G/S BOX
GEOSTRING PORTABLE READER
USER GUIDE

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1 INTRODUCTION

The G/S Box is a portable reader designed to read Geostring in-place inclinometers, its primary purpose is to verify Geostring measurements during the installation in the field. In its current version, the G/S Box is capable of measuring up to 120 Sensors (Nodes).

The G/S Box includes Bluetooth and optional Wi-Fi connectivity to display real-time measurements on a tablet or smartphone using LoggerLink App.

The case is waterproof and impact resistant, the front panel is splash-proof, allowing the equipment to be used in light rainy conditions.

The G/S Box is powered by two 12 Volts rechargeable AGM Batteries, providing approximately 16 hours of operation under normal conditions.

This user guide provides step-by-step instructions to get started and operate the G/S Box portable reader using LoggerLink.

G/S BOX Front Panel

A	Batteries Charger Connector
B	Fuse Holder
C	Power/Status Indicator
D	Dual Function Switch: ON/OFF/(ON) Power / Battery Level
E	Battery Level Indicators
F	Geostring Cable Cord Connector
G	Wi-Fi & Bluetooth Communication Indicators
H	USB-B Communication Port

2 LOGGERLINK APP

LoggerLink mobile App allows a tablet or smartphone running iOS or Android™ mobile operating systems to communicate with Campbell Scientific devices, which is the core of the G/S Box Reader. The Application features the following:

- Display real-time data (Public Table)
- Collect data (Geostring Tables)
- Configure variables and control ports
- Check diagnostic information
- Display recorded data tables in graphical or tabular format

If not already installed on your tablet or smartphone, download and install the **Loggerlink** application.

iOS Mobile operating Systems

Android™ Mobile operating Systems

3 G/S BOX OPERATIONS

3.1 POWER UP THE READER

The power switch has two functions. When in the upward position it powers the G/S Box Reader and when in the downward momentary position, it displays the batteries capacity in percentage.

When the batteries are fully charged, all five indicators should be lit. However, if the percentage is equal or below 50%, the batteries need to be charged before using the Reader.

***Warning**: Do not check the Batteries Status while the Reader is in operation, as this will switch it OFF. During operation, the Tablet displays the battery level.*

- Switch ON the Reader; the Power/Status, the Bluetooth and optional Wi-Fi indicators will start blinking followed by a short beep
- Wait approximately 15 seconds until the Reader's initialization process is completed, this will be followed by another short beep
- The Reader enters a "Standby Mode" indicated by a double beeping sound every 10 seconds

The "Standby Mode" allows the operator to connect its tablet or smartphone with the Reader, and set up operational parameters before connecting the Geostring segments.

3.2 POWER DOWN THE READER

- First, disconnect the tablet or smartphone from the Reader
- Switch OFF the Reader (center position)
- Once the Reader is powered down, disconnect the Geostring segments from the cable cord

3.3 CHARGING THE BATTERIES

- The G/S Box Reader is supplied with an external wall adapter charger; the charger is fully automatic; it controls the charge voltage and current to the batteries
- When charger is plugged in, the status Indicator on the charger glows amber, it goes green when the battery is full charged. Depending on the batteries' charged level, it may take several hours to charge the batteries
- Toggle down and hold the power switch to view the batteries' charge percentage

The following table indicates the number of measurements possible with fully charged batteries when measurements are taken every 10 minutes.

***Note*:** *Values are approximate and depend on field conditions such as weather and battery age*

Number of sensors	Number of measurements	Hours of operation
30	250	40
60	200	32
90	150	24
120	100	16

3.4 CONNECTING THE GEOSTRING SENSORS

With the G/S Box Reader powered down or in Standby Mode, connect the patch cable's Alligator Clips to the Geostring's extension cable:

- Red Clip - Red wire (V+)
- Black Clip - Black wire (V-) and Drain wire (Shield)
- Blue Clip - Blue wire (Data B+)
- White Clip - White/Blue wire (Data A-)

Note: *Do not connect or disconnect the Geostring's Segments or the Extension Cable from the G/S Box Reader while it's reading the sensors.*

4 SETTING UP A WIRELESS CONNECTION

The G/S Box Reader supports Bluetooth and optional Wi-Fi; however, LoggerLink iOS App does not currently support Bluetooth connection, only Wi-Fi.

4.1 BLUETOOTH CONNECTION

With the G/S Box Reader in Standby Mode:

- On your Android device, open Settings and activate Bluetooth

- Scan and look for **GSBox *nnnnnn*-XXXX**

  Where: ***nnnnnn*** is the Reader's serial number

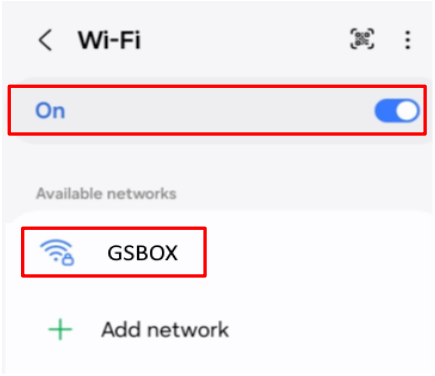
  -XXXX is the Bluetooth's MAC address (Last four digit)
- Tap **GSBox*nnnnnn*-XXXX** to select
- When asked, tap "Pair device"
- Wait until **GSBox*nnnnnn*-XXXX** shows connected
- Quit Settings and return to the Main Screen

4.2 WI-FI CONNECTION

With the G/S Box Reader in Standby Mode:

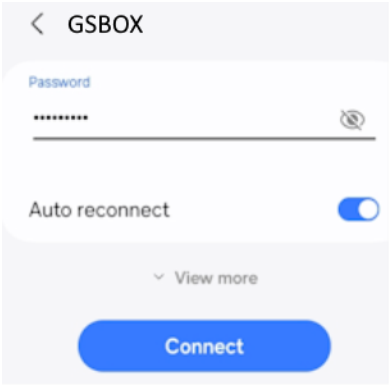
- On your Android or iOS device, open Settings and activate Wi-Fi

Note: *If you are already connected to a Wi-Fi network, you must disconnect from that network before continuing.*



- Search for SSID: **GSBOX**
- Tap **GSBOX** to select
- Enter the Password: **SkyNet51+**

Note: *Password is indicated inside the Reader's case.*



- Enable **Auto reconnect**
- Tap **Connect**
- Wait for connection confirmation with the Reader before returning to the main Screen

Note: *This may take a few seconds as the device checks for an Internet connection before confirming.*

- If an Internet message pops up, tap:

  Always connect

5 LOGGERLINK CONFIGURATION ON MOBILE DEVICES

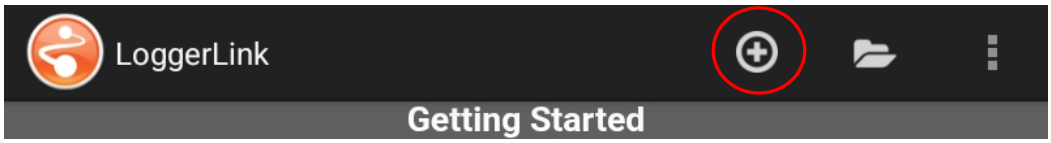
The G/S Box Reader preferred wireless connection is Bluetooth using Android™ devices. The Reader works equally with the optional Wi-Fi connection; however, it requires more steps to establish a wireless connection.

Alternatively, the Reader can be operated using a laptop via Bluetooth, optional Wi-Fi or direct USB connection. CSI's full features LoggerNet software or the free entry-level PC400 software is required with a computer.

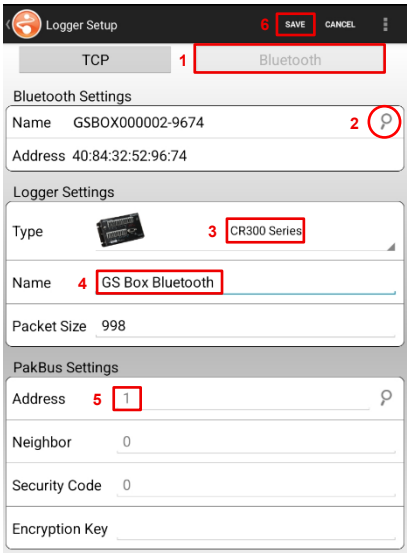
Note: *Configuring LoggerLink is only required when the App is used for the first time with the G/S Box Reader.*

Additional instructions are available within the App and the LoggerLink Android manual.

- Start **LoggerLink** App
- Once **LoggerLink** App is running, tap the ⊕ sign located at the top of the **LoggerLink Screen** to add and create a link with the G/S Box Reader



5.1 BLUETOOTH CONNECTION SETTINGS



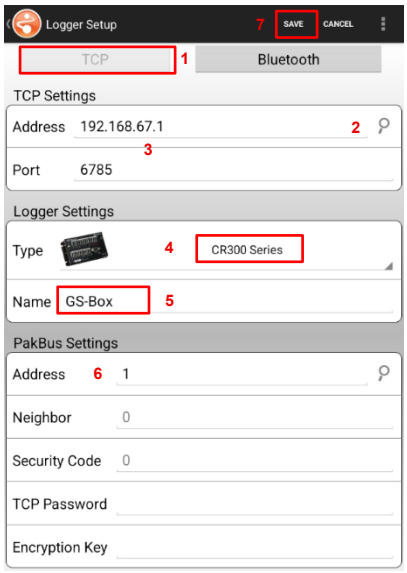
1. From the **Logger Setup Screen**, tap the Bluetooth button
2. Tap the **magnifying glass** symbol to search for the Reader's Bluetooth ID, look for:

   GSBoxnnnnnn-XXXX, tap to select
3. Tap **Type**: Scroll and select **CR300 Series**
4. Give the Reader a friendly name, e.g.:

   GSBOX Bluetooth
5. PakBus Address: **1**
6. Click **SAVE** to record the G/S Box Reader settings

Note: *If you have more than one Reader,* ***LoggerLink*** *will list all discovered Readers.*

5.2 WIFI CONNECTION SETTINGS



1. From the **Logger Setup Screen**, tap the **TCP** button
2. Tap the **Magnifying Glass** symbol to search for the Reader's IP Address. The **Network Search** window will appear showing all discovered devices. Tap **GS-Box**
3. If GS-Box is not found, enter the IP Address manually: **192.168.67.1**, **Port 6785**
4. **Logger Settings**, tap **Type**, and select **CR300 Series**
5. Give the G/S Box Reader a friendly name, e.g.:

   GS BOX Wi-Fi
6. **PakBus** Address: **1**
7. Click **SAVE** to record the G/S Box Reader settings

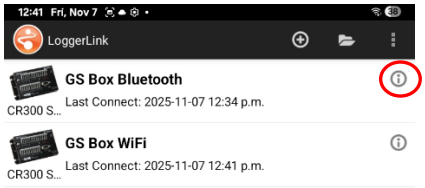
Note: *If you have more than one Reader*, ***LoggerLink*** *will list all discovered Readers*

6 LOGGERLINK OPERATIONS ON MOBILE DEVICES

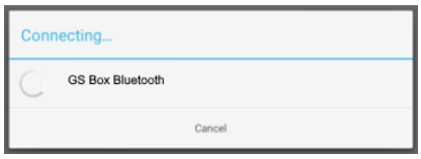
With the G/S Box Reader in **Standby Mode**:

1. Start **LoggerLink** App
2. From **LoggerLink's Main Screen**, tap **GS Box Bluetooth** or **GS Box WiFi**

   Note: The Wi-Fi link needs to be established before proceeding with the G/S Box Reader.
   - Alternatively, you can tap the ⓘ symbol to review the settings before connecting



   - Wait for the connection process to complete

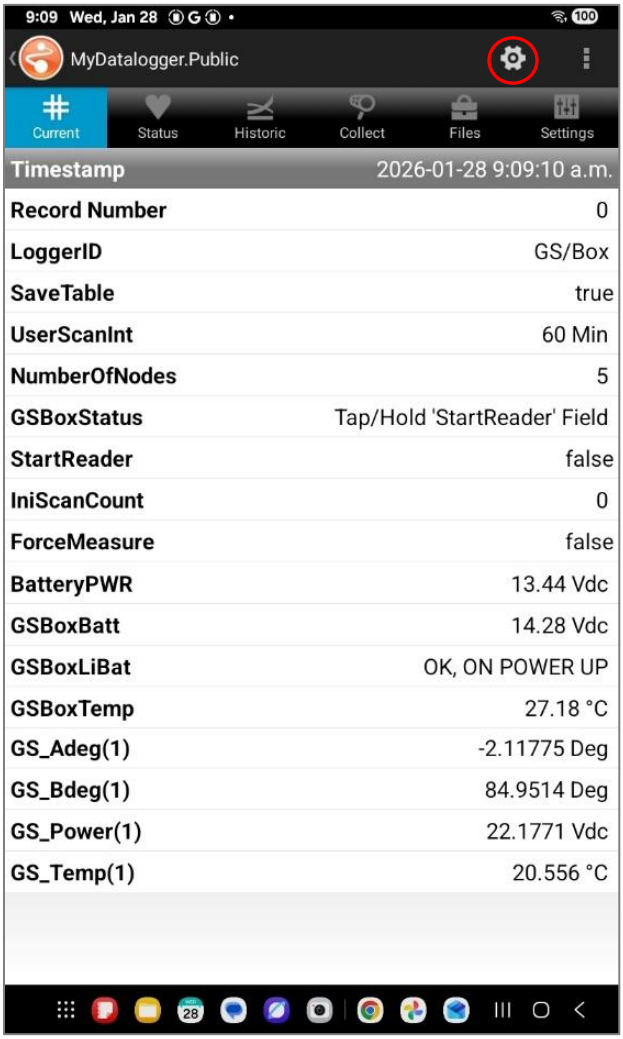


- When the connection is established with the Reader, the App will open with the **Current Display Screen** displaying the Reader's program labels with their current Readings. Swipe up/down to review all Readings

Note: *Public Table Records (Readings) are updated at the time interval set by the* ***UserScanInt*** *setting, the default time interval setting is 60 minutes.*

The following describes the Reader's Labels and Functions:

– **Record Number**
This number increments every time Readings are updated
– **LoggerID**:
The Reader's physical name
– **SaveTable**:
When set true, measurements are saved (default)
– **UserScanInt**:
Time interval in minutes to which the Geostring Sensors are measured
– **NumberOfNodes**:
Number of Geostring sensors (chain)
– **GSBoxStatus**:
Current Status of the Reader's program
– **StartReader**:
Start initialization & program control
– **IniScanCount**:
Initialization scan counter
– **ForceMeasure**:
Forces measurement on all Geostring sensors
– **BatteryPWR**:
Battery voltage measured at the main power input terminals
– **GSBoxBatt**:
Battery voltage measured by the CR310
– **GSBoxLiBat**:
Lithium battery status (memory)
– **GSBoxTemp**:
Reader's internal temperature (°C)
– **GS_Adeg(#)**:
Sensor's A-axis in degree (Angle)
– **GS_Bdeg(#)**:
Sensor's B-axis in degree (Angle)
– **GS_Power(#)**:
Sensor's supply voltage (Vdc)
– **GS_Temp(#)**:
Sensor's temperature (°C)



3. Entering the number of Geostring Sensors to be measured:

   Note: *To reduce measurements delays, the operator must enter the number of Geostring sensors that are connected*.

   - Tap and hold the Label: **NumberOfNodes**
   - In the pop-up window, enter the number of Geostring sensors, tap **OK** to save

   Note: *The minimum number of Geostring Sensors is **2** and maximum is **120***.

   - The Reader will reboot and load the new configuration (number of sensors) The reboot process may take up to 30 seconds
   - During the reboot process, disconnect LoggerLink from the G/S Box Reader as it will update its Tables Definitions, no need to quick the App at this point. See Section 8. Disconnecting from the G/S BOX Reader
   - Once reboot is complete, reconnect LoggerLink. The **GSBoxStatus** field will indicate **Tap/Hold 'StartReader'** followed by a double beeping sound
   - Proceed to the next step to select the Fields (Labels) to be displayed

4. Customizing the **Current Display Screen**:

   - Tap the **Setting Wheel** in the upper right corner

     From the **Select Fields Screen**:

   - **Selected Table**: **Public**
   - Under **Select Fields**, tap **Select All** or only the individual **Fields** you wish to display, tap **SAVE**

   Notes: *When a large number of Geostring sensors (***NumberOfNodes***) is entered, for instance, 120 sensors, the Reader's program will create 981 data fields that might cause a slow response from the LoggerLink App. If a message pops up about a slow user interface, tap **YES**.*

   *In the **Display Screen's Settings,** the Polling Interval is not the Reader's Scan Interval, it's the communication interval used by LoggerLink to update and exchange data between the Tablet and the Reader. If LoggerLink user interface fells slow to respond, try adjusting the Polling Interval from 1 to 2 seconds.*

5. Changing the **User Scan Interval**: (This step is optional)

   - Tap and hold the Label: **UserScanInt**
   - In the pop-up window, enter the time interval:
     Available time intervals are: 5, 10, 15, 30, 60,120 and 360 minutes
     Tap **OK** to save

   Notes: *Entering other time Intervals, will cause* the Reader's program *to default back to 60 minutes.*

   The time interval will default back to 60 minutes every time the Reader is powered up.

   It will only keep the new interval as long as the Reader remains powered.

6. Start Geostring Initialization Process when:

   1. The number of Geostring Sensors **(NumberOfNodes**) has been entered.
   2. The **Current Display Screen** has been configured.

   - Tap and hold the Label: **StartReader**
   - In the pop-up window, tap the **Set Value Switch** to **True** and tap **OK**

   – The G/S Box Reader exits the Stand-By Mode, beeps once followed by two short beeps.

   Note: *During the Initialization process, check the* ***GSBoxStatus*** *Label to monitor the progress. See section 9: G/S Box Reader's Status (****GSBoxStatus****).*

   – The Reader triggers the Auto-Address Command so that each Geostring Sensor is assigned with a unique address. Depending on the number of sensors, this process can take several minutes.

   – The initialization process is completed when the **GSBoxStatus** Label indicates **Waiting Next Interval** followed by two short beeps.

   - Swipe up/down to review all Readings

7. To check if all the Geostring Sensors have been initialized:

   - Tap the **Setting Wheel** in the upper right corner

   From the **Select Fields Screen**:

   - **Selected Table**: Geoflex_NetInfo
   - Under **Select Fields**, tap **Select All** and tap **SAVE**
   - Go back to the **Current Display Screen** and verify that **NodesCount** value corresponds to the Number of Geostring Sensors entered by the operator. (Section 6 -3)
   - Verify that the Sensors' addresses and serial numbers are listed
   - Swipe up/down to review, go back to select the **Public Table** (Step 4 procedure)
   - From the **Current Display Screen**, swipe up/down to review all the Readings

8. Force Immediate Scan (Useful with long Scan Interval):

   - Tap and hold the Field: **ForceMeasure**
   - In the pop-up window, tap the **Set Value Switch** to **True** and tap **OK**
   - A measurement scan will start within 1 second followed by one beep.
   - The measurement scan is completed when the **GSBoxStatus** field indicates **Waiting Next Interval** followed by to short beeps

9. G/S Box Reader's Status Label (**GSBoxStatus**):

   The Reader can be in different states depending on program operation. The following are the states the Reader can be in:

   - **Tap/Hold 'StartReader' Field**: The Reader is waiting for the operator to tap the Label: **StartReader** from **False** to **True.**
   - **Warmup Delay**: Sensors are being powered on and stabilised.
   - **Initialization:** Addresses are being assigned to each sensor.
   - **Processing Delay:** Application and Reading Commands delays.
   - **Get Nodes Readings**: Sensors are being read and saved.
   - **Waiting Next Interval:** Waiting for the next Reading Interval (**UserScanInt**).

7 COLLECTING DATA

1. From **LoggerLink's Display Screen** on the top **Menu Bar**, tap the **Collect** button.

   Available Collection Options:

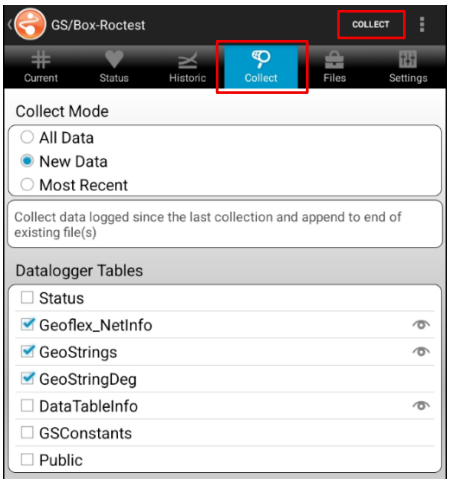
   - **All Data:** Overwrite existing data files.
   - **New Data:** Append the data to the end of existing data files.
   - **Most Recent records:** Specifying the number of records (Scans) to collect.

2. Under **Collect Mode**, select one of the three options: e.g. **New Data**

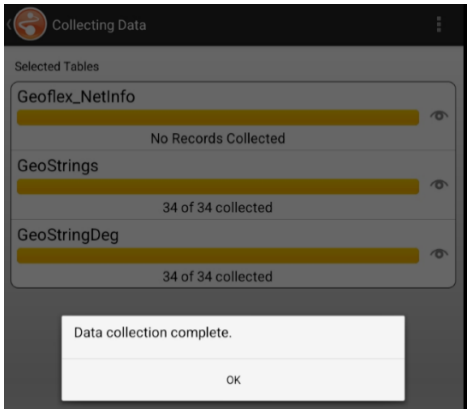
3. Under **Datalogger Tables**, select the following three Tables:

   GeoFlex_NetInfo: Contains the GeoString Addresses & Serial Numbers
   GeoStrings: Contains the Geostring Displacement Readings in mm
   GeoStringDeg: Contains the Geostring Angle Readings in degrees

   Note: *Status, DataTableInfo, GSConstants and are not essential as they are primarily used for diagnostic, as for the Public Tables, it holds the Current Display Screen values so there is no need to collect it.*

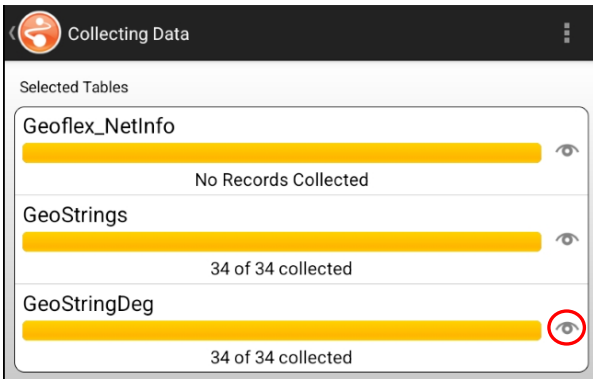


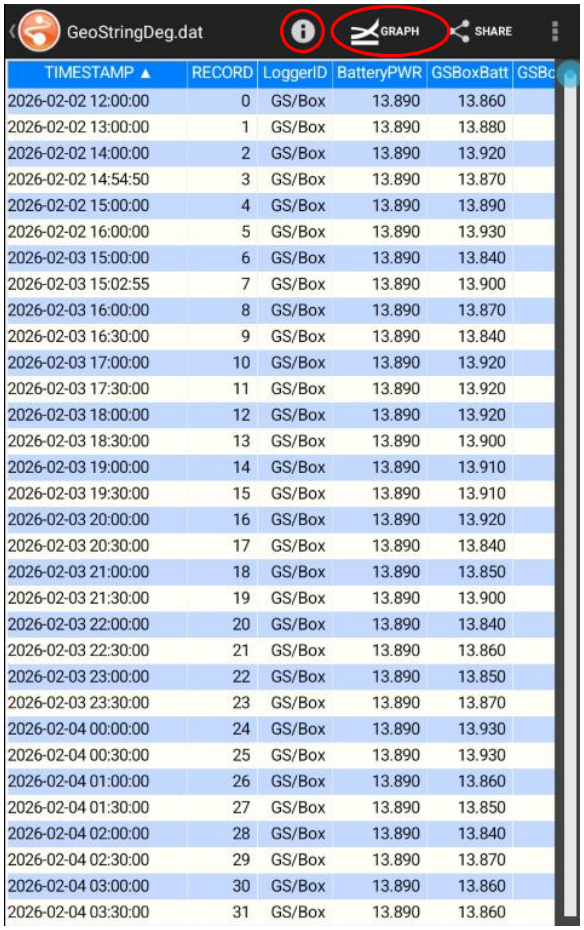
4. Tap **Collect** in the top right corner of the **Collect Screen** to download the selected **Table**(s)



5. Wait until the collecting process is completed and tap OK to clear the message

6. Tap the 👁 symbol to review the collected Readings in a tabular format





TIMESTAMP ▲	RECORD	LoggerID	BatteryPWR	GSBoxBatt	GSBc
2026-02-02 12:00:00	0	GS/Box	13.890	13.860	
2026-02-02 13:00:00	1	GS/Box	13.890	13.880	
2026-02-02 14:00:00	2	GS/Box	13.890	13.920	
2026-02-02 14:54:50	3	GS/Box	13.890	13.870	
2026-02-02 15:00:00	4	GS/Box	13.890	13.890	
2026-02-02 16:00:00	5	GS/Box	13.890	13.930	
2026-02-03 15:00:00	6	GS/Box	13.890	13.840	
2026-02-03 15:02:55	7	GS/Box	13.890	13.900	
2026-02-03 16:00:00	8	GS/Box	13.890	13.870	
2026-02-03 16:30:00	9	GS/Box	13.890	13.840	
2026-02-03 17:00:00	10	GS/Box	13.890	13.920	
2026-02-03 17:30:00	11	GS/Box	13.890	13.920	
2026-02-03 18:00:00	12	GS/Box	13.890	13.920	
2026-02-03 18:30:00	13	GS/Box	13.890	13.900	
2026-02-03 19:00:00	14	GS/Box	13.890	13.910	
2026-02-03 19:30:00	15	GS/Box	13.890	13.910	
2026-02-03 20:00:00	16	GS/Box	13.890	13.920	
2026-02-03 20:30:00	17	GS/Box	13.890	13.840	
2026-02-03 21:00:00	18	GS/Box	13.890	13.850	
2026-02-03 21:30:00	19	GS/Box	13.890	13.900	
2026-02-03 22:00:00	20	GS/Box	13.890	13.840	
2026-02-03 22:30:00	21	GS/Box	13.890	13.860	
2026-02-03 23:00:00	22	GS/Box	13.890	13.850	
2026-02-03 23:30:00	23	GS/Box	13.890	13.870	
2026-02-04 00:00:00	24	GS/Box	13.890	13.930	
2026-02-04 00:30:00	25	GS/Box	13.890	13.930	
2026-02-04 01:00:00	26	GS/Box	13.890	13.860	
2026-02-04 01:30:00	27	GS/Box	13.890	13.850	
2026-02-04 02:00:00	28	GS/Box	13.890	13.840	
2026-02-04 02:30:00	29	GS/Box	13.890	13.870	
2026-02-04 03:00:00	30	GS/Box	13.890	13.860	
2026-02-04 03:30:00	31	GS/Box	13.890	13.860	

7. Swipe up / down or left / right to review

   While viewing the Readings:

   - Tap the **Information** ⓘ symbol at the top to get information about the file
   - Tap the **Historic Graph** symbol at the top to graph the data
     Refer to the **LoggerLink** manual for instructions
   - Tap three **Dots Menu** symbol and then select **Delete File** to delete file

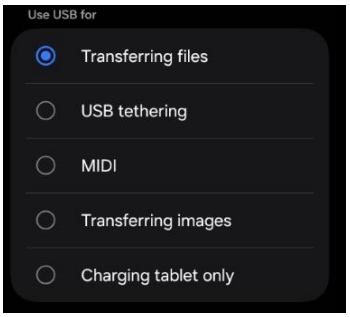
8. Collected Data files are stored on your device e.g. Tablet in the following sub folders:

   \Android\data\com.campbellsci.loggerlink\fles\Campbellsci\Data\"name"

   Where "**name"** is the name given to the G/S Box Reader (Section 5.1 or 5.2).

   However, access to these folders and files is restricted by Android, and can only be shown on a computer.

Note: *Before connecting to the computer, verify your device's USB settings, if it's set for Transferring Files and not Charging only.*



9. With your device connected to a computer as an external drive, navigate using the following path to copy the **Data Files** (Readings) to your computer:

   \Galaxy Tab A9\Internal storage\Android\data\com.campbellsci.loggerlink\files \CampbellSci\Data\GSBox Bluetooth\ *.*

Geoflex_NetInfo	dat
GeoStringDeg	dat
GeoStrings	dat

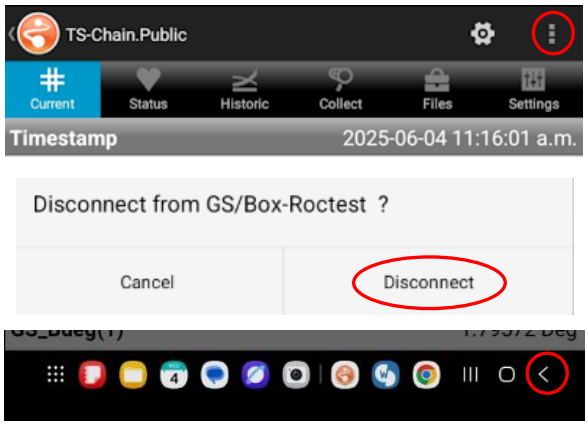
8 DISCONNECTING FROM THE G/S BOX READER

To disconnect **LoggerLink** from the Reader, several ways are available:

- Tap the three **Dots** next to the **Settings** symbol at the top right of the Screen
- Tap the **LoggerLink** symbol at the top left of the Screen

Note: *Depending on the Screen you are, you may have to tap several times for the* ***Disconnect*** *message to display.*

- Or tap the **<** at the bottom right of the Screen



Note: *Additional instructions are available within the* ***LoggerLink*** *App to review them, tap the three* ***Dots… Help****.*

9 SPECIFICATIONS

User Interface	IOS or Android Tablet with Bluetooth, optional Wi-Fi communication via LoggerLink App
Memory	30 MB Data Storage
Maximum Node Quantity	120
Analog Accuracy	–20 to 40 °C: ± (0.1% of measurement+ offset)
Analog Resolution	24-bit ADC
Data Output Format	CSV

Wall Adapter Charger	Input 100 ~ 240 VAC, 50 ~ 60 Hz, 260 mA ~ 140 mA Output 12 VDC, 1000 mA, 12 Watts US / Euro adapter Included
Reader's Charger Input	12 to 16 VDC Max. Adapter Cable to be used with external battery or 12 Volts automotive plug
Operating voltage	11 to 15 VDC
Internal Power Source	2 x 12 V 2.3 A, AGM Batteries
Reader Autonomy	> 16 hours (Depending on the Numbers of Sensors and the Measurement Intervals)
Memory Backup Battery	3 VDC Coin Cell Lithium Battery CR2016, 5-Year Life (With no external power source)
USB Power	5 VDC, Functions available: Sending Programs, Collecting Data and Adjusting Datalogger Settings

Operating temperature	-20 to 40 °C
Relative Humidity	≤ 95 % (non-condensing)

Fuse	5 Amp Slow Blow Fuse: F5A H250V (5mm x 20mm)
Status Indicators	LED Indicators: Bluetooth, Wi-Fi, Reader Program Status and Batteries Status %
Connectors	3-Pin connector for battery charger or external power input 10-Pin connector for Geostring Inclinometer USB communication port
Case	Polypropylene Case, Watertight and Impact Resistant
Dimensions	25 x 28 x 12 cm (l x w x h)
Weight	4.3 kg