GroPoint Bluetooth SDI-12 DL
Hardware Connection & Deployment Manual

The Bluetooth SDI-12 Data Logger is an SDI-12 data logger and a wireless access point to retrieve data through your smartphone. It can be left in the field connected to your SDI-12 sensors, allowing you to access the data when convenient.

The free GP Reader app (available for Android devices only) is used to check current conditions, configure the logger sensor measurement list and sample interval, and to download logged data. With the app open on your smartphone, simply push the button on the Bluetooth Sensor Pod to wake it up and automatically establish a wireless connection. Tap the Download button in the app to download all logged data.

The Bluetooth Sensor Pod can connect multiple SDI-12 sensors (with additional 4-Port SDI-12 Expansion Bars).

Data is stored in non-volatile memory and is retained even if the battery fails. The 4 Mbyte memory can hold up to up to 12 months of measurements depending on measurement interval and sensor measurements selected.

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Batteries:

Batteries are supplied but not connected/installed.

1. Unscrew the four Phillips head screws on the lid and carefully separate the enclosure, exposing the batteries.
2. For C cell, connect the battery holder plug. For AA batteries, install batteries in the holders. Note the battery polarity diagrams on the circuit board.
3. Replace the lid, ensuring the rubber gasket is properly aligned on all edges.
4. Retighten the four lid screws, being careful not to overtighten and to tighten evenly at all four corners.
5. Depending on the logging interval, batteries may last up to six months. Replace batteries when the GP Reader app shows the battery level of less than 30%. For AA batteries use industrial grade alkaline batteries for best results. Carbon zinc batteries are not recommended. For C cell, replace with equivalent Li-SOCl-2 type Lithium non-rechargeable battery, e.g. SAFT LSH14.

Enclosure Mounting

The Datalogger enclosure is rated IP67 (weatherproof, protected against the ingress of water and dust). For best results, please follow these mounting recommendations:

1. Mount the data logger with the connector hanging down.

2. Do not mount the data logger in a location where it will receive directed sprays of water on it, e.g. from a sprinkler

Sensor Connection

Align and insert the plug connector fully into the panel mount socket (it may be necessary to rotate the locking ring to allow full insertion). Once fully inserted, rotate the locking coupling ring until a positive lock is felt. DO NOT TWIST THE PLUG, only the locking ring.

Loggers may also come equipped with a threaded M12 connector as shown at right. Align the sensor connector with the panel mount on the data logger and turn screw ring clockwise until snug.

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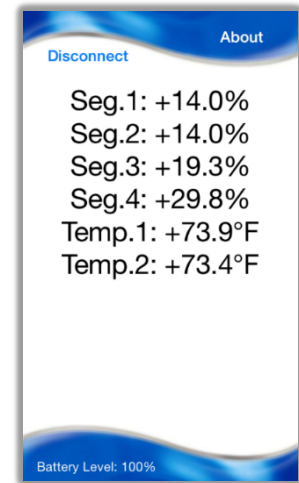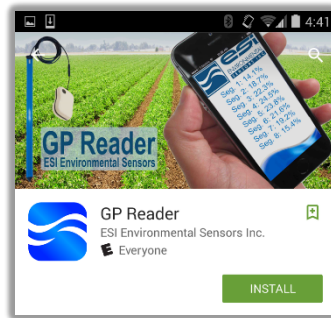support@gropoint.com
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You've got the logger, now get the GP Reader app.

On your Android device:

1. Start the Play Store app:

2. Enter *gp reader* as the search term.

3. Locate **GP Reader** by ESI Environmental Sensors Inc. and select it.

4. Touch the INSTALL button.

## On your iOS device:

1. Coming soon…

GP Reader App Operation:

1. Make sure your device has its Bluetooth wireless hardware turned on.

2. Start the GP Reader app.

3. Click the "**Connect**" button. The app begins to scan for a GroPoint Bluetooth data logger. To minimize power consumption, if no connection is made, the scanning will automatically halt after 30 seconds if no data logger is discovered.
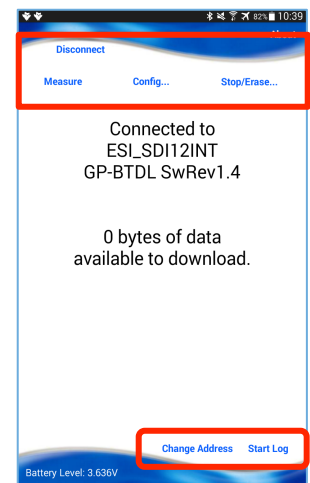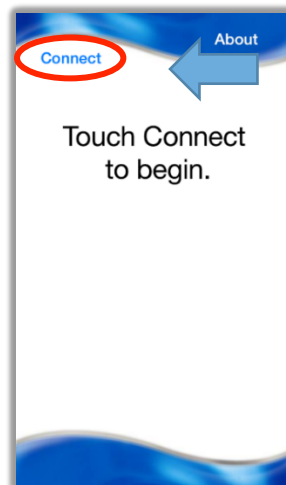
4. Press the button on the GroPoint Bluetooth to activate it. Once a data logger is detected, the app will display it in the list of available data loggers. Select it from the list.

5. Once connected to a sensor, you can take an instantaneous measurement, configure measurement interval, delete all logged data, start and stop logger and download data.

6. Click the "**About**" button to display the About screen. Here you can select the desired temperature units (°C or °F), and contact GroPoint. You can also enable a log of all SDI-12 transactions with the data logger. The log file is stored in the mobile devices' Phone Storage>Documents>GPReader folder with the name GPReaderLog.txt. Touch the "**Back**" button to return to the main view screen.

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Sensor Addresses

New SDI-2 sensors have a factory default address "0". If you are attaching multiple sensors to a logger then sensors must be assigned unique addresses. Only one sensor at a time may be attached to the logger when changing its address.

1. Attach a single sensor to the logger.
2. Click "**Change Address**".
3. Current address is shown in blue. Touch and drag the outside dot to select the new address.
   a. Note that each sensor address on a given logger must be unique.
   b. Network Configuration Tip:
      i. Label sensors and keep a list of addresses with friendly names and the location of deployment.
4. Click "**Set Address**" to update the sensor's address.
5. Remove the sensor from Datalogger
6. Repeat the above steps for each sensor within the sensor network
7. Once all sensors are assigned unique addresses they may all be attached to the Data Logger.
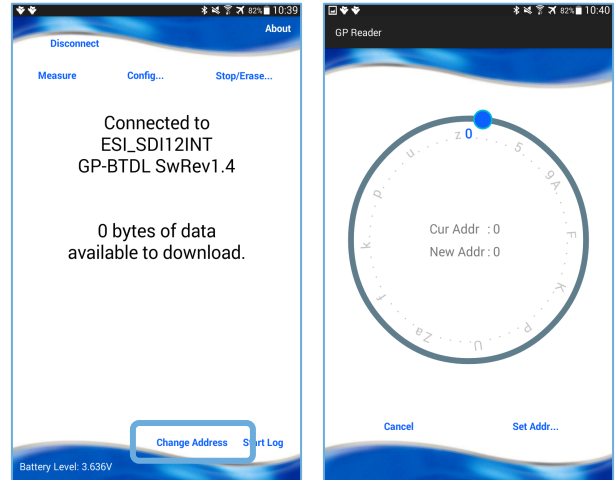
Logger Configuration

The logger must be configured to select the desired sensor measurements, what name to save the data under, and the measurement interval. Default configuration is 0M! measurement only. Click on the **Config…** button to show the configuration page.

1. Enter the logger's "Friendly Name". This name will be used for saved data files. Because the {friendly name} is a component of the saved data filenames, if you have multiple loggers you must ensure that they all have unique friendly names to ensure data is not over written.
2. Select the measurement interval, i.e. one measurement every 1 hour. This is the measurement interval for all sensor measurements.
3. Click the Add button to add a sensor measurement. Click Delete to remove a measurement.
4. For each sensor measurement you must specify the sensor address and the particular measurement to make. Refer to the sensor's data sheet for supported measurements. For example, GroPoint profile sensors support two measurements: aM! for moisture measurements and aM1! for temperature measurements. If you wish both measurements to be logged then both measurements must be added.
5. To check the current logger configuration ensure all desired sensors are connected and click "**Test**…" Each measurement will be checked and sample measurement data is shown.
   ❖ A warning message will appear if there is no response to a selected measurement. If this occurs, check the sensor connections and/or sensor address assignments.
6. Click "Update" to save changes, then click "Start Log" to launch the logger.
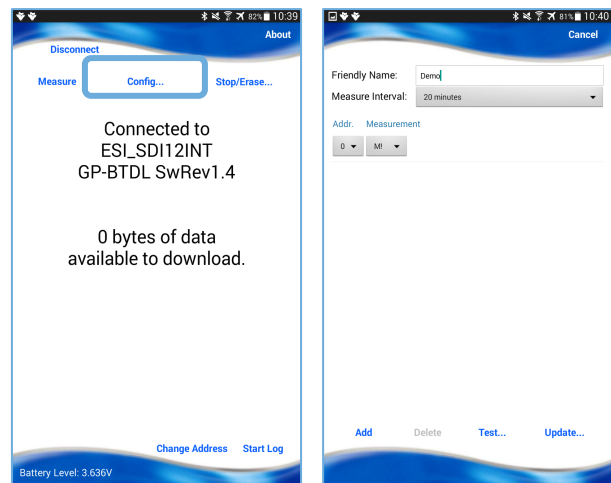
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7. The logger will first clear its data storage memory, then check each sensor (sensor ID's from each sensor should be displayed). Finally the logger will launch into low power logging mode and disconnect from the app.
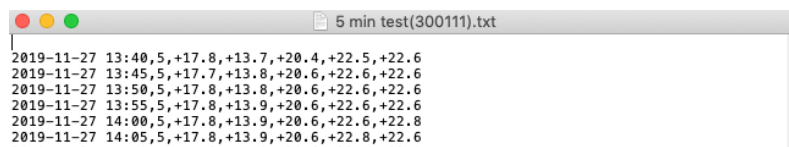
Data Download
1. Reconnect Bluetooth Data Logger to Android device
2. If there is no data yet to download, click on the Start Log button to start logging. NOTE: make sure desired logger configuration is correct first.
3. To download data, click the Download button to retrieve the data. Once the data is downloaded, the data logger is automatically relaunched; then the recently downloaded data is displayed.
4. New data downloaded is <u>appended</u> into the existing sensor files AS LONG AS THE FRIENDLY NAME IS NOT CHANGED. If you change the logger's friendly name the next time data is downloaded new data files will be created. The old files will still remain in the GP Reader folder.
5. Use your device's File Manager app to navigate to the mobile devices' Phone Storage Files>Documents>GPReader folder for a list of all sensor data files. Use the devices file manager app to navigate to this folder. Files use the "Friendly Name" as the base filename plus the sensors serial number (or sensor address if no serial number recognized). with the .txt extension. Use File Manager to send or share the data file.

    NOTE:
    a. If you have trouble finding the files it is possible your device has a different file management protocol, and therefore can be accessed though Internal Storage>Documents>GP Reader folder
    b. The app never deletes files to ensure that no data is ever lost. To manage personal device storage you should periodically delete old raw data files once you are satisfied that they have been properly downloaded and parsed.

6. Downloaded data files are retained from each new download in the event that there are issues with the data parsing. They have the filename {friendly name}.nnn where nnn starts at .001. nnn is a numerically increasing extension, e.g. .001, .002, 003 etc. etc. These files should be manually deleted periodically to avoid tying up device storage.
7. Raw data files can be viewed as a text file, but will not make sense until it is parsed by the app (after the logger is relaunched). You should never need to view the raw data files unless there is failure during the parsing stage. In this case the raw data files can be provided to RioT for assistance in data recovery.

Data Format
1. When raw data is parsed it creates a separate data file for <u>each</u> sensor. File name is {friendly name}(sensors serial number).txt (or .csv or .dat depending on extension setting)
2. The parsed data files are formatted date/time, sensor address, measurement values,
3. Note that measurement values are aggregated into a single line. For example a 3-Segment moisture probe with two temperature measurements, the data downloaded in .txt format will be presented as follows;
    a. Date, Sensor Address, Segment 1 Moisture, Segment 2 Moisture, Segment 3 Moisture, Temp 1, Temp 2.


```
                    📄 5 min test(300111).txt
|
2019-11-27 13:40,5,+17.8,+13.7,+20.4,+22.5,+22.6
2019-11-27 13:45,5,+17.7,+13.8,+20.6,+22.6,+22.6
2019-11-27 13:50,5,+17.8,+13.8,+20.6,+22.6,+22.6
2019-11-27 13:55,5,+17.8,+13.9,+20.6,+22.6,+22.6
2019-11-27 14:00,5,+17.8,+13.9,+20.6,+22.6,+22.8
2019-11-27 14:05,5,+17.8,+13.9,+20.6,+22.8,+22.6
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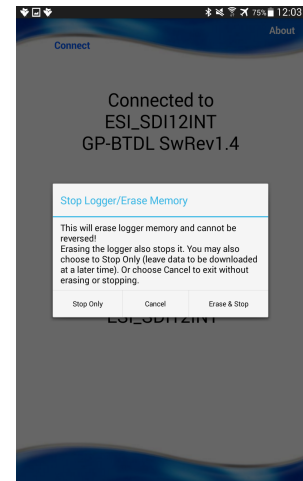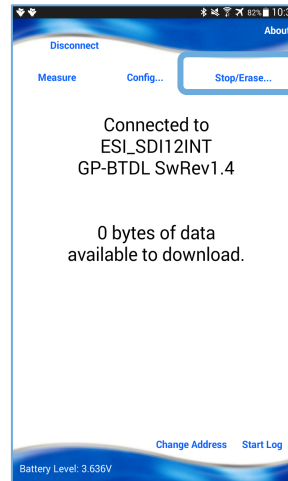
Need help?

To stop the logger and put it into a low power state click the **Stop/Erase…** button.

Erase Data/Stop Log
1. To stop, or erase data logger without downloading, click "Stop/Erase".
   - ❖ Stopping the log will allow you to pause the data logging process.
   - ❖ Erasing the log will delete your stored data and also stop the data logging process.
   - ❖ Erasing the log is not reversible.

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