

# Model 62000 Palm Antenna

## System Settings and User Notes



**The World Leader in  
Subsurface Imaging™**

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Before returning any equipment to GSSI, a Return Material Authorization (RMA) number must be obtained. Please call the GSSI Customer Service Manager who will assign an RMA number. Be sure to have the serial number of the unit available

**FCC Notice (for U.S. Customers):**

This device complies with part 15, class F of the FCC Rules:

Operation is subject to the following 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

**Warning:** Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Operation of this device is restricted to law enforcement, fire and rescue officials, scientific research institutes, commercial mining companies, construction companies and private parties operating on behalf of these groups. Operation by any other party is a violation of 47 U.S.C. § 301 and could subject the operator to serious legal penalties.

**Coordination Requirements**

(a) UWB imaging systems require coordination through the FCC before the equipment may be used. The operator shall comply with any constraints on equipment usage resulting from this coordination.

(b) The users of UWB imaging devices shall supply detailed operational areas to the FCC Office of Engineering and Technology who shall coordinate this information with the Federal Government through the National Telecommunications and Information Administration. The information provided by the UWB operator shall include the name, address and other pertinent contact information of the user, the desired geographical area of operation, and the FCC ID number and other nomenclature of the UWB device. This material shall be submitted to the following address:

Frequency Coordination Branch, OET  
Federal Communications Commission  
445 12<sup>th</sup> Street, SW  
Washington, D.C. 20554  
ATTN: UWB Coordination

(d) Users of authorized, coordinated UWB systems may transfer them to other qualified users and to different locations upon coordination of change of ownership or location to the FCC and coordination with existing authorized operations.

(e) The NTIA/FCC coordination report shall include any needed constraints that apply to day-to-day operations. Such constraints could specify prohibited areas of operations or areas located near authorized radio stations for which additional coordination is required before operation of the UWB equipment. If additional local coordination is required, a local coordination contact will be provided.

**Notice:** Use of this device as a wall imaging system requires the use of a "deadman switch" as supplied by GSSI.

**For U.S. Customers**

**Ground Penetrating Radar Coordination Notice And Equipment Registration**

**Note:** This form is only for Domestic United States users. The Federal Communications Commission (FCC) requires that all users of GPR who purchased antennas after July 15<sup>th</sup>, 2002 register their equipment and areas of operation. It is required that you fill out this form and fax or mail to the FCC.

Failure to do this is a violation of Federal law.

- 1. Date:**
  
- 2. Company name:**
  
- 3. Address:**
  
- 4. Contact Information [contact name and phone number]:**
  
- 5. Area Of Operation [state(s)]:**

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## Model 62000 Palm Antenna

Thank you for purchasing the Model 62000, 2000 MHz Palm Antenna. The Palm Antenna combines exceptionally fine resolution in a small package. Its small size will help the concrete scanning professional to get into areas which are too tight for conventional antennas.

The Palm antenna incorporates an integrated survey wheel which can change position and allow you to use the antenna in a cross-polarized configuration to aid in the detection of non-metallic objects. The Palm antenna also comes with an integrated control cable with a length of 7 m (22.75 feet). There is also an antenna safety attachment point 1.5 m (5 feet) from the antenna. If you are working high above the ground, GSSI recommends attaching the safety point to your belt so that the antenna will not be damaged if you drop it.

The Palm antenna is backward compatible with previous GSSI SIR Systems.

**Note:** The indented vertical lines on the sides of the antenna housing denote the center of the antenna. When marking locations on the concrete, this is the reference point on the antenna to mark.

### System Setup - Standard Settings

**Note:** You must follow these setup instructions exactly to use the Model 62000 antenna. Positioning of the signal will be the last step in the process.

Setup Mode: Manual

System Run Mode: Survey Wheel (recommended) or Continuous

Range: 5-8 ns

Scans/foot (meter): 90 (300)

Number of Gain Points: 4, Auto Gain

Vertical Low Pass FIR Filter: 4000 MHz

Vertical High Pass FIR Filter: 500 MHz

Vertical High Pass IIR Filter: 10 MHz

Samples per Scan: 256 or 512

Bits per Sample: 16

Scans per Second: Set to the maximum scan rate allowed by the SIR System used

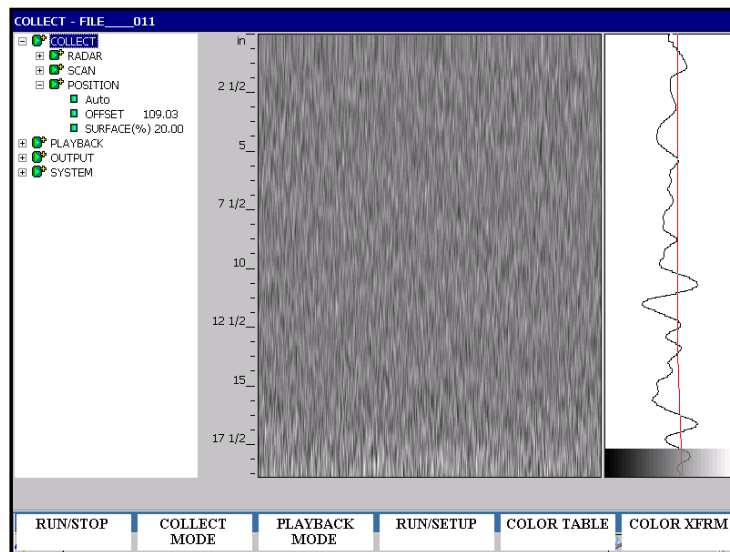
### “Deadman” Switch Operation (IMPORTANT!)

In order to comply with various emissions standards imposed by various governments, the Palm antenna incorporates a “Deadman” switch which will turn off the transmitter when the operator is not using the antenna. The Palm antenna incorporates two “Deadman” devices: the blue button on the top of the antenna housing and the survey wheel. When neither of these is used, the antenna will shut off after 10 seconds. It will resume instantly if the survey wheel is moved or the button is pressed.

**You must hold down the Blue button whenever the SIR-3000 System is doing the following:**

1. Booting from the initial logo screen into your chosen data collection application (TerraSIRch, ConcreteScan, Quick3D)
2. Changing any collection parameter (Depth, Range, Filters, Position, Dielectric, Sampling Density, Gains).

If the “Deadman” switch is not held down during any of the above, your screen will look like the image below. If that happens, hold down your “Deadman” switch and change your Range/Depth. The antenna will re-initialize and you should see horizontal bands scrolling across the screen. This process may take several seconds.



**Figure 1: “Deadman” switch not held down, transmitter turned off.**

Once you begin to collect data, the survey wheel will act as the “Deadman” switch. You can let go of the blue button and as long as the wheel is turning, the transmitter will stay on.

## Signal Position

1. Place the antenna on the concrete floor and use the Automatic Signal Position selection.
  - If you are in ConcreteScan, this is done by pressing the Run/Stop button twice.
  - If you are in TerraSIRch, go to Collect>Position> and toggle from Auto to Manual and then back to Auto.
  - You may need to try this 2 to 3 times to get the system to lock on to the surface pulse. If after 3 tries the surface reflection is not in the signal window, point the antenna into the air and again try the Automatic Position.
2. To test that you have the correct position, raise the antenna off the ground and you will observe on your system that the antenna transmit waveform will separate from the

reflection from the ground. The higher that you raise the antenna, the further apart will be the two waveforms.

## Gain Check

GSSI recommends allowing the SIR System to automatically set gain levels. Place the antenna in contact with the concrete so that the SIR System sets values which are appropriate for the material. Be sure to hold down the “Deadman” switch while re-initializing the gains.

## The Marker Switch

The black button on the top of the antenna housing is a remote marker switch. Pushing this while collecting data will put a user mark in the data. This is useful for situations when you want to record the location of a surface feature or other important item in the data.

## Integrated Survey Wheel

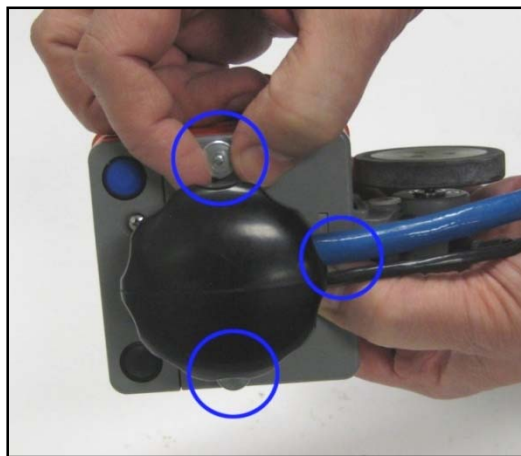
Your Palm antenna incorporates a survey wheel for collecting data in Distance (Survey Wheel) mode. While it is still possible to collect Continuous (Time based) data with the Palm antenna, the survey wheel cannot be removed from the antenna.

GSSI recommend calibrating the survey wheel by following the instructions presented in your SIR-System manual. For convenience the calibration value is approximately 1697 counts/foot (5568/m). Note that this value is subject to change and you should calibrate your own survey wheel for accuracy.

The survey wheel can be moved to the side of the antenna in order to collect data with the antenna elements in the cross-polarized configuration. Please see the *GSSI Handbook for RADAR Inspection of Concrete* for a discussion of the benefits of this technique.

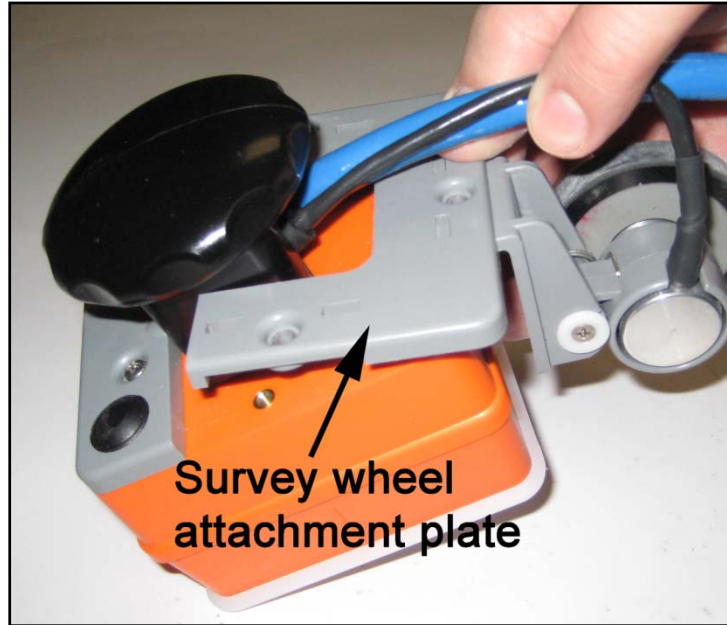
## To change the wheel position

1. Remove the three thumb screws (blue enclosures in Figure 2) securing the survey wheel attachment plate.



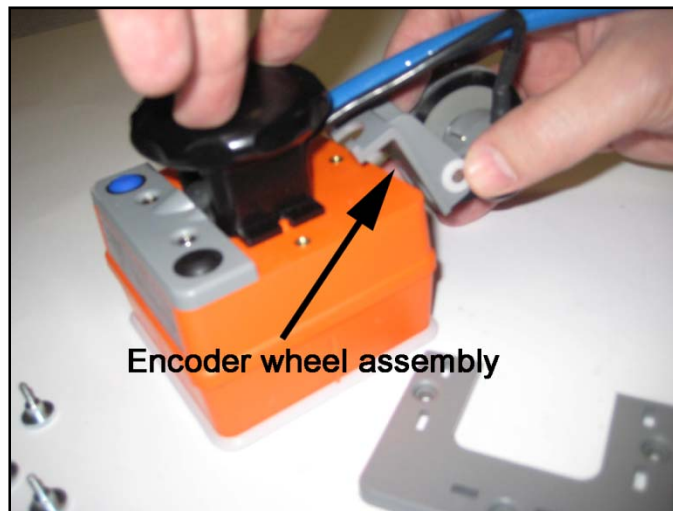
**Figure 2: Remove thumb screws.**

2. Lift the gray, plastic survey wheel attachment plate off of the antenna and set aside (Figure 3).



**Figure 3: Remove attachment plate.**

3. Swing the encoder wheel assembly to one side of the antenna (Figure 4). The side you choose has no effect on the data.



**Figure 4: Reposition wheel assembly.**

4. Secure the wheel assembly to the antenna by screwing the attachment plate back to the antenna. Note that the two tabs on the encoder wheel assembly will need to go into the two cutouts on the attachment plate. (Figure 5).



Figure 5: Re-secure the encoder assembly.

## Antenna Specifications

Center frequency: 2000 MHz

Weight: 0.5 kg (1.1 lbs) without control cable

1.5 kg (3.3 lbs) with control cable

Control cable length: 7 meters (22.75 feet)

Pulse duration: 0.5 ns

Penetration Depth: 0-0.3 meters (0-12 inches) depending on concrete conditions

