

(photo or illustration of two youth tossing ball with
a Glove Radar on their glove)

OWNER'S MANUAL

GLOVE RADAR™

MODEL NO. 360

Sports Sensors, Inc.
P.O. Box 46198
Cincinnati, OH 45246-0198

(800) 589-3709
Technical support/service phone number
For more info--phone number
www.gloveradar.com



INTRODUCTION

Congratulations on purchasing your **GLOVE RADAR™**. If used and cared-for as described in this Manual, you should enjoy many hours of fun and constructive use.

The **GLOVE RADAR™** is a small inexpensive radar velocity sensor which attaches to a baseball or softball glove to measure the speed of the ball just before it is caught. When so attached, the glove becomes a "radar speed gun". The purpose of the **GLOVE RADAR™** is to assist in developing players' throwing capabilities by providing a measure of velocity improvement which results from using proper throwing techniques. By learning the proper way to condition, train, warm-up and throw, players can achieve their best accuracy and velocity performance, while reducing the risks of injury to their arm and body.

The **GLOVE RADAR™** can aid any player--infielders and outfielders, as well as pitchers and catchers. Professional and high-level amateur players can use the **GLOVE RADAR™** when warming-up, as well as developing young ballplayers using it when tossing or training.

Worn by the receiver of the ball, or by multiple tossing partners in non-game situations, the **GLOVE RADAR™** "sees" through the glove and responds to the approaching ball just before it reaches the glove. Thus, unlike most "radar speed guns", a long range capability is not required. Powered by a single cell lithium battery, the **GLOVE RADAR™** transmission level is well below 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 **GLOVE RADAR™** is microprocessor controlled, like a mini-computer, and indicates calculated miles-per-hour ball speed on a liquid crystal display.

It is easily attached, and removed, from the back of virtually any ball glove. Clever design results in a small, versatile low-cost device affordable for youth teams and individual players. Subsequent international models will display appropriate units of measure.

FEATURES

Physical features of the **GLOVE RADAR™** are pictured in figure 1. An **ELASTIC STRAP**, with three **SNAPHOOKS**, facilitate attachment to the back of the glove. (Attachment details are discussed later.) The internal electronics are in the "sleep" mode until activated by depressing the **READY** switch button. This action applies electrical power from the Battery to the Radar Transmitter packaged within the plastic **HOUSING**. The **MPH DISPLAY** will flash "00" indicating that the **GLOVE RADAR™** is transmitting. Upon receipt of a velocity signal produced by a ball about to be caught in the glove, the ball speed is calculated and shown on the **MPH DISPLAY**, indicating miles-per-hour. Receipt of a velocity signal turns-off the Radar Transmitter until the **READY** switch is depressed. If a velocity signal is not received within twenty seconds after depression of the **READY** switch button, electrical power is removed from the Radar Transmitter until the **READY** switch button is again depressed. Limiting the "on" time of the Radar Transmitter conserves Battery power in order to maximize Battery life.

The **HOUSING** of the **GLOVE RADAR™** is sealed to protect the internal electronics from the dust, dirt and moisture which can be expected in the normal use of the **GLOVE RADAR™**. However, the unit is not intended to be immersed in water. A **BATTERY COVER** on the **HOUSING** is removeable to allow easy replacement of the internal Battery.

(photo or illustration of the GR, with call-outs for the Housing, Battery Cover, Ready, MPH Display, and Elastic Straps & Attachment Hooks (3))

SPECIFICATIONS

The specifications of the **GLOVE RADAR™** are summarized below:

Size: 3 1/2" X 2 1/2" X 1 1/8"

Weight: 3 oz.

Attachment: (2) Elastic Straps, 5/32" dia.
10" length nom., w/2 Hooks ea.

Transmitter Frequency: 5.8 GHz

Display Type: 2 1/2 Segment LCD

Speed Units: Miles-Per-Hour, MPH

Speed Range: 20-104 MPH

Accuracy: 1-2 MPH

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: 40-110 degrees F

Storage Temperature: 32-120 degrees F

U.S. Patent 5,864,061

FCC Warning

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 may cause undesired operation

Information to the User

This equipment has been tested and found to comply with the limits for a class B digital device pursuant to part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help and for additional suggestions.

The user may find the following booklet prepared by the Federal Communications Commission helpful: "How to Identify and Resolve Radio-TV Interference Problems." This booklet is available from the U.S. Government Printing Office, Washington, D.C. 20402, Stock No. 004-000-00345-4.

FCC Warning

The user is cautioned that changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

GLOVE ATTACHMENT

The **GLOVE RADAR™** has been designed to attach to the back of virtually any glove--infielder's outfielder's, first baseman's, pitcher's and catcher's mitts; youth and adult models. It can be affixed to a glove in the area of the fingers or the thumb, where cushioning to ball impacts is maximum. However, due to the glove-to-glove dimensional variations in these areas, particularly in thickness, the web area is the preferred attachment location. Although this location can result in significant impact forces when the ball is caught in the web, the **GLOVE RADAR™** has been designed to withstand the effects of balls impacting the glove web at over 100 MPH.

(photo/illustration of fielders glove features of interest--fingers, thumb, web, lacing, hand strap slot, index finger hole)

The **SNAPHOOKS** on the **ELASTIC STRAPS** contain a closure feature which allows a segment of glove lacing to be completely surrounded for positive retention. This is the preferred attachment technique. The wide gap of the **SNAPHOOK** will also allow it to clip over the top of the web, or on the edge of the slot above the wrist strap, or the forefinger extension hole. These attachment techniques are illustrated herein.

Also shown are attachments to various glove types and sizes. In all cases, it is desirable to keep the **GLOVE RADAR™** snug against the glove, without distorting or interfering with glove use.

(photo/illustration of Attachment Hook, calling-out Hook Gap, Closure, Elastic Strap, Strap Coil)

(photo or illustration blow-up of a hook on:
finger lacing
web lacing
edge lacing)

(attachment photos or illustrations blow-ups of
hooks on:
top of web
index finger hole
hand strap hole

(photo or illustration of large fielders glove--14"--with GR shown positioned on the web, hooked onto the lacing between the web top and thumb, web top and index finger of the glove, index finger hole or hand strap slot, and on lacing in lower right area of the glove such as lacing on the thumb bottom edge)

(photo or illustration of GR positioned on web of a small fielders glove--9" or 10"--with top elastic straps encircling top edge lacing and doubled-back and hooked on the GR; lower hooks on glove hand slot and on lacing near bottom of glove)

(photo or illustration of GR attached to a catcher's mitt--or mitts)

(photo or illustration of GR attached to a first baseman's glove)

OPERATING INSTRUCTIONS

1. Remove the BATTERY COVER, insert the Battery with the negative terminal toward the inside and the positive (+) case facing outward, visible through the Battery access hole. Replace the BATTERY COVER and assure that it is locked in place.
2. Attach the **GLOVE RADAR™** to the glove, as explained in the previous section of this Manual.
3. Press the READY button to energize the Radar Transmitter. The MPH DISPLAY will show two zeros. Flashing zeros indicate that the Radar is transmitting. The **GLOVE RADAR™** is now ready for measuring the velocity of a ball being caught.
4. After the ball is caught, observe the MPH DISPLAY to obtain the ball speed.

5. Before returning the ball back to the thrower, reset the Radar Transmitter by depressing the READY button. This sequence is recommended to avoid the likelihood that the receiver will not be concentrating on the next throw, when the thrower is preparing to throw. However, the READY button is large and conveniently located such that it can be found and depressed without actually looking at it.
6. If the next throw does not occur within twenty seconds, the power-saving timer will turn off the Radar Transmitter. Therefore, when preparing to receive the next throw, again depress the READY button. Flashing zeros on the MPH DISPLAY indicate that the Radar is transmitting and ready to record the ball speed.

PREPARATIONS FOR THROWING

Taking care of your arm and body and learning proper throwing techniques are vital to achieving success in throwing/pitching a ball. Consult your coach, trainer, doctor or parent for detailed guidance.

The following steps are strongly recommended:

1. Undertake a conditioning program to get your arm and body in shape for baseball/softball.
2. Before throwing, stretch and warm-up your arm and body.
3. Begin throwing at slow speeds and over short distances. Gradually extend the distance and increase the speed. The **GLOVE RADAR™** can help monitor this process.

4. Be sure you know and practice the proper throwing/pitching techniques. By throwing correctly, you will be able to achieve your best velocity and hit your target, while reducing the likelihood of injuring your arm or body.

As you learn and master the proper techniques, you will see improvements in your performance. The **GLOVE RADAR (TM)** will provide the measurements by which velocity performance improvements can be readily seen. This reinforcement creates player enthusiasm for continuing to seek improvement by applying the proper throwing/pitching techniques.

5. If you experience pain while throwing/pitching, or afterward, consult your doctor, trainer, coach or parent immediately. Do not ignore pain!!

6. Have fun with your **GLOVE RADAR™ (TM)**.

CARE OF YOUR GLOVE RADAR™

The **GLOVE RADAR™** is a unique electronics product intended for training, practice and tossing situations, not for game use. 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 with a bat or other objects, and should not be immersed in water or other liquids. Do not use or leave outdoors during inclement weather. Store in typical in-house environments, avoiding excessive temperature extremes, humidity, dust and dirt, and similar deleterious conditions. The Housing is sealed and not intended to be taken apart. Remove the Battery if the unit will not be used for long periods.

The **GLOVE RADAR™** can be cleaned with a slightly damp, soft cloth. Do not use alcohol, solvents, or any type of chemical cleaner because permanent damage can occur. Replace the Battery when low power is indicated, as discussed in the following section.

With proper care, The **GLOVE RADAR™** will provide many hours of service and fun.

PROBLEMS/TROUBLESHOOTING

The **GLOVE RADAR™** 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:

Replacement Batteries can be obtained from many retail stores which handle consumer electronics products. Batteries can also be ordered from Sports Sensors, Inc. by calling our toll-free number, 800-589-3709, contacting us by mail, or through our Web Site at www.gloveradar.com.

If other problems occur, please call our Technical Support number, 800-XXX-XXXX.

ACCESSORIES

In addition to replacement Batteries, we also carry Elastic Straps, Snaphooks, and Split Rings.

A belt-pack carrying case is also available for purchase. The following prices apply:

WARRANTY & SERVICE

Sports Sensors, Inc. offers a limited warranty to the original purchaser, for ninety days from the date of purchase, against defects in materials or workmanship (factory labor). Returned products with defects not attributed to mis-use, abuse or accidental damage will be repaired or replaced, at the option of Sports Sensors, Inc..

This limited warranty is not intended in any way to usurp specific legal rights granted by states or provinces, as applicable. Please complete and mail-in the enclosed Purchase Registration Card, showing date of purchase. To obtain warranty service, send the product in its' original packaging, or equivalent, shipping charges prepaid, to the Sports Sensors, Inc., P.O. Box 46198, Cincinnati, OH 45246-0198. Post warranty service can also be obtained in the same manner, with the product restored, or replaced, at the Company's option, including charges for labor, materials and handling. Sports Sensors Inc. will not be liable for damages due to loss of product use; or for incidental consequences resulting from normal use of the product.