

Quick Start Guide

9700 SolSat 5 Satellite Telemetry



SolSat 5 Remote Station

- ① Antenna
- ② LED Activity Light
- ③ Power Button
- ④ 2 Watt Solar Panel
- ⑤ Datalogger Connection
- ⑥ Power Connection



Getting Started

When you receive your SolSat 5, you will register your device at <https://portal.solinstsat.com> and set up your account, data plan, and login to access your data.

Check that the batteries are charged. Battery voltage is displayed in the Wi-Fi App once connected. Batteries are fully charged at 4.2 volts, at 3.4 volts the SolSat 5 needs to be recharged. Each SolSat comes with a 5 volt USB Charging Cable.

Note: Using a higher voltage (over 6 volts) to charge the SolSat 5 will damage the electronics.

Connect Dataloggers

Each SolSat 5 has a single port to connect one datalogger:

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



Connecting to the Wi-Fi App

Initial setup for each SolSat 5 is done wirelessly using the integral SolSat 5 Wi-Fi App.

1. The SolSat 5 will be in deep sleep mode. Turn on/wake up the SolSat 5 by pressing the power button for 2 seconds. Within 1 minute, a Wi-Fi signal will start broadcasting.
2. In your mobile device's Wi-Fi settings menu, select the "SolSat 5" SSID signal. If this does not appear right away, wait an additional 2 minutes, then refresh the Wi-Fi list.

Note: The default password is 8006612023, you can change this later using the Settings in the App.

3. With the Wi-Fi connected, open the web browser on your device and enter "10.10.10.10" in the address bar, then press "go" or enter.

Note: If the App does not open, clear your browser history and try again. If it still doesn't open, check your firewall settings.

4. The built-in App will open. To navigate, click the drop-down menu located in the top left corner. The SolSat 5 will stay "ON" as long as you are connected by Wi-Fi to the App. Once you disconnect or the screen goes blank, it will go to sleep after 3 minutes.
5. You can change the security settings for your Wi-Fi network by going to Settings; this includes changing the password from the default.

Note: When not in use, turn the SolSat 5 OFF using the Settings menu in the App.



SolSat 5 Wi-Fi App Main Screen

SolSat 5 Satellite Telemetry Setup

1. To set up your SolSat 5, go to Settings, then select "Setup". The first step shows a Glossary of terms to help with the rest of the set up. Click Next.



SolSat 5 Wi-Fi App Settings Menu



SolSat 5 Setup Step 1: Glossary

2. Use the drop-down menu to select the data plan that your SolSat 5 has been registered with. Click Next.



SolSat 5 Setup Step 2: Plan Selection

3. Use the drop-down menu to select the GMT Time Offset for your SolSat 5 location. Then, select the time(s) of day you would like to receive the data reports. Click Next.



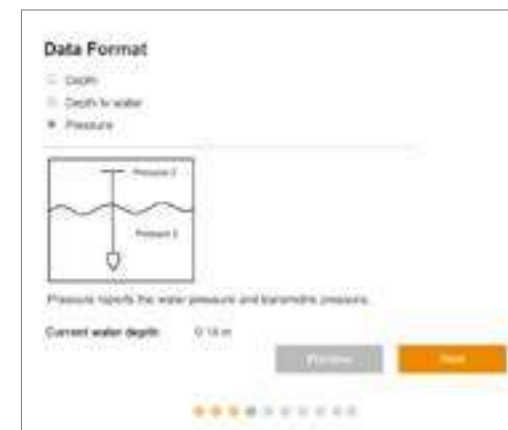
SolSat 5 Setup Step 3: Time Settings

4. Next, select the desired data format for the reported data:

Depth: reports the calculated water depth from the Solinst datalogger.

For absolute water level sensors, the barometric data from the internal SolSat 5 barometer is used to subtract from the water level sensor reading, to provide the depth of water above the water level sensor zero point.

Note: For more information on the operating principles of Solinst dataloggers, see the Levellogger and Vented Datalogger User Guides.



SolSat 5 Setup Step 4: Data Format Settings

Depth to Water: reports the depth to static water level based on a Reference Point.

The Probe Distance is entered as the distance between your selected Reference Point (e.g. top of well casing, ground level) and your water level sensor zero point. The Depth to Water is calculated by subtracting the water Depth (see above) from the Probe Distance. Click Next.

Pressure: reports the uncompensated pressure reading from the datalogger.

5. For Plans 1 and 2, select the check-box to set an Alarm. The alarm will be based on your selected data format. You can select a Value (positive or negative) that if the sampled measurement goes Above or Below will trigger an alarm message to be sent. Click Next.

SolSat 5 Setup Step 5: Alarm Settings

Note: If set, an alarm message will be sent once per day if the alarm parameter is met.

Note: If you have selected Plan 3, you can set an alarm using the solinstsat.com web portal.

6. In the next steps you will select the parameters and units of measurement that you want to use for reporting the temperature, pressure, and conductivity if you are using an LTC datalogger. First, select the unit of measurement for the temperature sensor.

SolSat 5 Setup Step 6: Temperature Unit Settings

7. Based on your data plan, select which parameters you would like to be reported. Click Next. There will be no Option for Plan 1.

SolSat 5 Setup Step 7: Parameter Option Settings

8. Based on the selected options, select the units of measurement for each parameter.

SolSat 5 Setup Step 8: Parameter Unit settings

9. Select the data that you want sent with each report/transmission. The options are: Transmit GPS and current values, Transmit current values, or Do not transmit, save only.

Note: You can download the data directly from the SolSat 5 using the Wi-Fi App when within range. The SolSat 5 can store up to 100,000 data logs.

Click Submit to finish the setup.

SolSat 5 Setup Step 9: Data Transmission Settings

SolSat 5 Satellite Telemetry Data Collection

Data Management using Solinstsat.com

Data sent in each SolSat 5 report can be accessed by going to <https://www.solinstsat.com>, where you enter your username and password.

The Site Index shows a summary of your sites, including the number of devices, the last report time, and the alarm status.

Click on site, then a device name to view the historical data for the selected device. Along with water level and temperature data, each report includes battery voltage for the SolSat 5. You can select to view a specific date range, which will provide you with statistics and daily max, min and mean average data. Data can also be viewed in a graph and exported as for use in other programs.

Solinstsat.com also allows you to add new users to your account, manage users, manage your remote sites, devices and alarms, as well as create reports. See the SolSat 5 User Guide for more details.

Note: There are Quick Help tips throughout [solinstsat.com](https://www.solinstsat.com) to help navigate all of the features.



Solinstsat.com Web Portal Site Index

Download Data Logs

When connected to the SolSat 5 via the Wi-Fi App, you can download stored data logs from the SolSat 5 directly to your connected mobile device or computer. The SolSat 5 can store up to 100,000 data logs (wrap-around memory).

Note: The memory status of the SolSat 5 can be viewed in the About section of the Wi-Fi App.

To download the data logs, go to Settings and select "Download Log Files". A progress bar and percentage will be shown as the data is downloading.

SolSat 5 Satellite Telemetry Installation

The SolSat 5 is self-contained with a pressure-stabilized, weatherproof enclosure for deployment in almost any water monitoring application.

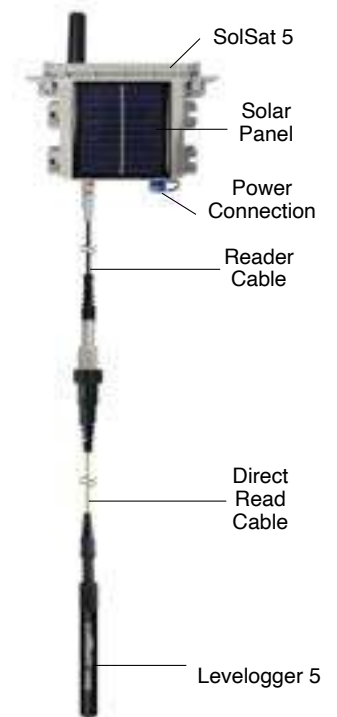
A clear view of the sky is important for best performance and battery life.

Note: The SolSat 5 comes with a USB charging cable. The 2-pin Bulgin power connection on the SolSat 5 can also be used to connect an optional solar panel (see the SolSat 5 User Guide for more details).

The SolSat 5 has an IP rating of 66, so it is dust-proof and can withstand heavy rain, but can not be submerged. The operating temperature range is -20 to 55°C.

The SolSat 5 comes with a high-performance helical antenna. It is designed to work in any situation. The antenna uses an SMA connection, therefore, you can source other antennas or an antenna cable extension with an SMA male connector, if required.

Note: See the Levelogger and Vented Dataloggers User Guides for details on proper deployment of these instruments.



SolSat 5 Email and Text Messages

Because the SolSat 5 uses TextAnywhere global satellite messaging, you can use the Wi-Fi App to send and receive email and text messages. This is helpful during installation and site visits in remote areas where there may be no cellular service.

Note: TextAnywhere provides a good health and safety feature. In case of an emergency, communication is still possible through the SolSat 5 in remote locations with no cellular signal.

Using the Main Menu in the SolSat 5 Wi-Fi App, you can add text or email Contacts, Send Email, Send Texts, and receive messages in the Mailbox.



SolSat 5 Wi-Fi App Main Menu

SolSat 5 Satellite Telemetry 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 SolSat 5 power connection when not in use
- If you are not deploying the SolSat 5, turn it “OFF” using the Settings in the App.

Note: If the SolSat 5 is stored without turning it off, the batteries will slowly drain. Once 2.6 volts is reached, the batteries may not recover or lose storage capacity.

- **Recharge the batteries as required.** The SolSat 5 is fully charged at 4.2 volts, at 3.4 volts the SolSat 5 needs to be recharged. Without an added solar panel, basic usage would allow the SolSat 5 batteries to last over 1 year. On average, the batteries will last 2–3 years based on hourly samples and one satellite transmission per day. With the solar panel recharging, they should last indefinitely.
- Contact Solinst if the batteries need to be replaced. Do not try replacing them yourself.

Note: Battery voltage for the SolSat 5 is sent with each report, it can also be checked using the Wi-Fi App when connected.

SolSat 5 Satellite Telemetry Diagnostics

Each report from the SolSat 5 includes battery voltage, therefore it can be monitored remotely and action taken only when needed.

When connected to the Wi-Fi App, you can view important status information in the SolSat 5 Main Screen, including battery voltage and satellite network availability.

If there is a suspected network issue, you can check the satellite connection in Settings by selecting “Check Satellite”. The Settings section also displays the Status of the SolSat 5, including network availability and if an Alarm has been set.

The About section also displays the battery voltage, as well as firmware version and SolSat 5 memory, all which could also help diagnose a potential problem.

SolSat 5 Satellite Telemetry Compatibility

The SolSat 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
LevelVent 5	1.006