



Solinst Telemetry Systems

Solinst Telemetry Systems are designed for use with the Solinst Levellogger Series of dataloggers. They offer two-way communication and control from your own desktop. You choose the Levellogger, the best communication method to suit your site, access the intuitive software to create sampling and reporting schedules, then view and manage data on your Home Station computer in any way you choose.

STS Gold Systems can be set up using GSM or CDMA digital cellular wireless communications. They are powered by a sealed lead-acid 12V battery, with optional solar trickle charging or direct AC power. RRL Gold Radio Stations use six replaceable lithium batteries, and also have the option of a back-up power source.

STS Gold Telemetry Systems are ideal for large networks. Hundreds of remote stations can report to a single Home Station computer. RRL Gold Radio Telemetry is ideal for small closed loop networks.

Advantages

- Time and cost savings
- Reliable data transfer direct to your desktop
- Manage the data yourself
- Flexible options to suit site/application conditions
- Low maintenance
- Enhanced power management
- Faster, easier access to data

Applications

Water level, conductivity and/or rainfall monitoring for:

- Remote or difficult-to-access locations
- Hazardous or critically important sites
- Long-term groundwater monitoring applications
- Longer term pump tests
- Drought and water taking management
- Watershed management
- Landfill and mine water supervision
- Flood and stormwater management

Benefits of Using Solinst Telemetry

Solinst has created simplified systems with standardized hardware, flexible communication options, and intuitive software that make the system easy to set-up, operate and manage the data.

Solinst Telemetry provides an economical and efficient method to access remote data instantly, saving time and costs by eliminating manual data collection, time spent traveling and costly data hosting.

STS Gold Systems have added features such as alarm notification, remote diagnostic reporting and firmware updating, which makes it easy to maintain your system, while simplifying data collection.

Communication Options

With the choice of cellular or radio, STS and RRL Gold Systems provide communication options to suit your site and application. To determine the best method to meet your requirements you need to evaluate the options available in your area i.e. cellular carriers, and the physical conditions of your site, including topography, nearby buildings, trees, etc.

Cellular

If your telemetry network is within an area of good cellular coverage, then GSM or CDMA wireless communication may be your method of choice. Because data is 'pushed' through the system, power requirements to send data are low.

Radio

If you have no cellular service available, or you are setting up a local network, then radio may be your option. It has the advantage of free airtime and no long distance fees.

Internet Connectivity

Choosing to communicate using digital cellular gives the advantage of IP addressability. IP (Internet Protocol) allows a reliable method of data transfer using an internet connection, which saves you time and money. An IP Network allows all Remote Stations to send data to the Home Station at the same time, without disruptions or time scheduling issues.

Data Self-Management

STS/RRL Gold Software allows you to always be in control of your own data. Data retrieved from each Levellogger is placed in a Microsoft® Access® database on the Home Station computer. New data is added to the existing database. The Software can be used for a convenient quick check of the latest readings. You can export your data as .lev or .csv files for use in your preferred database or modelling package. You can display formatted data on web pages by accessing the database directly with your own software. Data self-management provides flexible options, and ongoing cost savings, without being tied to a proprietary data hosting service.

TELEMETRY SELECTION CHART		
Specifications	RRL Gold Radio	Digital Cellular (GSM & CDMA)
Why Use?	<ul style="list-style-type: none"> • smaller applications • closed loop network at any location • compact, all-in-one units fit in 4.5" (115 mm) wells 	<ul style="list-style-type: none"> • cellular coverage available • topography not suitable for radio • send data over the Internet
System Differences	<ul style="list-style-type: none"> • free airtime, no long distance fees • you control the network • scheduled data transmission times • low power needs • relay station option 	<ul style="list-style-type: none"> • monthly carrier fees • no scheduling conflicts for data transmission • low power needs
Suggested Applications	<ul style="list-style-type: none"> • monitoring mine sites • agricultural studies • landfill supervision • golf course management 	<ul style="list-style-type: none"> • flood and stormwater management • watershed management • drought monitoring
Remote Station Support	<ul style="list-style-type: none"> • 900 MHz radio • 20 mile (30 km) line of site • 9600 bits/sec 	<ul style="list-style-type: none"> • GSM (DC-WAN-U905) or CDMA (DC-WAN-B105/DC-WAN-B205) • IP enabled modem • dynamic IP Address • 115200 bits/sec
Home Station Support	<ul style="list-style-type: none"> • RRL Home Station with power source • STS/RRL Software 	<ul style="list-style-type: none"> • static IP Address • no extra hardware • STS/RRL Software
Antenna	6" (15 cm) half wave, (2.1dBi) non-articulating	Dual Band Dipole
Optional Antenna	5 dBi Omni Directional	Quad Band, Omni Directional
No Data Hosting Fees	✓	✓
Remote Firmware Upgrades		✓
Remote Diagnostic Reporting	✓ (limited)	✓
Power	6 AA lithium batteries	12V 12-30 AHR deep-cycle, rechargeable sealed lead-acid battery recommended (not included)
External Power and Charge Accessories	<ul style="list-style-type: none"> • Solar power connection package (for user supplied solar panel) • AC power/battery charger assembly 	

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STS Gold Remote Telemetry Unit Setup

STS Gold Telemetry Systems come with standardized equipment configurations, including your choice of communication device to meet the needs of your application. The STS Gold Remote Station consists of an STS Controller, Distribution Box, Modem with a connected Antenna, and user-supplied 12V battery protected within a weatherproof Nema 4X case.



STS Gold NEMA 4X Enclosure

The STS Distribution Box allows the connection of up to 4 data loggers. It controls the modem and manages the power supply.

The STS Gold Controller powers-up the Remote Station for initial set-up and testing. It collects, stores, and sends data from the remote dataloggers to the Home Station.

As the data is 'pushed' from the Remote Station to the Home Station, there are no dial-up or timing issues. Data cannot be lost due to cellular signal issues, as the STS Gold Controller stores the data in its memory until it has been successfully uploaded by the Home Station. With each communication, system information on battery level, Levellogger status, modem signal strength and status are sent to the Home Station, providing remote diagnostics.

STS/RRL Gold Software

STS/RRL Gold Software controls both systems, allowing users to manage a project with multiple STS and RRL sites with one program. It is easy to set up the Software with site information, sampling and reporting schedules, and alarm notifications.

A linear 'Sample Rate' is set at which the STS Gold Controller records a real-time reading from each attached datalogger. A 'Report Rate' is set to establish the frequency that the data is sent from the STS Gold Controller to the Home Station.

Each RRL Gold Station is programmed and scheduled using a convenient software wizard.

Levelloggers can be set to record independently of the Telemetry Systems and store the data in their own internal memory, providing a reliable backup, if circumstances require it.

RRL Gold Systems

The Solinst RRL Gold Remote Radio Link System offers a very simple and inexpensive method of local telemetry. Data is sent from the field via short-distance radio to your PC. The RRL Gold is excellent for small, closed loop networks such as mine sites, golf courses, and landfill monitoring networks. By using free unlicensed radio bands (ISM), the RRL Gold has the advantage of being a lower cost option than cellular telemetry systems.

RRL Gold Stations

RRL Gold Stations work with omnidirectional antenna line-of-sight transmission, therefore, can communicate over distances of 20 miles (30 km), or more, using some stations as repeaters.

RRL Gold Stations use the same hardware, and are programmed using a wizard in the STS/RRL Gold Software as a Home Station, Remote Station or Relay Station. As such, RRL Gold Stations are interchangeable as required.

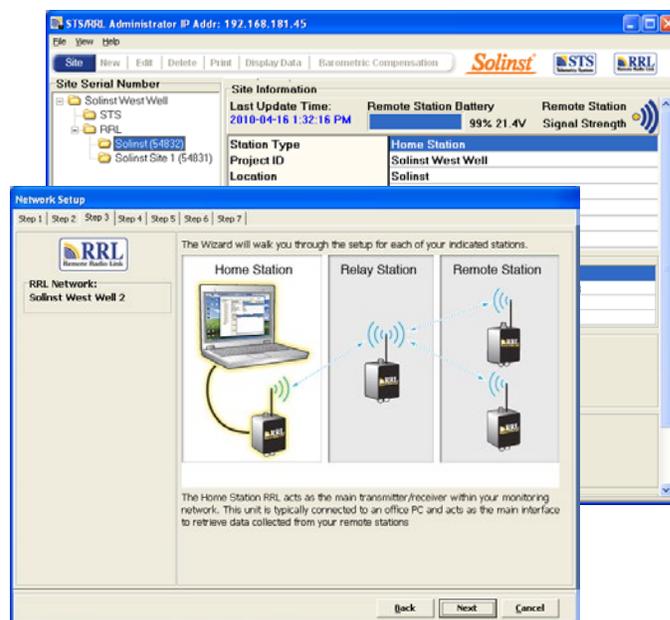
RRL Gold Stations use a 900 MHz radio module. Stations come standard with six AA replaceable lithium batteries and antenna.

Up to 4 Solinst Levelloggers (using two 'splitters') can be attached to one RRL Gold Station. Stations are designed to fit into 4.5" (115 mm) diameter wells for discrete placement. The case is rugged and waterproof with an IP66 rating.

RRL Gold Stations have a non-volatile internal memory; a Remote Station stores collected data in its memory until the Home Station has been successfully contacted.



RRL Gold Station

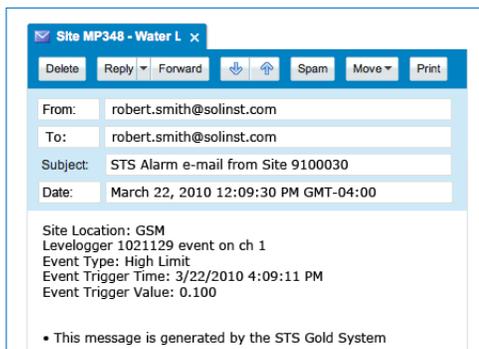


STS/RRL Gold Software Set-up Screens

Alarm Settings

An e-mail alarm notification will be sent automatically to the Home Station, if a non-communication or low battery condition is detected at an STS Gold Remote Station, when a reading is taken. The Home Station then sends out email alerts, as set up in the software.

High, low and percent change alarms can also be set for any monitored parameter (e.g. water level, temperature, rainfall, or conductivity).



Power Supply

Solinst Telemetry Systems are designed to avoid power issues. A 12V battery is required to power the STS System. A 12-30Ahr deep-cycle, rechargeable lead-acid battery is recommended. The low power electronics of an STS Gold are designed to only use power when there is a scheduled transmission of data, and very little power when it is in standby mode. Power requirements at RRL Gold Remote Stations are also kept to a minimum. Each RRL Gold Station is powered by 6 replaceable lithium batteries. Solinst provides optional cables that enable solar power or direct AC mains connection as a power source.

System Diagnostics

The STS and RRL Gold are very reliable systems, which require minimal maintenance.

To help simplify system diagnostics, each data report to the Home Station includes System information. This information can help prevent data disruptions by providing the battery level, modem operation, signal strength and Levellogger status. A communication test can also be performed between the Home Station and a Remote Station, and Levelloggers.



Automatically receive remote system diagnostics at your Home Station PC.

STS Gold Remote Firmware Updates

If new firmware becomes available, a firmware update can be performed from the Home Station using the update utilities supplied with the STS/RRL Gold Software. New firmware is made available free via the Solinst website (<http://www.solinst.com/downloads/>).

STS Gold Systems also allow modem parameters to be reset remotely from the Home Station and changes made to the report and sampling rates.



Levellogger Series

Solinst Telemetry Systems are dedicated to the Levellogger Series of data loggers. This provides the advantage of combining a user-friendly telemetry system with high quality data loggers.

Up to 4 Solinst data loggers can be attached to each remote station, in any combination of the Levellogger Edge, Barologger Edge, Levellogger Junior Edge, LTC Levellogger Junior, or Rainlogger Edge (see Model 3001 Edge, Junior Edge, LTC Junior and 3002 Data Sheets).

Solinst Levelloggers are ideal for remote monitoring, with independent user-defined logging schedules as a back-up.

They have long battery life, power surge protection and a non-volatile memory. If programmed separately, Levelloggers record regardless of the status of the Telemetry System.

Levelloggers are low maintenance, absolute data loggers. There is no need to deal with vent tubes or cumbersome equipment. One Barologger can typically provide accurate barometric data for a 20 mile (30 km) radius and/or with every 1000 ft (300 m) of change in elevation.

These reliable, durable data loggers have intuitive software with many useful features, such as self-tests and firmware upgrade and diagnostic utilities.