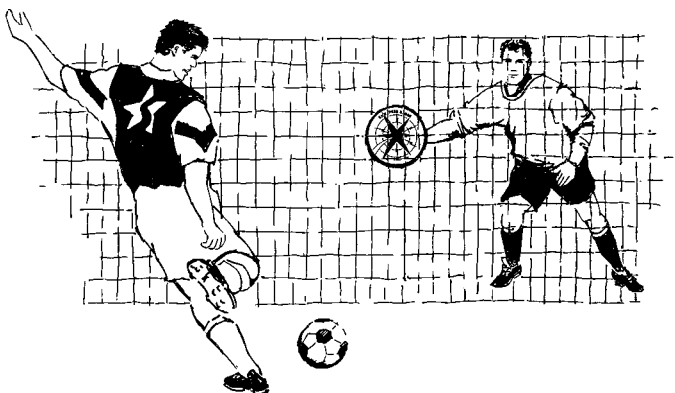


**OWNER'S MANUAL**  
**KICKSPEED RADAR®**

**MODEL NO. KSR360E**



**RoHS**



# CONTENTS

Subject	Page
Contents.....	2
Congratulations.....	3
Features.....	4
Using the KickSpeed Radar®.....	5
Players Kicking Preperation.....	7
Specifications.....	8
Emission & Safety Standards.....	8
Care of Your KickSpeed Radar®.....	9
Problems/Troubleshooting.....	9
Battery Replacement.....	9
Replacement Parts.....	10
Warranty and Service.....	10

## Congratulations on purchasing your KickSpeed Radar® (KSR).

If used and cared-for as described in this Manual, you should enjoy many hours of fun and constructive use.

The KickSpeed Radar® is a small inexpensive Doppler radar velocity sensor which is inserted in a pocket on the back of a custom Target. It “sees” through the padded Target, and measures the speed of the soccer ball as it approaches the Target. Clever design results in a small, versatile low-cost device affordable for instructors, coaches, teams, and individual players of all ages and skill levels. It is also used by physical therapists to measure the progress of athletes rehabbing knee and leg injuries.

The KickSpeed Radar® assists in developing players’ KickSpeed and accuracy capabilities by providing immediate feedback to measure player’s velocity improvement and accuracy control which results from using proper kicking techniques. By learning the proper way to condition, train, warm-up and kick, players can achieve their best accuracy and velocity performance.

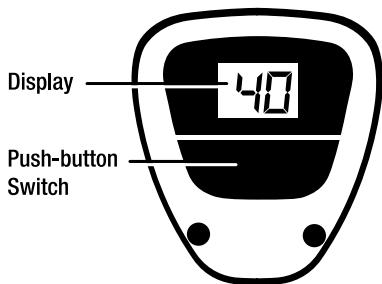
The KickSpeed Radar® can aid the development of any player. Professional and high-level amateur players can use the KickSpeed Radar® to monitor their kick power and accuracy/consistency. Young players will benefit from immediate velocity feedback and kick placement accuracy information when practicing or training. Players enjoy competing for power and accuracy performance. Everyone will have fun using it.

The KSR Target is worn on either hand by a coach, parent, player or trainer. The KickSpeed Radar® “sees” through the Target and responds to the approaching ball just before it reaches or passes closely by the Target. Thus, unlike most “radar speed guns”, a long range capability is not required. Powered by a single cell lithium battery, the KickSpeed Radar® transmission level is less than that of most “wireless” consumer products such as cellular and portable telephones, for example. Transmission characteristics are well within FCC requirements and prescribed safety levels. The KickSpeed Radar® is microprocessor controlled, like a mini-computer, and indicates calculated kilometers-per-hour ball speed on a liquid crystal Display.

## FEATURES

The KickSpeed Radar® is packaged in a rugged plastic housing assembly, sealed to protect the internal electronics from the dust, dirt and moisture encountered during normal use. However, the unit is not hermetically sealed and is not intended to be immersed in water. Two screws hold the white Battery Cover in place, which can be removed to replace the internal battery. A rubber Pad, molded onto the housing surface adjacent to the Target, absorbs ball impact “shock” forces in conjunction with the Target padding.

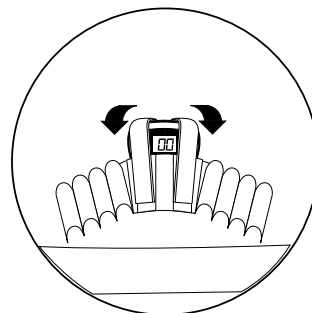
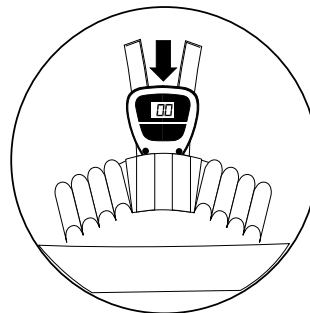
The internal electronics are in the “sleep” mode until activated by depressing the Push-Button Switch (see illustration). This action applies electrical power from the battery to the Doppler radar transmitter. The liquid crystal MPH Display will indicate the last velocity reading. Depressing the Push-Button Switch again will cause the Display to show a flashing “00”, indicating that the KickSpeed Radar® is transmitting.



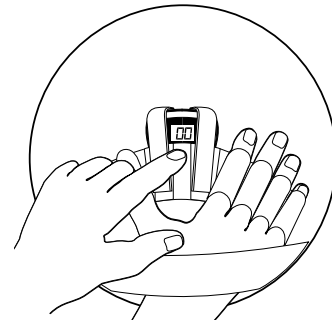
Upon receipt of a velocity signal produced by a ball about to hit or pass nearby by the Target, the ball speed is calculated and shown on the Display in kilometers-per-hour. Receipt of a velocity signal turns-off the radar transmitter until the Push-Button Switch is again depressed. If a velocity signal is not received within twenty seconds after depressing the Push-Button Switch, electrical power is automatically removed from the radar transmitter until the Push-Button Switch is again depressed. Limiting the “on” time of the radar transmitter conserves battery power in order to maximize battery life. The last velocity reading continues to be displayed. However, after prolonged inactivity (about one minute) battery power is also removed from the Display and the electronics go into the “sleep” mode.

## USING THE KICKSPEED RADAR®

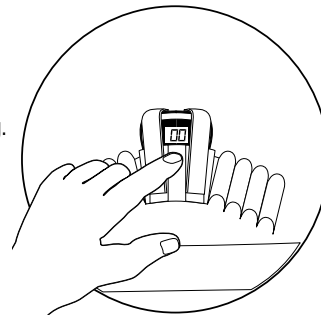
1. Insert the KickSpeed Radar® into the small pocket on the back of the Target, being sure that the radar Display is visible. Attach the hook & loop closures to secure the radar in the pocket.



2. Place your right or left hand under the elastic Wrist Strap of the Target, and insert your fingers and thumb into the elastic Finger Loops. **The thumb and forefinger should span the radar pouch, as shown in the illustration.**

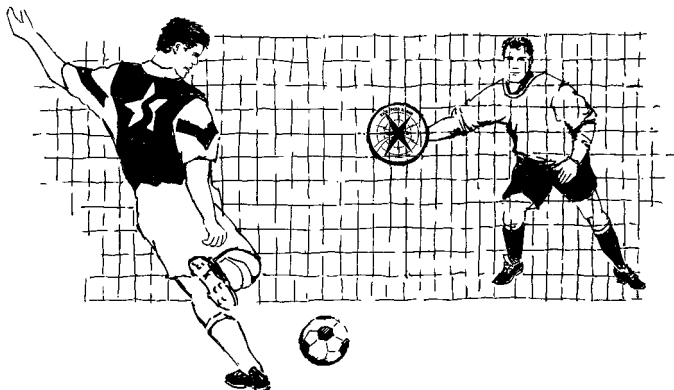


3. Just below the radar Display is a Push-Button Switch by which the KSR is powered “on”, as shown previously. **Press through the pouch to push the Button**, turning the radar “on”, energizing the radar Display. The KM/H Display will show the last reading.



4. Press the Push-Button Switch a second time. **Two flashing zeros** indicate that the radar is transmitting. The KickSpeed Radar® is now ready for measuring the velocity of a ball approaching the Target.

5. Position the Target about 1/2 meter behind the goal in the location at which the player is instructed to kick the ball. After the ball hits the goal net in front of, or close by the Target, observe the KM/H display to read the ball speed. The Target may be moved by the holder to be in line with the approaching ball for the most accurate speed reading. The objective is to teach the player to develop KickSpeed power and accuracy in controlling the direction of the kick.



6. Reset the radar transmitter by depressing the Push-Button Switch. Flashing "00" indicates that the radar is transmitting and is ready for the next shot on Target.
7. If the next kick does not occur within twenty seconds, the power-saving timer will turn off the radar transmitter. Therefore, when preparing for the next kick, again depress the Push-Button Switch. Flashing zeros on the KM/H Display indicate that the radar is transmitting and ready to record the ball speed.
8. When speed-measuring activities have been concluded, and the KickSpeed Radar® is dormant for about one minute, it will automatically switch into the "sleep" mode, which conserves battery power. The display will then be blank until the sequence in 3. above is resumed.

## **PLAYER'S KICKING PREPARATIONS**

Taking care of your body and learning proper kicking techniques are vital to achieving success in soccer. Consult your coach, trainer, or parent for guidance.

### **The following steps are strongly recommended:**

1. Undertake a conditioning program to get your legs and body in shape for soccer.
2. Before kicking, stretch and warm-up your legs and body.
3. Begin kicking at slow speeds and over short distances. Gradually extend the distance and increase the speed. The KickSpeed Radar® can help monitor this process.
4. Be sure you know and practice the proper kicking techniques. By kicking correctly, you will be able to achieve your best velocity and hit your target, while reducing the likelihood of injuring your legs, knees or body. As you learn and master the proper techniques, you will see improvements in your performance. The KickSpeed Radar® will provide the measurements by which velocity performance improvements can be immediately seen. Target accuracy will be obvious.

**This immediate feedback reinforces coaching instructions and creates player enthusiasm for seeking improvement by applying proper kicking techniques.**

5. If you experience pain during or after practicing or training, consult your doctor, trainer, coach or parent immediately.  
**Do not ignore pain!!**
6. The three things that make a good soccer player are:  
**--PRACTICE**  
**--PRACTICE,**  
**--and more PRACTICE!!**

## **SPECIFICATIONS**

The specifications of the KickSpeed Radar® are summarized as:

Size: Triangular, 6.4 cm w; 8.9 cm lg; 3 cm th

Weight: 85 g

Display Type: 2 1/2 Segment LCD

Speed Units: Kilometers-Per-Hour (KM/H)

Speed Range: 19-23 KM/H

Accuracy: Within 1.6 KM/H of typical sports radar speed guns at comparable measuring positions

Battery: 3 Volt, 160 mAh, Lithium CR-1/3N, DL-1/3N, 2L76BP

Battery Operating Life: Approx. 30 Hours of continuous use; over 5000 transmission cycles (5000 speed measurements)

Operating Temperature: 4.4-43 degrees C

Storage Temperature: 0-49 degrees C

Related Patents:

U.S.: 5,864,061; 6,079,269; 6,378,367; 3,378,367; 6898,971 B2

Canada: 2,248,114

Japan: 3,237,857

## **EMISSION AND SAFETY STANDARDS**

The KickSpeed Radar® has been tested and certified to meet requirements established by the Euro Union, Industrie Canada, The Australian Communications Authority and the Federal Communications Commission. The FCC ID is NVE 360. "This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that might cause undesired operation."

The KickSpeed Radar® complies with current standards established for safety levels of human exposure to radio frequency energy,

including the requirements of C95.1-1992.2 defined by the American National Standards Institute (ANSI) and the Institute of Electrical and Electronics Engineers (IEEE); and those of the Canadian Department of Health and Welfare, Safety Code 6.

Use of the KickSpeed Radar®, or any other radiating device, may create problems when in close proximity to electronic medical devices, such as heart monitoring equipment or pacemakers/regulators. Avoid such use. RoHS and CE compliant.

## **CARE OF YOUR KICKSPEED RADAR®**

The KickSpeed Radar® is a unique electronics product intended for training and practice situations, in conjunction with the custom Target. Although the rugged design will withstand the rigors of normal use, it should be protected from direct ball impacts, and should not be dropped, thrown, hit by any objects, and should not be immersed in water or other liquids. Do not use or leave outdoors during inclement weather. Store the KSR and Target in typical in-house environments, avoiding excessive temperature extremes, humidity, dust and dirt. The plastic assembly housing of the KSR is sealed and not intended to be taken apart except for battery replacement. Remove the Battery if the unit will not be used for extended periods. The KSR can be cleaned with a slightly damp, soft cloth. Do not use alcohol, solvents, or chemical cleaners which can cause permanent damage. Replace the Battery when low power is indicated, as discussed in the following section. With proper care, the KickSpeed Radar® and Target will provide many hours of service and fun for the users.

## **PROBLEMS/TROUBLESHOOTING**

The KSR is designed to provide trouble-free performance when used properly, and given proper care. Battery replacement is the primary corrective action that can be taken by the user. Symptoms of a low or dead Battery are:

No flashing display after the radar Push-Button Switch is pushed;  
No display or an erratic display.

Other abnormal operating characteristics can be caused by a weak battery or loose Battery contacts. Nearby sources that are "electrically noisy", such as fluorescent lights, electric motors, cell phones, or high power transmission lines, for example, can cause the spontaneous display of anomalous speed or tempo readings. Avoid close proximity to such sources when using the KickSpeed Radar®.

## **BATTERY REPLACEMENT**

Replace the Battery by removing the two screws which hold the white Cover in place, exposing the Battery. Remove the Battery and replace it with a new one, being careful to insert the new Battery with the negative terminal toward the spring in the center of the contact nest, and the positive terminal (case) protruding outward toward the Cover which has been removed. Carefully place the Battery into the contact nest, being sure that the three upright contacts are snug against the Battery case. (Loose Battery contacts can cause intermittent electrical connection, indicated by a "188" reading on the LCD Display.) Engage the two tabs on the Cover with the slots in the Housing, and pivot the Cover down over the Battery, which is positioned in the contacts nest. Replace the two screws that hold the Cover in place. Tighten the screws snugly, but do not over-tighten. Depress the radar Push-

Button Switch and perform the operating sequence described in the section of this manual entitled USING THE KICKSPEED RADAR®.

Battery (3 volt lithium, N/3 size) can be purchased at many stores which sell camera supplies or similar electronic devices.

## ***WARRANTY & SERVICE***

**What is covered?** This limited warranty covers all defects in workmanship or materials in your KickSpeed Radar® that is purchased either directly from Sports Sensors, Inc. or from an authorized reseller. This warranty applies only to defects that occur while your KickSpeed Radar® is being used in the normal manner described herein. This warranty does not apply to any defects that are caused by misuse, abuse, neglect or improper storage, handling or maintenance, or any modifications or re-pairs performed by anyone other than Sports Sensors, Inc. Except as expressly stated in this warranty, Sports Sensors Inc. makes no implied warranties, whether of merchantability or fitness for a particular purpose or use or otherwise with respect to KickSpeed Radar®, for more than 180 days from the date of purchase.

**How long is the coverage period?** This limited warranty runs for 180 days from the date that you buy the KickSpeed Radar®, as shown on your completed and returned purchase receipt.

**What will Sports Sensors Inc. do?** If your KickSpeed Radar® fails during the warranty period and you return it before the end of this period, Sports Sensors Inc. will, at its discretion, and at no additional charge, repair or replace the defective unit. In no event shall Sports Sensors Inc. be liable for, or pay, any indirect, special, incidental or consequential damages in connection with your KickSpeed Radar®.

**How can you get service?** You must send the KickSpeed Radar®, appropriately protected and packaged, shipping charges prepaid, to Sports Sensors, Inc., c/o Electronics Development Corp., 9055F Guilford Rd., Columbia, MD 21046, USA. Evidence of date and place of purchase, such as a copy of your sales receipt or other “proof of purchase,” must accompany the returned unit. Please describe the nature of the problem or reason for return.

**How does state law apply?** This warranty gives you specific legal rights which vary from state to state. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty is governed by the State of Ohio, USA.

**For technical support or service information, call, toll-free: (800) 394-6650 or (888-542-9246)** For ordering information, or other non-technical questions, call toll-free: (800) 589-3805. Visit our Web Site for the latest information about the KickSpeed Radar® or other products at: [www.sportssensors.com](http://www.sportssensors.com)

The KickSpeed Radar® is an excellent training device to provide immediate speed data by which kicking improvement and progress can be measured. It is affordable for parents, coaches and players of all ages.

***REMEMBER, SOCCER IS A GAME TO BE ENJOYED.***

***HAVE FUN WITH YOUR KICKSPEED RADAR® !!***

***SPORTS SENSORS, INC.***

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