Q5C Manual

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CERTIFICATE OF WARRANTY

US Radar warrants under the following conditions that new equipment products are free of defects in material and workmanship and that only appropriate materials were used.

The warranty period for hardware is two (2) years from the date of purchase, this excludes battery packs.

The warranty period for battery packs is one (1) year from the date of purchase.

US Radar's obligation under this warranty is to either repair or replace parts and assembly groups which have been determined, upon inspection, to have been defective. US Radar will not accept any claims for a reduction of the purchasing price or a replacement of the purchased object.

US Radar shall not be liable for subsequent damage such as downtime costs, compensation, rentals, costs for replacement equipment, lost profit, or any other damages resulting from any equipment failures during the warranty period.

In the case of any warranty claims, an appropriate period of time must be granted for the performance of the necessary work and the supply of spare parts.

Parts which have been replaced under warranty become the property of US Radar Inc.

Repairs and work during the warranty period which were not performed by US Radar Inc. or Subsurface Imaging Systems Inc. or by personnel authorized by US Radar Inc. will lead to the loss of all warranty claims.

Systems that have been opened, or otherwise tampered with will lead to the loss of warranty and will not be repaired.

Damage caused by accelerated wear and tear, this includes also the continuation of operation after the detection of a defect; improper handling, maintenance, and storage; and non-observance of the operating instructions, are not covered by this warranty. The same applies to damage resulting from normal wear and tear.

In the case of any warranty claims, US Radar assumes responsibility for domestic ground freight charges in one (1) direction only. It is the responsibility of the customer to transport any equipment needing repairs to an authorized repair facility.

Safety and Compliance

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.
(2) This device must accept any interference received, including interference that may cause undesired operation.

US Radar Inc. assumes no liability for any injuries or damage caused by proper or improper operation of its equipment, regardless of any system defects.

Systems that have been opened, or otherwise tampered with will lead to the loss of warranty and will not be repaired.

This Ground Penetrating Radar shall only be used when in contact with the ground.

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

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the 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 harmful 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.

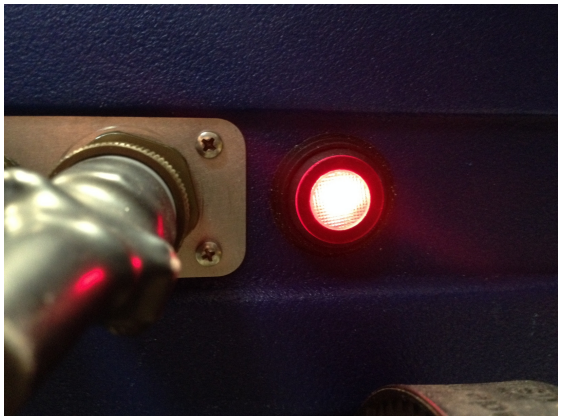
—Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

—Consult the dealer or an experienced radio/TV technician for help.

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

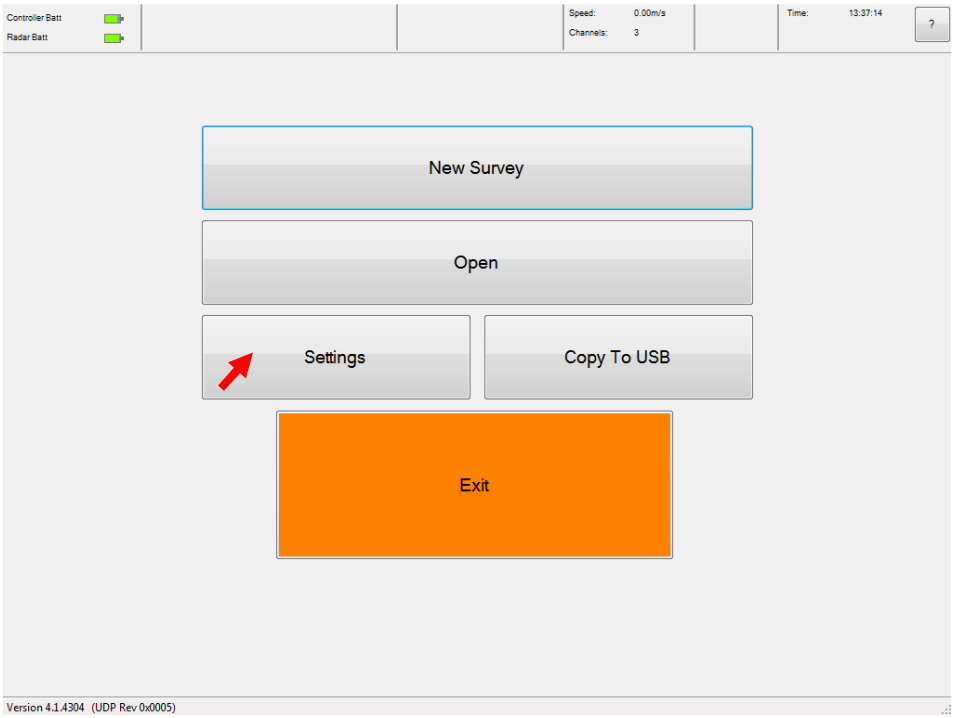
STEP 1: TURN Power **ON**

1. Press the illuminating switch on back of the antenna.



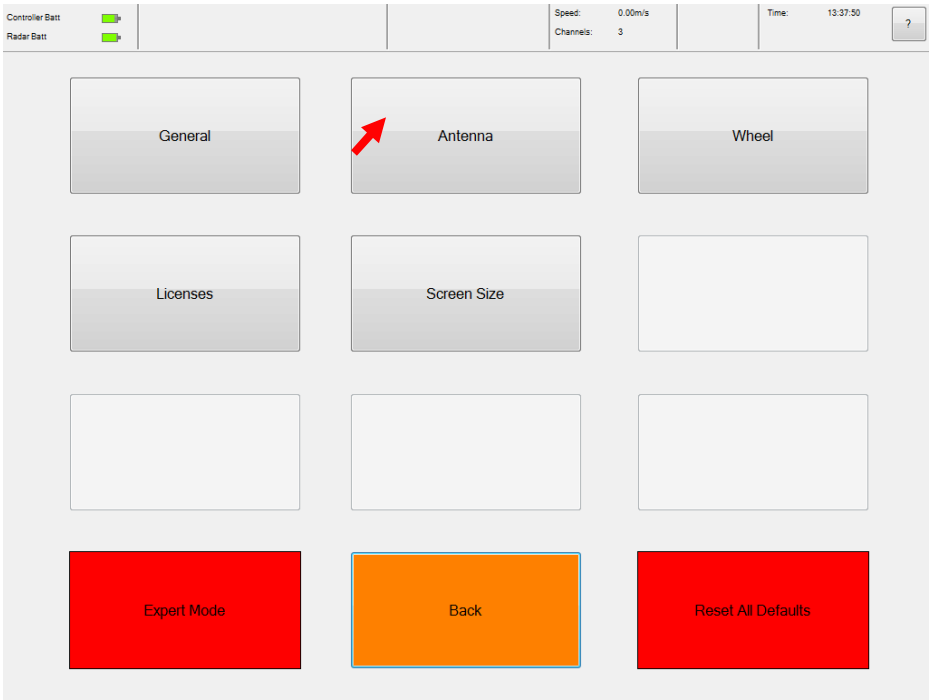
2. Turn on the controller PC.

STEP 2: From the Main Menu, touch **Settings**

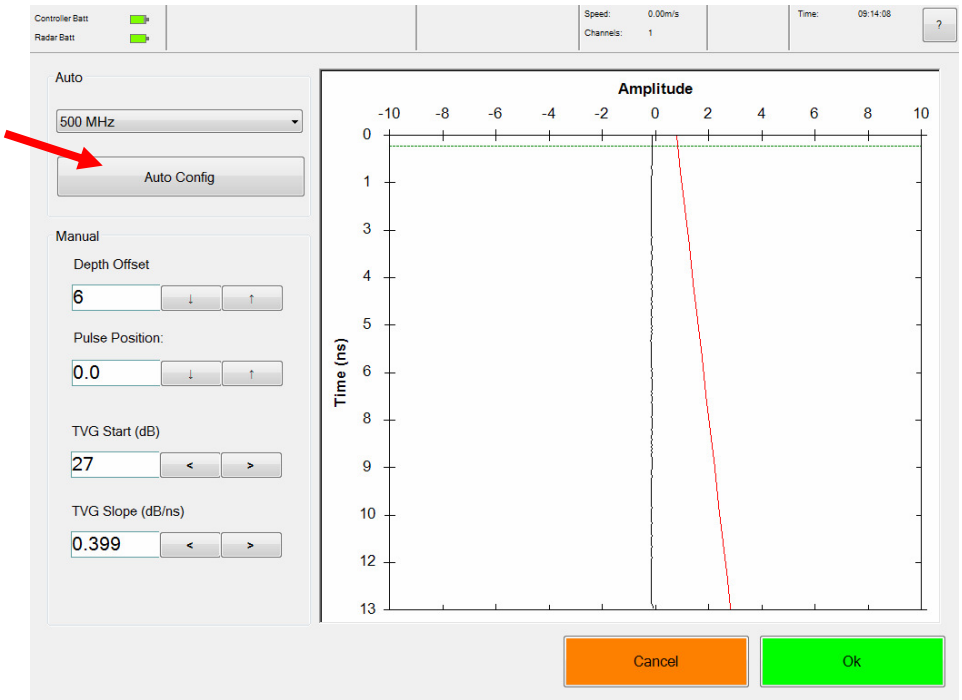


STEP 3: Set Up the **Antenna**

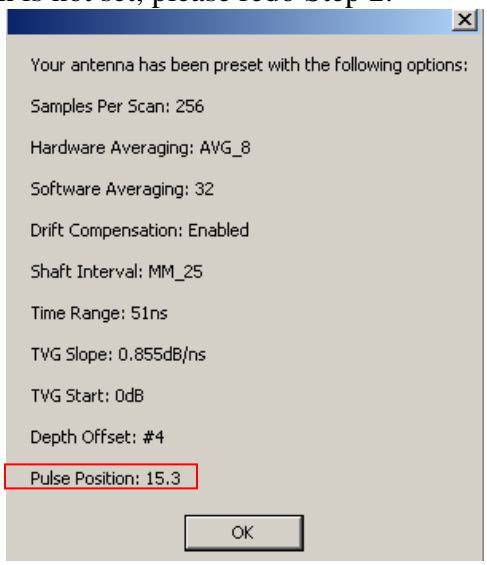
1. From the Settings menu, touch **Antenna**



2. Touch the **Auto Config** button.

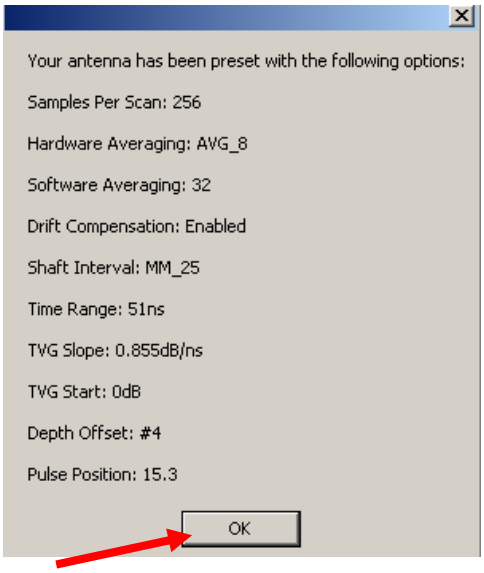


3. When complete the following message will display. If a valid Pulse Position is not set, please redo Step 2.

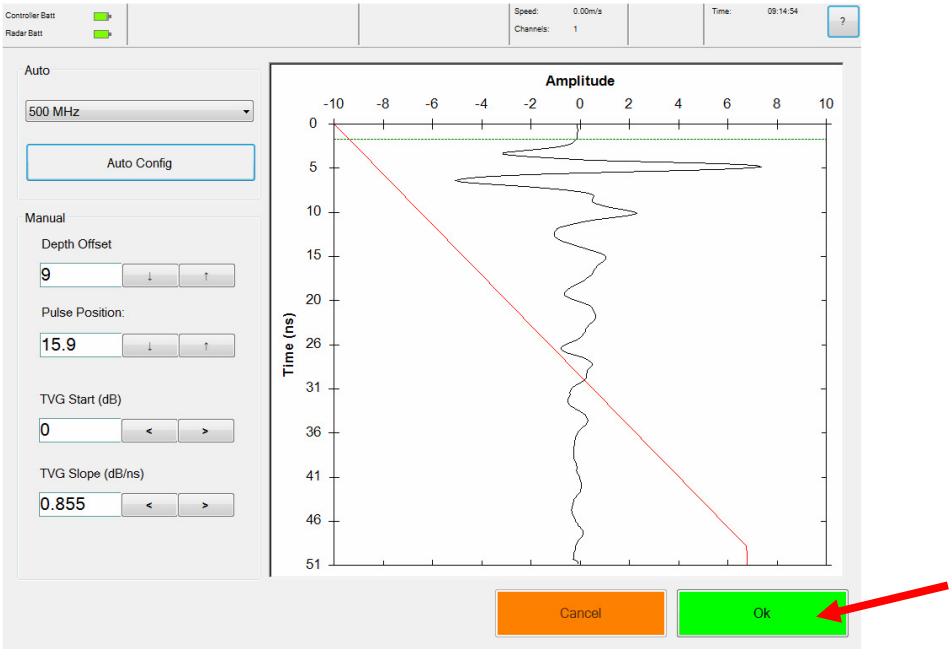


Note: It is a good idea to perform Auto Configuration before commencing work at each new site.

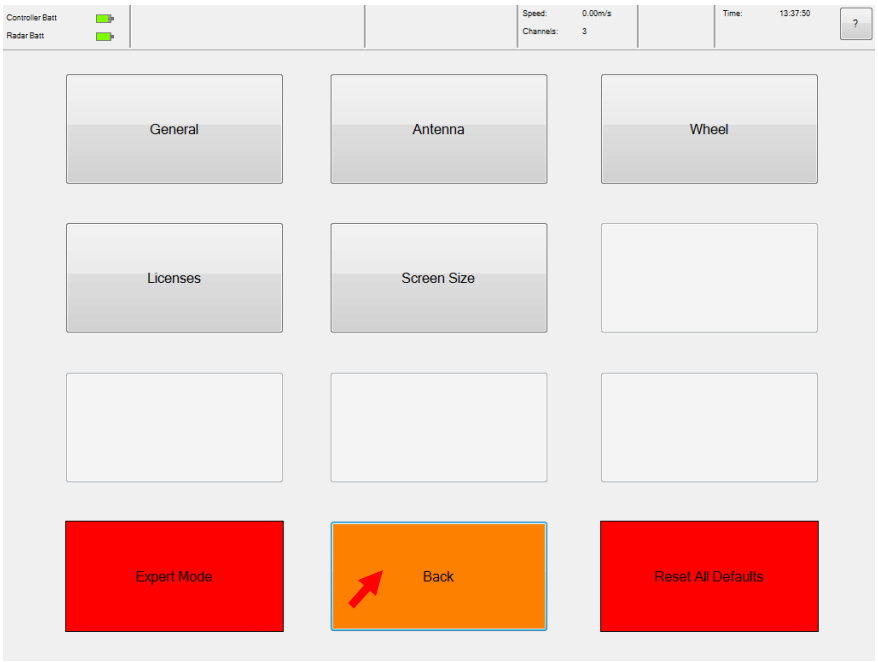
4. Touch the OK button.



5. Touch the **OK** button to return to the Settings Menu.

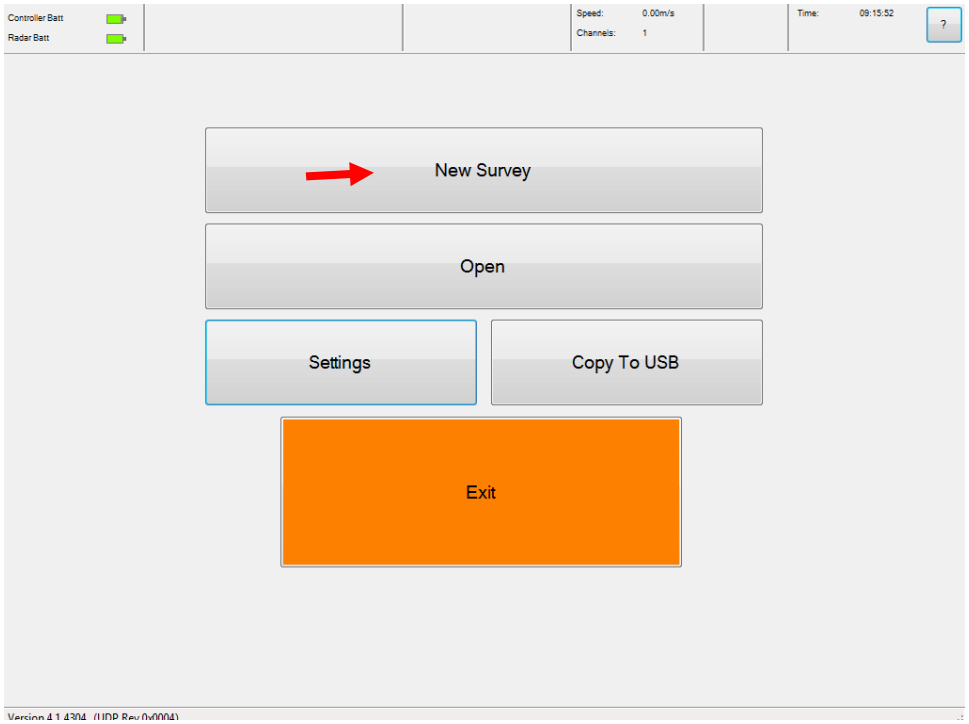


6. Touch the **Back** button to return to the Main Menu.

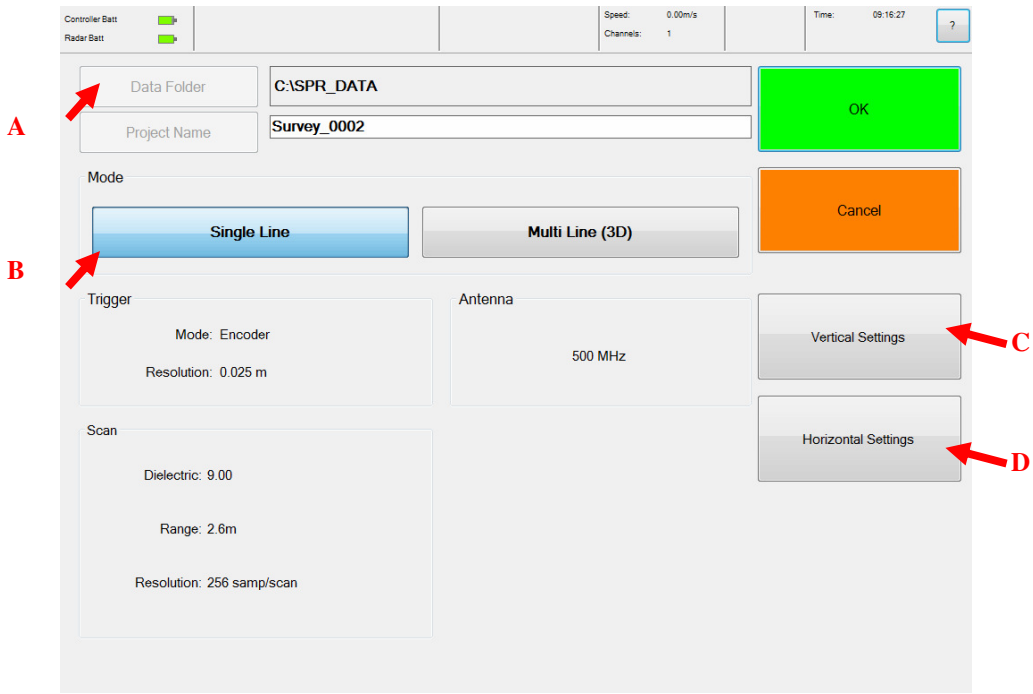


STEP 4: Set Radar Survey Parameters

1. From the Main Menu, touch **New Survey**



2. The Survey Settings screen will display.



A This field indicates the filename that will be assigned to this survey file if you choose to record the data.

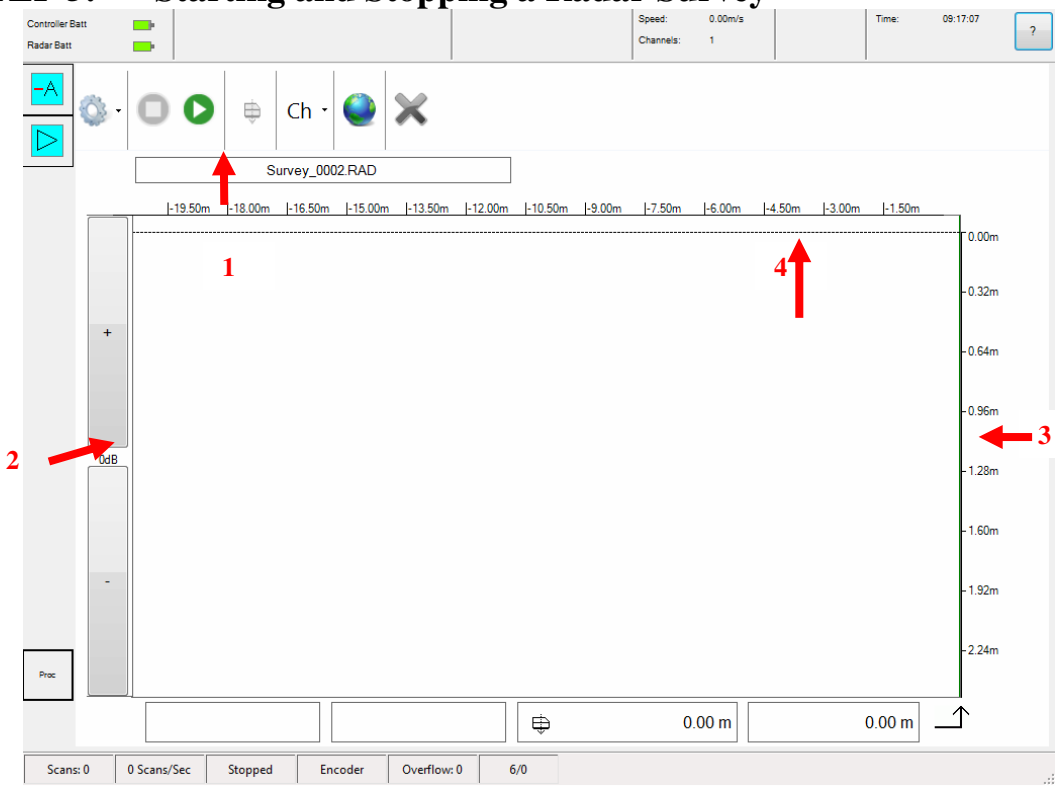
B Under **Mode**, if you have a choice of Single Line and Multi Line (Area), make sure that the Single Line option is selected.
Note: Multi-Line is used for acquiring 3D surveys, and requires a license from US Radar.

C **Vertical Settings** affects vertical measurements. For most applications, default values are acceptable and do not need to be changed.

D **Horizontal Settings** affects horizontal measurements. For most applications, default values are acceptable and do not need to be changed.

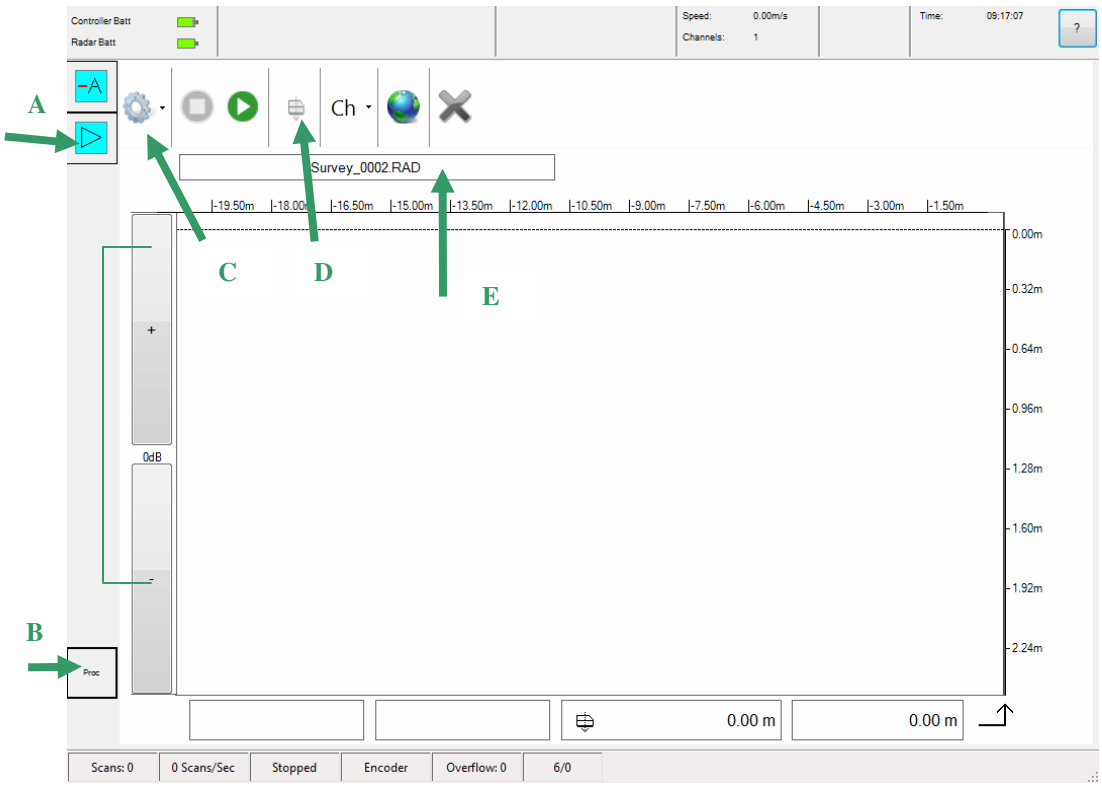
3. Press OK to begin Surveying.

STEP 5: Starting and Stopping a Radar Survey



Primary Functions

1. Recording Controls
2. Flat Gain
3. Depth Scales
4. Dotted Lines representing surface of the material being scanned.

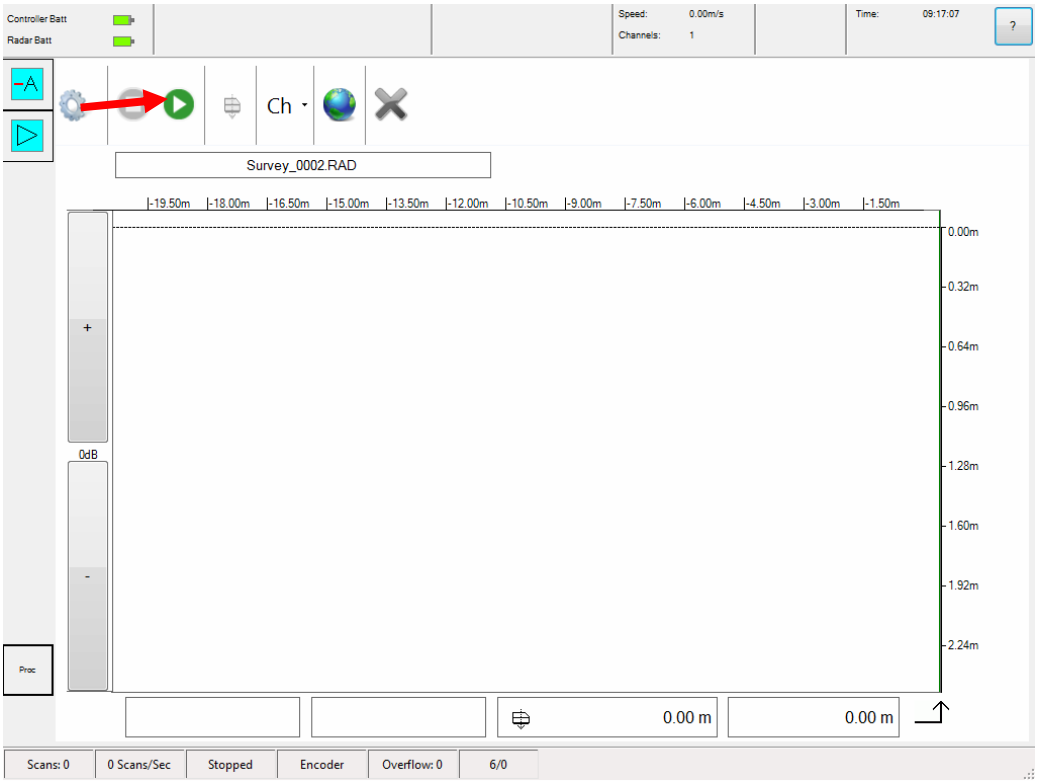


Advanced functions

A. Selected Algorithms – These affect how the data appears on screen.
B. Algorithm Manager – This is where algorithms can be selected and deselected.
C. Menu – Contains the following:
    a. Image – This takes a snapshot of the screen
    b. Show interval – This displays markers at a fixed interval
    c. Measure Distance – This allows you to measure between points.
    d. Depth Calibration – This allows you to calibrate depth
D. Pass – Resets distance counter (only functions in Monitor Mode).
E. Survey Filename

To begin a survey:

1. Touch the **Start** button to start a radar scan.



2. Push the Radar System forward. Data will feed right to left on the screen.

3. Use Flat Gain to adjust contrast of displayed data.

Image with low Flat Gain:

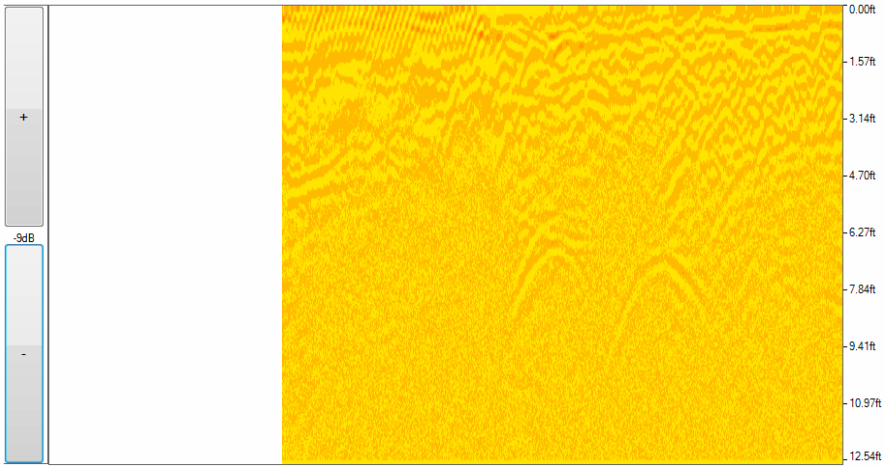


Image with ideal Flat Gain:

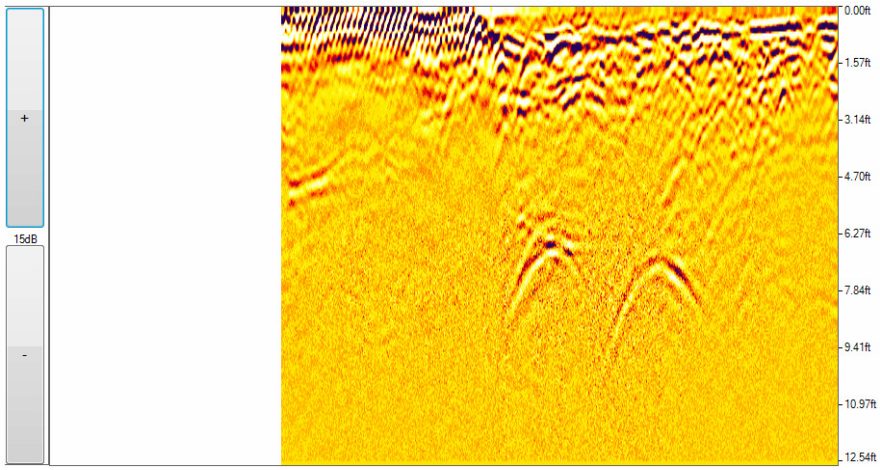
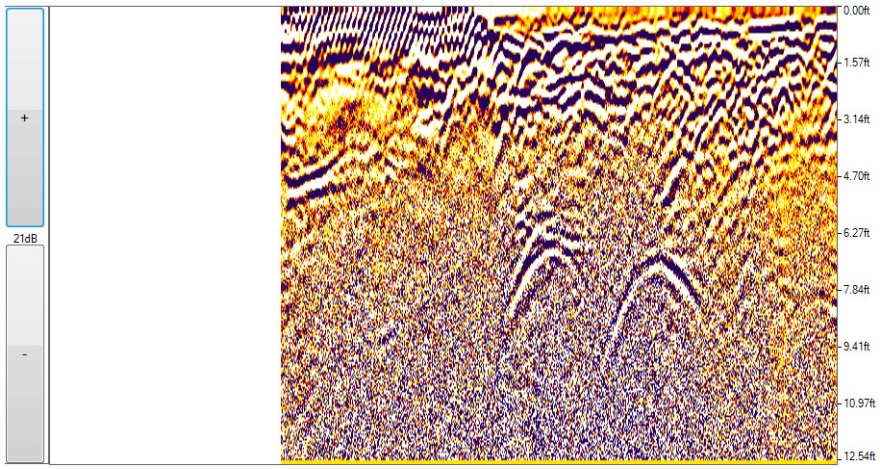
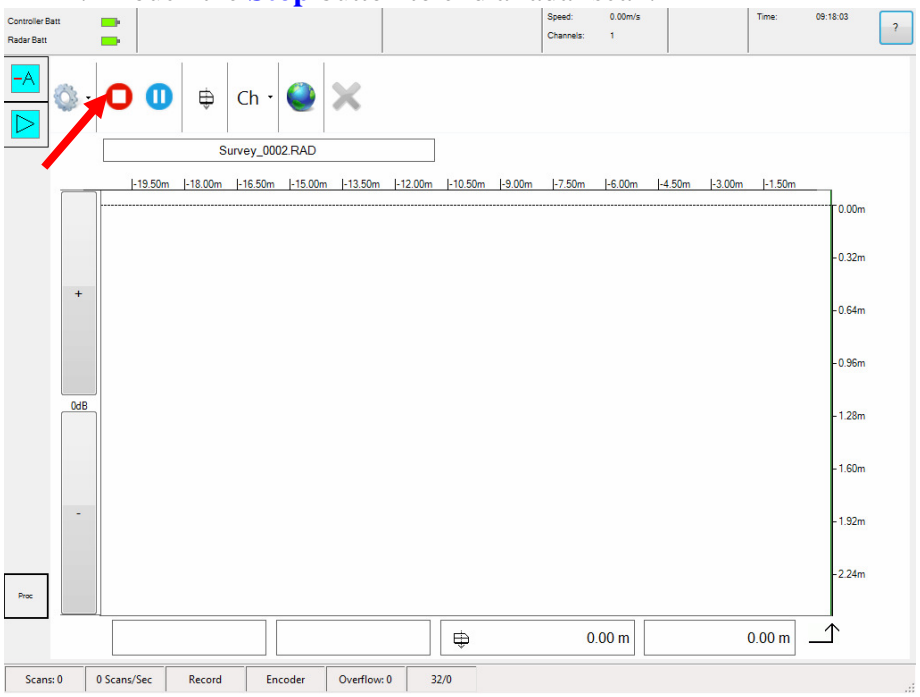


Image with too much Flat Gain:



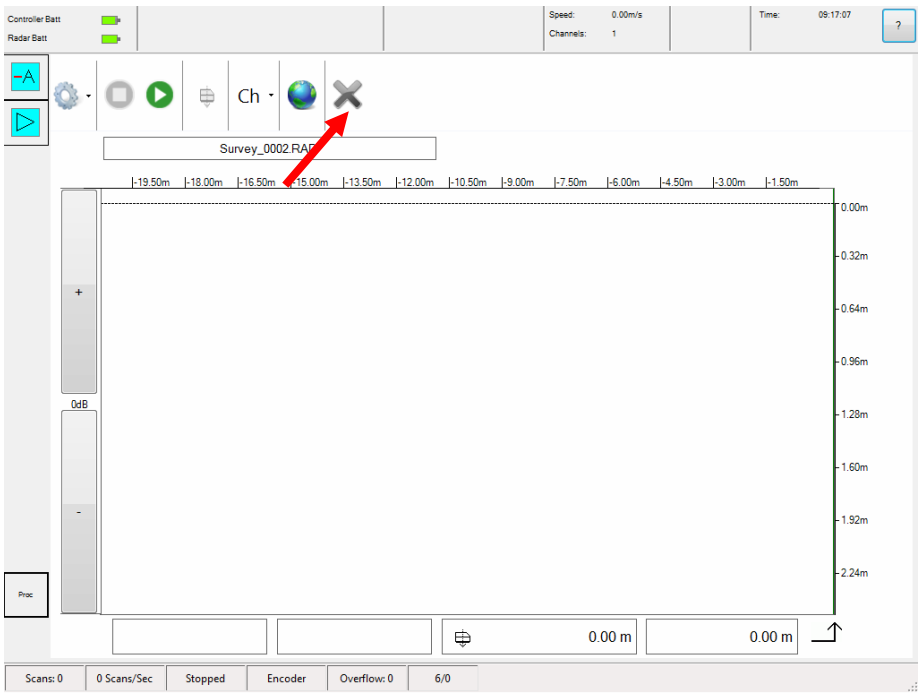
STEP 6: Ending a Radar Survey

1. Touch the **Stop** button to end a radar scan.



2. Press **Save** to save your file.

3. Touch the **Close** button to exit the radar file.



4. From the Main Menu, touch the **Exit** button to end the survey session.

STEP 7: Turning Off the System

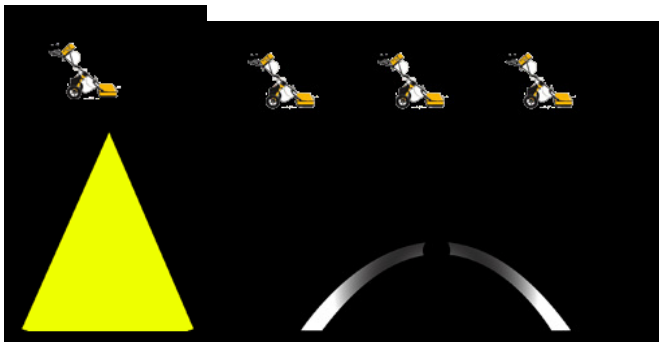
1. Either Select 'Yes' when prompted to shut down the system, or select Shut Down from the Windows Start menu.

2. Press the illuminated power switch on the antenna.

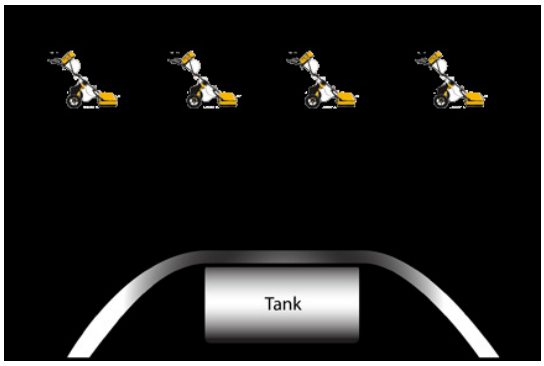
Introduction to Ground Penetrating Radar (GPR) Data

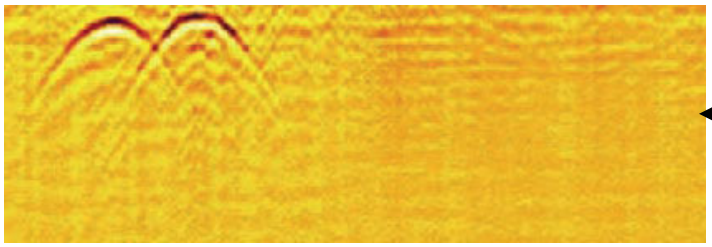
With a minimal amount of training and practice, it is possible for most operators to become proficient at reading raw GPR data in less than a day.

First, it is essential to understand that the radar signal spreads in a fan shape when it is transmitted. Because of this, an object will be visible to the radar before and after the radar is directly over it. This is the reason that a point-shaped object will show up as a hyperbola (arc shape). Since the radar signal will always have the shortest time to travel when the antenna is directly over the target, the centerline of the target will always be at the highest point of the hyperbola in the data.



In the case of tanks and larger targets, the edges can be located in a similar fashion.





←Example of two pipes

For most applications it is necessary to make a perpendicular pass over the target you are looking for

For Support:

www.usradar.com

USRADAR INC.
SUBSURFACE IMAGING SYSTEMS