Antennas Manual

MN30-903 Rev G

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Published by Geophysical Survey Systems, Inc.
40 Simon Street
Nashua, New Hampshire 03060-3075 USA

Printed in the United States

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Geophysical Survey Systems, Inc. hereinafter referred to as GSSI, warrants that for a period of 24 months from the delivery date to the original purchaser this product 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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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

Regulatory Information

The use of GSSI antennas is governed by different regulatory agencies around the world. Specific antenna models must be certified for legal operation in your country. Please read and understand the following regulatory passages that pertain to your antenna. A listing of certified antennas by region can be found www.geophysical.com/regulatoryinformation.htm.

Notice

Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Survey Wheels

All of GSSI's antennas are designed to operate with survey wheels. Some antennas have built-in survey wheels, including the 62000 Palm Antenna and the Mini-SIR. The series of concrete antennas, including the 5100, 5101 and 52600, have survey wheels built in to their special carts, the 614 and 615. The larger antennas, including the 3101D, 5103, 50400 and 5104 are used in the larger carts, the 623 and 643, which have survey wheels built in to them. Various sizes of survey wheels can also be attached directly to these antennas. This includes the 611, 620 and 622. For highway surveys we use the 630 Distance measuring Instrument (DMI).

Garantie limitée, limites de responsabilité et restrictions

Geophysical Survey Systems, Inc, ci-après dénommé GSSI, garantit à l'acheteur original de ce produit que, pendant une période de 24 mois à compter de la date de livraison, ce dernier sera exempt de défauts de matériaux et de fabrication. EXCEPTE POUR CETTE GARANTIE LIMITÉE, GSSI REJETTE TOUTE GARANTIE, EXPLICITE OU IMPLICITE, Y COMPRIS TOUTE GARANTIE DE QUALITE MARCHANDE OU D'ADEQUATION A UN USAGE PARTICULIER. L'obligation de GSSI est limitée à la réparation ou le remplacement de pièces ou équipements qui sont retournés à GSSI, transport et assurance prépayés, sans altération ni d'autres dommages, et qui, d'après GSSI, étaient défectueux ou sont devenus défectueux lors d'une utilisation normale.

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Avant de retourner tout équipement à GSSI, une autorisation de retour matériel (RMA) doit être obtenue. Appelez s'il vous plaît le service clientèle GSSI qui attribuera un numéro de RMA. Soyez sûr d'avoir le numéro de série de l'unité.

Informations réglementaires

L'utilisation des antennes GSSI est régie par différents organismes de réglementation à travers le monde. Certains modèles d'antenne spécifiques doivent être certifiés pour un fonctionnement légal dans votre pays. Merci de lire et comprendre les passages suivants de réglementation qui s'appliquent à votre antenne. Une liste des antennes certifiées par région peut être trouvée sur www.geophysical.com / regulatoryinformation.htm.

Avis

La mise en œuvre est soumise aux deux conditions suivantes: (1) cet appareil ne doit pas provoquer d'interférences et (2) cet appareil doit accepter toute interférence, y compris les interférences qui peuvent causer un fonctionnement non désiré de l'appareil.

Roues codeuses – Odomètres

Toutes les antennes GSSI sont conçus pour fonctionner avec des roues codeuses. Certaines antennes, comprenant l'antenne 62000 Palm et le Mini-SIR, intègrent directement les roues codeuses. La série d'antennes pour le béton, comprenant les 5100, 5101 et 52600, ont des roues codeuses intégrées à leurs chariots spéciaux, les 614 et 615. Les antennes plus grandes, telles que la 3101D, 5103, 50400 et 5104 sont utilisées dans les chariots plus grands, les 623 et 643, qui ont des roues codeuses intégrées. Différentes tailles de roues codeuses peuvent être également être fixées directement sur ces antennes, comprenant les 611, 620 et 622. Pour les auscultations de chaussées nous utilisons l'odomètre 630 (DMI : Distance Measuring Instrument).

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 many 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 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.

Notice: Use of this device as a wall imaging system is prohibited by FCC regulations.

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 15th, 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)]:

---Continued on next page.

6. Equipment Identification:

Brand Name: Geophysical Survey Systems, Inc.

Antenna Model No. (center frequency): *List all antennas being registered.*

Model	Frequency	FCC ID (QF7 followed by Model #)

7. Receipt Date Of Equipment:

Fax this form to the FCC at: 202-418-1944

Or

Mail to:

Frequency Coordination Branch, OET
Federal Communications Commission
445 12th Street, SW
Washington, D.C. 20554

ATTN: UWB Coordination

Do not send this information to GSSI.

Canadian Requirements for RSS-220

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:
(1) this device may not cause interference, and
(2) this device must accept any interference, including interference that may cause undesired operation of the device.
Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:
(1) l'appareil ne doit pas produire de brouillage, et
(2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Canadian Requirements of RSS-220 for Ground Antennas

This Ground Penetrating Radar Device shall be operated only when in contact with or within 1 m of the ground.

This Ground Penetrating Radar Device shall be operated only by law enforcement agencies, scientific research institutes, commercial mining companies, construction companies, and emergency rescue or firefighting organizations.

Cet appareil de radar de sol (ou géoradar) ne doit être utilisé qu'en contact avec le sol ou à 1 m maximum au dessus du sol.

Cet appareil de radar de sol ne doit être utilisé que par les forces de l'ordre, les instituts de recherche scientifiques, les sociétés minières, les sociétés de construction, et les organisations de secours d'urgence ou de combat du feu.

Declaration of CE Conformance

Geophysical Survey Systems, Inc. hereby confirms that the following named products have been tested and meet the requirements of the European standards as indicated:

Models: 62000, 62300-XT, MINILT, MINIXT, LLTRx, 41000SA, 42000S, 50400S, 50270S, D50300/800, 350HS, 50350US, 50200US

Description: Ground Penetrating Radar Antennas
European Standards: ETSI EN 301 489-32 V1.1.1 (2005-09), ETSI EN 301 489-1 V1.6.1 (2005-09), ETSI EN 301 489-1 V1.9.2 (2011-09), ETSI EN 302 066-1 V1.1.1(2005-09), ETSI EN302 066-2 V1.1.1 (2005-09), ETSI EN 302 066-1 V1.2.1(2008-02), ETSI EN302 066-2 V1.2.1 (2008-02), ECC/DEC/(06)08
Place and Date of Issue: Intertek – ETL SEMCO 07.02.07, 03.11.09, 10.13.09, 11.18.09 Compliance Worldwide 03.23.12 09.25.12 04.14.14 10.12.15 11.10.15 11.13.15 09.30.16 12.20.16 05.09.18

Model: Profiler™ EMP-400

Description: Electromagnetic Induction System
European Standards: EN61326:1997 + A1:1998 + A2:2001
Place and Date of Issue: Intertek – ETL SEMCO 08.29.06

Models: SIR® 30, SIR® 30E

Description: Ground Penetrating Radar Data Acquisition System
European Standards: EN61000-6-4: 2007 per EN 55011:2009 + A1:2010
Place and Date of Issue: Compliance Worldwide 07.10.12, 07.11.12

Model: SIR® 4000

Description: Ground Penetrating Radar Data Acquisition System
European Standards: EN61000-6-4: 2007 per EN 55011:2009 + A1:2010
Place and Date of Issue: Compliance Worldwide 04.14.14

Chris Plumlee
05.29.18
Name of authorized person

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200 MHz Antenna

50200HS HyperStacking Antenna

200 MHz Antenna

The 50200HS HyperStacking antenna has greatly improved resolution performance over previous GSSI mid-frequency antennas, such as the Model 5106/A (200 MHz). The 50200HS can be used in continuous, survey wheel or static stacking modes.

System Setup - Standard Settings

Shallow Profiling:

Range/Depth is approximately 7m assuming a dielectric constant of 9.

Setup Mode: Manual

System Run Mode: Survey Wheel (recommended) or Continuous

Range:150 ns

Number of Gain Points: 5

Vertical Low Pass Filter: 400 MHz

Vertical High Pass Filter: 30 MHz

Samples per Scan: 512

Bits per Sample: 16

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

Deep Profiling:

Range/Depth is approximately 15m assuming a dielectric

Setup Mode: Manual

System Run Mode: Survey Wheel (recommended) or Continuous

Range: 300 ns

Number of Gain Points: 5

Vertical Low Pass Filter: 400 MHz

Vertical High Pass Filter: 30 MHz

Samples per Scan: 1024

Bits per Sample: 16

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

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.

Specifications

Center frequency: 200 MHz

Pulse duration: 5 ns

Depth of penetration: 0-30 ft depending on dielectric permittivity

Size of sensor: 12x12x6.5 inches (60x60x30cm)

Weight of sensor: 39 lbs (17.72 kg)