Quick Start Guide

For

ProtonScout Magnetometer

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GEOMETRICS
Simplify your search

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This guide is meant to be a quick reference for starting out with your ProtonScout. More information can be found on Geometrics Forum website.

1.0 What's in the box?

1. ProtonScout Driver
2. ProtonScout Sensor
3. Tripod Base
4. Tripod Posts
5. GPS Helical Antenna
6. Sensor Cable
7. External Power Cable
8. AC Power Adapter

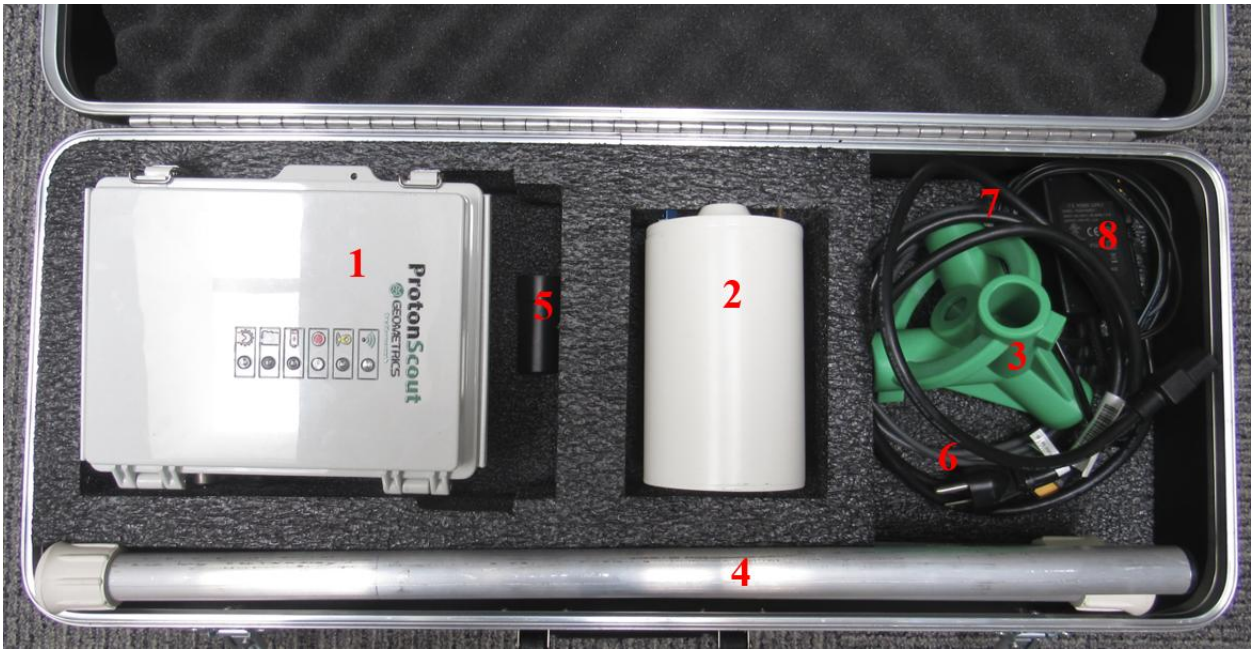


Figure 1-1 – Typical ProtonScout system in the box.

2.0 Battery

ProtonScout can be powered internally using 3S, 4S or 5S LiPo batteries with an XT60 connector. We recommend using a 6500 mAh 14.8V 4S LiPo battery, which provides approximately 8 hours of battery life between charges in most continuous modes. The battery can last longer if the sample period is set to 5 seconds or longer.

For longer operating time, a standard 12V marine (car) battery can be used via the external power cable. Please make sure to have the 2 wires of the alligator clip close to each other to minimize the magnetic field generated by the current loop.

A power input selection window will pop up each time the ProtonScout is connected in MagNav app. Make sure to select the correct battery for the best battery usage. ProtonScout relies on the

input to determine the shutdown voltage to protect the battery. If you select a wrong battery type, either the battery will be drained completely, potentially causing battery damage, or the ProtonScout will be shut down prematurely.

The absolute input voltage range is 10 – 22 V.

3.0 Powering On/Off

On - depress and release power switch.

Off - Press and hold power button for 4 seconds or from MagNav Setting.

4.0 Orientate the Sensor

The arrow on the sensor should point to North or South.

5.0 LED Displays

The 6-light LED display indicates the status of the unit and will blink in the patterns shown below.

WIFI		**Once every 2 seconds**	**Twice every 1 second**	**Rapid blinking**
	meaning	On-not connected	Connected	WIFI error
GPS		**Solid or off**	**Once every 2 second**	**Rapid blinking**
	meaning	No Data	Data received	GPS error
Recording		**Off**	**9/10 on 1/10 off**	
	meaning	Not Recording	Recording	
Battery		**Once every 2 seconds**	**Twice every 1 second**	**Rapid blinking**
	meaning	Normal battery	Low battery	Depleted battery
MicroSD Card		**Off**		**Rapid blinking**
	meaning	No Error		SD card error
System		**Off**		**Rapid blinking**
	meaning	No Error		System error

6.0 MagNav App

Install the MagNav App in your android tablet (android 10 or later, but not android 17). The installer (.apk file) can be found in the USB drive or downloaded from Geometrics website. Connect the USB to your android device (Android 6.0 or up) and navigate to the folder where the .apk file is located. Click the file to install. The system may pop up a message saying that the device currently isn't allowed to install unknown apps from this source. Go to Settings to allow unknown app installation. For most android devices, you should be able to do this by following the pop-up windows. If not, please go to our online Forum and search for solutions (please post your issue if no solutions are found). After installation, you will see the MagNav Icon on your tablet.

7.0 Establishing Data Communication

Swipe down to access the WiFi connection (password: last 8 digits of its serial number) and connect to the ProtonScout. Once the tablet is connected to the ProtonScout (blue LED on ProtonScout becomes solid), return to the tablet's home screen.

Open the MagNav app. Click "**Connect**" on the top right corner. If data communication is established between the ProtonScout and the MagNav app, a field reading will appear. You can turn the speaker on and off by clicking the setting button . Inside the setting, you can also access the system status and log file by clicking the support tool.

Please **note** that "**Connect**" indicates no data communication between the instrument and the MagNav. Repeat the steps above if the data communication is lost.

8.0 Starting Data Collection

On the MagNav "Projects" page, click a project name (or **Create New Project**) to open the project and inside the Surveys page click **Create New Survey**. In the pop-up window, set up your survey parameters. For most applications, "**Continuous**" mode should be selected. Different sample periods are also available. Please note that 1 second and 0.5 second are ONLY available with a license. Please contact Geometrics for more information. The Swath Radius (in unit of meter) controls the displayed GPS route linewidth on the Navigation screen. The new survey will appear on your Surveys page after you click OK. Click the survey name to enter the survey data collection.

"**Discrete**" mode is mostly used in GPS-denied environments. Please check Geometrics website for more information.

Different from other magnetometers, ProtonScout only produces readings inside a survey (to save battery life). Click "**Mag Data**" tab, a reading curve will be displayed. Use two fingers to zoom in or out and double tapping for auto-zoom.

If you want to create another survey, you can use the **Back** button (little triangle) on the bottom of the screen (or on the right for some devices in landscape mode) to navigate back.

Inside a survey, click "**Terminal**" tab. Make sure both mag and GPS readings are displayed and the mag signal level is above 20.

Click "**Navigation**" tab to check the GPS route and start the data collection. Notice that the top and bottom margins are red. This means that the unit is not in recording mode. Once you click START, the margins become green. The recording LED on ProtonScout starts blinking as well.

Click **Switch to Stand-alone Mode** to close the MagNav so that you can move the tablet away from the ProtonScout (most off-the-shelf tablets are too magnetic to be within 10m of the ProtonScout during data collection). Please note that the ProtonScout is still saving data to its internal memory (the recording LED keeps blinking).

With the customized low-magnetic tablet provided by Geometrics, you can keep the tablet connected to the ProtonScout, as long as the tablet is 1.3 meter (4 feet) away from the sensor. This is especially helpful for the ProtonScout to be used as a walking magnetometer. You can download collected data by clicking **Sync Data** and view the **HeatMap** during a survey. Please note that data downloading and plotting only work with enough data collected.

9.0 Downloading Your Data

After completing your data collection, you will need to first download data from the ProtonScout to the tablet. To do this, repeat section 7.0 to establish data communication. It will automatically take you to the data acquiring page. Wait until "**Connect**" disappears. Click **Stop** to stop data collection first and then click **Sync Data** to download data to the tablet. Now you want to copy data from the tablet to a USB drive.

To do this, first insert a flash drive into the tablet.

Navigate to the home page by clicking the back button on the bottom or on the side.

Hold on to the project you want to export until the options appear on the home page.

Click **EXPORT PROJECT** and then select the external USB drive (usually inside 3 bars).

Click **Use This Folder** on the bottom to copy the data (in dbt format) to the USB drive.

Note that the MagNav app will NOT over-write an existing dbt file. You will need to delete the existing dbt file on the USB drive before exporting.

10.0 Ejecting Your Flash Drive

It is very important for you to safely eject your flash drive. Failure to do this may result in corrupted data files! To properly eject your flash drive, swipe down from the top of the tablet's screen and select **General USB Drive** (or from the tablet **Setting**).

11.0 Exporting your Data

To export, **open Survey Manager and click on ProtonScout**. On the screen that pops up, click on **Open Existing ProtonScout Project**. **Select** and **open** your dbt file.

On the project screen you will see the export options. To export your file as a CSV, click on the survey you want to export and then press **Export to CSV**. A window will open asking which records you want to export. If you find your file is smaller than expected or have fewer records than expected, then you may have lost your GPS signal or mag reading. To check, export your file and include records without locations or with invalid measurements.

12.0 Clean up micro-SD card

The data is internally stored in a 32G micro-SD card. Over time, the card will be filled up. To delete old projects, power up the ProtonScout, connect a tablet to it and open the MagNav. Click “Setting” button on the top right corner. Scroll down and click Support to open the support home page. Click “Delete project storage” link to delete old projects.