Model 3101D Antenna

System Settings and User Notes

We Provide Complete Survey Solutions

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Limited Warranty, Limitations Of Liability And Restrictions

Geophysical Survey Systems, Inc. hereinafter referred to as GSSI, warrants that, for a period of 12 months from the delivery date to the original purchaser, GSSI's products will be free from defects in materials and workmanship. EXCEPT FOR THE FOREGOING LIMITED WARRANTY, GSSI DISCLAIMS ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. GSSI's obligation is limited to repairing or replacing parts or equipment which are returned to GSSI, transportation and insurance pre-paid, without alteration or further damage, and which in GSSI's judgment, were defective or became defective during normal use.

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Note: Information in this manual is subject to change without notice. Please consult the manual updates supplied with your system and contact GSSI with any additional questions.

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GSSI is required to notify customers of the following restrictions. However, GSSI and other GPR manufacturers have challenged these regulations.

This device complies with part 15 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, 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.

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 12th 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.

(f) The coordination of routine UWB operations shall not take longer than 15 business days from the receipt of the coordination request by NTIA. Special temporary operations may be handled with an expedited turn-around time when circumstances warrant. The operation of UWB systems in emergency situations involving the safety of life or property may occur without coordination provided a notification procedure, similar to that contained in CFR47 Section 2.405(a)-(e), is followed by the UWB equipment user.

Model 3101D Antenna

The Model 3101D antenna is a high frequency antenna that is designed for applications requiring very fine resolution and shallow depth penetration. The Model 3101D can be used in continuous, survey wheel or static stacking modes.

The Model 3101D can only be used with a "deadman" switch with the SIR-20 or SIR-3000 control units. These systems are designed to drive the antenna at its maximum rated pulse repetition frequency of 100 KHz. These limitations are imposed by the Federal Communications Commission (FCC)

System Setup - Standard Settings

Preset Settings: Range/Depth is approximately 1 m (3 ft) assuming a dielectric constant of 5.

Setup Mode: Manual
System Run Mode: Survey Wheel (recommended) or Continuous
Range: 15 ns
Number of Gain Points: 2
Vertical Low Pass Filter: 2500 MHz
Vertical High Pass Filter: 225 MHz
Samples per Scan: 512
Bits per Sample: 16
Scans per Second: Set to 64 (recommended).

Deeper Profiling: For approximately 2 m (6 ft) with a dielectric of 5, manually set range to 30 ns.

Setup Mode: Manual
System Run Mode: Survey Wheel (recommended) or Continuous
Range: 30 ns
Number of Gain Points: 2
Vertical Low Pass Filter: 2500 MHz
Vertical High Pass Filter: 225 MHz
Samples per Scan: 512
Bits per Sample: 16
Scans per Second: Set to 64 (recommended).

Signal Position

Place the antenna on the ground and use the Automatic Signal Position selection. The system will servo and place the direct coupling pulse at the top of the time range window.

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

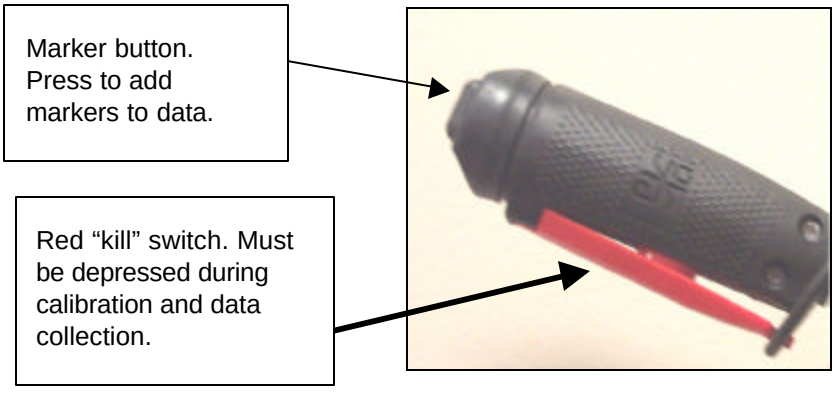
To assure that the direct coupling pulse (time zero) is recorded the user should place the signal Position servo in the manual mode. The signal should then be moved down in the time range window until the entire surface pulse is visible and there is some 'dead time' or flat trace visible above the direct coupling pulse in the time range window.

Gain Check

The surface pulse should be about 2/3 the width of the screen. If it is greater, reduce the Gains manually. If the signal appears too small you can manually increase the Gains, but the first gain point should never exceed 10dB, the last gain point should not exceed 65dB.

Marker/Kill Switch

A special marker switch is used with the 3101D. It has a deadman switch and a separate marker button. The FCC requires that when the operator stops interacting with the system for ten seconds, the transmitter is to be shut off. This will also close the data file that you have been acquiring. Thus you will need to keep the red "kill" switch on the handle depressed at all times. Releasing the handle for 2 - 10 seconds pauses data collection. Data collection that is in pause mode can be restarted by momentarily pressing the marker button. Markers are added to the data by pressing the button on the end of the handle, or by quickly releasing and depressing the kill switch.



Antenna Specifications

Center frequency: 900 MHz

Pulse duration: 1.1 ns

Depth of penetration: 0- 6 ft depending on dielectric permittivity

Size of sensor: 13×7.5×3.5 inches (33×20×8cm)

Weight of sensor: 7 lbs 4 oz. (3.4 kg)

Survey Wheel: Model 611 (3 5/6 " wheel): 2000 ticks/meter
609.6 ticks/foot