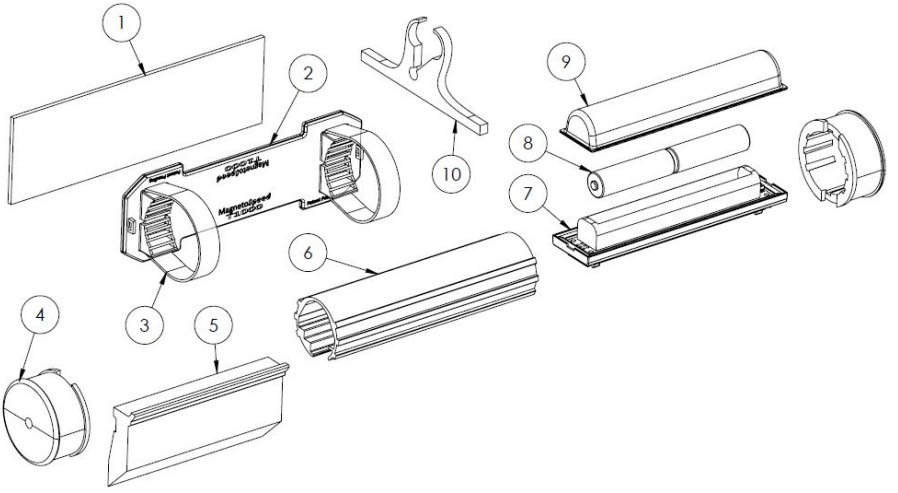
T1000 Gen2

Target Mounted Hit/Miss Indicator Instructions

configurable with the
T1000 Tuner app

The T1000 Gen2 is a rugged hit indicator with an extremely long battery life. It is weather proof and tough enough to “live” on the back of AR500 grade steel targets with diameter or width of 10 inches or greater. Its replaceable flexible rubber reflector (Flexprism) is designed to withstand many impacts before needing to be replaced. Target preparation for the T1000 is quick and simple and it is also easily transferable to multiple targets using common Industrial Velcro® tape. The T1000 has multiple operating modes to best suit your shooting situation and is easily seen through any optic that is capable of seeing the target at that shooting distance. This second generation of the T1000 can be configured with a smartphone app.

Kit Includes:



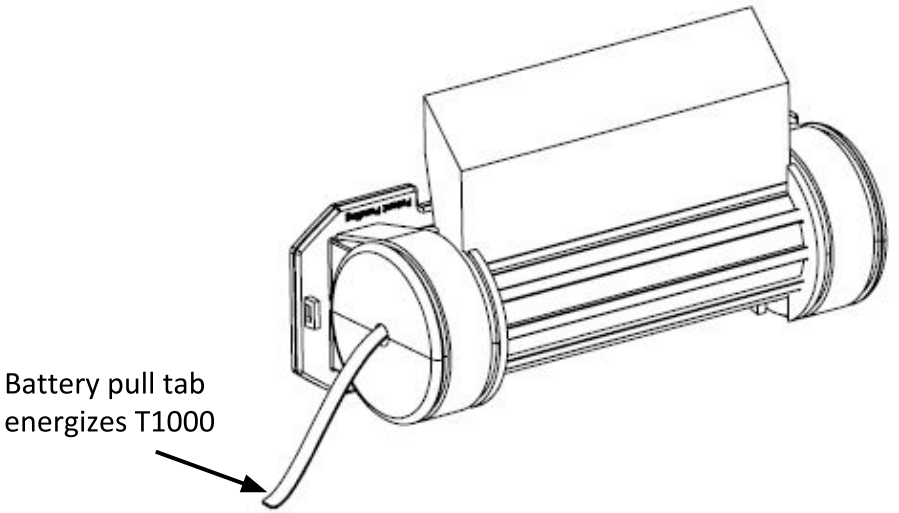
Item #	Quantity	Name
1	2	Loop Velcro®
2	1	Mounting Plate
3	2	hook-and-loop Strap
4	2	Rubber End Cap
5	2	Flexprism
6	1	Aluminum Housing
7	1	Electronics Core
8	2	AA Battery
9	1	Battery Cover
10	1	Alignment Tool

Electronics Setup

Easy Start:
The T1000 electronics are set at the factory to indicate hits only. If this will work for your application all you need to do is pull the battery pull tab located on one side of the T1000 protruding from the rubber end cap. This will energize the T1000 and you should see the a bootup sequence that flashes red then yellow. After the yellow lights come on there is a sequence of red flashes that indicate current battery life.



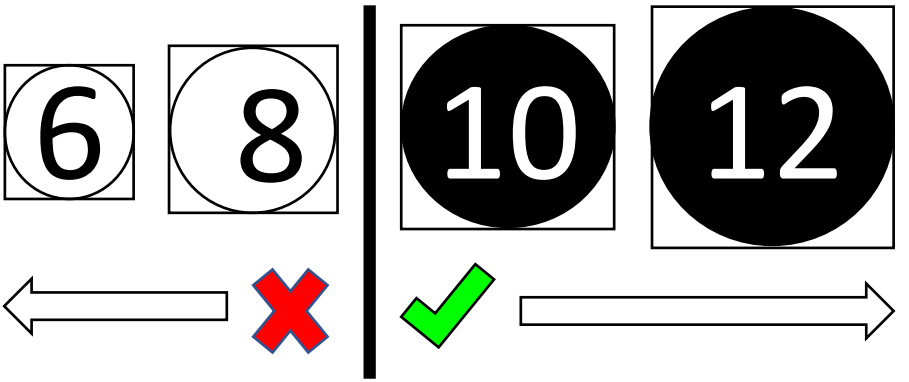
Battery life in standby: 2 year | Indications in normal mode: 5,000



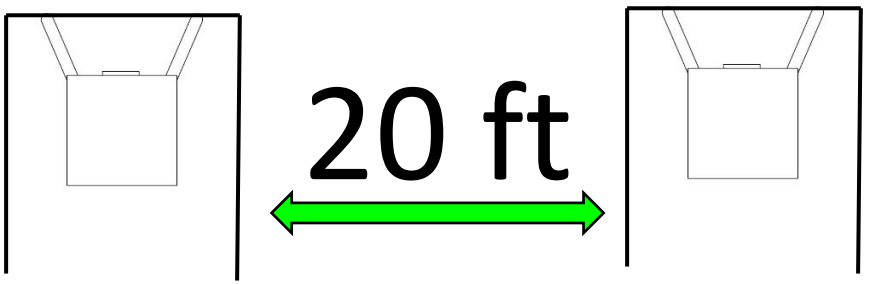
The T1000 is now ready to strap to the mounting plate and use.

Mounting to Target (1 of 4)

Target Size:
The T1000 is intended for use on the back side of steel targets at least 10 inches in diameter or width. Targets smaller than 10 inches in diameter will not be able to fully hide the electronics package behind the steel target and thus should not be used. **Make sure your target steel is rated for the caliber and velocity of the rounds you will be shooting!**



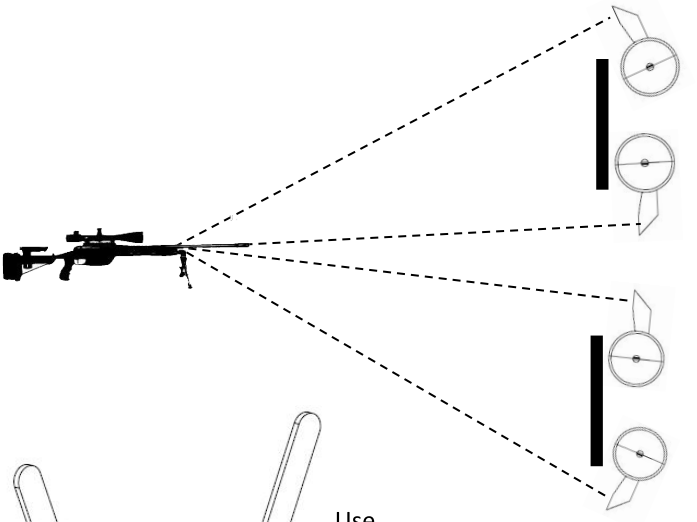
Target Location:
The T1000 body is shielded from bullet strikes by the target that it is mounted to, however, nearby targets can send shrapnel and lead spray several feet in all directions. We recommend placing nearby targets at least 20 feet away (further is recommended) to avoid damage to the T1000 housing on the adjacent target.



Mounting to Target (2 of 4)

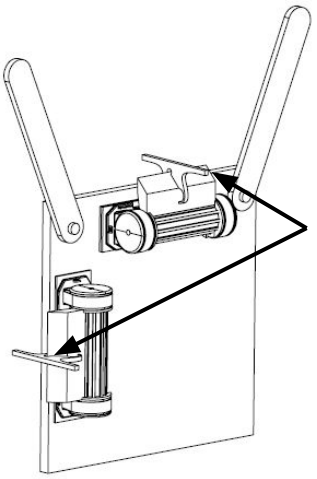
Target Alignment:

The T1000 Flexprism sends light out at approximately an 18 degree angle and thus the target alignment to the shooter can come into play. The T1000 was designed to accommodate the kinds of miss alignments commonly seen on steel targets. Elevation misalignment can be overcome by mounting the T1000 at the top or bottom of the target and either rotating it up or down to shine back at the shooter. Windage misalignment can be overcome by mounting the T1000 to a side of the target and rotating the Flexprism right or left to align with the shooter. Care must be taken on extreme angles to make sure the T1000 body is not exposed to possible direct hits from bullets. An alignment tool has been included in the kit to help aim the Flexprism back at the shooting position to aid in getting the best alignment. **One should also consider placing the T1000 on the target in a way that protects it from shrapnel generated by the support structure or other nearby objects.**

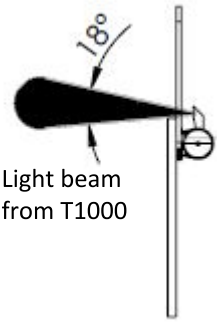


Target at higher elevation than shooter
T1000 mounted on top or bottom of target and Flexprism pointed toward shooter

Target to the right of shooter
T1000 mounted on side of target and Flexprism pointed toward shooter



Use alignment tool to adjust Flexprism position on top/bottom mount or side mount

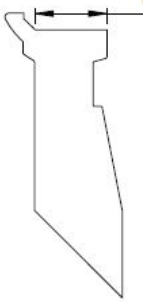


Light beam from T1000

Mounting to Target (3 of 4)

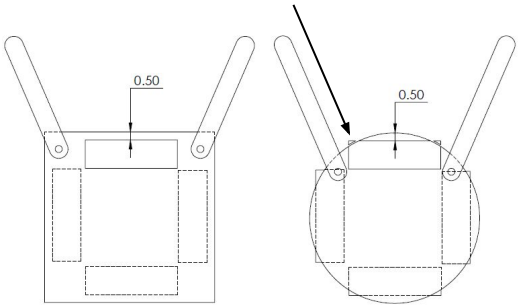
Target Velcro® Mounting:

Once you have decided on the placement of the T1000 (Top, Bottom, or Side) on the target, the next step is to adhere the Velcro® loop strip to the back of the target. Use the below instructions from Velcro® for surface preparation and cure times for the adhesive. **Attach the loop strip of Velcro® approximately ½ inch from the nearest edge.** The bottom surface of the extra Flexprism is approximately ½ inch and can be used as a guide. On round targets trim corners of Velcro® that protrude over the edge.



0.50 inch can be used to help line up Velcro® strip with edge of target

Trim corners on round targets



VELCRO® Brand 19 is a rubber-based pressure sensitive adhesive.

- High tack - quick setting
- Achieves 80% bond strength in about an hour; full strength in 30 hours (at room temperature)
- Temperature operating range -40˚F to 185˚F

Preparation of VELCRO® Brand Tapes - Pointed corners on VELCRO® Brand hook or loop tape may prevent a good bond. Nipping or rounding each corner of the VELCRO® Brand tape may eliminate this vulnerable area. Velcro USA, Inc. provides a complete range of converting services.

Surface Preparation - It is important that all surfaces be thoroughly cleaned before applying VELCRO® Brand adhesive backed tape. All cleaning agents should be tested prior to using, to be sure that the cleaning agent will not have adverse effects on the substrate. (Citrus cleaners are not recommended.) In some circumstances, isopropyl alcohol (rubbing alcohol) may be a sufficient cleaning agent.

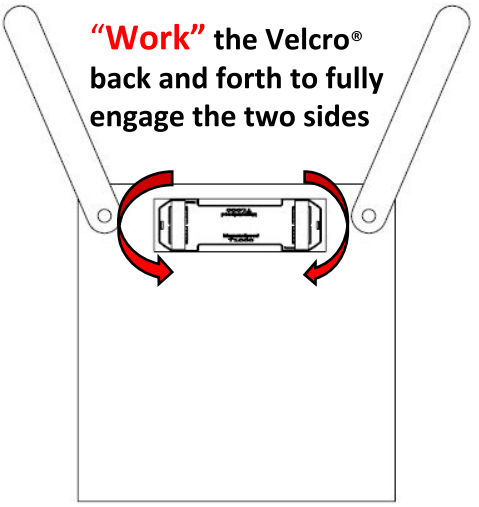
Conditions - It is important to work in an area that is clean and free from dirt and dust in the air. The adhesive should be applied at room temperature, with the ideal room temperatures being 65˚F to 75˚F, and relative humidity 40% to 65%. (The lower the humidity, the better the bond.) Excessive cold, heat, dirt and relative humidity will be detrimental to your adhesive performance. If adhesive must be applied at temperatures lower than 65˚F, warm the substrate and the tape to elevate temperature prior to applying. This may help the adhesive cure.

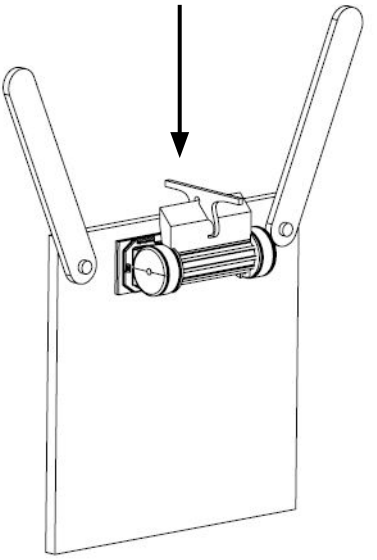
Mounting to Target (4 of 4)

Attaching the T1000:

Once the Velcro loop adhesive has had a chance to cure, attach the mounting plate to the target. When attaching the mounting plate be sure to work the hook side of the Velcro by moving the mounting plate in a twisting motion to engage as much of the Velcro as possible. After the mounting plate has been attached to the target, the straps can be loosened and the T1000 can be strapped into the mounting plate. The straps should be snug enough on the rubber end caps to prevent turning, but do not over tighten. Use the alignment tool if needed to realign Flexprism with shooting position.

Strap T1000 on to the mounting plate and before tightening straps make sure Flexprism is still aligned





Avoid removing the mounting plate from the target, if possible; you can remove the T1000 body by releasing the straps. Leaving the mounting plate on the target protects the loops from weather damage and avoids damaging the loop side. Removing the backer causes the loop side to "puff out" which makes the T1000 less sensitive to impacts and decreases the holding power of the mounting plate. Replace the loop side after a year, or if it appears worn.

T1000 Disassembly and Reassembly

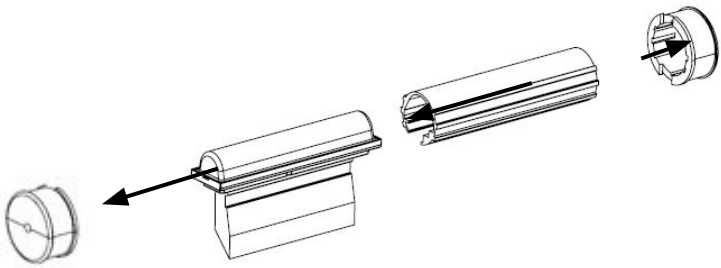
This step can be used to change the batteries, or switch an old Flexprism to a new one.

Disassembly:

1. Remove T1000 from mounting plate by loosening straps.
2. Remove rubber end caps by pulling straight away from the aluminum body.
3. Push electronics core and Flexprism out of aluminum body. These components are a snug fit and may take some force to break free.

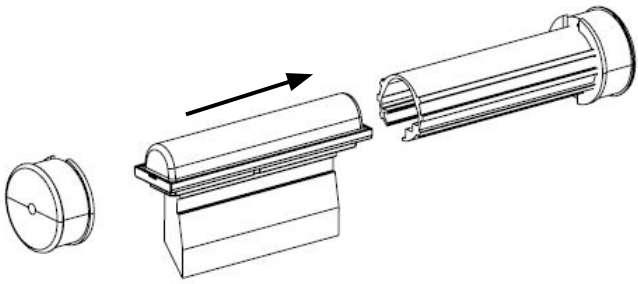
Once the electronics core and Flexprism are out of the aluminum body the battery cap can be removed. At this point the following can be done:

- Change batteries
- Replace Flexprism with a new one



Re-assembly:

1. Put one rubber end cap back on the aluminum body
2. Hold battery cap and Flexprism against the electronics core and slide back into aluminum body. Setting the aluminum body with rubber cap down on a table top usually works best for this.
3. Press on other rubber end cap.



Other Points of Interest

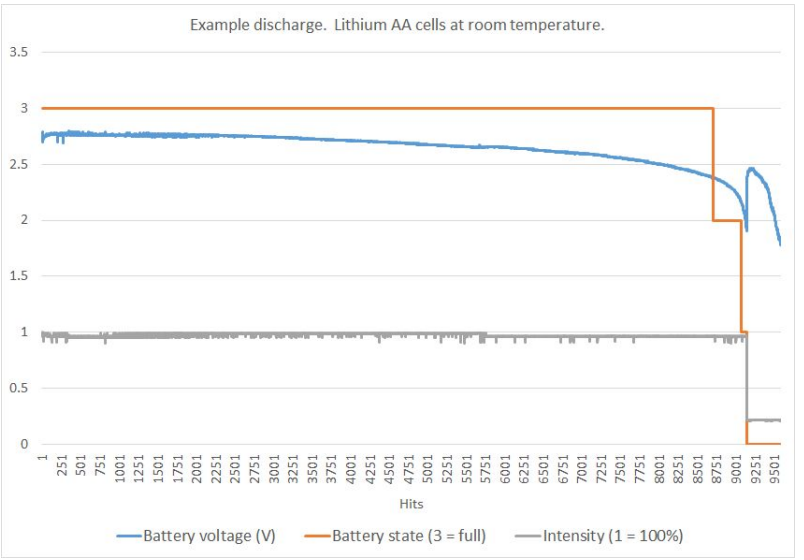
Hit/Miss Determination

The T1000 was designed to use very little power. When not being used it goes into a deep sleep mode, but will wake up when hit occurs or if a supersonic bullet flies close by (a miss). It uses both an accelerometer and microphone to detect hits and misses. The system has a basic level of redundancy as it checks both sensors to verify hits and misses. Depending on the miss settings, an impact that is not powerful enough to count as a hit will be indicated with a yellow light. This is to help filter out false hits like ricochets and target stand hits.

Low battery levels

The T1000 checks the battery voltage during every hit indication. If the battery is low, the device will quickly flash red-yellow 3 times after the hit indication. Change the batteries as soon as you can.

When the T1000 can no longer drive its leds at the full current, it will drop into a reduced-power mode. The device will operate normally, except it will be only about 1/10th as bright and it will flash quickly between red and yellow 25 times after each hit, and at the end of the bootup sequence. If the T1000 detects a problem, it will also flash quickly between red and yellow 25 times after each error event.



Configurable Profile Options



The Gen2 T1000 can be customized with our T1000 Tuner app. The following sections provide an overview of the settings, but more detail can be found in the T1000 Tuner App Instructions and in the app itself.

Sensitivity Levels

We have simplified the sensitivity settings to just four levels that we have found cover the range of firearms (22LR to 50 cal) and targets (10 inch circles to 24x24 inch rectangles. There are several factors based off both accelerations and acoustic frequencies, that correspond to each of these settings. It is hard to give exact boundaries between the settings as seemingly minor details of the target setup can have significant effects. For example, when the bolts connecting a target to the hangers are tightened down, the target does not ring nearly as much, especially with rubber-strap type hangers. We recommend that you keep your straps loose and let the targets ring.

Here are general guidelines for the sensitivity settings:

- Normal: We recommend you start here for most applications such as typical long-range rifles (6mm and up) out to 1500 yards.
- High: This would be more for something like a 22LR at 400 yards on a 24x24 inch target that rings.
- Extra High: This is for extreme cases such as max-range 22LR shots on targets that don't ring well.
- Low: If impacts to nearby targets are causing issues, we recommend you first try to adjust the position of the targets to minimize the spray/shrapnel impacting the T1000. If that cannot be helped, setting the sensitivity to low may be useful

Configurable Profile Options

Hit Indication

The hit indication has two parts that can be set to different blink rates (or solid) so that new hits can more easily be identified. The first part is called the “head” and the second part is called the “tail”. During the head-indication, any additional impacts are ignored, but if a new impact is registered during the tail-indication, the device will restart the hit indication. This probably sounds confusing, but once you

- Both the head and tail blink rates are adjustable from solid-on to 50 Hz in 16 increments. For solid-on, set a “Blink Rate” slider to 0.
- The head blink duration is adjustable from 0.5 seconds to 7.5 seconds, while the tail duration is adjustable from 0 to 7.5 seconds.

***** Use the “PREVIEW SETUP” button to preview your hit-indication settings *****

Miss Indication

The T1000 can use its yellow lights to indicate near-misses or impacts that were too light to count as hits. Set the radio button to “All” to have the T1000 indicate a miss for loud sounds and light impacts in its vicinity. Set the button to “50% Impacts Only” to call a miss only in the event of a light impact (this may be useful if you are testing out a lower-sensitivity level, for example).

***** Use the “PREVIEW SETUP” button to preview your miss-indication settings *****

Default Settings Reset

If the T1000 Is misconfigured or unresponsive after boot up, a reset to default settings may resolve the issue. To reset, disassemble the T1000 and momentarily disconnect the batteries, then use the app to play the configure tone (1 kHz) while the T1000 is booting up. A detailed guide is available in the T1000 Tuner App Instructions.

Troubleshooting

Symptom: The T1000 does not respond when I try to set off a hit with my hand, hit a steel target with a rock, etc.:

Be sure you pulled the battery tab.

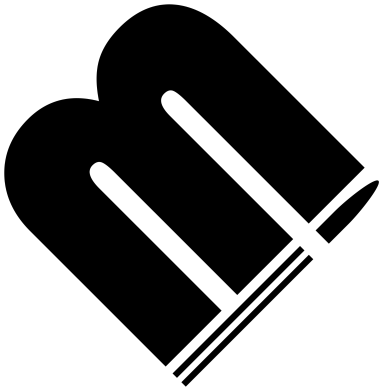
The most likely cause is that the T1000 is indeed working, but it is deciding that your input attempts are not bullet impacts on a steel target, and thus is not signaling anything.

The Gen2 T1000 does a better job screening out events that are not bullets hitting steel targets. As a consequence, it is hard to check that the the T1000 Gen2s are working without actually mounting them to targets and shooting.

The T1000 tuner app has a TEST HIT button that lets you force the T1000 to display an impact sequence with just tapping the unit while playing the tone. Download the T1000 tuner app and take a look at the section of the instructions about the TEST HIT button.



Alternatively, you could disassemble the T1000 and watch it go though its bootup sequence to verify that it is operational and that the batteries are full.



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