bars represent the movement during the trigger press, before the shot break. This picture illustrates there was, on average, more movement before the hold than during the trigger press.



Trace View

The Trace View shows a playback of individual shots. The crosshairs illustrate the aiming point calculated according to the movement data. The colored lines illustrate the movement of the firearm during each shot:

Hold on target (Blue) movement while aiming, before the trigger press

Trigger press (Yellow) Movement during the trigger press;
15 seconds before the shot break

The shot White X indicates the location for the shot hit

Follow through (Red) Movement after the shot break

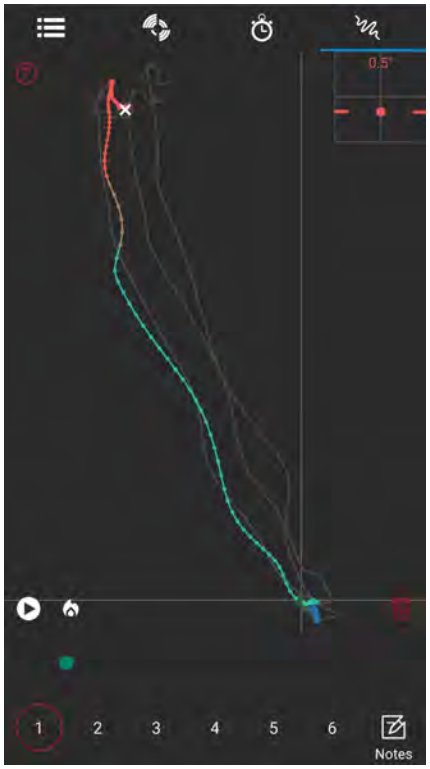
Play back the movement in real-time.

Display an overlay of the Segment Chart

Cant Indicator illustrates the tilt of the gun when enabled in Audio Feedback Settings. See Cant information on the Live View section of the manual for instructions to zero the cant.

To delete a shot or remove a false positive shot, select the shot you wish to delete from the shot count list at the bottom of the screen, and then click the trash can above the shot numbers on the right side of the screen. Once deleted, a shot cannot be restored. A deleted low shot score will change the session average.

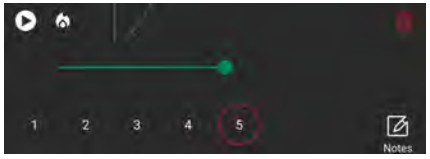
Holster Draw Analysis Trace



The crosshairs illustrate the location of the holstered position. The point is calculated according to the movement data. The colors of the line illustrate the different phases of the draw movement:

Shot (Orange): Movement and time from being on-target to when the shot breaks
Target (Brown): Movement and ttime it takes to get on target, after getting the gun horizontally.
Horizontal (Aqua): Movement and time from the pull to when the gun is drawn and rotated to horizontal alignment.
Pull (Blue): Movement and time it takes to pull the firearm out of the holster. This may be seen as horizontal movement when the trace is zoomed in.
Grip (Green): Movement and time from the start beep to when your hand grips the gun. If your hand is on the gun, then zeros will be seen.

The Timer bar graph breaks down the holster draw into key phases to identify inconsistent or slow phases. Tap on a cell in the graph to view a detailed trace of that specific draw stroke. The colors on the bar graph will coordinate with the colors on the trace. The graph may not display times as expected, if the phase was not detected.



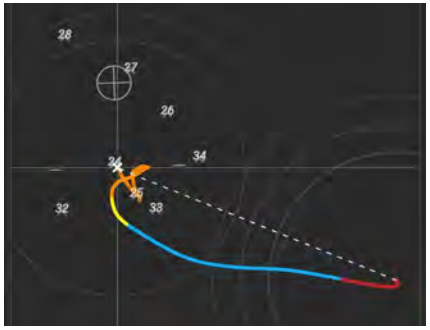
The Holster Draw Analysis Drill has a playback slider at the bottom of the screen to give more control over the playback speed.

BlackbeardX and TitanX Dynamic Transitions

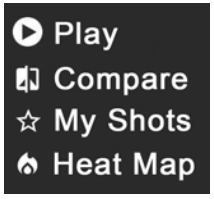
The Trace View shows a playback of individual shot transitions as well as some additional features available on BlackbeardX. The BlackbeardX has exclusive drills for training with multiple targets and dynamic shooting.

The Efficiency score is an average of the Delay, Over-Travel, and Transition scores.

Previous Target (Red): Drag movement off the previous target
Transition (Blue): Straightness of the path between targets
Over-Travel (Yellow): Continued movement beyond the target.
Delay (Orange): Time spent on target beyond the drill setting.



There are four tabs at the top of the Summary, to break down the average time by phase. The fastest and slowest scores and splits will change according to the Efficiency, Transition, Over-Travel, or Delay is selected. The colors will coordinate throughout all of the screens for dynamic drills.

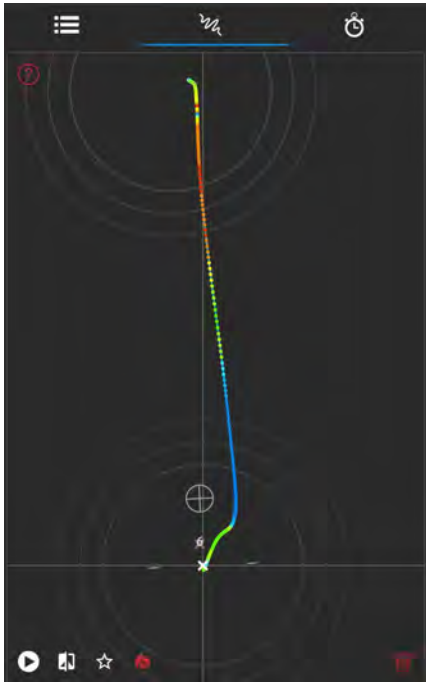


When a session is completed, icon buttons will be on the bottom left of the Trace View screen.

The **Play** button animates the selected shot. Selecting the next shot will also play the animation for your transition between the two shots.

The **Compare** button allows the selection of a previously recorded and marked session to be viewed side by side with the current selected session. Tap the **Star** to mark a session for comparison with other sessions. The Compare feature is not available on all drills. This feature is great to review sessions and see where improvements have occurred and what still needs improvement.

The **Heat Map** changes the trace colors to illustrate the movement velocity according to the color gradient scale with red as rapid acceleration, green is a constant speed and blue is slowing down.



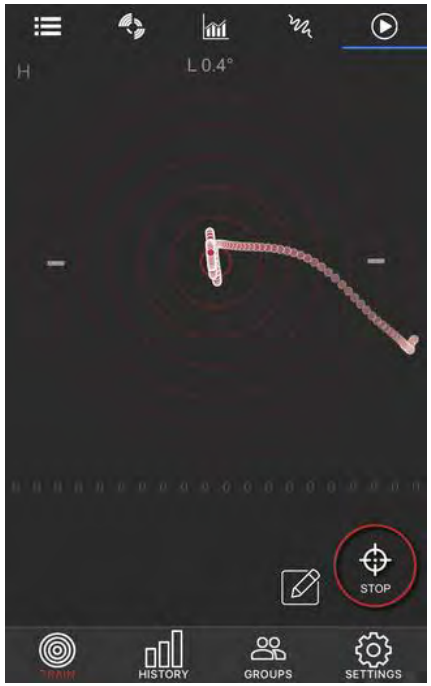
The heat trace is a valuable training tool to review the consistency of your movement velocity. If the movement from target to target or ready position to target are jerky and rushed, then the heat trace will illustrate that issue. If the movement is slowing down too much and creating drag, then the heat trace will show that and much more.

Press the score in the lower left of the screen to cycle through the four scores. The view will update to highlight the portion of the trace line relevant to that score.

Live View

With the sensor actively connected to the app, swipe to the right 4 times to get to the Live View screen, or press the Play icon at the top right. The white-outlined red dot on the screen indicates the sensor's position in space. As you move the sensor, the red dot will display that movement in real time. The more the dot is a continuous streak, the slower the movement is. The more you see individual dots, the greater and faster the movement felt by the sensor.

The Live View screen is used to confirm that the sensor is tracking accurately. The correct Mount Location and Mount Direction need to be used in the app according to how the sensor is mounted. If the settings are incorrect, then the tracking will reflect that issue. If the settings are correct and the sensor doesn't track accurately, please email customer support with the tracking details. Verify the cant and pitch indicators reflect the firearm's orientation correctly. If the holstered position is not recognized, then check tracking and zero the cant. Confirm the red dot tracks muzzle movement accurately:



Movement Tracking

- On the Live View screen, observe the red dot. Tilt the muzzle up, down, left, and right. The red dot should move in the same direction as the muzzle.
- Move the muzzle in a figure-8 pattern. The red dot should follow the muzzle's path.

Cant Indicator (Top Right)

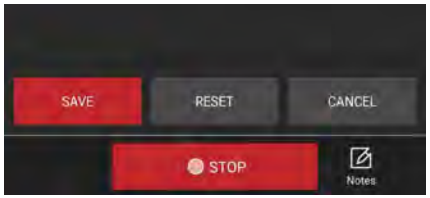
- A small box displays a dot at the center where horizontal and vertical lines converge. Two thicker lines at the box's edges show the sensor's cant. The cant angle is displayed in degrees at the top center (negative for counter-clockwise tilt).
- Rotate the firearm counter-clockwise, then clockwise. The thicker lines should mirror the movement.
- Zero the cant if needed in Audio Feedback Settings.

Pitch Indicator (Left Side)

- A vertical line with hash marks indicates pitch. The central hash mark represents 0° pitch (muzzle level with the horizon). A dot shows the muzzle's position relative to 0°. The pitch angle is displayed to the right of the central hash mark (negative for below horizon, positive for above).
- From the shoulder-height position, lower the firearm to your side. The dot should move down, and the pitch value should become negative.

Zero Cant

The MantisX data is relative to the positioning of the sensor. The cant angle can be rezeroed by tapping the Adjust Cant at the bottom of the screen. Setting the cant zero does not include the pitch angle.



Open and start Open Training > go to Live View screen > select Adjust Cant (red words near the bottom of the screen) > verify the sensor is flat

and level,(set the sensor to appear zero cant) > tap SAVE.

The degree of cant is shown at the top of the box. A negative indicates the gun is canted to the left of zero and a positive indicates the gun is canted to the right of zero. The green wedge indicates the set allowance for Audio Feedback (Advanced Settings).

Reset Cant - restores factory default

Notes

Notes can be used to document drill specific variables or gear configurations on almost all screens through the icon. Tapping notes will pull up an open-use text field to add any context or details to your training. Content in the Notes can be used to filter sessions using the Filter function seen on the History list.

When viewed from the History tab, Notes allow for editing the pistol or rifle used, the specific name of the firearm, and the primary firing hand that was used during the training session. Additional user information can also be added to the notes.

Pistol Drills

The Mantis X2, X3, and X10 sensors offer a variety of drills with the option to customize drills for specific training needs. The Settings screen Gun Type determines the main Drill menu. Choose Pistol to view the Pistol Drills.

See the TitanX Manual for additional dynamic training drills which are exclusive to the TitanX Laser Training Pistol.

Get creative with your training. Your drills are unlimited, except for the need to stay within Bluetooth distance of your smart device. Adapters are available for holster drills.

Open Training

Goal: Precision marksmanship with flexibility.
Instructions: Shoot any number of shots, at any pace. Review your scores and trace view. This drill is not timed. Press DRILL to customize the drill requirements.

Shot Timer

Goal: Practice your timing.
Instructions: At the buzzer, shoot any number of shots, at any pace. Review your scores and split times. Press DRILL to customize the drill requirements.

Par Timer

Goal: Complete the task within a set window of time.
Instructions: In the DRILL menu, choose a delay and a par time. On the buzzer, begin the training task (the task is up to you). Complete this task before the par time end signal.

Shoot/No Shoot

Goal: Condition shoot and no-shoot decision making based on visual stimulus.
Instructions: Begin with the firearm on target. On “shooter ready”, you will be presented a shoot color on screen. At the buzzer, a random color will be presented. Shoot when the colors match. Prepare for the next buzzer. This drill is timed. Adjust the Buzzer Delay in the Drill menu.

MantisX Benchmark

Goal: Benchmark to measure your precision and performance over time.
Instructions: Take 10 shots, focus on the precision of every shot. The exact moment of the trigger break should surprise you each time. This drill is not timed. Compare with previous Benchmark completions to see improved performance.

20 Second Benchmark

Goal: Benchmark to measure your precision and performance over time.
Instructions: Take 10 shots in 20 seconds. Focus on the precision of every shot. The exact moment of the trigger break should surprise you each time.

Timed Benchmark

Goal: Maintain marksmanship while shooting as quickly as you can.
Instructions: On the buzzer, shoot as fast as you can while still maintaining proper trigger control and a sight picture for each shot. This drill is timed.

Endurance

Goal: Repeat the training objective until fatigue causes your performance to drop.
Instructions: Shoot until you have a shot score below 92.

Compressed Surprise Break

Goal: Learn to break the shot quickly while maintaining accuracy.
Instructions: Begin with the firearm on target and your finger on the trigger. On each buzzer, fire one shot as quickly as you can with no firearm movement. Prepare for the next buzzer. This drill is timed.

Primary Hand Only

Goal: Precision shooting using only your primary hand.
Instructions: Shoot using only your primary hand. Review your scores and trace view. This drill is not timed.

Support Hand Only

Goal: Precision shooting using only your non-dominant (support) hand.
Instructions: Shoot using only your support hand. Review your scores and trace view. This drill is not timed.Decision Drills

Shoot No Shoot - Colors, Shapes, Dice & Addition

Goal: Condition shoot and no-shoot decision making based on visual stimulus.
Instructions: Begin with the firearm on target. On "shooter ready", you will be presented a "shoot" on the screen. When presented with a match, shoot and then prepare for the next shot. If the screen doesn't match, then don't shoot. Drills are timed.

Shoot No Shoot - Colors: Shoot when the color matches the random color presented on the screen.
Shoot No Shoot - Shapes: At the buzzer a random shape will be presented. Shoot when the shape matches.
Shoot No Shoot - Dice: At the buzzer a random dice number will be presented. Shoot when the dice numbers match.
Shoot No Shoot - Addition: At the buzzer random numbers will be presented. Shoot when the sum of numbers match.

Reload Drills

In Battery, Out of Battery & Tactical

Goal: Quickly reload the firearm and fire one shot.
Instructions: Practice different reload scenarios with an extra magazine. On the buzzer, draw the reload magazine, release the magazine that is in the firearm, insert the reload magazine and fire one shot. This drill is timed, measured from the buzzer to the shot..

Reload In Battery: Start with the slide in-battery (closed) and a reload magazine ready then fire one shot.
Reload Out of Battery: Start with the slide out-of-battery (open) and a reload magazine ready and release the slide forward to in-battery then fire one shot. Reload, Tactical
Reload Tactical: Start with the slide in-battery (closed) and a reload magazine ready. On the buzzer, draw the reload magazine, release the magazine in the pistol into your support hand, maintaining control of both magazines. Insert the reload magazine, stow the old magazine, and fire one shot.

Cadence Drills

Cadence 2.0s, 1.0s and .5s

Goal: Improve accuracy by synchronizing actions with a consistent pace of two seconds.
Instructions: Take 5 shots with an even cadence between shots. The countdown timer will sound a metronome at the specified cadence to guide you. The first shot should occur at the first metronome tick after the buzzer.
Cadence 2.0s: Shoot with an even cadence of two seconds between shots.
Cadence 1.0s: Shoot with an even cadence of one second between shots.
Cadence .5s: Shoot with an even cadence of a half second between shots.

Hostage Rescue

Beginner, Intermediate, Advanced & Custom

Goal: Save the hostage.
Instructions: Hang a post-it note or a hostage target. On the buzzer, draw and present the firearm, and take one shot. Tap DRILL to adjust difficulty level and par time.
Beginner: Saving the hostage requires a score of 85 or higher and a time of less than 4.0 seconds.
Intermediate: Saving the hostage requires a score of 85 or higher and a time of less than 2.5 seconds. Press Drill to modify drill behavior.
Advanced: Saving the hostage requires a score of 85 or higher and a time of less than 1.7 seconds.
Custom: Saving the hostage requires a score of 82 or higher and a time equal to or less than the custom par time.

X10 Elite Specific Drills

Holster Draw Analysis

Goal: Improve speed and accuracy from the holster.
Instructions: Begin with the firearm in the holster. Each time the buzzer goes off, draw and present the firearm and fire one shot. Re-holster the firearm and prepare for the next buzzer.

Recoilmeter

Goal: Enhance recoil management by observing how the grip holds or loosens during recoil and learn how to manage your recoil better.
Instructions: This is an Open Training style, live-fire only drill. Take any number of shots to view and compare the recoil patterns and recovery times of each shot. The RecoilMeter measures the following: Muzzle rise, Recovery time, Recoil angle, Recoil width. Drill requirements can not be customized.

Rifle Specific Drills

These drills can be used with either the Shooting Performance system or BlackbeardX. Rifle drills are available when the Rifle Mode is selected on the Settings Gun Type. When training with the BlackbeardX, the app should automatically select the Rifle Mode and BlackbeardX only drills should be visible. See the BlackbeardX User Manual for details on those BlackbeardX exclusive Dynamic Drills.

Secondary as Primary

Goal: Precision shooting using your support hand as primary hand.
Instructions: Right handed users shoot left handed, and vice versa. Reverse your standard hands positions before starting the drill. Mount the rifle to your support-side shoulder using both hands. Review your scores and trace view. This drill is not timed.

Kneeling

Goal: Practice shooting from a kneeling position.
Instructions: From a kneeling position, fire ten shots. Review your scores and trace view. This drill is not timed.

Reload Drills

In Battery, Out of Battery & Tactical

Goal: Quickly reload the firearm and fire one shot.
Instructions: Practice different reload scenarios with an extra magazine. These drills are best with the MantisX sensors (X2, X3 and X10). When performing reloads with the BlackbeardX, a 0.0 score will be shown at the time of the reload, because the magazine loses connection with BCG.

On the buzzer, draw the reload magazine, release the magazine that is in the firearm, insert the reload magazine and fire one shot. This drill is timed, measured from the buzzer to the shot.

Reload In Battery: Start with the bolt in-battery (closed) and a reload magazine ready then fire one shot.
Reload Out of Battery: Start with the bolt out-of-battery (open) and a reload magazine ready and release the slide forward to in-battery then fire one shot. Reload, Tactical
Reload Tactical: Start with the bolt in-battery (closed) and a reload magazine ready. On the buzzer, draw the reload magazine, release the magazine in the pistol into your support hand, maintaining control of both magazines. Insert the reload magazine, stow the old magazine, and fire one shot.

Hostage Rescue

Beginner, Intermediate, Advanced & Custom

Goal: Save the hostage.
Instructions: Hang a post-it note or a hostage target. Start at a low or high ready position (*muzzle oriented greater than 50 degrees up or down*). On the buzzer, present the firearm, and take one shot.Tap DRILL to adjust difficulty level and par time.

Beginner: Saving the hostage requires a score of 85 or higher and a time of less than 3.0 seconds.
Intermediate: Saving the hostage requires a score of 85 or higher and a time of less than 1.7 seconds.
Advanced: Saving the hostage requires a score of 85 or higher and a time of less than 1.0 seconds.
Custom: Saving the hostage requires a score of 85 or higher and a time equal to or less than the custom par time.

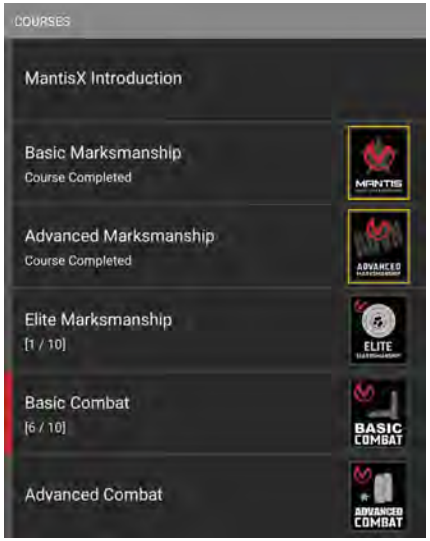
Courses

MantisX has a list of pistol and rifle courses for beginners and advanced shooters. A course consists of a set of challenges of a variety of drills with predetermined goals. There are currently three levels to each course series. Each course begins with a basic level that has to be completed to unlock the next course in the series.

After a course is completed, the app will prompt for an address to send a course completion patch. Completion patches are sent out with free shipping within the United States.

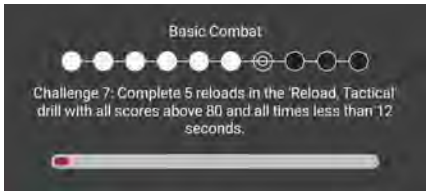
A small shipping fee for international patch orders. We recommend international customers complete multiple courses before requesting their patches to reduce the shipping fees.

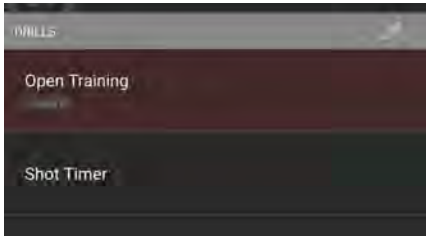
A course does not need to be completed to start a different course. The app allows a user to work through multiple courses at the same time. However, the app will show only one course progression at a time. Completed challenges will only be applied to the course shown at the top of the Train screen.

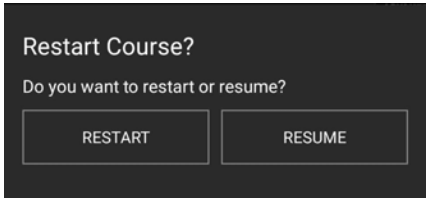


To start a course:

1. On the Train screen, scroll down to the Courses section, and select a course. The active course is indicated by a red vertical bar to the left of the course title.
2. Read the drill required under the course progress bar, then scroll down to the drill and start the drill (see the Train-Drills section).







The course list will indicate the course status with the current challenge number or the course completed, just under the course title. The progress of a partially completed course can be reset by selecting that same course again under the Courses section and restarting the course or resume the last challenge. You will be prompted to confirm that you want to restart or resume the course whenever switching courses.

When the course challenge requirements are not met, then a window pops up indicating your session score and what is required to pass the challenge with the restart button.

To make the courses more interesting, combine with the Mantis Laser Academy app on a second device.

Pistol Courses

Introduction Course

The Introduction Course is designed to take you through the basics of how to use the system and operate some of the screens. This optional course can be completed for either pistol or rifle.This is a very basic course that builds familiarization with the sensor and the app.

Marksmanship Courses

Marksmanship courses are designed to hone your fundamental pistol marksmanship abilities. These courses are a great place to start because they are designed to perfect your precision by encouraging you to go above and beyond your normal.

Basic Marksmanship Course Challenges

1. Perform the MantisX Benchmark drill.
2. Practice makes perfect. Do at least 20 shots a day for four days in a row.
3. Shoot one GREAT SHOT (score of 95+) in any drill.
4. Score an average of 75 or better in both Primary hand and Support hand only drills.
5. Shoot 2 GOOD SHOTs (score of 90+) in the Compressed Surprise Break Drill.
6. Score an average of 80 or above in the MantisX Benchmark Drill.
7. Practice makes perfect. Do at least 30 shots a day for four days in a row.
8. Shoot two GREAT SHOTs (score of 95+) in the same drill.
9. Score 80 or above in the primary hand only drill
10. Perform the MantisX Benchmark drill.

Advanced Marksmanship Course Challenges

1. Complete the MantisX Benchmark drill with 3 GOOD SHOTs (score of 90+).
2. Shoot both Primary & Support Hand Only drills with an average score above 80.
3. Complete the compressed surprise break drill with 2 GREAT SHOTs (score of 95+).
4. Do 50 trigger presses per day for 3 days in a row.
5. Score an average of 85 or above in the MantisX Benchmark Drill.
6. Shoot the primary hand only drill with ALL SHOT SCORES above 80.
7. Shoot the support hand only drill with ALL SHOT SCORES above 80.
8. Shoot 100 shots or more in one day.
9. Shoot 5 shots in Compressed Surprise Break with an average score above 90 and an average time less than .6s, TWICE in a row.
10. Complete the MantisX Benchmark with an average score of 90 or higher.

Elite Marksmanship Course Challenges

1. Complete the MantisX Benchmark drill, twice, with an average score above 93.
2. Shoot 5 shots in Compressed Surprise Break, three times, with an average score greater than 90, and an average time less than 0.3.
3. Complete the Primary Hand Only drill, twice, with an average score above 90.
4. Complete the Support Hand Only drill, twice, with an average score above 90.
5. Shoot 50 shots in Open Training with an average score above 90. Then do it again.
6. Complete 5 shots in Compressed Surprise twice, with 3 GREAT SHOTs (score of 95+) each time.
7. Complete the Primary Hand Only drill, twice, with ALL SHOT SCORES above 88.
8. Complete the Support Hand Only drill, twice, with ALL SHOT SCORES above 88.
9. Shoot 50 shots in Open Training with an average score above 93. Then do it again.
10. Complete the MantisX Benchmark drill, twice, with an average score above 95.

Combat Courses

The Combat courses utilize many of the skills refined in the Marksmanship courses and increase the pressure by adding a timed component. Build combat skills like reloads, holster draws, one-handed shooting and decision drills. Simulate shooting while injured or dragging battle buddy with Primary/Support Hand only drills. Training to engage your brain and not just the trigger is an important skill developed with Decision Drills. Master the operation of your firearm for when it is needed the most, in the fight.

Note: *The Advanced Combat and Elite Combat courses require the Holster Draw Analysis Drill only on the X10 and TitanX systems*.

Basic Combat Course Challenges

1. Complete the MantisX Benchmark drill, twice, with an average score above 85.
2. Complete the Primary Hand Only drill, twice, with an average score above 75.
3. Complete 5 shots in Compressed Surprise Break drill, three times, with an average score greater than 80, and an average time less than 1.0.
4. Complete the Beginner Hostage Rescue drill and save at least 3 out of 5 hostages.
5. Complete 5 reloads in the "Reload, In Battery" drill with all scores above 80 and all times less than 6 seconds.
6. Complete 5 shots in Compressed Surprise Break, three times, with an average score greater than 85, and an average time less than 1.0.
7. Complete 5 reloads in the "Reload, Tactical" drill with all scores

above 80 and all times less than 12 seconds.

8. Complete the Support Hand Only drill, twice, with an average score above 75.
9. Do 5 reloads in the "Reload, Out of Battery" drill with all scores above 80 and all times less than 8 seconds.
10. Complete the Beginner Hostage Rescue drill and save all 5 hostages.

Advanced Combat Course Challenges (*X10/TitanX required)

1. Complete the MantisX Benchmark drill, twice, with an average score above 90.
2. *Complete the Holster Draw Analysis drill with 10 shots, twice, with an average total time below 2 seconds.
3. Complete the Intermediate Hostage Rescue drill and save at least 3 out of 5 hostages.
4. Complete 5 shots in Compressed Surprise Break drill, three times, with an average score greater than 85, and an average time less than 0.35 seconds.
5. *Complete 10 shots in the Holster Draw Analysis drill, twice, with an average "time to grip" below 0.5 seconds.
6. Complete 5 reloads in the "Reload, In Battery" drill with all scores above 85 and all times less than 3.5 seconds.
7. Complete Primary Hand and Support Hand Only drills, twice each, with an average score above 80.
8. Complete 5 reloads in the "Reload, Out of Battery" drill with all scores above 85 and all times less than 4 seconds.
9. *Complete the Holster Draw Analysis drill with 10 shots, twice, with an average total time below 1.75 seconds.
10. Complete the Intermediate Hostage Rescue drill and save all 5 hostages.

Elite Combat Course Challenges (*X10/TitanX required)

1. Complete the MantisX Benchmark drill, with an average score above 95, in a 10 minute window, 3 times. (this means you have 10 minutes to complete all 3, not 10 minutes for each one)
2. *Complete the Holster Draw Analysis drill with 20 shots, an average shot time below 1.75 seconds, 3 times.
3. Complete the Hostage Rescue Advanced drill and save at least 3 out of 5 hostages.
4. Complete 5 shots in the Shoot/No Shoot drill, with an average score greater than 85, and an average time less than 0.60 seconds, 3 times.
5. Complete the Endurance drill with 50 total shots, with an average score of 90 and in an 8 minute window, but all shots must be a score of 85 or above.
6. Complete 5 reloads in the Reload, Tactical drill with all scores above 85 and all times less than 5 seconds.
7. Complete Primary Hand and Support Hand Only drills, 3 times each, with an average score above 85, in a 12 minute window.
8. Complete 5 reloads in the Reload, Out of Battery drill with all scores above 85 and all times less than 2.8 seconds.
9. *Complete the Holster Draw Analysis drill with 20 shots, primary hand only, with an average shot time below 1.5 seconds, 3 times.
10. Complete the Hostage Rescue Advanced drill and save at least 7 out of 10 hostages.

Concealed Carry Courses

The CCW courses build on the Combat Course skills with a focus of first shot accuracy and speed. The Hostage Rescue and Decision Drills add the aim small, miss small skills needed for rapid, deliberate

and disciplined defensive force training. Primary Hand/Support Hand drills are necessary in real world training when only one hand is available for defensive response. The CCW courses enhance the preparedness for defensive situations.

Basic Concealed Carry Course

1. Complete the Open Training Drill with 10 shots from concealment and an average time below 4.0s, 5 times.
2. Save all 5 hostages in the Hostage Rescue - Beginner Drill, 3 times.
3. Complete Primary Hand Only and Support Hand Only from low ready with 10 shots, with a score of 70 or better in under 4.0s. 2 times each.
4. Score an average of 70 or better with an average time of 5.0s or less in the Shoot No Shoot - Colors Drill from concealment, 4 times.
5. Score an average of 70 or better with an average time of 10.0s or less in the Reload, Tactical Drill from a concealed mag for 5 shots, 4 times.
6. Save all 5 hostages in the Hostage Rescue - Custom Drill with a minimum score of 85 in 3.5s, 3 times.
7. Complete the Compressed Surprise Break Drill with an average of 85 or better and an average of 0.6s or less from retention, 4 times.
8. Score an average of 75 or better with an average time of 8.0s or less in the Reload, Out of Battery Drill from a concealed mag for 10 shots, 4 times.
9. Complete the Open Training Drill with 10 shots from concealment and an average time below 3.5s, 5 times.
10. Score an average of 75 or better with an average time of 4.5s or less in the Shoot No Shoot - Shapes Drill from concealment, 4 times.

Advanced Concealed Carry Course

1. Complete Primary Hand Only and Support Hand Only from low ready with 10 shots, with a score of 85 or better in under 3.0s. 2 times each.
2. Score an average of 80 or better with an average time of 4.0s or less in the Shoot No Shoot - Shapes Drill from concealment, 4 times.
3. Complete the Holster Draw Analysis Drill with 10 shots from concealment and an average time below 3.0s, 5 times.
4. Score an average of 85 or better with an average time of 5.0s or less in the Reload, In Battery Drill from a concealed mag for 10 shots, 4 times.
5. Save all 5 hostages in the Hostage Rescue - Custom Drill with a minimum score of 85 in 3.0s, 3 times.
6. Complete the Compressed Surprise Break Drill with an average of 88 or better and an average of 0.5s or less from retention, 4 times.
7. Score an average of 85 or better with an average time of 3.5s or less in the Shoot No Shoot - Dice Drill from concealment, 4 times.
8. Score an average of 85 or better with an average time of 7.0s or less in the Reload, Tactical Drill from a concealed mag for

10 shots, 4 times.

9. Complete the Holster Draw Analysis Drill with 10 shots from concealment and an average time below 2.5s, 5 times.
10. Save all 5 hostages in the Hostage Rescue - Intermediate Drill with a minimum score of 85 in 2.5s, 3 times.

Elite Concealed Carry Course

1. Complete the Holster Draw Analysis Drill with 10 shots from concealment and an average time below 2.0s, 5 times.
2. Score an average of 90 or better with an average time of 4.8s or less in the Reload, Tactical Drill from a concealed mag for 10 shots, 4 times.
3. Score an average of 90 or better with an average time of 2.5s or less in the Shoot No Shoot - Dice Drill from concealment, 4 times.
4. Complete Primary Hand Only from concealment and Support Hand Only from low ready with 10 shots, with a average of 90 or better in under 2.0s. 2 times each.
5. Save all 5 hostages in the Hostage Rescue - Advanced Drill with a minimum score of 85 in 1.7s, 3 times.
6. Score an average of 90 or better with an average time of 3.0s or less in the Reload, Out of Battery Drill from a concealed mag for 10 shots, 4 times.
7. Complete the Compressed Surprise Break Drill with an average of 90 or better and an average of 0.4s or less from retention, 4 times.
8. Score an average of 90 or better with an average time of 2.3s or less in the Shoot No Shoot - Addition Drill from concealment, 4 times.
9. Complete the Holster Draw Analysis Drill with 10 shots from concealment and an average time below 1.5s, 5 times.
10. Save all 5 hostages in the Hostage Rescue - Custom Drill with a minimum score of 85 in 1.5s, 3 times.

Rifleman Courses

The Rifleman courses are designed to hone your fundamental rifle marksmanship abilities. Improve rifle stability by maximizing the steadiness of the hold movement. With a stable hold, perfect your rifle-target alignment that demands consistency and precision. MantisX sensors or the BlackbeardX may be used for the Rifleman courses.

Basic Rifleman Course Challenges

1. Perform the MantisX Benchmark drill.
2. Shoot one GREAT SHOT (score of 95+) in any drill.
3. Shoot 100 shots (across any drills).
4. Score an average of 75 or better, off hand, in the Secondary as Primary drill.
5. Shoot 2 GOOD SHOTs (score of 90+) in the Compressed Surprise Break Drill.
6. Score an average of 80 or above in the MantisX Benchmark Drill.

7. Shoot 200 shots (across any drills).
8. Shoot two GREAT SHOTs (score of 95+) in the same drill.
9. Score an average of 85 or above in the Kneeling drill.
10. Perform the MantisX Benchmark drill.

Advanced Rifleman Course Challenges

1. Complete the MantisX Benchmark Drill with at least 5 GREAT SHOTs (score of 95+).
2. Score an average of 90 or better, off hand, in the Secondary as Primary Drill.
3. Complete the Compressed Surprise Break Drill with 2 GREAT SHOTs (score of 95+) and time less than .35s.
4. Shoot 150 shots (across any drills).
5. Score an average of 93 or above in the MantisX Benchmark Drill.
6. Score an average of 95 or better in the Kneeling Drill.
7. Score an average of 93 or better, off hand, in the Secondary as Primary Drill.
8. Shoot 100 shots or more two days in a row.
9. Shoot 5 shots in Compressed Surprise Break with an average score above 92 and an average time less than .3s, TWICE in a row.
10. Complete the MantisX Benchmark with an average score of 96 or higher.

Elite Rifleman Course Challenges

1. Complete the MantisX Benchmark Drill with all 10 shots as GREAT SHOTs (score of 95+).
2. Score an average of 93 or better in the Secondary as Primary Drill, 3 times.
3. Complete the Compressed Surprise Break Drill with 4 GREAT SHOTs (score of 95+) with a split time of 0.30s or less.
4. Save all 5 hostages in the Hostage Rescue Custom Drill with a minimum score of 90 in 1.50s and no shots of the 'shouldering the rifle' category.
5. Score an average of 95 or better with an average time of 0.75s or less in the Shoot No Shoot Drill, 3 times.
6. Score an average of 95 or better in the Kneeling Drill, 3 times in a row.
7. Complete the MantisX Benchmark Drill as 3 shots, standing, with 90 or better; 3 shots, kneeling, with 93 or better; 4 shots, prone, with 96 or better
8. Complete the Compressed Surprise Break Drill with 4 GREAT SHOTs (score of 95+) with a split time of 0.28s or less.
9. Score an average of 95 or better with an average time of 0.70s or less in the Shoot No Shoot Drill, 3 times.
10. Shoot in open training until you have a shot with a score of 99.1 or higher and a minimum average shot score of 95.

Miscellaneous Courses

Other courses are available that are not part of a series. These courses range from serious courses to those intended only for entertainment purposes. Our developers have a good sense of humor and enjoy training out of the box. Some courses may appear for short durations throughout the year.

Double Action Diligence

This double-action training course helps improve your proficiency with a double-action handgun in these timed drills. This course is designed for double-action guns that reset the trigger with every trigger pull. Double-action guns have a heavier trigger pull which takes training to master the double-action trigger.

Semi-Auto Challenges

1. Shoot the Timed Benchmark drill with a 85+ score and a total time less than 5 seconds, 2 times.
2. Using the Shot Timer drill, shoot 10 shots, reload, and shoot another 10 shots with an 80+ score and a time less than 15 seconds, 2 times.
3. Perform the Cadence 2.0s drill with an average score above 85, 2 times.
4. Using the Shot Timer drill, draw from a holster and take 6 shots under 5 seconds, with your last shot score above 90. 2 times.
5. Perform the Cadence 1.0s drill with an average score above 85, 2 times.
6. Shoot the Timed Benchmark drill with a 90+ score and a total time less than 4 seconds, 2 times.
7. Using the Shot Timer drill, shoot 10 shots, reload, and shoot another 10 shots with an 85+ average score and a time less than 15 seconds, 2 times.
8. Perform the Cadence 0.5s drill with an average score above 70, 2 times.
9. Using the Shot Timer drill, start holstered and take 6 shots under 6 seconds, with your last shot score above 90. 2 times.
10. Using the Shot Timer drill, shoot 5 shots, drop to a kneeling position behind cover, and shoot another 5 shots with a 80+ score and a time less than 12 seconds, 2 times.

Revolver Challenges

1. Shoot the Timed Benchmark drill with a 80+ score and a total time less than 5 seconds, 2 times.
2. Using the Shot Timer drill, shoot 6 shots, reload, and shoot another 6 shots with an 80+ score and a time less than 18 seconds, 2 times.
3. Perform the Cadence 2.0s drill with an average score above 85, 2 times.
4. Using the Shot Timer drill, start low ready and take 6 shots under 5 seconds, with your last shot score above 85. 2 times.
5. Perform the Cadence 1.0s drill with an average score above 80, 2 times.
6. Shoot the Timed Benchmark drill with a 85+ score and a total time less than 5 seconds, 2 times.
7. Using the Shot Timer drill, shoot 6 shots, reload, and shoot another 6 shots with an 85+ average score and a time less than 16 seconds, 2 times.
8. Perform the Cadence 0.5s drill with an average score above 70, 2 times.
9. Using the Shot Timer drill, start low ready and take 6 shots under 5 seconds, with your last shot score above 85. 2 times.
10. Using the Shot Timer drill, shoot 3 shots, drop to a kneeling position behind cover, and shoot another 3 shots with a 80+ score and a time less than 12 seconds, 2 times.

Gecko 45

Because Mantis appreciates your training with Mantis, our engineers enjoy creating fun drills and courses to challenge users. This course is designed to encourage users to get creative in their training and think outside the box.

Gecko 45 can be seen on the course list for X10 users after the completion of Elite Marksmanship and Elite Combat courses. This course is also available to all X10 users on April Fool’s Day (hint).

This course is meant to be fun and challenging. The instructions are Good Luck!

Complete all of the Mantis Training Courses and tag #MantisX on your social media pages. Share your achievements with us. We love to hear from our customers.

Troubleshooting

Support Phone: (630) 551-8171
Support Email: support@mantisx.com

Below are some of the most common troubleshooting steps for MantisX sensors (X2, X3, X8 and X10). When contacting customer support, please include all of the completed troubleshooting steps along with the description of the unit behavior when troubleshooting.

Connection Issues

☐ **Won't Connect** - If the sensor is not connecting to the app, please do the following troubleshooting steps:

1. Verify Bluetooth is enabled on your phone/tablet. If Bluetooth is already enabled, disable and re-enable it.
   - Go to your phone Settings and verify Bluetooth is enabled. If not enabled, toggle to enable Bluetooth.
   - In device settings, verify that the Mantis app has Bluetooth permissions granted (iOS only).
2. Confirm the MantisX Pistol/Rifle app has Bluetooth enabled in your device app settings:
3. Verify Location is on, and that the app has Precise Location permissions granted (Android 7-11 only).
4. Confirm the Mantis app is the MantisX Pistol/Rifle app.
5. Verify the sensor is fully charged (see Charging the Battery).
6. Reset the MantisX sensor:

   While watching the LED indicator light next to the power button on the slide, press and hold the power button until the light turns off and flashes purple, then release the power button.
7. Reboot the phone/tablet, then try connecting the sensor to the MantisX Pistol/Rifle app.
8. In the MantisX Pistol/Rifle app, go to the Settings screen, then scroll down and tap CONNECT BLUETOOTH, then connect the MantisX sensor from the options.

If you have followed the previous steps and are still unable to connect the sensor to the app, do the following:

1. SYNC your training history using the SYNC button located at the bottom of the Settings screen in the MantisX app. If you do not have a Mantis User Profile, then you will lose your data on your device with the following steps. SYNC is recommended.
2. Sign out of the MantisX Pistol/Rifle app (Settings > Sign Out) and uninstall the MantisX Pistol/Rifle app.
3. Power off the device for at least 10 seconds to clear the app cache and then reinstall MantisX Pistol/Rifle app and give permissions (see Connecting to the App).
4. Verify Location is enabled on your phone/tablet (*Android 7-11*). If Location is already enabled, disable and re-enable then check permissions.
   - Android: Settings > Apps > MantisX > Permissions > Location.
   - iOS/Apple: Settings > Privacy & Security > Location Services.
5. Open the app and connect to the sensor.

The previous steps resolve most connection issues. However, sometimes a third party device may interfere with Bluetooth connection. Complete the following steps if the previous troubleshooting steps did not resolve your connection issue.

1. Confirm no other Bluetooth devices are connected to the phone/tablet and causing interference (hearing aids, speakers, earphones, etc.).

   Note: *Hearing aids may not be listed under the operating system's Bluetooth management interface. In some cases, the connection and controls for hearing aids are found under the Accessibility controls in the operating system settings.*

2. Check for, and apply, all stable and non-beta OS updates that may be available for your phone/tablet.

3. Clear the device Bluetooth cache, then restart the device *Note: Clearing the Bluetooth Cache erases all paired Bluetooth connections*.

4. Try to connect the app to the sensor. If still unable to connect, try connecting the sensor to a different phone/tablet.

5. If there are still issues, contact the Mantis Support Team and report all the completed troubleshooting steps. Tap the Report Issue button on the Settings screen to send an email to the Support Team. The Report Issue button will send the Sensor Information along with your report to speed up the troubleshooting process.

- ☐ **Connection is frozen** - if the sensor is frozen on and won't disconnect or turn off. Allow the battery to fully drain. Do a Hard Reset - While watching the power light, press and hold the power button until it turns off and flashes purple, then release the button.

Charging Issues

If the sensor is not charging or powering on (blinking LED when the power button is initially pressed), do the following:

- ☐ **Verify the unit is receiving adequate charge** - Try a different charging block and cable to charge the sensor, preferably a non-Apple-branded charging block. A computer USB port can also be used. Try a new outlet.
- ☐ **Hard reset**. To reset a MantisX sensor plug in the USB charger, and while charging:
  - If the sensor has a pinhole reset, use a paperclip or similar, insert into the pinhole next to press the reset button and press the internal reset button.
  - If the sensor does not feature a pinhole reset, while watching the power light, press and hold the power button until it turns off and flashes purple, then release the power button.
- ☐ **Adequate Charge** - Allow the sensor to charge for 4-6 hours.
- ☐ **Cable does not plug in all the way** - If the micro-USB connector has a snug fit, then it is fully inserted. The silver portion of the micro-USB may be visible when fully inserted.

Shot Detection Issues

Shot detection issues happen when shots are not accurately recorded with the press of the trigger, or multiple shots are recorded with a single trigger press.

To troubleshoot shot detection issues, do the following:

1. Make sure that the sensor is mounted to the firearm.
2. Go to the app Settings and check:
   - ☐ **Firearm settings** - make sure the correct firearm is selected (Pistol or Rifle).
   - ☐ **Shot Detection Mode** - make sure the type of training and firearm action type is correct.
   - ☐ **Mount setting** -make sure the mount direction and orientation is correct.

After the correct settings have been verified, please check the following possible issues:

- ☐ **Too Fast** - Some drills aren't designed for fast movement, slow down to check if the drill you are using is designed for smooth movements. Drills like Open Training or Shot Timer are better suited for faster drills and customizable for your training needs.

- ☐ **Shot taken prematurely** - Drills like the Holster Draw Analysis are designed to take the shot after the holster draw and not during the draw stroke movement. Slow down and try a complete presentation from the holster before pressing the trigger.
- ☐ **Shot Detection Mode** - verify the app recognized the TitanX and the correct Shot Detection Mode was selected when connected.

- ☐ **Reinstall the app** - SYNC your training data to your profile > uninstall the app > power off the device for at least 10 seconds > reinstall the app > sign back in and check if a fresh app install resolves the shot detection issues.

Shot Detection Troubleshooter

The Shot Detection Troubleshooter is a tool that can be used to check your app settings and shot detection mode. The troubleshooter is used to help diagnose and improve shot detection. The troubleshooter begins with Standard Drills or Holster Draw Analysis. Begin with the Standard Drills if you are experiencing shot detection issues in more drills than just Holster Draw Analysis.

Confirm your settings and follow the prompts in the troubleshooter for false positives and failed detections. If experiencing false positives be sure to verify the active Shot Detection Mode in settings. Failed Detections will walk you through ten shots as the app analyzes shot detection mode and vibrations during the shot process.

Turn your volume up to hear the prompts and complete as instructed.

The app may prompt to create a personalized mode for your firearm. Some guns work better with a custom mode instead of the standard dry fire mode. When the app creates a new Shot Detection Mode (named after the firearm that was selected during this process) and this new mode will be enabled. Use this new mode and if there are issues, let support know.

If the custom mode fails to improve shot detection, choose the option REPORT DATA to send us an email and a summary of the problem. Click SUBMIT and wait for the confirmation screen (this can take several seconds). The data report will be sent to our development team who will respond with more information. They usually respond within 2-3 business days.

Holster Recognition

Holstered position not recognized in all drills
The app does not recognize all holstered positions. The sensor is considered holstered if the sensor is within a 40 degree cone. Holsters that cause the firearm to sit at more extreme angles can have difficulty with the app seeing the sensor as "holstered".

- ☐ **Verify Tracking** - If your settings and mode are correct, then verify the movement is registering correctly on the Live View screen. Open and start any drill > go to Live View screen > move the gun up, down, left and right to verify the trace tracks movement accurately.
- ☐ **Mount setting** - verify the mount direction and orientation is correct.
- ☐ **Zero Cant** - Open and start any drill > go to Live View screen > select Adjust Cant (red words near the bottom of the screen) > verify the sensor is on a flat and level surface, then tap ZERO.
- ☐ **Uninstall/Reinstall the app**. Shut the device off for at least 10 seconds before restarting, to clear the app cache.
- ☐ **Report issue** (bottom of Settings screen) to the support team with a picture/video of your holstered gun setup.

Tight Mount

The MantisX generation two models are designed to fit snugly on a standard Picatinny rail. When the sensor is new, it may feel like the sensor is too small or the rail is too large.

Do the following:

1. Apply a thin coat of oil to the rails of the firearm, especially if the firearm features metal rails.
2. Switch the sensor mounting position. If you are using a forward position, then rotate the sensor so it is backwards and make sure the locking block is locked into the rail slot.
3. Go to the app Settings and select the Mount Direction accordingly.
4. Use the sensor in Backwards orientation until broken in. The sensor rails will slightly relax over time and should eventually slide on and off with little effort.

Courses

Course Progress has disappeared - don’t see the course progression or the course status is not correct:

- ☐ **Verify Profile** - Check that the correct user profile is active and signed in on the Settings screen. If you have multiple emails, or user profiles, make sure that you are signed in correctly.
- ☐ **SYNC Profile** - Scroll down to the bottom of the Settings screen and tap the SYNC option. Sign out and sign back into your account.
- ☐ **Check Online Profile** - login to your profile at train.mantisx.com to view the completed courses under Awards.
- ☐ **Send support an email** - send a picture that illustrates the issue to support@mantisx.com along with your user profile ID and profile email address.

Product Policies

Warranty and Returns

Mantis Tech is committed to meeting your training needs. Customer support is available by phone, email, or chat during business hours for assistance with any MantisX training system.

We offer a solid warranty—see our Warranty Terms for details—and a 45-day return policy to ensure your satisfaction.

Please email support@mantisx.com for assistance.