INSTRUCTIONAL GUIDE

Contents

- Velocity Radar Gun

Specifications:
- Ball: 10-110 MPH from 90 Feet / 16-177 KPH from 27 Meters
- Car: 10-200 MPH from 1,500 Feet / 16-322 KPH from 457 Meters
- Accuracy: +/- one MPH / +/- two KPH
- Battery Type: 2 **C Batteries** (44-1091) (not included)
- Operating Time: Up to 20 hours
- Operating Temperature Range: 32-104°F / 0-40°C

Background

Your Velocity Radar Gun uses digital technology to provide instantaneous speed measurements to +/- one MPH (+/- two KPH) accuracy. The Velocity Radar Gun is a simple, point and shoot radar gun for all kinds of velocity experiments. Safely measure the speed of a tennis ball 90 feet away and the velocity of vehicles from up to 1500 feet away.

Set-Up

Battery Installation:
The Velocity Radar Gun operates on two C alkaline batteries. To install, remove the battery cover by rotating the battery cap counterclockwise. Insert both batteries positive end first and replace cap by depressing and rotating clockwise.

How to Use:

1. Turn "ON" by pressing the button underneath the LCD display.

2. Aim at the target and depress the TRIGGER. As a quick reference to accuracy, remember to keep your targets direction of travel in a direct line with you and not perpendicular to you.

3. Turn "OFF" by pressing the button underneath the LCD Display for 3 seconds or until display shuts off. The display will read 3,2,1, and then power off.

4. To change unit of measure from MPH to KPH and vice-versa, make sure the unit is "ON". Next, pull the trigger and leave engaged and quickly press the button underneath the LCD display (quick presses of the button underneath the LCD display will toggle between MPH and KPH). The unit of measure will be displayed in the top right-hand corner of the LCD display. When you are satisfied with the unit of measure, simply release the power and trigger buttons.

NOTE: The Velocity Radar Gun contains an automatic battery saving shut-off feature. After 10 minutes of non-use, the speed gun will automatically shut off. If a battery symbol appears on the lower right-hand corner of the display, the battery voltage is beginning to deteriorate meaning new batteries should be inserted. Remove batteries if storing long-term.

Target

A target can be anything that is moving faster than 10 MPH/16 KPH. To acquire the speed of a target, with the speed radar powered on, aim at the target and depress the TRIGGER. An icon will appear in the upper right corner of the LCD display. This indicates the Doppler Radar is functioning. The radar will continue to be active searching for speed until the trigger is released. Upon release of the trigger, the fastest speed captured within that series will automatically be displayed. The speed of the target will appear on the LCD display in MPH or KPH.

There are certain mathematical properties of Doppler Radar that affect the accuracy of the Velocity Radar Gun. As a quick reference to accuracy, remember to keep your targets direction of travel in a direct line with you, and not perpendicular.

Cosine Effect

The Velocity Radar Gun will measure the relative speed of a target as it approaches the radar gun. If the target is in a direct line (collision course) with the radar gun the measured speed will be exact. As the angle of incidence increases, if you move either right or left of this direct line, the accuracy will decrease. The measured speed will decrease as you move off this centerline. This phenomenon is called the Cosine Effect. It is called this because the measured speed is directly related to the cosine of the angle between the Radar gun and the target's direction of travel.

Related Products

PocketLab Voyager 2 (P4-1001) PocketLab connects with a single button to a smartphone, tablet, Chromebook or computer and instantly streams data that you can see and record.

Go! Motion Sensor (P4-2400) The Go! Motion is easy to use, allowing students to focus on learning scientific concepts instead of setting up the lab. See data graphed in real time!

PocketLab Voyager 2 10-Pack (P4-1011) Pocketlab Voyager 2, Classroom Set of 10 comes with: 10 PocketLab Voyagers 2, 10 micro-USB cables, 10 External Temperature Probes, 2 charging stations with 5 ports each, and a durable carrying case.