

Quick Start Guide

9500 LevelSender 5 Telemetry

LevelSender Remote Station

- ① Antenna
- ② Battery Compartment
- ③ LED Activity Light
- ④ Serial Number
- ⑤ Datalogger Connection
- ⑥ Opening to Internal Barometer



1) Getting Started

Note: See separate Solinst Cloud User Guide if setting up your LevelSender using Solinst Cloud.

Before you can begin using your LevelSender 5, you need to set up the following:

- An account with Solinst, or a cellular service provider, to receive a SIM card and setup information for your LevelSender 5 (data usage service plan for a 4G LTE-M network, including text messaging if not using Solinst Cloud)
- Separate, dedicated email addresses for the Home Station and your LevelSender 5. If you are only going to use the FTP data file transfer option and/or do not require remote updates for your LevelSender, you do not need to assign your LevelSender an email address.

2) Install the Batteries

A LevelSender 5 uses three 1.5V AA user-replaceable lithium batteries. To install the batteries:

1. Unscrew the stainless steel cap from the LevelSender 5.
2. Install the three batteries with the positive ends first/down.
3. Replace the stainless steel cap.



3) Connect the Antenna

1. Use a Phillips screwdriver to remove the three screws from the top of the LevelSender 5.
2. Pull off the top cap of the LevelSender 5.
3. To attach the antenna, line up the connector and screw it onto the connection on the top of the LevelSender 5. (The antenna bends to accommodate well cap installation.)



Note: With the top cap removed, install the SIM card. See Step 4.

4) Install the SIM Card

Note: If you ordered a LevelSender with a Solinst SIM card, it will ship pre-installed.

1. Insert the SIM card into the slot in the top of the LevelSender 5, as shown in the photo, with the chip/metal contact towards the battery sleeve, beveled edge first.
2. Replace the top cap (over the installed antenna), push into place and secure using the three screws.
3. Ensure the grommet is in the nut and install the nut over the antenna and thread onto the top cap.



Note: You can leave the top cap open if you will be programming the LevelSender 5 (see Step 8).

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5) Connect Dataloggers

Each LevelSender 5 has a single port to connect one datalogger, or a Splitter. A Splitter provides a second datalogger connection.

1. Ensure the pins are lined up, and connect the Reader Cable directly to the LevelSender 5 or Splitter.
2. Connect the Reader Cable to a Direct Read Cable with a Levellogger 5 connected, or to a LevelVent 5 Wellhead.

Note: When using a Splitter, the number 1 or 2 will identify the dataloggers in LevelSender Software. The numbers are labeled directly on the Splitter.



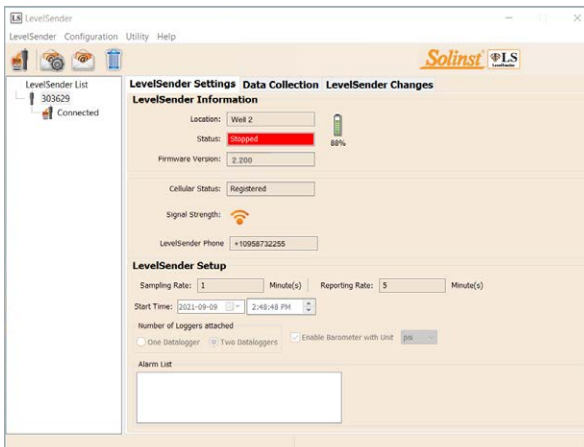
Note: See separate Solinst Cloud User Guide if setting up your LevelSender using Solinst Cloud.

6) Download LevelSender Software

Download the newest version of LevelSender Software on your home station PC, at: <https://downloads.solinst.com>

The Software Installation Wizard will guide you through the installation process.


Default Directory is <C:\Program Files\Solinst\LevelSender>




LevelSender Software Main Window – LevelSender Settings Tab

7) Set Up Home Station Email

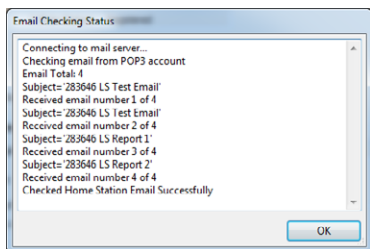
To enable your Home Station to receive email/data, and send remote updates, you must set up a Home Station email. Multiple LevelSenders can report to one Home Station email.

To set up your Home Station email, open the LevelSender Software and click .

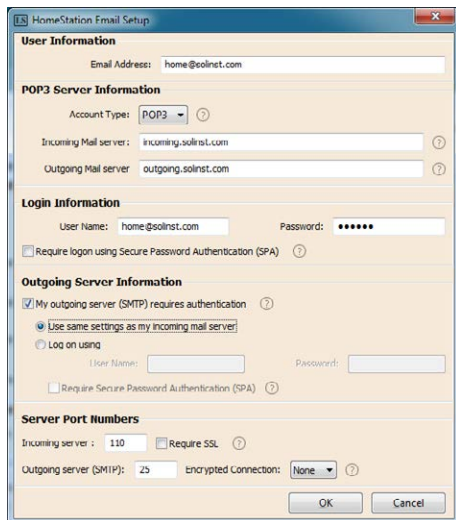
Once you have set up your Home Station email, you can test that the settings you entered are correct by clicking .

This will open the LevelSender Email Client. You can access the LevelSender Email Client at any time to view all email received and sent by the Home Station, including test emails.

Note: Emails are not required if you are using Solinst Cloud. See separate User Guide.



LevelSender Email Client



Enter your Email Server and Login Information in the Home Station Email Setup Window

Note: The Home Station Email can also be set up by selecting Email Account Configuration from the Configuration menu in the LevelSender Software.


8) Connect LevelSender 5 to PC

For initial setup and direct communication with LevelSender Software or Solinst Cloud, the LevelSender must be connected to the PC using a USB cable. The connection is accessed by loosening the antenna nut and removing it along with the top cap (see Step 3).

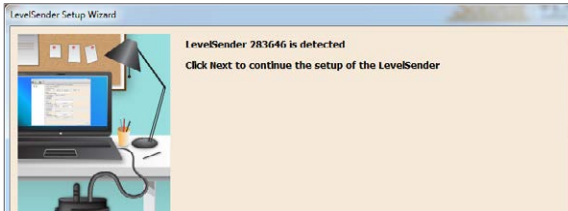


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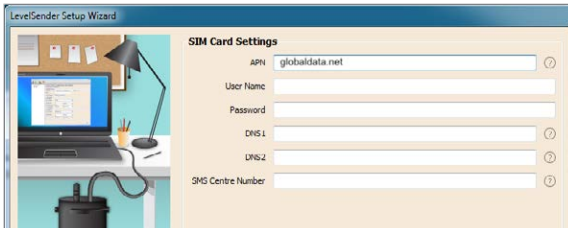
9) LevelSender 5 Setup Wizard

When connecting a new LevelSender 5, the LevelSender Setup Wizard will start automatically if the LevelSender Software is open, or click  to start the Wizard.

Note: See separate User Guide if setting up your LevelSender using Solinst Cloud

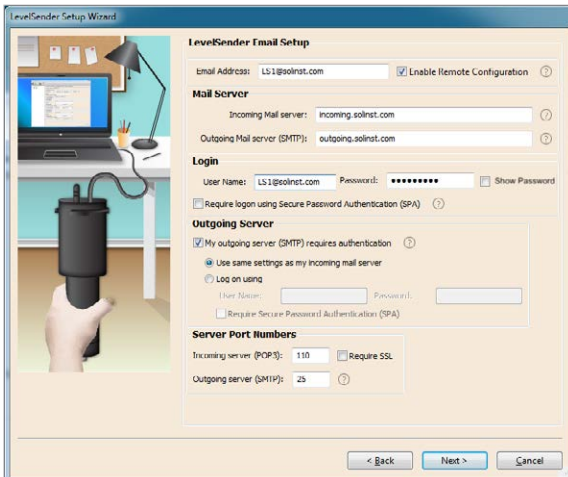


1. The LevelSender Setup Wizard first detects/retrieves the settings from the connected LevelSender 5. Click **Next** to continue the Setup.



2. Enter the SIM Card settings obtained from your service provider, including Solinst SIM cards.

Note: User Name, Password, and DNS may not be required if your carrier uses a public account.



3. Setup the LevelSender email it can use to send data and receive remote updates.

There is also the option to skip this step, if you are only going to use FTP data transfer and/or you do not require remote updates. You can also set up both, as the LevelSender can simultaneously push data to the FTP server and a designated email address.

To enable the LevelSender station to receive remote updates from the Home Station, ensure you check **Enable Remote Configuration**.

Note: Each LevelSender 5 must have a unique, dedicated email address. Solinst recommends creating a new email address for each LevelSender 5.

Note: Emails and data recipients are not required if you are using Solinst Cloud. See separate User Guide.

Data Recipient Setup

Home Station

☒ email Recipients

Email

First Name:

Last Name:

Add

Remove

☐ Short Message Service (SMS)

Phone: eg. 19058732255

FTP Option

☒ Enable

Server:

Server Sub:

Port Number: 21 ☐ Enable FTPS FTP Delay (ms): 150

User Name:

Password: ☐ Show Password

FTP Output File Format

☐ Email Text ☒ csv

< Back Next > Cancel

- Enter the data recipients, including the Home Station Email, and optionally, email addresses, and SMS number. You can enter up to five email addresses and one SMS number.

Note: Ensure you have added all required recipients, as you can only make changes to the list when the LevelSender 5 is connected to the PC.

You can also Enable your data to be sent to an FTP Server of your choice by entering the required settings, including the FTP Server Subfolder location.

Note: You can also go to Preferences under the Configuration menu of the LevelSender Software to set up transfer to a temporary FTP Folder on your Home Station PC, which will then be transferred to an FTP Server.

LevelSender Setup

Location: Well 2

Sampling Rate: 1 Minute(s)

Reporting Rate: 5 Minute(s)

Start Time: 2021-09-09 2:48:48 PM

Number of Dataloggers attached

☐ One Datalogger ☒ Two Dataloggers

Datalogger 1

Select Logger: Levellogger 5

☐ Start Datalogger 1

Location:

Sample Rate: Minute(s) 1

Start Time: 2021-09-09 2:47:55 PM

Datalogger 2

Select Logger: Levellogger 5

☐ Start Datalogger 2

Location:

Sample Rate: Minute(s) 1

Start Time: 2021-09-09 2:47:55 PM

☐ Enable Barometer with Unit psi

Note: The attached Levelloggers will be restarted upon the LevelSender start-up. If the attached dataloggers are already logging, they will stop and restart following the settings entered above. It is recommended to download any existing data in the Levelloggers before start-up the LevelSender. Not entering settings above would avoid independent logging (Levellogger status stopped) after LevelSender start-up.

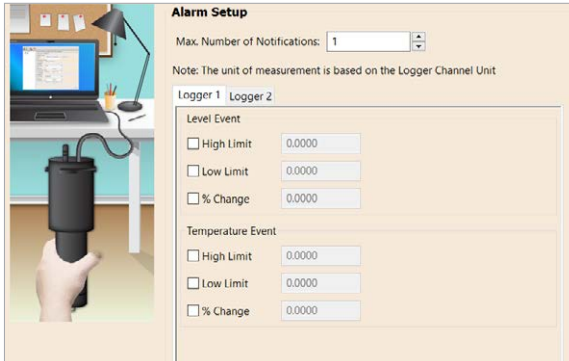
< Back Next > Cancel

- Enter the sampling and reporting rate, start time, number of dataloggers connected, optionally, set the connected dataloggers to record independently in their memories and enable the internal LevelSender barometer to compensate the reported water level readings.

Sampling Rate: the rate that the LevelSender station collects data from the connected datalogger(s).

Reporting Rate: the rate that the LevelSender station reports collected data via email/SMS. If enabled (in step 3), it also checks for remote updates from the Home station

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Alarm Setup

Max. Number of Notifications: 1

Note: The unit of measurement is based on the Logger Channel Unit

Logger 1 Logger 2

Level Event

☐ High Limit 0.0000

☐ Low Limit 0.0000

☐ % Change 0.0000

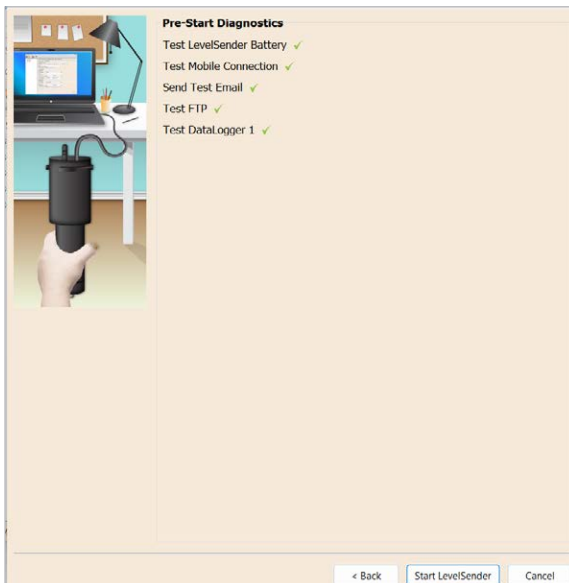
Temperature Event

☐ High Limit 0.0000

☐ Low Limit 0.0000

☐ % Change 0.0000

6. Optionally, set up alarm conditions for each attached datalogger.



Pre-Start Diagnostics

Test LevelSender Battery ✓

Test Mobile Connection ✓

Send Test Email ✓

Test FTP ✓

Test Datalogger 1 ✓

< Back Start LevelSender Cancel

7. Diagnostic tests are automatically performed after you have entered all of the setup information, including FTP transfer if enabled.

When all the diagnostics tests are passed, click **Start LevelSender** to complete the setup of your LevelSender 5. It will start reporting at the set start time.

10) LevelSender 5 Installation

The LevelSender 5 is designed to be discreetly installed inside a 2" well casing (4" with an adaptor). Each LevelSender 5 comes with a 2" Well Cap Assembly and Support Hanger Bracket.



Note: If you are connecting a LevelSender 5 to a Levellogger already installed in the field with a Direct Read Cable and Solinst Well Cap Assembly, remove the installation from the well.

The following are guidelines for installing one Levellogger in a 2" well:

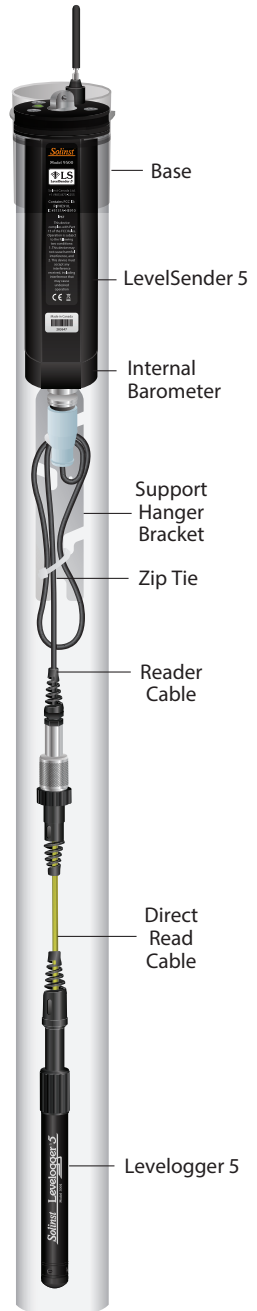
- 1) Install the well cap base on the well casing.
- 2) Wrap the Reader Cable around the Support Hanger Bracket, leaving about 6" of slack above the top of the bracket. Use zip ties to secure the cable to the bracket.

Note: Providing enough slack at the top of the well allows you to lift the LevelSender 5 from the well cap base, in order to accommodate periodic depth to water measurements, without disturbing the datalogger(s) from the downhole position.

- 3) Connect the Levellogger to the Direct Read Cable. Connect the Direct Read Cable to the Reader Cable. Slowly lower the Levellogger down the well.

Note: See the LevelSender 5 User Guide for more details if installing a Barologger in the same well, or if installing a LevelVent.

- 4) Lower the assembly until the Support Hanger Bracket seats on the shoulder in the well cap base.
- 5) Connect the top end of the Reader Cable to the LevelSender 5.
- 6) Carefully push the excess Reader Cable down the well, while lowering the LevelSender 5 into position. The LevelSender 5 has a flat side so it fits alongside the Support Hanger Bracket.
- 7) With the antenna in a bent position, you can install the well cap onto the well cap base.



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Maintenance

As with any monitoring project, you should select the proper equipment and determine a maintenance schedule based on the environment specific to your application.

Maintenance tips include:

- See the Levellogger or Vented Dataloggers User Guides for tips on maintaining and cleaning your dataloggers
- Keep the dust cap on the LevelSender 5 datalogger connection, when not in use
- Remove the batteries and SIM card, when the LevelSender 5 is not in use
- Replace the batteries as required (three 1.5V lithium batteries)

Note: Battery percentage remaining for the LevelSender 5 is sent with each report.

Sample Rate	Report Rate	Battery Life
Every Hour	Every Day	429 Days
Every Hour	Every 6 Hours	176 Days
Every 15 Minutes	Every Hour	35 Days

Note: Estimates are based on three 1.5V lithium batteries, with two dataloggers connected.

Remote Updates

To make changes to a remote LevelSender 5 station, use the **LevelSender Changes** tab.

From here, you can update the Sampling Rate, Reporting Rate, and Stop or Start a LevelSender 5.

You can also update or set connected dataloggers to record independently in their internal memory.

Click **Send**, the changes will be applied to the remote LevelSender 5 station at its next scheduled report interval.

LevelSender Changes Tab for Remote Station Updates

Note: If you Stop a LevelSender 5, it will stop sampling/reporting, but will continue to check for remote email updates (e.g. a new start time) from the Home Station at the set reporting rate.

Data Collection

Data sent in each LevelSender 5 report can be viewed/accessed in an email, SMS (text) message, LevelSender Software, in a dynamic database on the Home Station PC, and an FTP Server if you have set it up.

Along with the data, each report includes information about the LevelSender 5 – including battery life, and information about connected dataloggers.

To access email and data files using LevelSender Software, use the **Data Collection** tab. The data files are also automatically saved on the Home Station PC in this default location:

<C:\Users\Name\Documents\LevelSender\Data>

Select an *.xle file and click  to export and save the *.xle file to a different location. You can also select to export to a *.csv file.

Data from each report is placed in a SQLite database on the Home Station computer. Typical default directory:

<C:\Users\Name\Documents\LevelSender\db>

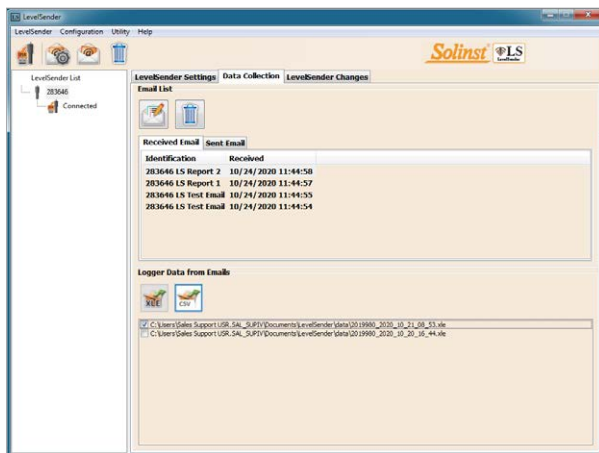
The database can be queried by your own macros or applications to automatically check for updates and display the data in your own program.

283647 LS Report 1

LevelSender
Serial: 283647
Location: Well 2
Battery: 89%
Sample Rate: 1 minutes
Report Rate: 5 minutes
State: reporting
Start Report: 19/08/2021 12:03:20

Logger 1
Location: aug8test1
Type: Levellogger 5
Serial: 1018258
Battery: 98%
Total Logs: 60 of 40000
Log Rate: 0 seconds
Memory Mode: slate
Log Type: linear

LevelSender 5 Report Example

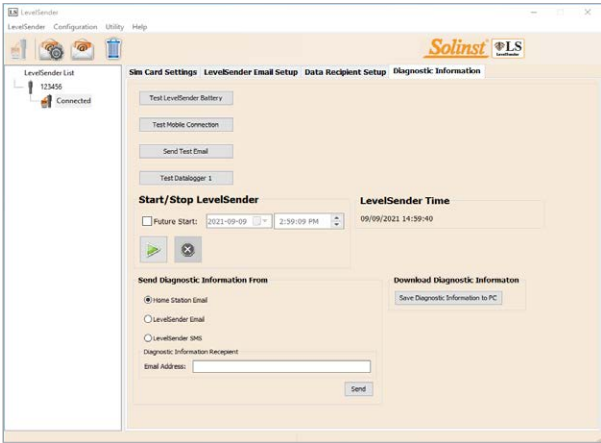


LevelSender Data Collection Tab for Viewing Email and Data

Note: See the Solinst Cloud User Guide for details on viewing data using the Solinst Cloud.

Diagnostics

The **Diagnostic Information** tab can be used to perform individual diagnostic tests when the LevelSender 5 is connected to the PC with the USB to USB-C cable.



LevelSender Diagnostics Tab for a USB Connected LevelSender

Note: Also for diagnostic purposes, a log file with any reported errors can be found on the Home Station PC. Typical default directory: <C:\Users\Name\Documents\LevelSender\Log>

Compatibility

The LevelSender 5 is compatible with the following Solinst dataloggers, using the most recent firmware versions (and up):

Datalogger	Firmware Version
Levellogger 5	1.006
Barologger 5	1.006
Levellogger 5 Junior	1.006
Levellogger 5 LTC	1.006
Rainlogger 5	1.006
LevelVent 5	1.006
Levellogger Edge	3.004
Barologger Edge	3.004
Levellogger Junior Edge	3.004
LTC Levellogger Edge	1.003
Rainlogger Edge	3.001
LevelVent	1.000

Note: Ensure you are always using the most recent LevelSender 5 Firmware and Software versions. Visit: <https://downloads.solinst.com/> to check your compatibility. See the LevelSender 5 User Guide for firmware update instructions, if required.

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