

PRODUCT INTRODUCTION

This section provides the following detailed information about the GSR2600:

- **Product Information** - Provides an overview of the GSR2600, including a comprehensive list of its features and benefits. Also included is a listing of potential target markets.
- **Dealer Overview** - Intended for dealers, provides a brief description of the GSR2600.
- **Customer Bulletin** - Created in a format ready to be faxed to an interested customer provides a concise list of GSR2600 features.
- **FAQ - Frequently Asked Questions**. Provides answers to the most commonly asked questions about the GSR2600.
- **Competitive Analysis** - Compares the GSR2600 to equivalent GPS products from Trimble, Ashtech, and Leica.
- **PDL Radio Information** - Contains comprehensive information about the high-tech RTK radios.
- **POINT/Sokkia Warranty** - Explains the GSR2600 warranty information.

GSR2600 Features and Benefits

The GSR2600 has the following features:

- Front LCD panel provides access to various information without the need for a controller
- Saves time and money by enabling you to use commercially available CompactFlash™ memory cards
- Consumes minimal battery power when set for automatic operation
- Requires only one person to complete even the toughest tasks
- Can be carried in the supplied ergonomic rover backpack
- Can be used for RTK or post-processing applications



The GSR2600 is a high-performance GPS receiver for use in both RTK and post-processing applications. This receiver is capable of **receiving and tracking up to 12 GPS satellites** on L1 and L2 channels, has **fast data update rates**, and **integrated memory** (Compact Flash Card) for data logging.

Once you connect the GSR2600 receiver to an antenna and power supply, and press the receiver power button, the GSR2600 begins operating as a fully functional GPS receiver.

The technology inside the receiver includes the patented **Pulse Aperture Correlator (PAC)**, which uses the latest digital signal processing techniques to provide tracking capability in the presence of multipath. PAC technology also provides significant improvement in pseudorange accuracy, providing reliable data.

The front panel of the GSR2600 features an **LCD** that is your tool for interacting with the GSR2600 receiver. By navigating through the LCD's menu system, you can monitor information such as GPS position, or send commands to the receiver such as a factory reset.

Provided with the system is the SK-600 antenna with **Pinwheel™ technology**. This antenna provides unparalleled reliability through precisely located phase centers that take measurements to the highest degree of accuracy. **Pinwheel** technology blocks multipath the same degree as a choke-ring antenna, but in a small, lightweight design.

Optionally, a **battery pack** hooks onto the bottom of the GSR2600 to power the receiver. When the battery pack is connected, your receiver behaves as though it has an internal battery compartment, enabling you to have a more compact and portable device.

If you desire, a handheld data collector can be used with the GSR2600 to aid in data collection. When used together, the GSR2600 receiver and the handheld provide powerful state-of-the-art technology, and an intuitive, easy-to-use GPS system.

The **SDR® Level 5 data collection software** is noted throughout the industry for its **familiar workflow and formats**. SDR functionality is designed to enable efficient survey management and data collection, which

increases the productivity of your measurement solution for topographic surveys, set out, and coordinate geometry operations (COGO). As well, the SDR Level 5 is a convenient link to office-based mapping and design software, while the SDR Level 5 data collection software itself loads onto a variety of hardware platforms to meet your needs. Although it works on almost all Windows® CE-compatible platforms, the recommended SDR hardware platforms range from the commercially available PDA to the most rugged handheld PC, and of course, the SDR8100.

The **SDR8100** handheld data collector processing speed and familiar interface will **increase your productivity**. The SDR8100 may be operated on a touch screen and/or keyboard to fit your needs. The industry-standard SDR file format is compatible with most PC software programs, and it offers inter-operability with most popular total station, Sokkia digital electronic level, and laser ranger finder to fit an endless list of applications.

The **Spectrum Survey Suite** post-processing software provides unparalleled performance and ease-of-use when your project demands greater accuracy. The Suite includes Spectrum Survey, Planning, and ProLINK.

Planning – Take on tougher tasks because you can eliminate the guesswork from data collection by predicting satellite location, geometry, and visibility before leaving the office.

Spectrum Survey – Offers a simple and accurate method of finding surveyed point coordinates by post-processing GPS survey data simultaneously collected by two or more GPS receivers. As well, you can perform a least-squares adjustment of all data, and use Spectrum Survey's tools to rigorously analyze the results.

ProLINK – Can convert data to and from a wide range of predefined data formats. ProLINK's Conversion Definition Manager also enables you to create user-defined data formats to suit your specific needs.

Other features include:

- **Rubber shock bumper** completely protects the receiver in a 1-meter pole drop
- **Water- and dust-resistant design** enables you to use it in harsh environments
- **Occupation timer** indicates the end of session based on baseline length for post-processed surveys to prevent you from stopping an occupation before enough data has been collected
- **Blunder detection tools and in-depth analysis** on post-processed solutions ensure reliable results

Target Markets

GSR2600 was designed with the end-user in mind. It's **simple to use, operate, and produce high quality results**. First-time GPS users will have no trouble understanding how to assemble and use this system.

Designed for RTK and post-processing, GSR2600 uses both its LCD screen and the SDR Level 5 as the user-interface. Users who are already familiar with the SDR workflow will be able to get up-to-speed with the GSR2600 system in no time.

GPS experts will also appreciate the design and flexibility of the GSR2600 System. The GPS technology in GSR2600 can be used in any position-based application where the best possible accuracy is required. Quality indicators displayed on screens in the LCD help users validate data as it is being collected. The SDR Level 5 software adds efficiency to all survey jobs by managing data in topographic surveys, stakeout, and COGO operations.

Some examples of where GSR2600 is effective include:

Markets/Application
STATIC APPLICATIONS
Boundary surveys
Control densification
Establish station pairs for total station survey
Position aerial photo panels
Position aerial towers
Section corner surveys
KINEMATIC APPLICATIONS
As-built mapping
Construction stakeout
Map utility lines, cables, and piping
Natural resource mapping
Plan haul roads
Road construction surveys
Topographic mapping

Configurations

Recommended comprehensive configurations are provided and include everything needed to perform RTK and post-processed surveys. Each portion of the kit is broken out to offer the flexibility to meet a range of applications. For more information, see the *Deliverable* section of this Sales and Support Kit.

GSR2600 DEALER OVERVIEW

The following concise information will help you to understand the major features of the GSR2600 system. Knowing these points will aid you in selling the GSR2600.

Easy-to-Use

- The GSR2600 is ideal for a wide variety of applications that requires high accuracy standards. The system operates in real-time kinematic (RTK) mode to obtain centimeter-level results and in post-processing mode to obtain millimeter-level results.
- Base RTK receiver automatically starts operation without user input – user only needs to turn on the receiver.
- Reliable operations, even in adverse conditions
- Rugged enough to withstand a 1-meter pole drop, water-resistant (buoyant) and dust-resistant.
- LCD's menu system enables the user to monitor information such as GPS position, or edit settings on the receiver such as programming a factory reset.
- LCD screen flashes LOGGING while data logging is in progress. This feature prevents the user from removing CompactFlash while recording.
- SK-600 antenna features Pinwheel™ technology providing choke ring accuracy without the choke ring.
- Optional battery pack clips easily onto the GSR2600 to provide the unit with integrated batteries. The battery pack's LEDs indicate usage thereby enabling the user to swap new batteries without disrupting operation.
- The SDR8100 RTK Controller minimizes learning time because it has a familiar, intuitive workflow. It follows the same procedures for operating the RTK system, a total station, or a laser range finder.
- Spectrum Survey Suite software includes an interactive graphical interface and an automated workflow to guide new users through the software. Advanced controls are also available for experienced users.
- Spectrum Survey offers many data analysis tools such as graphical network views, residual graphs, satellite observation graphs, loop closures, summarized and detailed reports for determining the most reliable results.
- Ergonomic rover backpack is light and easy to carry
- Supporting materials shorten learning curve and provide a quick reference for operators.

Efficient

- Occupation timer indicates to the user when sufficient data has been collected based on baseline length.
- CompactFlash card can be accessed directly in a PC (using a PCMCIA card adapter) without requiring serial download for quick downloading in the office.
- Fast initializations and updates with minimal latency.
- Batteries and CompactFlash card are compatible with other Sokkia instruments and are commercially available and inexpensive compared to other systems.

Data from all SDR-supported sensors (including various models of GPS RTK systems, electronic total stations, laser range finders and electronic digital levels) are stored in the same job with the standard SDR format for use in various surveying software packages.

GSR2600 CUSTOMER BULLETIN

From its intuitive LCD menu system, to its integrated memory, the GSR2600 is a powerful GPS receiver. As a system, the GSR2600 comes together with the SK-600 antenna, optional battery pack, optional handheld data collector (SDR 8100 with SDR Level 5 software), and Spectrum Survey Suite software. The GSR2600 is a comprehensive, high-accuracy GPS solution created for use in post-processed and Real-Time Kinematic applications.

GSR2600 System Features

- State-of-the-art Real-Time Kinematic (RTK) post-process, dual-frequency, 12-channel, survey-grade GPS receiver can be used in a variety of applications such as topographic mapping, control surveys and construction staking
- Low power consumption (4W typical)
- Rugged shock resistant, water-resistant, and buoyant enclosure
- L1/L2 GPS technology (Code: L1 C/A Code & L2 P-Code and Carrier: L1 & L2 tracking)
- Patented Pulse Aperture Correlator (PAC) technology improves tracking techniques and reduces multipath reception and distortion four times better than standard (wide) or narrow correlator receivers
- Capability to log data to a removable CompactFlash data card (ATA-type mass storage card)
- The SK-600 Pinwheel™ technology antenna that precisely aligns the L1 and L2 phase center and minimizes multi-path to the same degree as a choke-ring antenna
- Scheduled data collection is possible where user interaction is not required (low power mode between scheduled data collection sessions)
- Two bi-directional serial ports that have power/data support, and can transfer data at rates up to 115,200 bps (bits per second)
- Ionospheric corrections automatically used in position calculations
- Fast re-acquisition
- CMR, RTCM, and RTCA RTK formats provide interoperability with other manufacturers GPS equipment.
- The GSR2600 receiver has a power button that allows autonomous data logging without the need for an external device.
- The GSR2600 rover system comes with an ergonomic, lightweight backpack that helps to provide hours of field operation without fatigue.
- When combined with the optional SDR 8100 data collector running SDR Level 5 software, and the Spectrum Survey Suite software, this GPS system offers many benefits in productivity to the user over other systems
- Spectrum Survey Suite V3 post-processing software enables the user to easily and reliably manage, process and adjust GPS data. The interactive, graphical interface is easy to operate and easy to interpret.
- ProLINK™ software facilitates the exchange of information between data collectors and various CAD and mapping software applications.
- Planning Software helps determine the best conditions for GPS survey by providing graphs that display satellite coverage.

FREQUENTLY ASKED QUESTIONS (FAQ)

GSR2600 FAQs

The following sections provide answers to some of the frequently asked questions about the GSR2600 system.

- **GSR2600 Receiver**
- **GSR2600 Compatibility**
- **SDR Level 5**
- **Spectrum Survey Suite V3 Post-Processing Software**

GSR2600 Receiver

- 1. How many channels does the GSR2600 have?**
The GSR2600 has 12 parallel channels for both the L1 and L2 frequency.
- 2. Can the GSR2600 be used in a real-time mode?**
The GSR2600 was designed for real-time applications and for post-processing applications as well.
- 3. What is required for real-time data collection and stakeout?**
Several configurations are recommended for real-time surveying that includes GSR2600 receiver kits, an SDR8100 Data Controller and a pair of radio/modems. This system can be used for construction stakeout, topographic surveys, road projects, etc.
- 4. What is the required initialization time to achieve the published RTK accuracy?**
The typical initialization time required once satellite lock is achieved is less than one minute. This time assumes the receiver is tracking at least five satellites simultaneously.
- 5. Can the GSR2600 memory be upgraded?**
Yes, several CompactFlash memory cards have been fully tested in the GSR2600 receiver, and memory cards currently supported include 8MB to 80MB cards from SanDisk with industrial temperature specifications. Other CompactFlash cards may also work but should be tested before field use. Contact your local dealer for more detailed information.
- 6. Can the CompactFlash cards be formatted using a PC?**
Yes, the cards can be re-formatted using a PC.
- 7. How much GPS data can be stored on the cards?**
Assuming a typical configuration consisting of: 10 second data collection rate, dual-frequency data, and an average of 8 satellites tracked, the GSR2600 will store approximately 127 KB of raw data to the CompactFlash each hour. This means an 8 MB card can store approximately 63 hours of data.
- 8. Is a power saving mode available on the GSR2600?**
Yes, the GSR2600 includes a sleep mode that operates the receiver on minimal power until user input or a scheduled event occurs.
- 9. Can multiple schedule events be programmed into the GSR2600?**
Yes, the GSR2600 can accept several pre-programmed events and operate each event while enabling sleep mode between the events to save power. The receiver will wake up shortly before a programmed event to start tracking satellites for data collection. Create a schedule in the Planning software and send it to the receiver.

10. How long will the rechargeable batteries last?

The GSR2600 can operate for approximately 6.75 hours using the three 1.3 AmpHour BDC46 batteries (Li-Ion, 7.2V each). The three BDC46 batteries will provide approximately 6 hours when supplying power to the GSR2600, SDR8100 and rover radio/modem, at room temperature. You must use fully charged BDC46 batteries for the pack LEDs to be accurate. It takes approximately 7.5 hours to recharge three BDC46 batteries in the standard CDC charger.

11. How can I figure out how long other batteries would last?

Determining battery life follows a simple formula: Wattage/Voltage = Amperage. Then divide the amperage by the number of amperage-hours from the battery. For example: GSR2600 consumes 4 Watts on average and each BDC46 has 7.2 Volts and 1.3 Amp hours.

$$W/V = A, 4/7 = 0.556 \text{ Amps}$$

$$\text{Amp hours/Amps} = \text{battery life}, 1.3/0.556 = 2.34 \text{ hours (per battery)}$$

It should be noted that this is the theoretical battery life because of variables such as the power consumption, age of the battery, battery drain curve, temperature, etc.

12. How does the receiver draw power from three batteries? One at a time? If so, which one first?

The GSR2600 will draw power one battery at a time, starting with battery A as labeled on the battery compartment. When this battery is discharged (drops below 6.5 V DC), power is switched to battery B. If the second battery becomes fully discharged, it switches to battery C. If all batteries are discharged and a new battery is not installed, the GSR2600 closes all files and shuts itself off. The LED next to each battery indicates which battery is currently being used. When not in use, batteries may be removed and replaced, one at a time, without disturbing the operation of the GSR2600.

13. Will I lose any of my data when I remove the batteries?

No, data will not be lost. GSR2600 receivers write data to the CompactFlash, which stores and retains data independent of power supply. In fact, if data is being recorded and power is lost for some reason, no more than five minutes of data will be lost. In real-time applications, data is stored on the SDR8100.

14. What is the range of epoch intervals I can use?

GSR2600 can be set to record raw data (satellite ranges for post-processing) from as often as 0.1 seconds (10Hz). Real time positions may be collected at a 1-second rate. Static surveys are typically collected at a 10-second recording interval, and kinematic surveys at a 2-second rate.

15. Can the GSR2600 be turned on without using the power button?

Yes, but only when the receiver is in off mode. While off, the GSR2600 can be turned on with any type of COM port activity. If a device is connected to the GSR2600 and a command/message is sent to the receiver, the GSR2600 will automatically turn on. It is important to note that when the GSR2600 is turned on through the COM port, it will not proceed with the standard power-up group. Rather, it will wait for specific commands through the COM port.

16. Can I use external power with the GSR2600?

Yes, the GSR2600 accepts power with a range from +6 to +18 Volts.

17. Can I use generic internal batteries and chargers with the GSR2600?

Yes, various generic batteries and chargers are available that can power the GSR2600. They must be similar to the BDC46 battery and CDC charger. One battery that has been tested and performs well is the Lenmar LIM550 Li-Ion battery (7.2V - 1550mAh). The Ambico Li-Ion charger V-0916A is also compatible. That battery and charger are compatible with the Sony InfoLithium Camcorders. Before using other batteries and chargers make sure they meet the GSR2600 power requirements. Be aware however that Sokkia and POINT are not responsible for damage caused by generic batteries and chargers.

18. How much power is output by the GSR2600 COM ports?

The amount of power output by the COM ports on GSR2600 is approximately equal to the input voltage. In the case of the internal BDC46 batteries the COM ports will deliver approximately 7.2 Volts. As the battery drains, the power output will be less therefore it is possible that the PDL rover or other devices may have to rely on their own power source when the batteries in the GSR2600 run low. Be sure to check your external device for its acceptable voltage input – it may require a separate power source altogether.

19. Does the GSR2600 support wireless communication?

No.

20. What is the default elevation mask in the GSR2600?

The default elevation mask in the GSR2600 is zero. The GSR2600 will track and use satellites that are above a zero degree elevation mask. However, the SDR8100 and Spectrum Survey Suite V3 software are set to use only satellites above a 10 or 15-degree elevation mask. For that reason, the display on the GSR2600 may indicate that more satellites are being used than what appears in the software.

GSR2600 Compatibility

1. Can the GSR2600 system be used with the Radian or Radian IS?

Yes, the GSR2600 data may be used to perform post-processed and real-time surveys in combination with Radian Family of Receivers.

2. Can the GSR2600 system be used with receivers from other manufacturers?

The GSR2600 can be used with nearly all GPS systems in a post-processed survey. Spectrum Survey software reads native Sokkia, NovAtel, Ashtech and Trimble (*.dat) files. Other systems can be used, but would have to be converted to the RINEX format. The GSR2600 is also compatible with the Sokkia Radian Family of Receivers and with receivers that support RTCM 18/19, RTCM 20/21, and CMR2 formats in a real-time kinematic survey.

3. Is the GSR2600 environmentally protected?

The GSR2600 is designed to operate in the most challenging field conditions, including wind-driven rain and dust. The GSR2600 is waterproof, submersible and buoyant (IPX7). The GSR2600 can also withstand a 1-meter pole drop and wide temperature range.

4. Is the GSR2600 compatible with other data collection software?

The GSR2600 is compatible with software that supports the Radian IS receivers. For example, the SDR Level 5 software.

SDR Level 5

1. What kind of hardware can I use with the SDR Level 5?

The SDR8100. Also, various handheld PCs that operate on Windows CE software may be compatible with SDR Level 5. The first software will be specifically configured for the DAP CE5320 but other lower cost and less rugged devices, such as the Compaq iPAQ will be an option.

2. What instruments work with SDR Level 5?

SDR Level 5 can be configured to work with electronic total stations, digital levels, laser range finders and GPS receivers.

3. What functions are available with SDR Level 5?

SDR Level 5 retains all previous functionality including COGO functions (Roading, Leveling, and graphical solutions), GPS and ETS setups, and computing and transferring survey data in the coordinate system of your choice.

4. Where is data stored in the field?

The system is capable of storing real-time data on the SDR8100 and GPS measurements for post-processing on the GSR2600 CompactFlash memory card.

5. **Is the SDR RTK compatible with other receivers?**
Yes, the SDR can be used with Sokkia Radian, Radian IS, GSR2200, GSR2300, GSR2400, GSR2600, as well as the previous NovAtel Outrider product
6. **Is the SDR required to start a GSR2600 when used as base RTK receiver?**
No, you can manually start the GSR2600 by pressing the power button. It is recommended for the user to allow the GSR2600 to automatically perform the base RTK functions without connecting the SDR. The GSR2600 default power-up group will (when powered on using the power button) initialize, open a file, start tracking satellites, record data, average the base position for 90 seconds, fix the base position and broadcast the RTK correction out of COM2 at a one second interval.
7. **Can other software programs reside on the same data collector?**
Yes, the Windows CE operating system allows the user to store and run any compatible program using the same hardware platform. Plus, the standard Windows CE device can be used as a personal organizer or for any other compatible function.
8. **Does the data collector hardware have to include a keyboard? Touch screen?**
Yes. The SDR8100 has multi-function 40-key alphanumeric keyboard (with backlit keypad) and touch screen. The DAP CE5320 has both a keyboard and a Touch screen.
9. **What version of Windows CE is compatible with SDR Level 5?**
Win CE 3.0.
10. **Are there different configurations of the SDR Level 5 programs?**
SDR Level 5 is offered with all available functionality and instrument support (no expert, standard enhanced or standard versions). Menu items can be removed however, by using the program manager.

Spectrum Survey Suite V3 Post-Processing Software

1. **Can I perform network adjustments with Spectrum Survey?**
Yes, the Spectrum Survey Suite V3 has an integrated network adjustment module.
2. **Do I have to start my project in WGS-84 lat/lon?**
No, Spectrum Survey gives you the ability to start your project in the system defined by the project. This means that no conversion is necessary to be able to start your project. Spectrum Survey gives you the option of working in three types of horizontal coordinate systems: Local Grid, Grid System, or Geodetic.
3. **Can I use Spectrum Survey without a hardware security device?**
Yes. Spectrum Survey can run without a dongle and will allow you to perform all tasks from GPS data processing, loop closures and network adjustments. Without a dongle, you can process (L1 C/A carrier only) but results will be degraded. If you want to use and process L1/L2 GPS data (as available from the GSR2600), you need to purchase the appropriate version of Spectrum Survey, which will include a dongle that must be attached to your computers parallel port.
4. **Which Sokkia receivers does Spectrum Survey support?**
Spectrum Survey supports the GSR-series, Stratus, Locus, GSS1A, Radian, and Radian IS receivers. Users will not be able to download data from Locus receivers.
5. **Which data files can be imported to Spectrum Survey?**
Sokkia (*.pdc, *.gsr), Ashtech (u*.*, b/e/s files), GSS1A, Precise ephemeris (*.sp3), Trimble (*.dat), RINEX (*.yyo, *.yyn, *.yym)
6. **What are the software requirements?**
The software requires Windows 9x, NT, ME, or 2000 Pentium class, 64 MB of available hard disk space and 16 MB RAM.
7. **How many points and files can I have in my project?**
Spectrum Survey places no limitations of maximum number of points or files within a project.

8. What export capabilities does Spectrum Survey have?

Two basic types of exports are provided: (1) Raw data files may be exported as RINEX and (2) processed/adjusted points and vectors can be exported as SDR, ASCII, IOB and SGL files. Additional formats can be obtained through the use of ProLINK.

9. Can I create custom reports?

No. Spectrum Survey does not have custom report capabilities. However, ProLINK does have custom exports.

10. Does Spectrum Survey work with local coordinate systems?

Yes. Spectrum Survey supports numerous coordinate systems and user-defined systems. These local coordinate systems are used for known coordinate input, as well as coordinate exports.

11. Can I define my own coordinate systems?

Yes. The Mapping System Selection (available by selecting **Edit | Coordinate System** from the main menu) provides a flexible and comprehensive method to create, edit and delete user-defined coordinate systems.

12. I augment my surveys with data from a CORS (Continuously Operating Reference Site) site that does not have a Sokkia receiver. Does Spectrum Survey allow for use of CORS data?

Yes. CORS data is generally available in RINEX format. RINEX format is fully supported in Spectrum Survey. To insure accurate results, CORS station coordinates and antenna information must be manually entered in Spectrum Survey. It is possible, however, to create new antenna types in Spectrum Survey (**Tools | Options | Antenna Types**) to accommodate for different antenna types used by CORS sites.

13. What is a kinematic trajectory?

A kinematic trajectory is the points that are collected while the roving receiver is moving. In other words, kinematic trajectory is a kinematic survey.

14. Do I have to enter known coordinates for processing to start?

No. The processor automatically selects a reference station and uses its coordinate value. If real world values are required, then you should enter known coordinate values and select this point as your reference station.

15. Can I mix GSR data from older receivers with the new GSR2600 PDC data?

Yes.

16. Can I mix Stratus data with Locus data?

Yes. Locus GPS receiver files are useable in Spectrum Survey. Locus handheld files, however, are not recognized. Locus must be downloaded in the Locus software but the native files (B, E, S) are directly compatible with Spectrum Survey and all Sokkia receivers.

17. What accuracy can Spectrum Survey's Network adjustment achieve?

All Network adjustment statistics are calculated at a 95 percent (2 Sigma) confidence level by default or 99 percent (3 Sigma) confidence level. This can be selected through the adjustment settings.

18. What adjustment reports can Spectrum Survey generate?

Spectrum Survey produces the following reports: Processing Summary, Vector Summary, Trajectory Summary, Loop Closure, Residual Only and Full Adjustment reports.

19. What analysis tools are available?

Spectrum Survey provides several tools for you to use in analyzing your data. With the Plan View, you can visually evaluate your data. Spectrum also provides the capability to perform loop closures to further identify suspect vectors, along with the option to repeat baseline tests. Also provided are detailed processing, vector, trajectory, residual and adjustment summaries, along with vector and trajectory residual plots.

20. How do I get an almanac

An ASCII YUMA almanac can be downloaded from the web (<http://www.navcen.uscg.gov/gps>), or you may use the *.pdc almanac file created by the GSR2600 receiver. Almanac information can also be obtained from the *.gps file created by the Stratus receiver. Almanacs can be imported into Planning by selecting **File | Almanac** from the main menu.

21. I have an old Planning almanac. Can I still use it?

Yes. For best results, you should use a current almanac that is less than a month old.

22. Can I select multiple points for a Planning session?

Yes. You can select up to two points for a session. If you choose to select two points, your Planning session will be based on the middle point between the two selected points.

23. What is a configuration?

A configuration is a file that tells the receiver what type of data to collect (log type), how often the data should be collected (interval) and where the data should be stored (For example, PCMCIA card).

24. What is a schedule?

A schedule contains configurations and tells the receiver when to start and stop data collection. Only Radian, Radian IS, and GSR2600 receivers can be uploaded with schedules/configurations.

25. Is there a default configuration already setup?

Yes. The POWERUP group already exists and is pre-installed on the Radian, Radian IS, and GSR2600 receivers. As well, several other configurations have been predefined in the Planning software that enables the user to quickly select options for surveying.

26. What is the POWERUP group?

This group is a configuration that exists by default on your Radian, Radian IS, and GSR2600 receiver and is preset in Planning. The POWERUP group will override all schedules on your receiver when the receiver is first powered on. If you plan to go data collecting, and do not want the POWERUP group to run when you power on your receiver, delete the POWERUP group from the receiver before heading out to the field. With the POWERUP group deleted, your receiver will go into sleep mode when it is powered on and awake for your scheduled data collection sessions.

27. Can I edit the default configuration?

Yes. You can edit all configurations by selecting **Receiver | Edit Configurations**.

COMPETITIVE ANALYSIS OF SOKKIA GSR2600

This section of the GSR2600 kit provides the competitive analyses and system advantages for the GSR2600 GPS system. The systems in the analysis have been chosen because of their likeness to the GSR2600, and all systems in this comparison are dual-frequency, capable of RTK and post-processed surveys.

Sokkia GSR2600 Competitive Comparison				
Manufacturer/Model	Sokkia/GSR2600	Trimble/5700	Leica/SR530	Ashtech/Z-Xtreme
Accuracy				
RTK @ 1 Hz (Horz.)	1.0 cm + 1 ppm	1 cm + 1 ppm	1.0 cm + 2 ppm	1.0 cm + 2 ppm
Vertical	2.0 cm + 1 ppm	2 cm + 1 ppm	2.0 cm + 2 ppm	2.0 cm + 2 ppm
RTK @ 5 Hz (Horz.)	1.0 cm + 1 ppm	N/A	1.0 cm + 2 ppm	N/A
Vertical	2.0 cm + 1 ppm	N/A	2.0 cm + 2 ppm	N/A
Static (Horz.)	0.5 cm + 1 ppm	0.5 cm + 0.5 ppm	0.3 cm + 0.5 ppm	0.5 cm + 1 ppm
Vertical	1.0 cm + 1 ppm	0.5 cm + 1 ppm	0.6 cm + 1 ppm	1.0 cm + 2 ppm
Tracking & Initialization				
Cold Start* (sec)	50	N/A	180	Not published
Reacquisition*** (sec)	0.5 L1, 6 L2	N/A	10	1
Data Rates	10 Hz	10 Hz	N/A	N/A
RTK Initial. Reliability	99.9%	99.9%	99.99%	99.9%
RTK Initial. Time (sec)	60	10 + 0.5 times baseline	30	< 2
Integrated System				
Receiver	Yes	Yes	Yes	Yes
Antenna	No. SK-600, choke-ring performance	No. Zephyr	No. Same as SK-502	No. Geodetic 4
Radio	No	Yes	No	Yes
Batteries	Yes (with optional battery pack)	Yes	Yes	Yes
Data Recording	Yes	Yes	Yes	N/A
Data Communication				
Number Channels	12	12	12	12
Number Serial Ports	2 (plus Auxcom)	3	4	3
Maximum Baud	115,200	USB @ 1 megabit / sec	115,200	115,200
Power				
Battery Type	3 Camcldr Li-Ion	2 internal camcorder	2 Camcldr NiMH	NiMH smart bat.
Rechargeable	Yes	Yes	Yes	Yes

Sokkia GSR2600 Competitive Comparison				
Manufacturer/Model	Sokkia/GSR2600	Trimble/5700	Leica/SR530	Ashtech/Z-Xtreme
Battery Life (hrs)	6.75	7	6 (incl. Terminal)	10
External Power Option	Yes	Yes	Yes	Yes
Commercially Avail	Yes	No	Yes	No
Same Battery w/Static	Yes	Yes	Yes	Yes
Wattage (w/o radio)	4	2.5	7 (incl. Terminal)	6
Hot swap	Yes	No	Yes	No
On-board Memory				
Memory Option	CompactFlash	CompactFlash	PCMCIA card	PCMCIA card
Removable Memory	Yes	Yes	Yes	Yes
10s rate and 8 SV	63 hours (8 Mb)	2500 hours (96 Mb)	195 hours (10Mb)	100 hours (16Mb)
Display				
Front Panel LCD Display/Keypad	Yes	No	No	No
Power	Yes (LCD and LED)	Yes (LED)	Yes (LED)	Yes (LED)
SV Tracking	Yes (LCD)	Yes (LED)	Yes (LED)	Yes (LED)
Available Memory	Yes (LCD)	Yes (LED)	Yes (LED)	Yes (LED)
Occupation Timer	Yes (LCD)	No	No	No
Environmental Specifications				
Weight of Receiver, Antenna	1.3 kg (2.9 lb)	1.4 kg + antenna (3.1 lb)	1.63 kg (3.6 lb)	2.40 kg (5.3 lbs)
Size (cm) (l x w x h)	15.3 x 16 x 7	23 D x 18 H	21W x 17H x 7D	20W x 8H x 22D
Operating Temperature	-40 to +55 C (-20 C using LCD)	-40 to +65 C	-20 to +55 C	-30 to +55 C
Water Resistance	Resistant (equiv IPX7-RTCA/DO-160D cat.R)	Resistant (IPX7, MIL-STD-810F)	100% humidity	MIL-STD 810E
Buoyant	Yes	Yes	No	No
W/stdnd 1 m pole drop	Yes	Yes	Not applicable	Not applicable
Input/Output Options				
RTCM SC-104 in	Yes	Yes	Yes	Yes (extra \$)
RTCM SC-104 out	Yes	Yes	Yes	Yes (extra \$)
NMEA-0183 out	Yes	Yes	Yes	Yes
CMR in/out	Yes	Yes	Yes	No
RTCA in/out	Yes	No	No	No
* Cold Start = the ephemeris, almanac and initial position and time are unknown. ** Warm Start = recent almanac, current time and initial position are available but no current ephemeris. *** Reacquisition = based on the loss of signal for at least one minute.				

The GSR2600 System Advantage

- **Power**–The OEM4 GPS board is very powerful, but consumes very little power – extending the life of your batteries!
- **Precision** - The antenna uses Pinwheel Technology to precisely align the L1 and L2 phase centers and minimize multi-path to the same degree as a choke-ring antenna.
- **Simplify your Work**–The battery LEDs – located next to the battery compartments – indicate usage. This enables the batteries to be replaced during use without disrupting operation.
- **Ease-of-Use**- The LCD display of the front panel, along with a keypad, enables access to commands and system messages without the use of a handheld controller. Now you can have even more control over the operations of your receiver, or simply check-up on the system status.
- **Reliable Data**–Whatever your application, the GSR2600 has an L1/L2 12-channel receiver that handles both post-processed and Real-Time Kinematic (RTK) surveys. By offering post-processed and Real-Time Kinematic survey modes of operation, GSR2600 can provide the most accurate and reliable information throughout the survey.
- **Able to Survive the Toughest Environments**–A rubber shock bumper and industrial plastics make GSR2600 a very rugged product that is able to withstand a 1-meter pole drop.
- **Shorten the Learning Curve**–GSR2600 cuts the learning curve in half because it was designed with the end-user in mind. The Base RTK receiver automatically starts operation without user input – the user only needs to turn on the receiver. The familiar and intuitive workflow of the SDR enables you to put this system to work immediately.
- **Spectrum Survey**–The Spectrum Survey software provides automated workflow, blunder detection, and an interactive graphical interface, making it simple to process data even for the most novice user. Plus, advanced controls are available for experienced users.
- **Competitive Price**–The GSR2600 system has been priced to be very competitive with other GPS systems, whether for RTK surveys or post-processed surveys.
- **SDR8100 Data Collector**–The GSR2600 data collector, the SDR8100, is an industry standard with which users are familiar and comfortable using its workflow. The software enables users to use the same data collector with a GPS receiver or ETS.
- **GPS Receiver**–A receiver using the latest GPS technology.
- **RTK Functionality**–A GPS receiver capable of RTK surveys where centimeter-level accuracy is required.
- **RTK Integrity**–The system is not only capable of providing results in Real-Time Kinematic, but it also provides the ability to QA results so that only good data is collected.
- **RTK Formats**–The GSR2600 receiver is capable of supporting several common RTK data formats from other GPS receivers, providing the ability to mix and match hardware with GSR2600.
- **Log Raw Data**–The system provides the ability to log raw GPS data in addition to RTK data. This provides the ability to check RTK data and the ability to use raw GPS data in RTK outage situations.

- **All in View**—A GPS receiver capable of “seeing” and tracking all available GPS satellites at a given time.
- **Accessible Batteries**—Off-the-shelf camcorder Li-Ion are used to power the GSR2600 (Power requirements should be checked prior to using an unknown battery).
- **Optional Battery Pack** – The optional battery pack is easily hooked to the GSR2600 to complete your system.
- **System Hardcase**—A customized system hardcase that houses all of the equipment required for an RTK base, rover, or for static surveys, has been specifically designed for use by the GSR2600 system. This protective case enables easy transportation and shipping from site to site, as well as easy setup in the field.

POSITIONING DATA LINK (PDL) RADIO INFORMATION

Available with the GSR2600 system are state-of-the-art PDL radios from Pacific Crest Corporation. These radios can be purchased separately or as part of a complete GSR2600 system. For more information on Pacific Crest Corporation, visit their Website at <http://www.paccrst.com/>.

Customer Benefits

- Higher baud rate lowers power consumption (smaller battery), reduces heat (better reliability, no fan required) and reduces latency (better GPS data)
- Lighter base station and battery reduces the load your customers carry into the field
- The complete PDL system includes everything users will need—including cables, antennas, mounts and chargers
- Support available. Pacific Crest understands GPS RTK and is dedicated to the customer's success

How do PDLs stand up against the competition?

Manufacturer	PDL Radios	Competition
General Features		
Over-the-Air Baud Rate	19,200 or 9,600 bps	4,800 bps
Forward Error Correction	Yes	No
Multiple Protocols (Compatibility)	RFM and Trimtalk™ Protocols	Trimtalk Protocols
Warranty	2 Year Limited	1 Year Limited
Base Features		
Channel Selection	Automatic/Manual Channel Selection	Manual Channel Selection Only
RF Power Selections	High and Low	High Only
Weight	3.2 lbs	10.6 lbs
Telescoping Tripod Mast	Yes	No
Base Station Battery Size	33 aHr – 25 lbs	65 aHr – 52 lbs (typical)
Power Consumption (1 Hz CMR RTK)	13 Watts (typical)	46 Watts (typical)
Rover Features		
Rover Synchronization (automatic)	Rover Locks on to Base Channel	No
Modem Status (channel display)	Carrier Detect on LED	No (use data collector to view)
Independent Rover Battery	Yes (all day lithium metal)	No (takes power from the GPS)

PDL Tips and Techniques

- Extend PDL Base antenna mast as high as is practical and safe.
- Inspect and replace cables and antennas that are worn or damaged.
- Charge batteries following every use.
- Obey local regulations for licensing, shared channel access and call sign identification.
- Get annual equipment tune-up for a nominal fee. Contact Pacific Crest Corporation for details.
- PDL Rover measures 20 cm \pm 0.1 cm (7.874 in \pm 0.0394 in)

An Update on PDL Radios

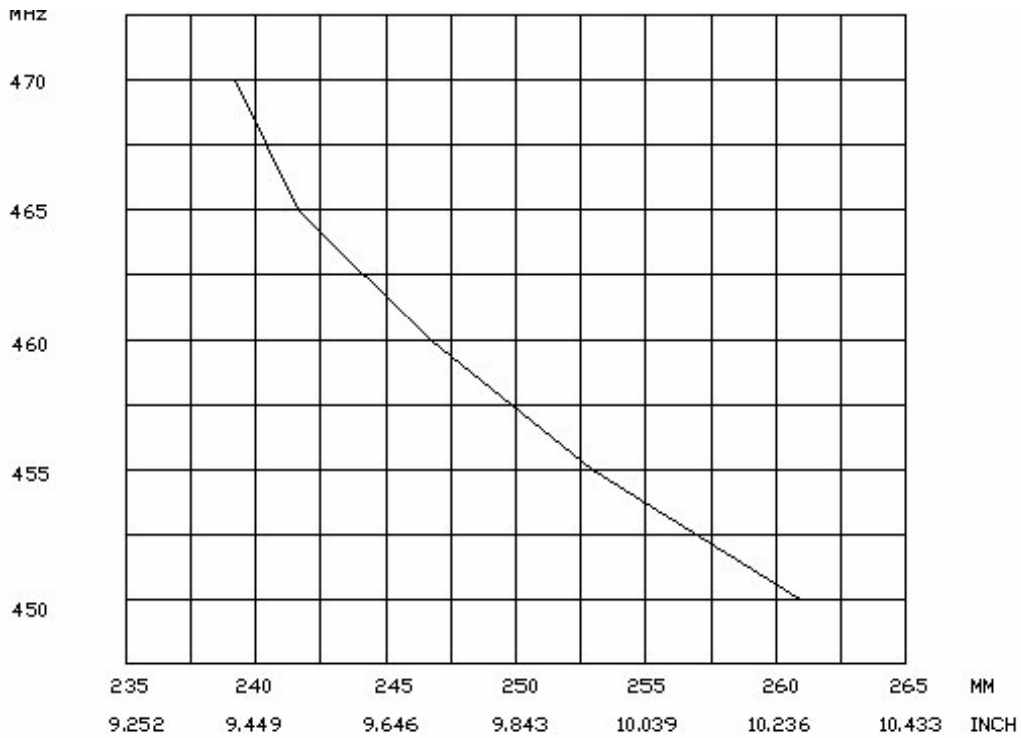
Adjusting antenna length for local frequency – PDL Rover radios supplied with GSR2600 systems are equipped standard with a 2.3dB whip antenna (approximately 12 inches in overall length). Because this antenna is designed for all markets, it may not be the optimal length for your radio frequency.



Recommendation: If you choose to optimize the whip antenna for your frequency, the antenna itself must be cut to the appropriate length.

Note: If the antenna is cut too short, it may not function properly at your frequency and may have to be replaced.

To cut the antenna, first loosen the two set screws in the antenna base and pull the antenna from the base assembly. Carefully measure the appropriate length for the antenna from the anti-static ball at the top of the antenna. Cut the antenna at the bottom, blunt end and remove any burrs. Reassemble the antenna. The following chart lists the optimal whip lengths for standard radio frequencies. The lengths indicated below refer only to the antenna rod portion and not to the base assembly:



Support Information

Pacific Crest Corporation

Address: Suite 110, 990 Richard Avenue, Santa Clara, Calif., 95050

Tel: 1-800-795-1001 (U.S. and Canada)
1-408-653-2070 (International)

Fax: 1-408-748-9984

E-mail: support@pacrst.com

QUOTE TEMPLATE

This section provides the following documents to directly assist your sales efforts for the GSR2600.

- **Bid Specifications** – Lists the GSR2600 specifications, including the functional, hardware, and software requirements.
- **Purchase Proposal** – Can be used as-is or modified to meet the sales requirements of your individual market. This sample is *based on U.S. dollar values* and that the credit portion of the quotation is *applicable to the U.S. market*.
- **Sokkia GSR2600 Financing Options** – From the *Sokkia Credit Corporation*, provides financing options for the GSR2600, including zero percent loan, market loan rate, rent-to-own lease, “10-9-10” lease, and market rate lease.
- **Sokkia Credit Corporation Financing Proposals** – Will help to determine the price of your selected system.

BID SPECIFICATIONS

The GSR2600 Bid Specifications include the general clauses and conditions, as well as the functional requirements for the product's components, including the hardware and software components and processing functionality.

GENERAL CLAUSES AND CONDITIONS

July 2002

The equipment furnished under these specifications shall be the latest improved model in current production to commercial trade, and shall be of quality workmanship and material. The bidder represents that all equipment offered under these specifications shall be new. USED, SHOPWORN, DEMONSTRATOR, PROTOTYPE, OR DISCONTINUED MODELS ARE NOT ACCEPTABLE.

Bidders are requested to submit with their bid the latest print literature and detailed specifications of the equipment offered.

All parts not specifically mentioned that are necessary for the unit to be complete and ready for operation, or which are normally furnished as standard equipment, shall be furnished by the successful bidder. All parts shall conform in strength, quality, and workmanship to the accepted standard of the industry.

Any variation from these specifications must be included on the Bid or on a separate attachment to the Bid. This sheet shall be labeled as such.

Specifications – Functional Requirements

General Description

The high precision GPS measurement system must have the following items:

- 12 parallel channel “all-in-view” GPS receiver with real-time kinematic positioning capability and on-the-fly (OTF) initialization.
- Handheld controller operating on the Windows CE operating system as a user-interface with functionality that includes RTK data collection, assigning feature codes, topographic mapping, set-out coordinates, lines and arcs and road design surveying.
- Minimum of three rechargeable receiver batteries per receiver.
- 2 dual-battery AC chargers per receiver.
- H.I. measuring tape.
- Operations manual, Quick Reference and setup guide.
- Receiver kit hard case.
- L1/L2 Pinwheel technology antenna.

Receiver

- GPS receiver shall have 12 parallel channels for the L1 and L2 frequencies.
- GPS antenna must have Pinwheel™ technology.
- The antenna must have L1 and L2 phase centers located within 1mm of the actual center and it must mitigate multipath equivalent to a choke-ring antenna.

- GPS receiver shall have a LED display that indicates battery life, remaining memory, satellite usage, occupation timer, and indications when data is being recorded.
- The occupation timer must provide the user with an indication as to when enough data has been collected for a particular length of baseline.
- GPS receiver must have a power button that allows the user to turn the receiver on or off, reset the receiver to its factory defaults and erase memory.
- GPS receiver must have a 32-bit microprocessor and support 10 Hz position updates.
- GPS receiver must have delayed P-code correlation to mitigate the effects of anti-spoofing and the ability to track C/A code (on L1), P-code (on L2) and the full carrier wavelengths on L1 and L2.
- GPS receiver should automatically open a file and begin recording data after being powered on.
- GPS receiver shall have 1 PPS timing signal output and marker signal input (e.g., for photogrammetry) as standard features.
- GPS receiver must have a removable memory in the form of a standard CompactFlash memory card. The standard card provided is 8MB. Commercially available higher capacity memory cards can also be used.
- GPS receiver shall be able to be used as an RTK base or a rover.
- GPS receiver shall be capable of output of raw GPS measurements for post-processing to the internal memory card or an external device such as a PC.
- GPS receiver shall effectively track satellites at a 10-degree elevation mask.
- GPS receiver shall have one (1) power input port, two (2) RS-232 serial data ports (max. 115.2K baud) and one (1) antenna input port. The communication ports must be able to provide power to external devices such as a data controller.
- GPS receiver shall be capable of being operated from a PC using commercially available serial communication software.
- GPS receiver shall have on-the-fly (OTF) initialization in real-time kinematic surveys.
- GPS receiver shall be capable of being powered from a 6V to 18V DC power source.
- GPS receiver shall be capable of being set-up as a base unit and operate autonomously without the need for handheld controller, terminal or other external device in the field. The receiver must operate as a typical RTK base receiver just by pressing the power button.
- GPS receiver shall accept multiple user-defined scheduled events to operate at specified times without requiring the user to manually power up the unit.
- GPS receiver must be water resistant to RTCA/DO-160 D category R (equivalent to IPX7) and buoyant. It must operate in a temperature range of -40° to +55° C (-40° to +131° F) with the LCD display operating in a temperature range of -20° to +55° C (-4° to +131° F). The GPS receiver must be able to withstand a 1-meter pole drop.
- A battery pack's internal batteries must provide power to the receiver during both RTK and post-processed operations. The internal batteries must be replaceable without disrupting operation.
- The GPS receiver must not consume more than 4W to maximize battery life.
- Must be compatible with GSR2600 RTCA messages.

Controller

SDR8100 REQUIREMENTS

- Must be Microsoft Windows® CE based, with NEC 4121 MIPS Processor rated @ 131 MHz, 16 MB Flash ROM and 16 MB RAM, with additional storage via PC card.
- The display must be 320x240 pixels portrait screen with 16-level gray scale, with a touch screen, high-contrast transfective monochrome backlit screen and automatic contrast temperature compensation.
- Controller must support multi-tasking and multi-processing functions.

- Controller shall allow the user to switch between GPS, a total station, Sokkia digital electronic level, and a laser range finder without exiting a program or changing software. All instruments must be supported through one RS232 port.
- Controller, when connected with a data cable, shall be powered by the same battery that powers the GPS receiver. It must also have internal power consisting of one rechargeable, Li-Ion camcorder-style battery, and a battery status LED for indicating charging, usage, and low battery. It must be possible to charge the controller battery through the data cable.
- Controller must have 54 multi-function alphanumeric keys including direct action function keys and a large, independent, numeric keypad.
- Controller shall interface with Sokkia GPS receivers and Sokkia SET instruments including Sokkia SETCII and SETBII series in two-way communications mode. The controller shall also be usable in manual mode, i.e. with no electronic connection to a surveying instrument.
- Controller shall meet Military Standard 810(E) / IP67 for water and dust proofing and withstand a 2 meter drop. It shall have an operating temperature range of -30° to +50° C (-22° to +122° F).
- Controller shall contain built-in RPN-type calculator that includes trigonometric functions accessible through a single “hot-key”.
- Controller shall have two, accessible PCMCIA slots and two serial ports with snap-in LEMO connections. It shall be capable of data output RS232C with selectable transmission rates up to 115.2K baud.
- Controller must include a speaker, microphone and IrDA port.

GPS FUNCTIONAL REQUIREMENTS

- Controller shall support GPS receiver, total station, and laser range finder in a single software program. The user must only have to select a different instrument selection from within the same job. Each instrument type should use the same familiar functionality and work flow. The total station, GPS RTK, and laser range finder must reside in the same survey job and be calibrated to the same coordinate system.
- Controller shall perform GPS surveys without connecting to the base receiver and without knowing the base station position. The data collector must not require a connection to the base receiver. The information about known coordinates, base antenna type, and antenna height must be maintained entirely on the data collector. The data collector must allow the user to enter the known coordinates and base antenna information whether it is attached to the GPS rover receiver or disconnected completely.
- Controller shall calibrate (translate, rotate, and scale) GPS records from the current coordinate system to match a known coordinate system. The data collector must accept known coordinate values via keyboard input, directly from a total station survey in the same SDR job (or control job) or loaded from a computer. The data collector must allow the calibration to be performed multiple times, at any time before, during or after a survey and perform horizontal and vertical calibrations together or separately. The calibrations must affect the entire job regardless of when or how often the calibration was completed.
- Collector shall collect data in a single point and continuous method. The recording parameters for both recording methods must be stored independently. The data collector must support point data offsets. The continuous reading method must allow the user to collect a multitude of data points based on a time and distance interval to form a surface or linear feature.
- Controller shall control quality of readings by allowing the input of tolerances and end observation criteria. Automatically end an observation based on the quality of the solution, number of measurements, time or choose to manually end the observation. The data collector must provide warnings when the horizontal RMS, vertical RMS, total RMS and geometry values have been exceeded. It must also provide alarms based on the number of common satellites, loss of radio link, or the lack of an RTK solution.
- Controller shall provide access to review status information with one keystroke when collecting data. Status screens must allow the user to monitor the quality of the GPS data and to review current information about satellite positions, signal to noise value, common satellites, satellite geometry, satellite health, receiver location, radio message, and the RTK solutions.

- Controller shall provide GPS data compatible with the total station measurement records using the common SDR file format. It must allow the user to export directly to any software package that recognizes SDR files. The readings on the rover receiver must be stored in the job, as planar vectors comprised of an azimuth, vertical angle and a slope distance equivalent to a total station measurement. In a view or output mode, the data collector must be able display or output the GPS vector pinned to its associated station's coordinate and reduced to find the coordinates for that point. It must have further reduction to a coordinate that applies a transformation based on the most recent calibration.
- Controller shall provide support for multiple user-defined feature libraries regardless of instrument type. The data collector must be capable of collecting or staking one part of a feature using a total station, another part with a GPS receiver, and then switch back to the total station.
- Controller must be able to stake points, lines, arcs and offsets to points, lines and arcs. It must also provide the stationing, offset and cut/fill relative to a pre-defined line. COGO functions must include Inverse, Area calculation, Intersection, Taping from baseline and Point projection.
- Controller data must be output in the industry-standard SDR format. It must be able to output to a printer connected directly to the data collector. A supplemental Windows®-based communication software must support conversions to formats that are compatible with popular CAD programs, including a standard ASCII, DXF, SDMS, MOSS and ICS format.
- Data controller software must be operate on the Windows CE operating system so that it can be used on various hardware platforms. The controller must be operable from a touch-screen and keyboard.
- Controller must display an interactive graphical plan view that allows the user to get information about the points and vectors. For setting out coordinates it must have a graphical, automatically scaling, bull's-eye, and vertical cut/fill meter. For setting out lines and arcs, it must have a graphical representation of the line or arc with the user's relative position. The GPS status functionality must include a graphical skyplot of the satellite locations.

Electronic Total Station Functional Requirements

- Controller shall support a minimum of 15 different total stations from various manufacturers. The instrument selection must include Sokkia SET total stations, electronic levels and targetless laser range finders.
- Controller's total station survey programs must include: Topography, Set Collection for automating traverse data collection, Set review, Traverse adjustment, Building face survey, Collimation, Remote elevation and Set-out coordinates, lines, and arcs.
- Controller's COGO programs Inverse, Area calculation, Intersections, Point projection and Taping from baseline must support total station and GPS data.

PC GPS Post-Processing Software

- The GPS software must be fully Windows 9X, ME, XP, or NT and run on a Pentium class IBM PC with 32-bit standard graphic drivers, 16 MB RAM, and 64 MB of free space.
- The GPS software must be able to process the following survey methods with the associated accuracy.

Surveying Mode	Horizontal	Vertical
Static	0.5 cm + 1 ppm * D	1.0 cm + 1 ppm * D
Kinematic	1.0 cm + 1 ppm * D	2.0 cm + 1 ppm * D

D = baseline length (distance)

- The GPS software must have a full interactive graphical display so that users can view/edit data point and vector information in both processing and network adjustment modes.

- The GPS software must compute a 3D least squares network adjustment and compute loop closures by allowing the user to graphically select the loops on the screen. The software must allow the user to constrain the reference points in the adjustment in one, two, or three dimensions. The network adjustment must employ various weighting strategies including scalar and summation. The software must be capable of applying these strategies to the entire network or any subset.
- The GPS software must import Sokkia GSR2600, Stratus, Radian, Radian IS, and other data formats without conversion.
- The GPS software must be able to process the following formats: Sokkia (*.gsr, *.pdc), Ashtech (*.ufo, e/b/s files), Precise ephemeris (*.sp3), Trimble (*.dat), RINEX (*.yyo, *.yyn, *.yym). It must be able to process all data types simultaneously.
- The GPS software must provide an editable/updateable table of useable antenna types with appropriate offset measurements.
- The GPS software must provide the user with the capability of editing the station information (name, coordinates), height of instrument, feature codes, receiver, and antenna height. The software must also allow the user to select only a portion of the data for processing.
- The GPS software must be able to simultaneously process Static, Fast Static, Stop-and-Go, Kinematic, and Continuous Kinematic data in a single processing session. It must allow an unlimited number of receivers, points and baselines in a single processing session and be capable of automatically repairing cycle slips.
- The GPS software must provide a graphical analysis of the results and data including vector residual plots, trajectory residual plots and number of observed satellites that were recorded at each point.
- The GPS software must be completely functional for L1 processing and adjustment without hardware security.
- The GPS software must operate based on a step-by-step project start-up that walks users through starting a project and importing data and allow the user to select the automatic processing and adjustment of the data without additional input or keystrokes.
- The GPS software must support kinematic processing and on-the-fly (OTF) ambiguity resolution.
- The GPS software must be capable of automatically selecting the optimum order of baseline processing, optimum processing method and offer to automatically select the reference point for both processing and adjustment.
- The GPS software must include an advanced controls section that enables the user to perform the following functions:
 - Enable/disable specific satellites
 - Enable/disable GPS observables
 - Change processing method (solution type) from auto (best solution) to L1 fixed, L1 float, L2 fixed, L3 fixed iono-free, L3 float iono-free, L4 fixed wide-lane, L5 fixed narrow-lane and pseudorange
 - Change the elevation mask
 - Utilize precise ephemeris
 - Application of tropospheric and ionospheric corrections
- The GPS software must include automated blunder detection for incorrect site names, antenna heights, site locations, and more.
- The GPS software must convert and display data in various datums and coordinates systems. The software must accept user defined projection parameters for several projections including: Universal Transverse Mercator, Transverse Mercator, State Plane, Oblique Mercator, Alaska Conformal, Azimuthal Equidistant, Equidistant Conic, Hotine Oblique Mercator, Lambert Azimuthal, Lambert Conformal Conic, Local Grid, Polyconic, and Polar Stereographic, Stereographic.
- The GPS software must provide reports containing quality estimates that include, among others: RMS values, baseline residuals, error ellipse values, relative precision, standard deviation, PPM, internal and external reliability, a posteriori variance factor for the entire project and a chi-square test on the a posteriori variance factor. The reports must also include scales factors and convergence angles for each point.

- The GPS software must be able to export processed vector data to third-party network adjustment software, SDR observation format and various ASCII formats.
- The GPS software must have the ability to select and use any of the predefined or user-entered geoid models, thus providing the ability to display ellipsoidal and/or orthometric heights.

PLANNING SOFTWARE

- The PC software must contain multi-site GPS mission planning with the ability to graphically specify obstructions in a polar or rectangular obstruction editor.
- Planning must compute optimal observation periods and incorporate multi-site satellite obstruction diagrams.
- Planning must provide a world map with hundreds of pre-defined cities that can be used to extract the approximate location of a desired station.
- Planning must display data based on Universal Time Coordinated (UTC), GPS, and local time.
- Planning must support the use of GSR2600, Stratus, Radian-IS, Radian, and YUMA almanacs.
- Planning must perform project planning where the following can be evaluated: satellite skyplots, visibility periods, availability, etc.

DATA MANAGEMENT SOFTWARE

- PC software shall be capable of setting up a prototype job that saves default configurations.
- PC software shall have user-definable ASCII file export using point number, northing, easting, elevation, site-ID, feature code, attribute, and RMS accuracy. It shall also have predefined exports for: Auto Cogo, Bench Mark, Bonadiman, C&G standard, C&G with no quotes, Cal trans Topo, Cal trans Linear, CGP survey, CGP xyz, Civil Comp, Civil Soft, CLM, Design Plus, DigiCad, Geotop, Lewis & Lewis, Mine Chemical, MTI, New Civil Soft, Pac Soft, RoadCalc, Stadia with 3 character Pt ID, Strada, and Wildsoft Software.
- PC software shall be capable of reducing GPS derived North azimuth, vertical angle and slope distance to positions.
- PC software shall be capable of reducing GPS data and total station data in the same job.
- PC software shall be capable of downloading data from both the controller and the GPS receiver.
- PC software shall be Windows® compatible.
- PC software shall be capable of uploading SDR files for setout or control.
- PC software shall be capable of creating user-defined datums for uploading to the controller.
- PC Software shall have a user-definable scheduling mechanism to schedule multi-session jobs for the receiver.

Warranty

The GPS system shall be warranted against defects in material and workmanship for a period of no less than twelve (12) months. Accessories and cables shall be warranted against defects in material and workmanship for a period no less than 90 days.

t p l l j b TM

GSR2600

GPS System Purchase Proposal



Presented To:

From:

PURCHASE PROPOSAL

To assist you with your sales and marketing efforts, the GSR2600 GPS System Purchase Proposal document provides information that can be used when putting together a proposal:

- Sample proposal letter
- Features and Benefits
- GSR2600 GPS System Quotation
- Financing / Leasing Options

10/22/2002

Dear *(Name)*,

Thank you for your interest in the new GSR2600 GPS system. I am pleased to provide this proposal for your review.

I will contact you within the next few days to discuss this quotation. If you wish to contact me before then, I can be reached at *(Your phone number)*.

Sokkia's GSR2600 is a high-accuracy Global Positioning System (GPS). At the heart of the GSR2600 system is a 12-channel GPS receiver and SK-600 GPS L1/L2 antenna, usable in post-processed (static and kinematic) and real-time kinematic (RTK) applications. The dual-frequency receiver is small, consumes very little power, and features a removable memory card and front panel operation. The new LCD display enables you to view more information while the new keypad enables you to navigate the menu system and enter data. You will find that the GSR2600 offers unparalleled improvements to your surveying and data collection integrity and efficiency.

Plus, you can be assured of the best service and support because we have a reputation of standing behind all of the products we sell. You can feel confident because of Sokkia's long, successful history of making quality products for the survey and mapping industry.

Thank you for the opportunity to work with you and provide this quotation on your new GSR2600 GPS Surveying System.

Sincerely,

(Your name and title)

Features and Benefits

The following sub-sections highlight key benefits of the GSR2600 system:

Fast and Easy to Use

- Integrated data card, LCD panel with Keyboard, and optional battery pack minimizes set-up knowledge and confusion with cables.
- The optional battery pack is easily hooked to the bottom of the receiver to enable the use of three camcorder batteries. This option means that you essentially have the batteries integrated right into your system.
- LCD panel displays system information such as position, data card status, and battery status for simple field operation.
- The word “Logging” flashing in the top right corner of the LCD window indicates that data is being logged to the CompactFlash™ card. This prevents the user from removing the card while data is recording.
- The LEDs on the optional battery pack indicate which battery is currently in use enabling the user to swap new batteries without disrupting operation.
- Supporting materials reduce learning curve and provide a quick reference for operators.
- Base RTK receiver automatically starts operation without user input; the user only needs to power on the receiver.
- The SDR8100 RTK Controller minimizes learning time and eliminates any data compatibility concerns because it has a very proven, intuitive workflow. The SDR follows the same procedures for operating the RTK system, a total station, or a laser range finder.
- Spectrum Survey includes an interactive graphical interface and an automated workflow to guide new users through the software. Advanced controls are also available for experienced users.

Accurate and Reliable

- The GSR2600 system is ideal for a wide variety of applications that require high-accuracy standards. The system operates in real-time kinematic (RTK) mode to obtain centimeter-level results, as well as in post-processing mode to obtain millimeter-level results.
- Rugged enough to withstand a 1-meter pole drop and water-resistant (RTCA/DO-160 D category R, equivalent to IPX7).
- Spectrum Survey offers many data analysis tools, such as graphical network views, residual graphs, satellite observation graphs, loop closures, and summarized and detailed reports for establishing the most reliable results.

Efficient

- Integrated design cuts set-up time in half.
- LCD Occupation Status screen indicates to the user the baseline length.
- CompactFlash card can be accessed directly in a PC (through a PCMCIA card adapter) without requiring serial download for quick downloading in the office.
- Fast initializations and updates with minimal latency.
- Batteries and CompactFlash card are compatible with other Sokkia instruments and are commercially available and inexpensive compared to other systems.
- Data from all SDR-supported sensors (including various models of GPS RTK systems, electronic total stations, laser range finders, and electronic digital levels) are stored in the same job with the popular SDR format for use in popular surveying software packages.

GSR2600 GPS System Quotation

Sokkia's GSR2600 Survey System combines proven GPS technology and innovative design. GSR2600, along with the SDR Level 5 Data Collection Software, is ideal for real-time applications, including land surveying and construction stakeout. Spectrum Survey, the graphical processing software, makes it easy to post-process for establishing survey networks.

GSR2600 RTK and Post-Process GPS System Complete

Our Recommended GSR2600 RTK and Post-Process GPS System includes everything you need to succeed with surveying and data post-processing:

Description	Unit Price	Price (\$)
GSR2600 Base System (no batteries)	13,995	13,995
<ul style="list-style-type: none">GSR2600 Receiver Kit Receiver kit includes:<ul style="list-style-type: none">GSR2600 L1/L2 12-channel receiver16MB CompactFlash™ memory cardGPS fieldbook, quick reference cards, LCD menu quick reference, and reference manualSK-600 antennaGSR2600 Base Accessory Kit Accessory kit includes:<ul style="list-style-type: none">GSR2600 to PC cableH.I. custom measuring tapeBase RF antenna cable 5.0 MTribrach adaptor with rotatable centerQuick releaseBase system softcase		
GSR2600 Rover System (Camcorder Power)	13,995	13,995
<ul style="list-style-type: none">GSR2600 Receiver Kit Receiver kit includes:<ul style="list-style-type: none">GSR2600 L1/L2 12-channel receiver16MB CompactFlash™ memory cardGPS fieldbook, quick reference cards, LCD menu quick reference, and reference manualSK-600 antennaGSR2600 Rover Accessory Kit Accessory kit includes:<ul style="list-style-type: none">GSR2600 to PC cableH.I. custom measuring tapeRover backpackRover RF antenna cable 3.5 MMini-range/antenna pole (retractable)Camcorder Power Supplement Kit		

Description	Unit Price	Price (\$)
SDR8100 Data Collector with Level 5 Software	2,995	2,995
Each Includes:		
<ul style="list-style-type: none"> • SDR8100 Handheld Controller • Tripod Hook • SDR8100 Softcase • SDR8100 Power Supply - Universal • Cable - Bottom Port to DB9 with Power • SDR8100 Operations Manual • SDR Level 5 (RTK and ETS) Software Kit 		
PDL Base Radio Kit	2,770	2,770
<ul style="list-style-type: none"> • PDL Base radio/modem (35 Watts) • Cables for GSR2600, PC and power • Whip antenna with mount and base radio antenna bracket • User guide and software 		
PDL Base Power Kit	385	385
<ul style="list-style-type: none"> • Battery and charger 		
PDL Rover Radio Kit	1,528	1,528
<ul style="list-style-type: none"> • PDL rover radio/modem • Cables for GSR2600, PC, and charger • Whip antenna • User guide and software 		
Spectrum Survey Suite	3,995	3,995
<ul style="list-style-type: none"> • Spectrum Survey Suite V3 CD (Spectrum Survey/Planning/ProLINK) and security dongle • Spectrum Survey Suite reference manuals • CompactFlash PCMCIA adapter 		
GPS adjustable rover pole	350	350
GPS tripod and pole bag	150	150
Quantity	Description	Total Price
1	GSR2600 GPS System Complete	\$40,163.00

Financing/Leasing Options

The Sokkia Credit Corporation finance/lease options for the GSR2600 GPS System are offered below. In all cases, the Sokkia Credit Corporation options are non-cancelable during the time period as specified. If you are interested in one of the Sokkia U.S. Credit options, fill out the attached credit application and fax it to Sokkia Credit Corporation.

12-Month, 0 % Finance Program

The 12-Month, 0 percent Program is a finance option that allows you to buy the system over a one-year period without paying additional interest fees.

Rent-To-Own

This lease option allows you to rent the equipment for a minimum of 12 months with Sokkia Credit, giving you a 100% rental credit if purchased within the first year.

Market Finance

Three financing options are available over a 24- or 36-month period.

Market Lease

The 24-month lease offers you the opportunity to minimize the monthly payment amount. At the end of the lease, you have the option to return the equipment or purchase it for the fair market value, which is 10 percent of the original sale amount.

- Proposals are for information purposes only; actual amounts may change
- Proposals are subject to credit review and approval
- Rates are subject to change without notice
- Rental units may be purchased at any time

DELIVERABLE INTRODUCTION

The Deliverable section of this kit provides a description of the GSR2600 systems, as they will be delivered. This section provides information about the GSR2600 system configurations and accessories, and highlights the flexibility of the GSR2600 product line components.

GSR2600 SYSTEM CONFIGURATIONS

The GSR2600 is organized in a way that is flexible and easy to understand, allowing you to build complete systems from individual kits.

Systems contain everything needed to start surveying (except tripods). The available GSR2600 systems are meant to represent the most common configurations.

Kits, rather than individual receivers and accessories, represent the basic unit and eliminate the need for extensive product knowledge to assemble a complete system for an end user. Individual kits can be put together to tailor a system to meet specific requirements.

This flexibility in how the GSR2600 is sold, whether as systems or kits, can help to optimize your inventory. You may choose to build GSR2600 systems from individual kits or conveniently order the recommended complete systems.

GSR2600 Systems

The GSR2600 can be ordered in either of the following systems:

903-1-0005	GSR2600 Base System (no batteries)	903-1-0004	GSR2600 Rover System (no batteries)
502-1-0037	GSR2600 Receiver Kit	502-1-0037	GSR2600 Receiver Kit
500-0-0005	SK-600 Dual Frequency GPS Antenna	500-0-0005	Sk-600 Dual Frequency GPS Antenna
405-1-0034	GSR2600 Base Accessory Kit	405-1-0033	GSR2600 Rover Accessory Kit

As the basic units of a complete system, variations of the following are included:

- **GSR2600 with/SK-600 Antenna:** Integrated receiver, data memory, and batteries in a lightweight and rugged enclosure and battery pack, along with the SK-600 Pinwheel Antenna.
- **SDR8100 or DAP CE 5320 Handheld Controller with SDR Level 5 for Windows® CE** data collection software
- **Spectrum Survey Suite V3** processing and adjustment software
- **PDL RTK Data Link**

GSR2600 Kits

The GSR2600 systems that have been recommended represent a compilation of kits that achieve common configurations. All systems come complete for RTK and post-processing applications, and in all of these systems, the base receiver can be powered from the RTK base radio battery. If you plan to use a different RTK radio system than the PDL, order a system without the radio kits.

Receiver and Receiver Accessory Kits

502-1-0037	GSR2600 Receiver Kit
502-0-0033	GSR2600 Receiver
010-0-0032	16Mb CompactFlash Card
790-0-0054	GSR2600 LCD Menu Quick Reference
750-1-0077	GSR2600 Quick Reference Guide
750-1-0093	GSR2600 Operations Manual
-	GSR2600 Shipping Box

405-1-0034	GSR2600 Base Accessory Kit (no batteries)
403-0-0034	Base RF Antenna Cable (5.0m)
403-0-0036	PC Cable (null modem)
501-0-0011	Tribrach Adaptor w/rotatable center
086-0-0001	Quick Release
405-0-0013	H.I. Tape Measure
404-0-0003	Base System Softcase
-	GSR2600 Base Kit Shipping Box

405-1-0033	GSR2600 Rover Accessory Kit (no batteries)
403-0-0025	Base RF Antenna Cable (3.5m)
403-0-0036	PC Cable (null modem)
405-0-0013	H.I. Tape Measure
501-0-0010	Mini-Range/Antenna Pole (retractable)
405-0-0017	Rover Backpack
-	GSR2600 Rover Kit Shipping Box

Power Supply Kits

402-1-0061	Camcorder Power Supplement Kit (120 V)
403-0-0112	Camcorder Power Cable
402-0-0017	Camcorder Batteries (2)
402-0-0018	Camcorder Dual Battery Charger and Adapter (120 V)
-	Camcorder Power Supplement Shipping Box

402-1-0062	Camcorder Power Supplement Kit (240 V)
403-0-0112	Camcorder Power Cable
402-0-0017	Camcorder Batteries (2)
402-0-0020	Camcorder Dual Battery Charger (100-240 V)
402-0-0019	Universal Power Adapter (1)
-	Camcorder Power Supplement Shipping Box

402-1-0063	BDC Battery Pack (120 V)
402-0-0040	BDC46 Batteries (Qty 3)
402-0-0041	CDC61 Battery Charger (Qty 1) (120 V)
402-0-0055	Battery Pack
-	BDC Battery Pack Shipping Box

402-1-0064	BDC Battery Pack (240 V)
402-0-0040	BDC46 Batteries (Qty 3)
402-0-0042	CDC61 Battery Charger (Qty 1) (220 V)
402-0-0055	Battery Pack
-	BDC Battery Pack Shipping Box

402-1-0052	SLA Battery Kit
402-0-0021	SLA Battery (Sealed Lead Acid)
402-0-0022	SLA Battery Charger (100-240 V)
403-0-0088	GSR2600 Power-to-SLA Cable (0.75m)
-	SLA Battery Kit Shipping Box

Packaging

The GSR2600 product arrives packaged in shipping cartons displaying both the GSR2600 and the Sokkia logos. A complete system will contain a Rover Kit box, a Base Kit box and a PDL Radio Kit box (an additional plain box is used for the base radio battery and charger).

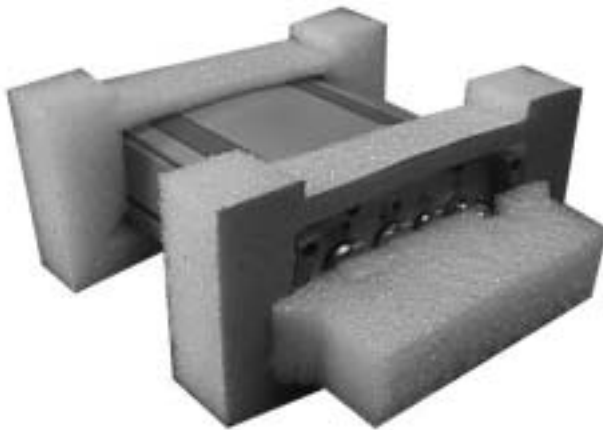
One customized Sokkia box is used for either a Base or a Rover Kit. This box was designed to facilitate all components necessary for a full Rover Kit or a full Base Kit (including SDR8100 and optional software). Since all Base and Rover Kits each arrive in this box (regardless of the chosen option), the additional pieces (SDR8100, optional software) can be added previous to delivering to an end user.

Within the shipping carton is a simple platform that protects the backpack and the backpack pole extension; two boxes containing the rover accessories and battery accessories; one box containing the receiver kit and the optional SDR8100 box (with an additional software box).

The Complete PDL Radio Kit comes in a custom Sokkia box that includes base and rover radios and all accessories (base radio battery and charger arrive in a separate box).

GSR2600 Receiver Packaging

The GSR2600 Receiver is packaged in foam before being placed in the shipping box. The following illustrations show how the receiver is packed:



PROMOTIONAL MATERIALS INTRODUCTION

To support sales and promotional activities for the GSR2600, a variety of materials are available for you to use. In addition to the standard data sheet, a digital copy of the color poster and a sample of a magazine advertisement have been included.

Note: Various electronic graphic elements and photographs are also available in the Training section of this kit, which may be used to generate additional promotional and training materials.

GSR2600 Slogan

“Your Real Time Solution.” (ad headline)

These words are used throughout the promotional materials, and are featured prominently in the advertisement, poster and brochure. They are also repeated throughout the GSR2600 web site.

GSR2600 Promotional Materials

- **Advertisement** – This full-page color advertisement appeared in U.S. publications such as *POB* and *GPS World Product Showcase sections in August 2002*. The advertisement provides a brief description of the features of the GSR2600 product and is intended for dealers. The ad was created in letter- and tabloid-size, but accommodates A4 size printing to fit publications around the world. Supporting text is presented in an easy-to-read format that quickly explains what makes the GSR2600 system a complete GPS solution. Inset photos portray applications with which the GSR2600 can be used, as well as the key components of the system—the accompanying fieldbooks and the GSR2600 receiver. This ad can be fully customized with contact information for those interested in running it in their local or national publications. The ad can also be used as a point-of-purchase display or promotional flyer.
- **Datasheets** – Provide information on the major operation of the component as well as the product specifications. Use this information as handouts for conferences and to generate interest in your product.
- **News Release** – Released August 1, 2002, and sent to all major newswires, targeted industry publications, and their online news services, including *POB*, *Professional Surveyor*, *GPS World*, *GeoSpatial*, *ArcUser*, and *ArcNews*. This release briefly covers GSR2600 key features and explains some of the applications where it can be used.
- **Poster** – Displays the system, the application, its components, and industries that it can be used. The printed dimensions are 18 in x 24-in/45.72 cm x 60.96 cm.
- **Website** – <http://www.sokkia.com> features the GSR2600 with information that includes:
 - GSR2600 Features and Benefits
 - Specifications
 - News Release
 - Contact Information
 - GSR2600 Advanced Reference Materials

GSR2600

GSR2600 promotional materials are available for ordering in the following quantities:

Product Number	Description	Quantity in Each Order
790-0-0052	GSR2600 Poster	10
790-0-0048	GSR2600 Datasheet	50
790-0-0020	Spectrum Survey Suite V3 Datasheets	50
790-0-0018	PDL Radio Datasheets	50

TRAINING MATERIALS INTRODUCTION

This section provides information about training materials that can be used with the GSR2600, including a brief description about the materials, along with the related product numbers to use for ordering.

Because the GSR2600 is flexible and easy to use, operating the GSR2600 does not require extensive training. In fact, using the *PowerPoint presentation* along with the GSR2600's *LCD Menu Quick Reference*, *Quick Reference Cards*, and *GSR2600 Operations Manual*, will make it easy for users to setup and run their systems.

The following is available in the Training Materials section:

- **System Overview** - Provides a concise step-by-step guide to using the GSR2600. Although generally stated, this overview outlines the basic functions from pre-survey operations to post-survey optional processing.
- **PowerPoint Presentation** - Designed to serve as a training tool and also to assist you in sales activities and general promotion. Viewers are taken step-by-step through the functions of using the GSR2600 system.
- **Reference Manuals** - Provide comprehensive technical instructions for operating the GSR2600 system and its accessories during field operations. You can order a hard copy of each of the following items to assist you with your training, or view the PDF format on the *Complete Sales and Support Kit CD*:

Product Number	Description
Manuals	
750-1-0093	GSR2600 Operations Manual
750-1-0073	SDR Level 5 Reference Manual
750-1-0075	SDR Level 5 User's Guide
750-1-0006	ProLINK Reference Manual
750-1-0001	Spectrum Survey Reference Manual
750-1-0028	Planning Reference Manual
Addendums	
750-0-0041	ProLINK Reference Manual Addendum
750-0-0080	Planning Reference Manual Addendum

- **Quick Reference Documents** - The *GSR2600 Quick Reference Cards* offer simplified instructions for operating the GSR2600 system in four areas: Basic GSR2600 and SDR8100 Operations (power up, power down, reset, and memory erase), RTK, post-processed surveys, and display information.

As well the GSR2600 comes with a *GSR2600 LCD Menu Quick Reference* document that enables the user to understand the menu system displayed in the LCD window on the front panel of the receiver. Using this waterproof document in the field, the user can quickly navigate to the desired menu option.

You can order each of the following quick references to assist you with your training:

Product Number	Description
750-1-0083	GSR2600 Quick Reference Cards
790-0-0054	GSR2600 LCD Menu Quick Reference
750-0-0007	ProLINK Comms Quick Reference
750-0-0085	SDR Level 5 Quick Reference Card
750-0-0064	SK-600 Antenna Quick Reference

- **Additional Documents** - The following items are also available for training and are provided on this CD.

Product Number	Description
750-E-0002	Spectrum Survey Advanced Reference Materials
750-E-0003	Spectrum Survey WorkFlows and Tips

SYSTEM OVERVIEW

The System Overview section of this kit provides an overview of pre-survey, data collection, and post-survey operations for the GSR2600.

Pre-Survey Operations

Office

1. Plan your data collection session with Planning pre-survey software.
 - Select Session Time.
 - Check Constellation.
 - Program schedules and configurations for static data collection.
 - Load any XFM projection files via SDR install if necessary.
2. Set up your equipment using the step-by-step instructions offered in the *GSR2600 Base and Rover Jump Start* guides.
 - Set up your GSR2600 rover and GSR2600 base systems as outlined in the applicable *Jump Start* guide.
 - Each GSR2600 base station is configured to work out of the box, set up on a known or unknown point.
 - Simply connect the radio equipment and antenna.

Data Collection Operations

Field

Collect Data. GSR2600 is equipped for easy collection of real time data, or observations for post processing.

- Each rover radio modem can be powered through the receiver COM port.
- SDR RTK Job is stored to the SDR8100, while GPS raw observables are stored on the receiver's data card, providing a backup data source for your RTK job.
- The optional battery pack, which holds three camcorder batteries, means no down time while switching batteries.
- The SDR data collector can interface to a full range of conventional and GPS instruments.
- Open Job, select XFM and observe control points to start surveying.
- A full range of COGO and Roding functions are available on the SDR system.
- Consult the *GSR2600 Reference Manual* for more tips on field setup.

Post-Survey Operations

Office

Export your data from the SDR8100 Electronic Field Book.

- Download your data with ProLINK.
- Check your observations and edit, if necessary.
- Export to various mapping formats or choose your own.
- **Post-process raw GPS** observations with Spectrum Survey.
- Create and edit points and session times.
- Process baselines in automatic or manual mode.
- Quality control checks such as loop closures and residual plots are available.
- Consult your Spectrum Survey Suite V3 manual for more information.

GRAPHICS INTRODUCTION

The Graphics section of the Sales and Support kit features an overview of graphics related to the GSR2600.

- **Graphics Overview** – Includes instructions on the usage and restrictions of photographs and logos for the GSR2600. **Please read these instructions carefully.**
- **Browse Graphics** – Contains graphics, including illustrations, photographs, icons, and logos that can be used to generate training and promotional materials for the GSR2600.

GRAPHICS OVERVIEW

This section addresses usage, restrictions, and logo matters that pertain to the GSR2600.

Usage and Restrictions

The Graphics Library section of the Sales Support kits provides access to various photographs, graphics, and line drawings that may be used for the promotion, training, or support of the GSR2600. Any other use requires written permission from POINT, Inc.

Logos

The company owning the logo monitors logo usage regulations; therefore, approval must be obtained before using a logo in external communications. Prior approval must also be obtained from POINT, Inc. for modifications made to the logos.

Sokkia logo.

The Sokkia logo is owned and regulated by Sokkia Co., Ltd. When using the Sokkia logo, follow the guidelines established in the *Sokkia Basic Design System Guide*. Sokkia Co. Ltd. must approve any modifications.



Graphics-Images Subdirectory on CD

The Graphics subdirectory on the *Complete Sales and Support Kit CD* contains the following subdirectories, which are further separated by the Radian and GSR2600 folders.

- Illustrations
- Logos
- Photos

GSR2600 Graphics Overview

Graphic files are separated into identifiable subdirectories to help you quickly find the graphic of your choice. The GSR2600 Graphics Library directory includes the following sections:

- **Illustrations** – Contains all the graphics used in the *GSR2600 Jump Starts*.
- **Logos** – Contains the Sokkia logo and related GSR2600 logos.
- **Photos** – Contains various photographs of GSR2600.

Sample Photos



Photos of the GSR2600 can be found in the GSR2600 Graphics Library under **Browse Graphics\Photos**

Sample Illustrations



Illustrations of the GSR2600 can be found in the GSR2600 Graphics Library under **Browse Graphics\Illustrations**