

## Scalable for your needs

The GSR1700 CSX is conveniently offered in three configurations to suit your needs; static, stop-and-go and RTK surveying. The GSR1700 CSX can be upgraded to the RTK configuration at ANY time with the purchase of a software upgrade code and a data link kit through your local SOKKIA dealer. This upgrade path allows you to start out with a basic kit and work up to a more advanced system as your needs change.

### Static Surveying

Use the GSR1700 CSX in its simplest form to establish accurate control points in your job with a static survey. Just set up the receiver over a point and press the button. The GNSS receiver automatically starts collecting raw data. Back in the office, download the data quickly and easily with the **Bluetooth** connection, then post process it with our powerful Spectrum Survey software for centimeter accurate results.

#### Applications

- Control surveys
- Boundary surveys
- Position aerial photo panels
- Section corner surveys



### Stop-and-Go Surveying

Combine the GSR1700 CSX with the SDR+ S/K Edition data collector and perform stop-and-go data collection for high accuracy survey and mapping applications. Just set up the base receiver and press the button. Then set up the industry's lightest weight rover receiver and start surveying using the effective Navigate, Locate, Survey workflow in SDR+ S/K. Back in the office, quickly download and post process GPS data using our powerful Spectrum Survey software for centimeter accurate results.

#### Applications

- As built mapping
- Topographic surveys
- Accident reconstruction
- Environmental surveys
- Utility mapping
- Resource mapping

### RTK Surveying

Real-time kinematic (RTK) receivers give you highly accurate, survey points instantaneously in the field. Combine the GSR1700 CSX with the SDR+ Professional Edition data collector, and your RTK receiver can perform real-time survey tasks such as staking out design points.

Simply set up and press the button to start the base receiver. Then set up the lightweight rover system and start surveying using SDR+ Professional Edition's intuitive survey workflow to obtain centimeter accurate results immediately in the field.

#### Applications (in addition to stop-and-go)

- Construction stakeout
- Create slopes and terraces in landscaping
- Plan haul roads
- Position recording pods for seismic studies
- Reclamation work
- Road construction surveys
- Determine cut and fill for roads
- Set out blasting patterns
- Wetland delineation



## GSR1700 CSX Specifications

### Positioning<sup>1</sup>

Static <sup>2</sup>	H: 5.0 mm + 1.0 ppm	V: 8.0 mm + 2.0 ppm
Kinematic, Stop-and-Go <sup>2</sup>	H: 10.0 mm + 1.0 ppm	V: 12.0 mm + 2.0 ppm
RTK <sup>2</sup>	H: 10.0 mm + 2.0 ppm	V: 15.0 mm + 2.0 ppm

DGPS 0.45 m CEP Horizontal

SBAS 0.6 m CEP Horizontal

Stand-Alone Position 1.8 m CEP Horizontal

RTK Initialization<sup>1,7</sup> 3-10 sec (typical)

### Tracking Capability

Channels 28 universal channels: 14 L1 GPS, 12 L1 GLONASS, 2 SBAS

Signal Reacquisition 0.5 sec L1

Receiver Technology Pulse Aperture Correlator (PAC)

### Physical

Enclosure Magnesium alloy housing

Weight (with battery) 0.672 kg 1.48 lb

Weight (without battery) 0.622 kg 1.37 lb

Size (Diam. x Height) 16.7 cm x 10.1 cm 6.6 in x 4.0 in

### Power Requirements

Battery Internal removable, hot swap capability

Consumption 1.6 W

Power Input 6-18 VDC; <2.5 Amps

Operating Time Static - 10 hours

### Environmental

Operating Temperature<sup>3</sup> -40°C to +55°C -40°F to +131°F

Storage Temperature -40°C to +60°C -40°F to +140°F

Humidity 100% condensing

Dust and Waterproof Complete protection against dust ingress. Protected against immersion up to 1.0 m / 3.3 ft (IP67)

Shock<sup>4</sup> 2.0 m pole drop 30G per IEC 68-2-27 6.6 ft pole drop

RoHS Compliant Yes

### Ports & Communications Signals

Communication 2 x RS232, 2 x Bluetooth  
Note: second RS232 port available with the use of a special "Y" cable (sold separately)

Power 6-18 VDC; <2.5 Amps

Standard Input/Output Mark in; PPS out



### Interface

Operation Single-button operation for power up, receiver reset and file management

Display LED display status indicators

Status Indicators Power, battery life, satellites tracked, available memory, occupation timer, communications status

Audible Indicators<sup>5</sup> Audible notifications for receiver status information; available in a variety of languages

### Data Recording and Message Formats

Memory 64 MB removable CF (upgradeable to 2 GB)

Memory Life 560 hours at 10 second interval (10 SV)

Standard Input/Output RTCM, RTCM V3.0, RTCA, CMR, CMR+, NMEA-0183 out

Data Rate 10 Hz

### Data Links

External<sup>6</sup> Yes. Fully supported

### Antenna

Type Fully integrated geodetic GNSS antenna

1. Accuracy depends on the number of satellites used, obstructions, satellite geometry (DOP), occupation time, multipath effects, atmospheric conditions, baseline length, survey procedures and data quality.
2. Standard RMS confidence level.
3. On external power. Operating temperature may be extended to +70° C upon request. Contact your SOKKIA dealer for more details.
4. Shock specifications based on receiver without cables attached.
5. English, Russian, Spanish, Portuguese, French, Italian, Japanese, Korean, Chinese, General Tones.
6. Supports most external data links with serial connection, such as Pacific Crest and SATEL UHF radios, and select Bluetooth devices, such as Bluetooth-enabled mobile phones.
7. 68%, SBAS required, up to 3 km.

## SOKKIA Worldwide

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**SOKKIA**

**GSR1700 CSX**

Integrated L1 GNSS System



Precision &  
 Reliability



# GSR1700 CSX Integrated L1 GNSS System

GSR1700 CSX GNSS is the industry's most scalable survey system offering three quick and easy survey styles for centimeter-accurate surveying – static, stop-and-go and RTK. Start off small and use the GSR1700 CSX for static or stop-and-go surveys for topographic and control surveys with unmatched reliability and ease-of-use. Upgrade the GSR1700 CSX to achieve industry's lightest RTK system to perform centimeter-accurate positioning for real-time survey tasks, such as construction layout.

GPS+GLONASS+SBAS tracking increases positioning reliability and accuracy while allowing the GSR1700 CSX to survey where other GPS solutions cannot. The minimal learning curve of the GSR1700 CSX enables surveyors to harness the power of GPS surveying right away, making it a valuable asset in any surveyor's toolbox.

## Compact, rugged, easy-to-use system

The GSR1700 CSX is designed for surveyors wanting a lightweight, easy-to-use survey solution that offers the best in accuracy.

### Superior ease-of-use

- Simple GPS survey workflows ensure that you'll be up and running quickly
- Intuitive, intelligent software guides you through multiple GPS survey types
- Built-in diagnostic and quality control tools eliminate costly trips back to the worksite

### Light on your back

- Lightweight receiver only 0.67 kg (1.48 lb) and rover setup is only 2.5 kg (5.5 lb)
- One button controller-free operation

### Unparalleled durability

- Operates in extreme temperatures from -40° C to +55° C (-40° F to +131° F)
- Complete protection against dust/water (IP67)
- Ruggedized to handle a 2m (6.6 ft) pole drop

### Multiple Bluetooth® connectivity

- Connect to multiple Bluetooth wireless peripherals for cable-free convenience, outstanding range and unmatched reliability

### Adapts to your requirements

- Customize functionality to match your needs and budget and upgrade as needed
- Voice notifications in 10 different languages alert you immediately of status changes in your survey
- Superior LED display provides all the information needed to complete the job
- Seamless support of continuously operating reference stations (CORS) offers easy interface with third-party data warehouses
- Data is conveniently stored on a removable Compact Flash® card

### Expand on traditional surveying

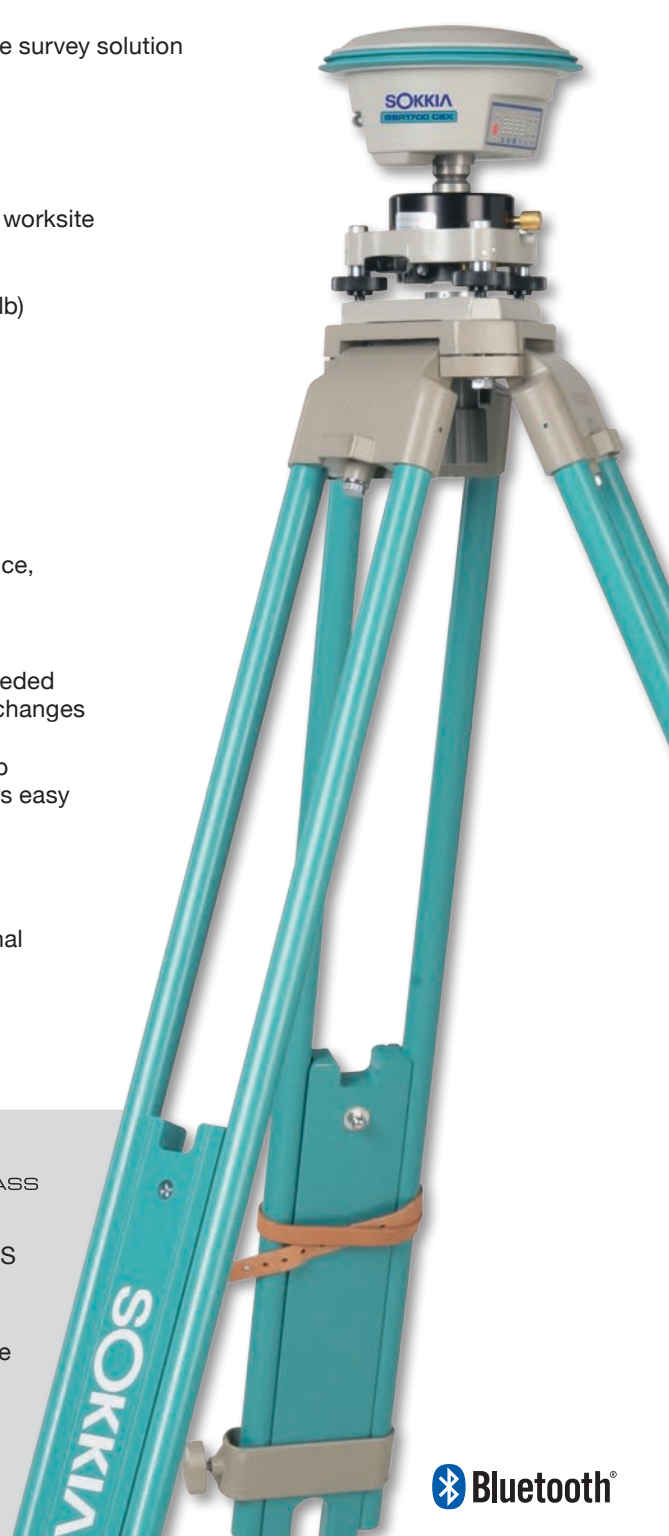
- The GSR1700 CSX easily exceeds the range and other limitations of traditional optical instruments
- Line of sight is not needed
- Use both traditional instruments and the GNSS receiver data in a single job using SDR+ Professional

## GNSS System



### Reliable positioning in any environment

The GSR1700 CSX features 28 universal channels that support GPS, GLONASS and SBAS satellite tracking, providing increased satellite coverage in forests and urban areas. In addition, Pulse Aperture Correlator (PAC) technology guarantees superior tracking capability in the presence of multipath to optimize measurement performance even in the harshest conditions. The high performance GNSS technology featured in the GSR1700 CSX ensures reliable surveys even in unfavorable environments where other GPS systems fail.



## Static Surveying

The GSR1700 CSX's simple setup and high performance is perfect for static surveys to establish sub-centimeter control over long distances. And its minimal learning curve will have you surveying jobs faster with less effort.

- **Simple Setup** – Lightweight, cable-free tripod setup allows you to begin collecting data in no time.
- **Single Button Operation** – Press the power button to automatically start logging static GNSS data – no controller required!
- **Information on demand** – Intuitive LED display gives you all of the critical receiver status information and indicates when sufficient GPS data has been collected for your survey.
- **Optionally add more detail to your survey** – Use SDR+ S/K Edition data collection software to add point names, antenna heights and point descriptions.



## Stop and Go Surveying

Combine the GSR1700 CSX with SDR+ S/K Edition data collection software for powerful centimeter level surveying and mapping applications. A simple Navigate, Locate, Survey workflow guides you at every step and built in blunder detection verifies that your GPS survey is complete before you leave the job site.

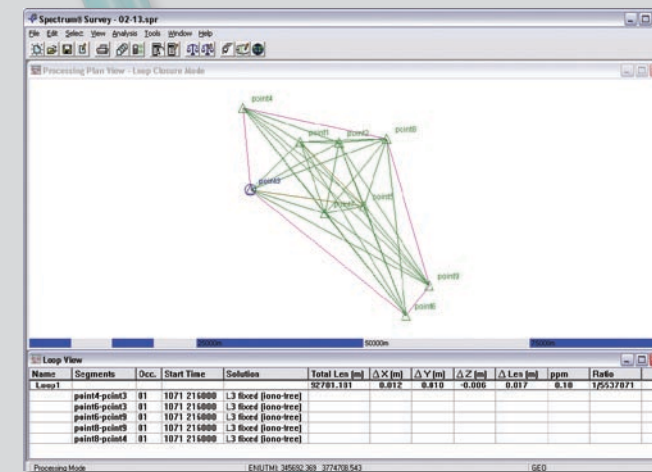
- **Convenient Setup** – Lightweight, cable-free on the pole setup for easy data collection all day long.
- **GPS + GLONASS Advantage** – Productivity is maximized by allowing you to collect points behind buildings or trees.
- **Accurate DGPS Positioning** – Use SBAS or any other correction source for accurate and reliable DGPS positioning.
- **Intuitive data collection** – Easy-to-use workflows and built-in blunder detection allows you to leverage stop-and-go surveying immediately.



### Spectrum Survey Suite Software

Easy-to-use office software enables you to quickly download and process GPS + GLONASS survey data to deliver centimeter accurate survey points. Powerful workflows make post-processing static and stop-and-go surveys easy and fast. Advanced error detection, data quality analysis and loop closure tools guarantees accurate, reliable results ensuring that your survey meets specifications.

- Detailed mission planning
- Powerfully accurate post processing
- Comprehensive network adjustment
- Advanced error detection, data quality analysis tools and loop closures
- Extensive industry standard exports

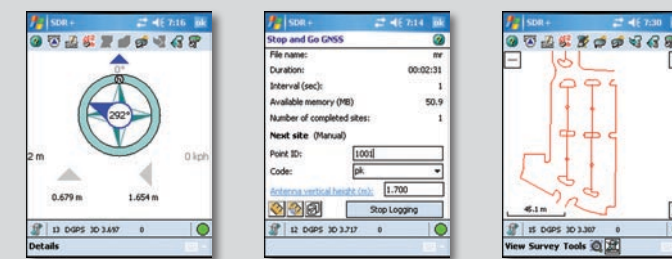


### SDR+ S/K Edition

SDR+ S/K Edition is optimized for ease-of-use and for high quality data collection for static and stop-and-go surveying. Effective workflows, built-in quality checks, and customizable coordinate system support ensure that your survey is complete and correct every time.

- **Navigate** – Monitor your GPS location at the job site using background base maps and key in or import survey points to easily locate them.
- **Locate** – Choose from three separate view modes and graphically locate a survey point.
- **Survey** – Effective workflows and intuitive initialization routines guide you through data collection and automatically prompt you for all relevant survey information.

Add details to your survey with customizable feature codes and survey notes. SDR+ simplifies post-survey file management as all field metadata is recorded into one compact GPS data file, eliminating sorting through multiple survey files.



## Real-Time Kinematic Surveying

The GSR1700 CSX continues to demonstrate its unmatched flexibility by delivering RTK functionality. Eliminate post processing raw GPS data in the office to achieve high accuracy survey points with the Real-Time Kinematic (RTK) surveying configuration. RTK performs high positioning calculations on-the-fly giving you centimeter accurate survey points in the field allowing you to perform real-time survey tasks that static and stop-and-go surveying cannot, such as staking out design points. Enjoy similar performance of dual frequency RTK at half the cost.

### AdVance™ RTK – Positioning at its best

- Industry's fastest and most reliable single-frequency RTK
- GPS, GLONASS and SBAS satellites allows initialization in seconds
- Increased satellite coverage allows surveying in behind buildings and trees
- Supports baseline lengths of up to 3km for centimeter level positioning

### Superior System Handling

- Entire on-the pole RTK setup only weighs 2.53 kg (5.6 lb) – including rover pole and data collector
- Hot swappable batteries ensure that your RTK work is not interrupted
- Audible notifications of RTK FIXED and RTK LOST eliminate the need to constantly monitor the screen for positioning performance

### Easy "One Button" Base Setup

- Simply mount the receiver on a tripod, press the power button, and begin transmitting RTK base corrections and collecting raw data in seconds

### Flexible Data Link Options

- Use SOKKIA GSR NetLink for a wireless GPRS data link with no broadcast range limitation
- Available with a UHF or license free spread spectrum radio modem

### Adaptable To Your Survey Needs

- Single receiver systems available for use within RTK networks
- Configurable for DGPS positioning for GIS, mapping and hydrography applications
- Perform static and stop-and-go surveying for long baseline survey jobs



### SDR+ Professional Edition

SOKKIA's SDR+ series data collection software is built on a live database, unleashing powerful survey workflows maximizing productivity in the field. At all phases of your survey SDR+ immediately recalculates your entire survey job to ensure accuracy specifications are met. Additionally, advanced blunder detection ensures that no errors are introduced into your survey and eliminating costly trips back to jobsite.

Its easy, icon-based interface and intuitive wizard-style workflows minimize training time and ensure you'll be surveying fast. SDR+ also features seamless coordinate system support allowing you to key in survey data in any coordinate system and used in your job.

- Fully featured data collection software that includes all survey routines including topographic surveys and stakeout surveys
- Powerful, intuitive survey workflows for fast and productive data collection
- Comprehensive array of COGO routines and other effective survey tools
- Supports GPS, total stations and other optical instruments in the same job minimizing time spent transferring data

