MTU-5D Quick Start Guide

PHOENIX
GEOPHYSICS

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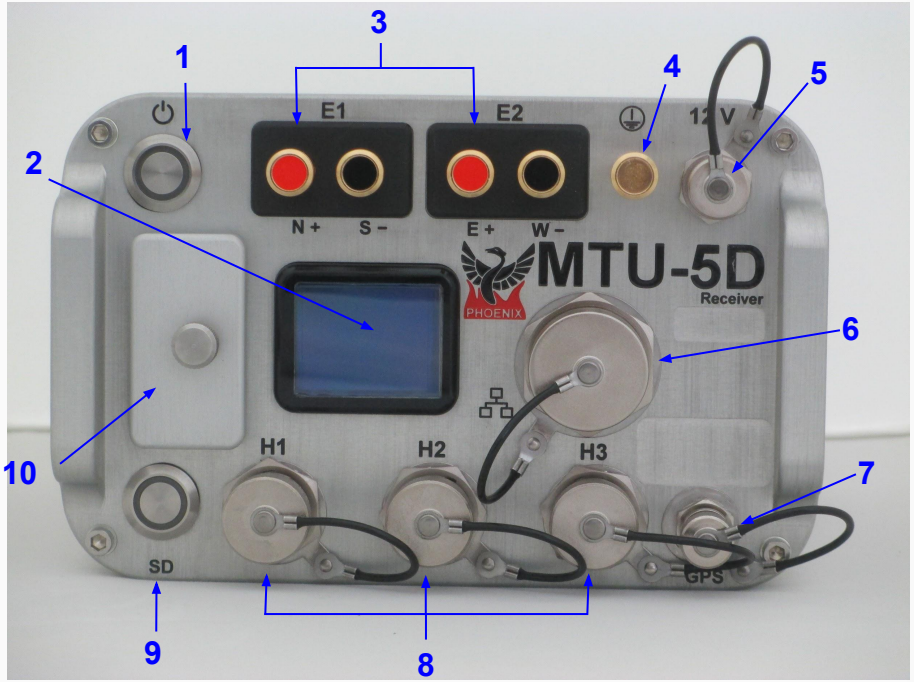


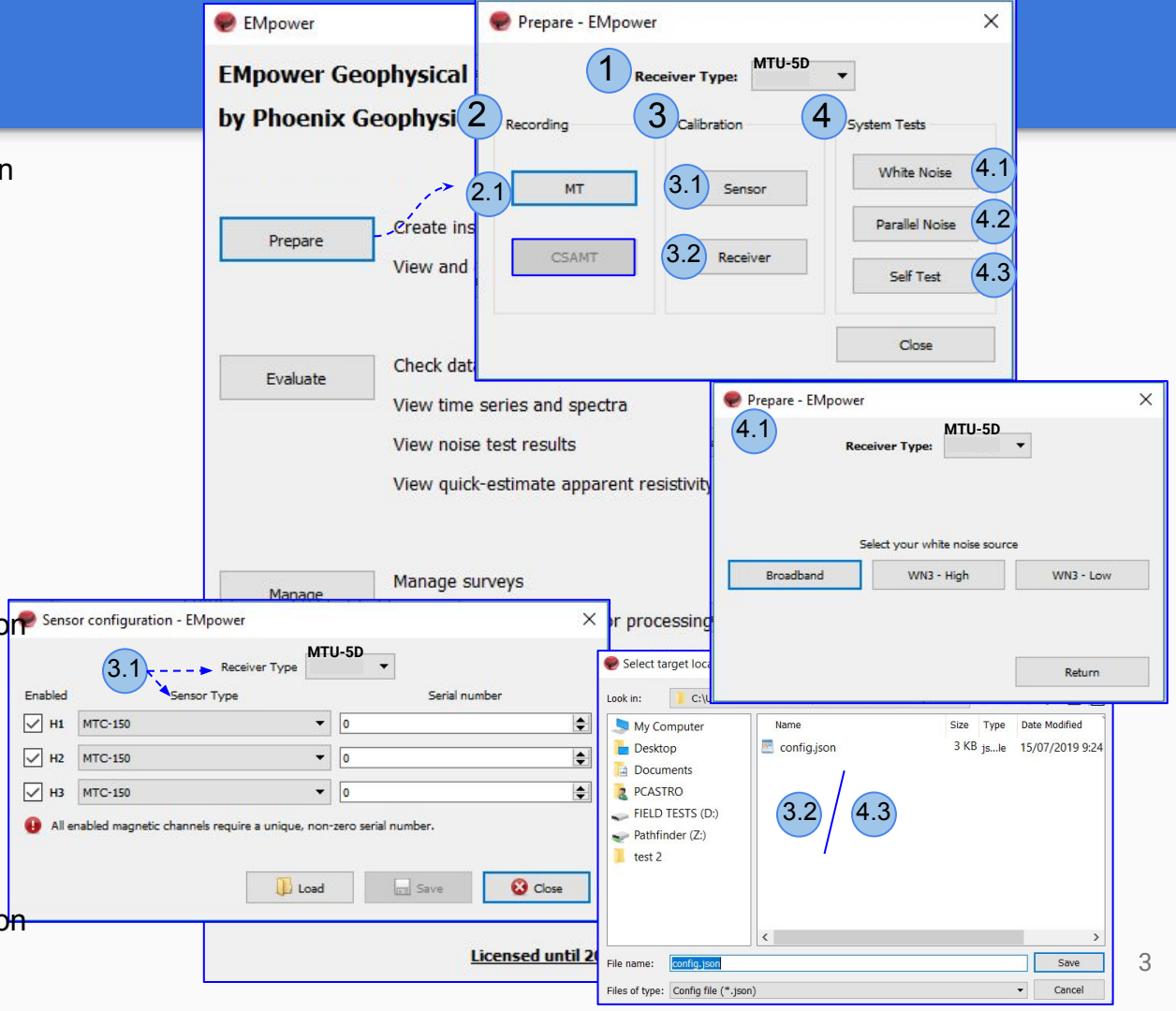
Components	
1	Power/Record button and indicator
2	Display
3	E1 (Ex) electrode connectors E2 (Ey) electrode connectors
4	Ground electrode connector
5	12VDC power input
6	LAN connector
7	GPS antenna connector
8	H1 (Hx) magnetic sensor connector H2 (Hy) magnetic sensor connector H3 (Hz) magnetic sensor connector
9	SD card button and indicator
10	SD card slot and cover

Creating a Configuration File

Open **EMpower** and click the **Prepare** button

Complete the required information

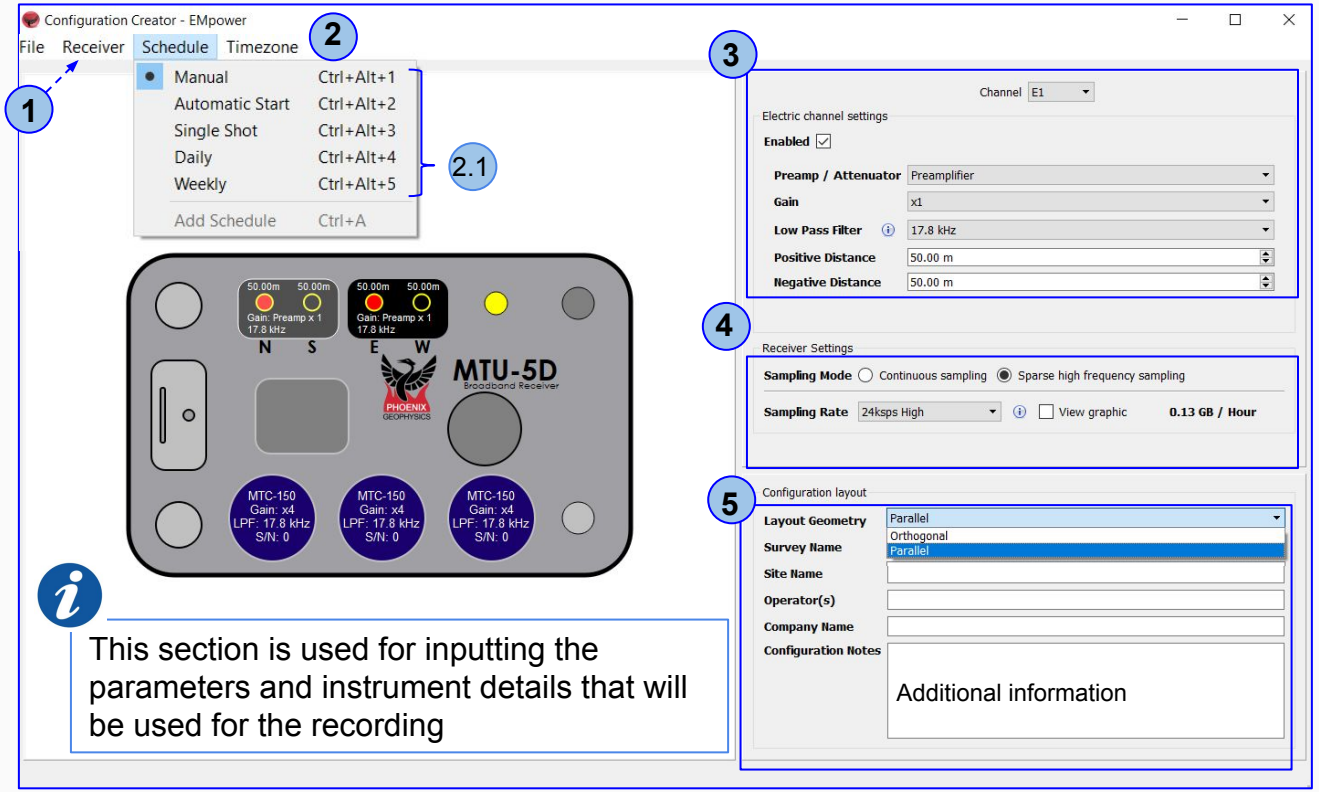
1. Select the **Receiver Type**
2. **Recording**
   - 2.1. MT - **Configuration Creator**
3. **Calibration**
   - 3.1. Sensor Calibration
   - 3.2. Receiver Calibration
     - No additional configuration needed
4. **System tests**
   - 4.1. White Noise
   - 4.2. Parallel Noise - **Configuration Creator**
   - 4.3. Self Test
     - No additional configuration needed



Configuration Creator

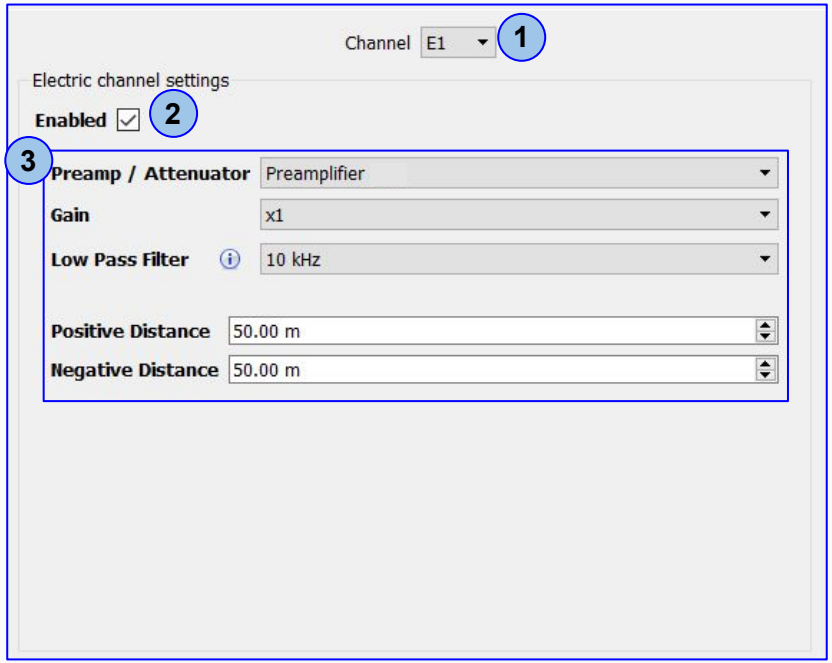
Complete the information:

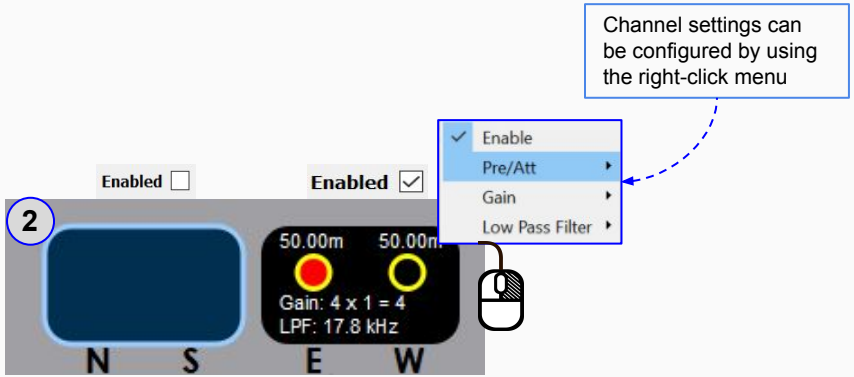
1. Check that the **Receiver** type is **MTU-5D**
2. Select the **Schedule**
   - **2.1.** For a specific schedule use, **Single Shot, Daily** or **Weekly** schedule and click **Add Schedule** to define the time and/or date
3. **Channels Settings** (slide 6-7)
4. **Receiver Settings**
   - *Define* the **Sampling Mode and/or Sampling Rate**
5. **Configuration Layout**



Electric Channel Settings

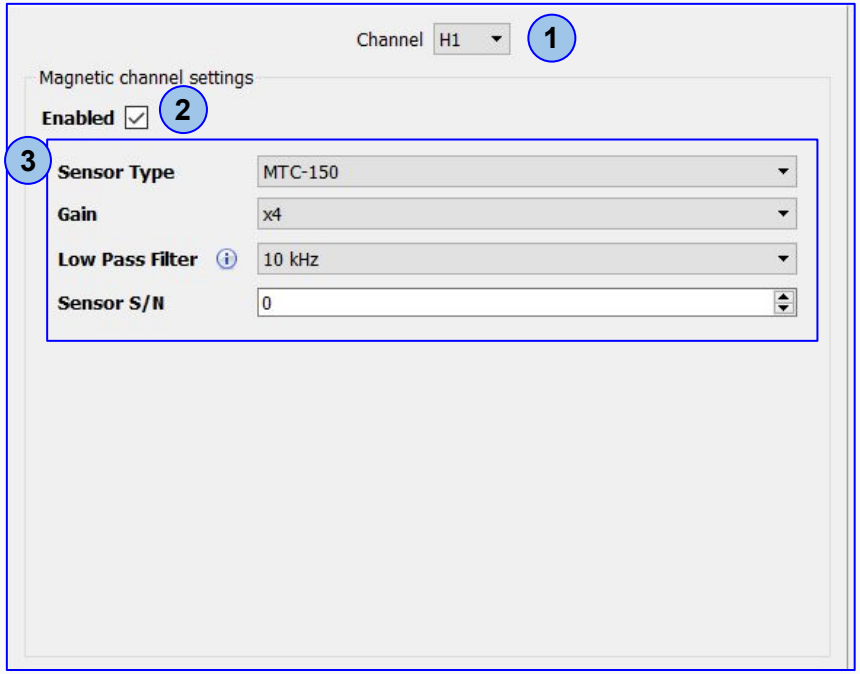
1. Select the **Electric** channel
2. **Enable** or **Disable** the channel(s)
   - Disable the channel(s) If you do not plan to use them during the recording *(This will save space on the SD card.)*
3. Complete the information in the **Electric channel settings**

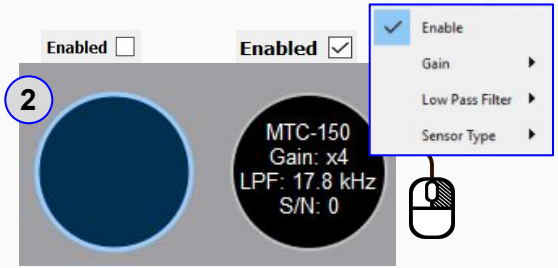




Magnetic Channel Settings

1. Select the **Magnetic** channel
2. **Disable** or **Enable** the channel(s)
   - Disable the channel(s) if you do not plan to use them during the recording (This will save space on the SD card.)
3. Complete the required information in the **Magnetic channel settings**





Channel settings can be configured by using the right-click menu or by using the Magnetic channel settings section

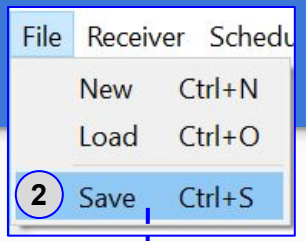
Saving a Configuration File

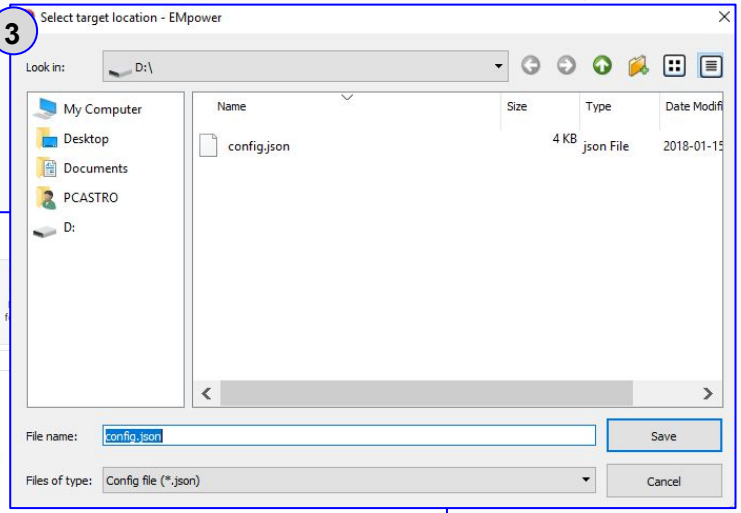
1. The Computer must be equipped with an SD card slot or use a USB card reader

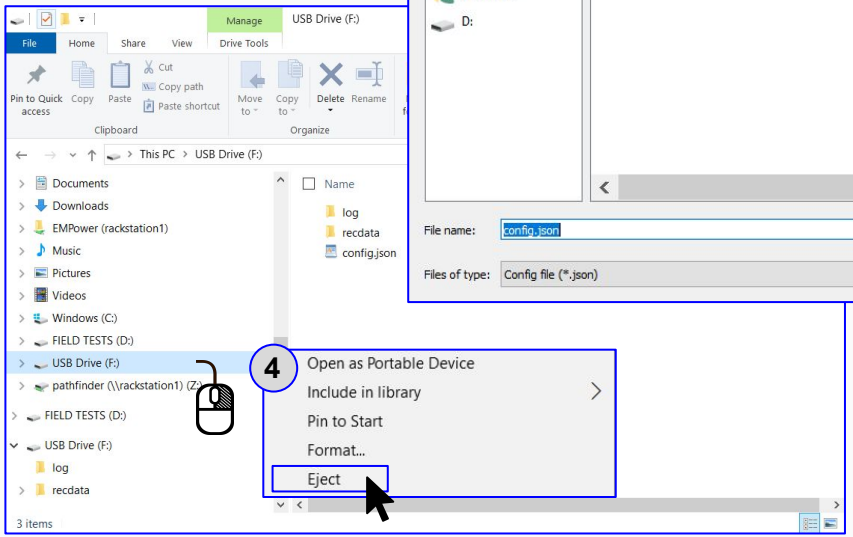
1. Click the **File** menu
   - **Save or Ctrl+S**
   - **Select the SD card**
   - **EMpower** will automatically create the file **“config.json”**

2. Save the configuration file (**config.json**) in the root folder of the **SD card**

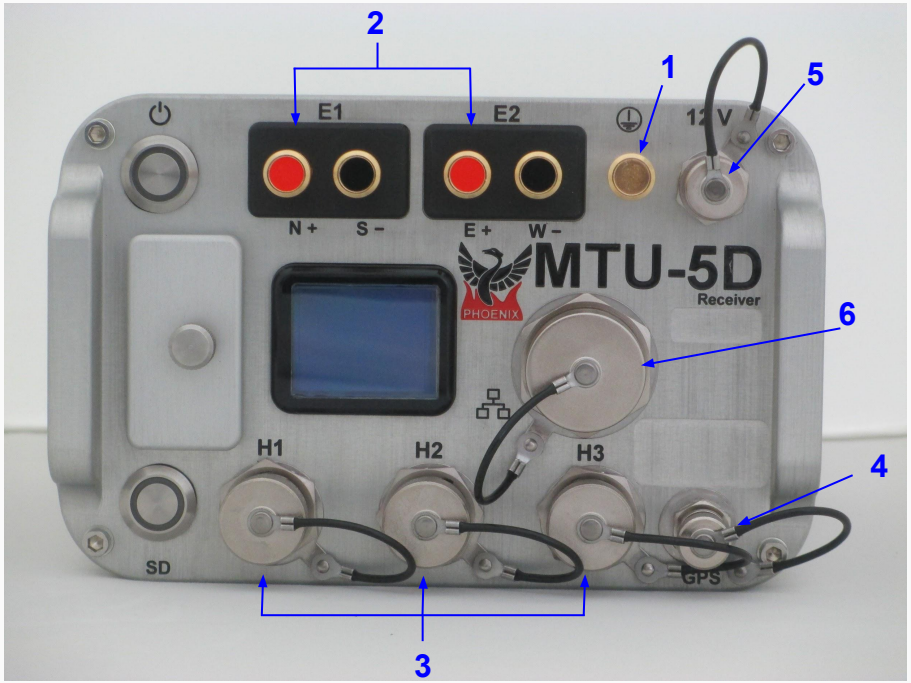
3. Open the file Explorer
   - Right click **SD card** drive
   - **Select Eject option**
   - **Pull out the SD Card**







MTU-5D Connections



Start by connecting:

1. Ground electrode
2. Electrodes to channel **E1**(Ex) (N+, S-) and channel **E2**(Ey) (E+, W-)
3. Magnetic sensors to channels **H1**(Hx), **H2**(Hy) and **H3**(Hz)
4. GPS antenna
5. 12V DC Power Source
6. Network connector

In the field, it is often most efficient to connect the components to the receiver following the order on the right

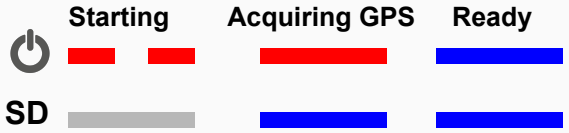
SD Card - Recording Data

Recording

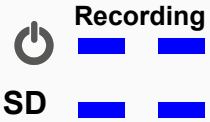
1. Insert the **SD card**
2. To turn on the receiver, press the **Power** button briefly
   - Wait until both **LEDs** are solid blue.
   - ***Automatic Start*** *recording*
3. If the schedule type was configured as **Manual,** press the **Power** button to start recording

1

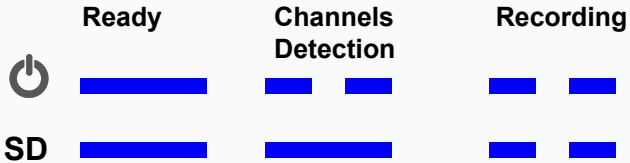
2 Press the power button briefly and release



Automatic Start
The recording starts automatically according to the schedule



3 Press the power button briefly and release.



Indicators

Slow, equal pulses

Solid color / Off

Stopping a recording

1. Press the **Power** button briefly and release to stop recording
   - Wait until both LEDs are steady blue
2. Turn off the receiver, pressing the **Power** button for a few seconds the **LEDs** will flash red
   - Wait until both **LEDs** turn off
3. Eject the **SD card**
   - Press the **SD card** and release, pull the **SD card**

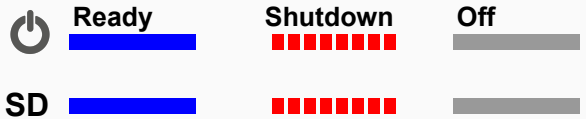
Indicators

▪▪▪▪▪▪▪▪ *Rapid, equal pulses*

▬▬▬▬ *Solid color / Off*

1 Press the **Power** button briefly and release

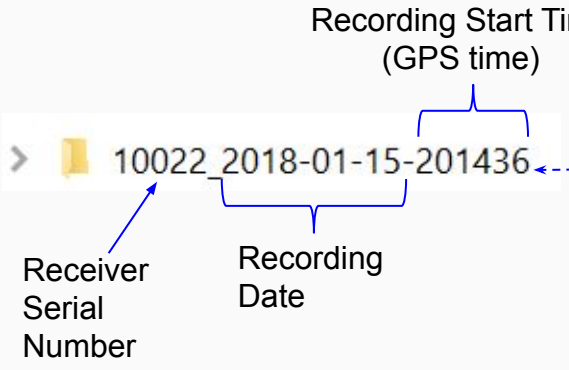
2 Keep pressing the power button 3 sec and release

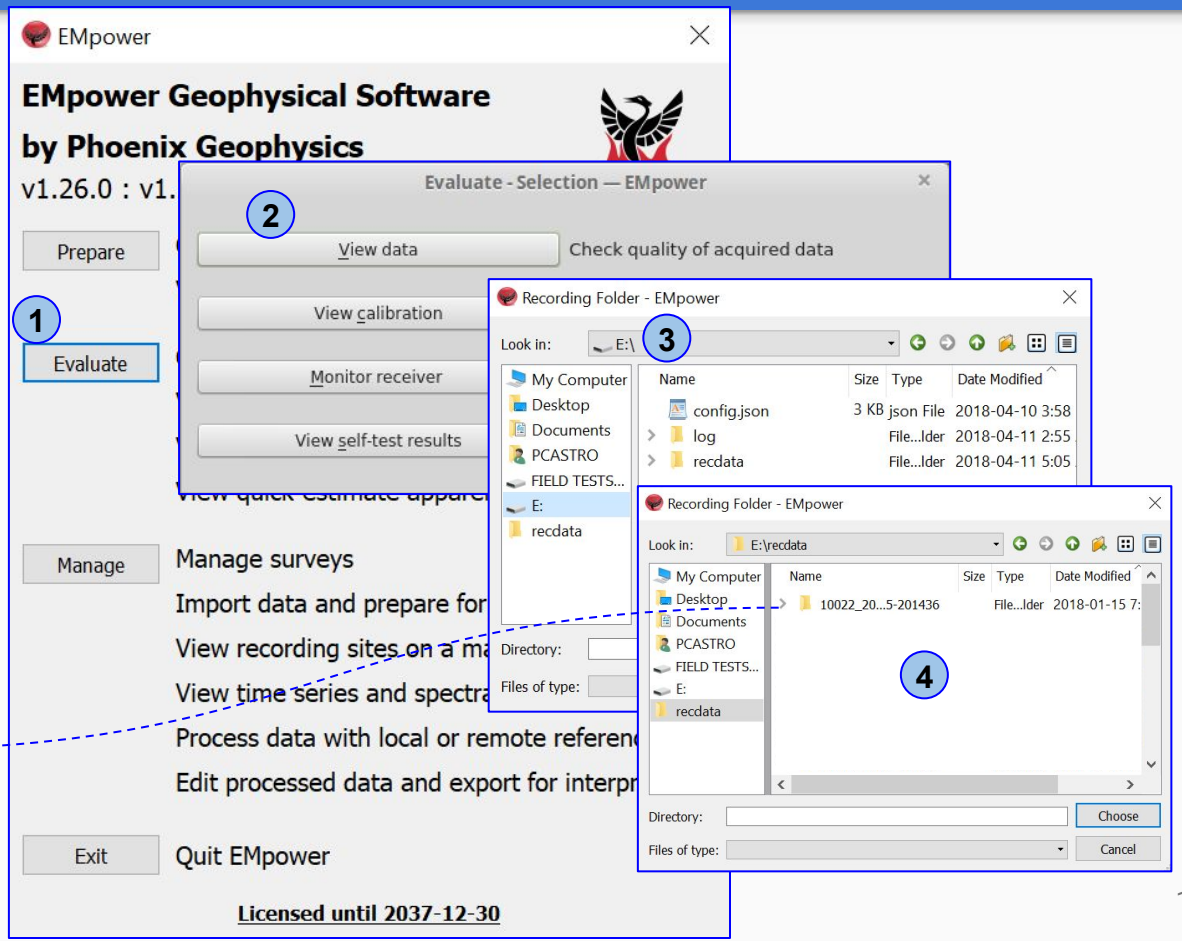


3

Importing and Evaluating Data

1. Click the **Evaluate** button
2. Select **View data**
3. Select the **SD card**
   - The recording creates two folders, log and recdata
4. Open the **recdata** folder and select the recording folder and click **Choose**



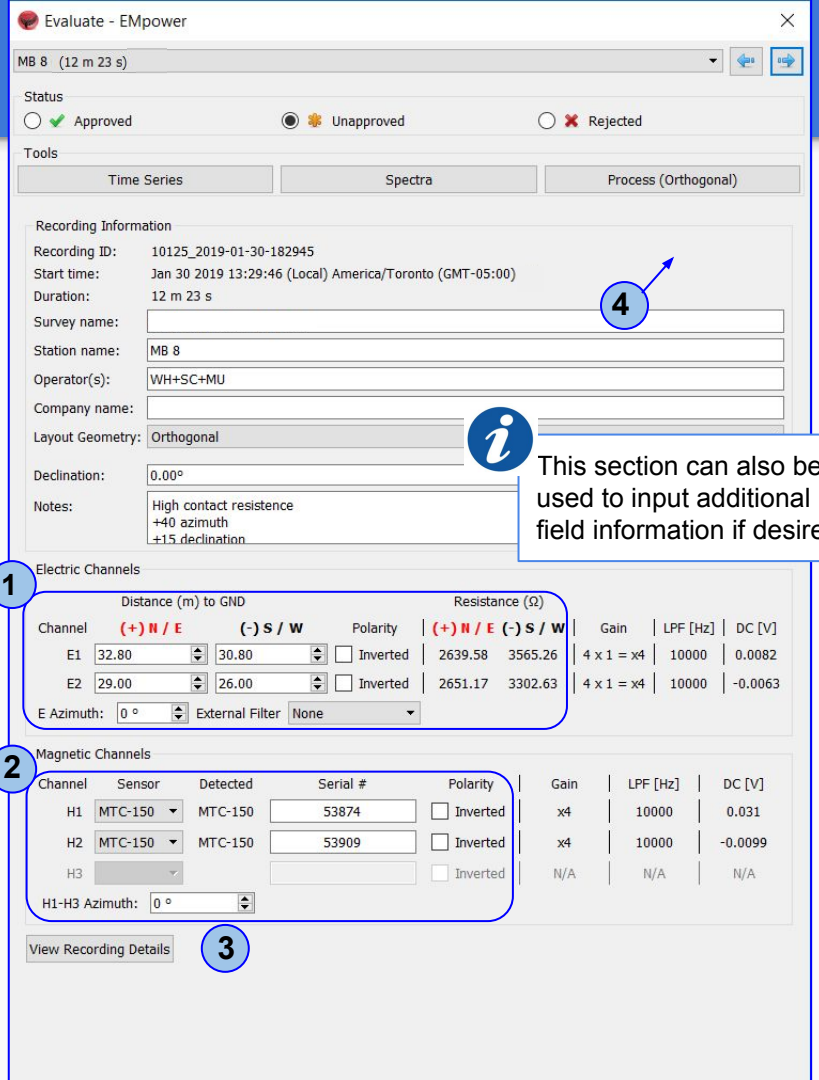


Evaluate

Review and Process the recorded information

1. Review the Electrode **Resistance** values and make the necessary corrections
   - Electrode **Distance (m) to GND**
   - **E-Azimuth**
   - **External Filter**
2. Ensure that the magnetic sensors were detected and make the necessary corrections
   - **Serial #**
   - **Polarity**
   - **H1-H-3 Azimuth**
3. **View Recording Details** *(see page 14)*
4. **Process** the recorded data after the reviewed the information *(see next page)*

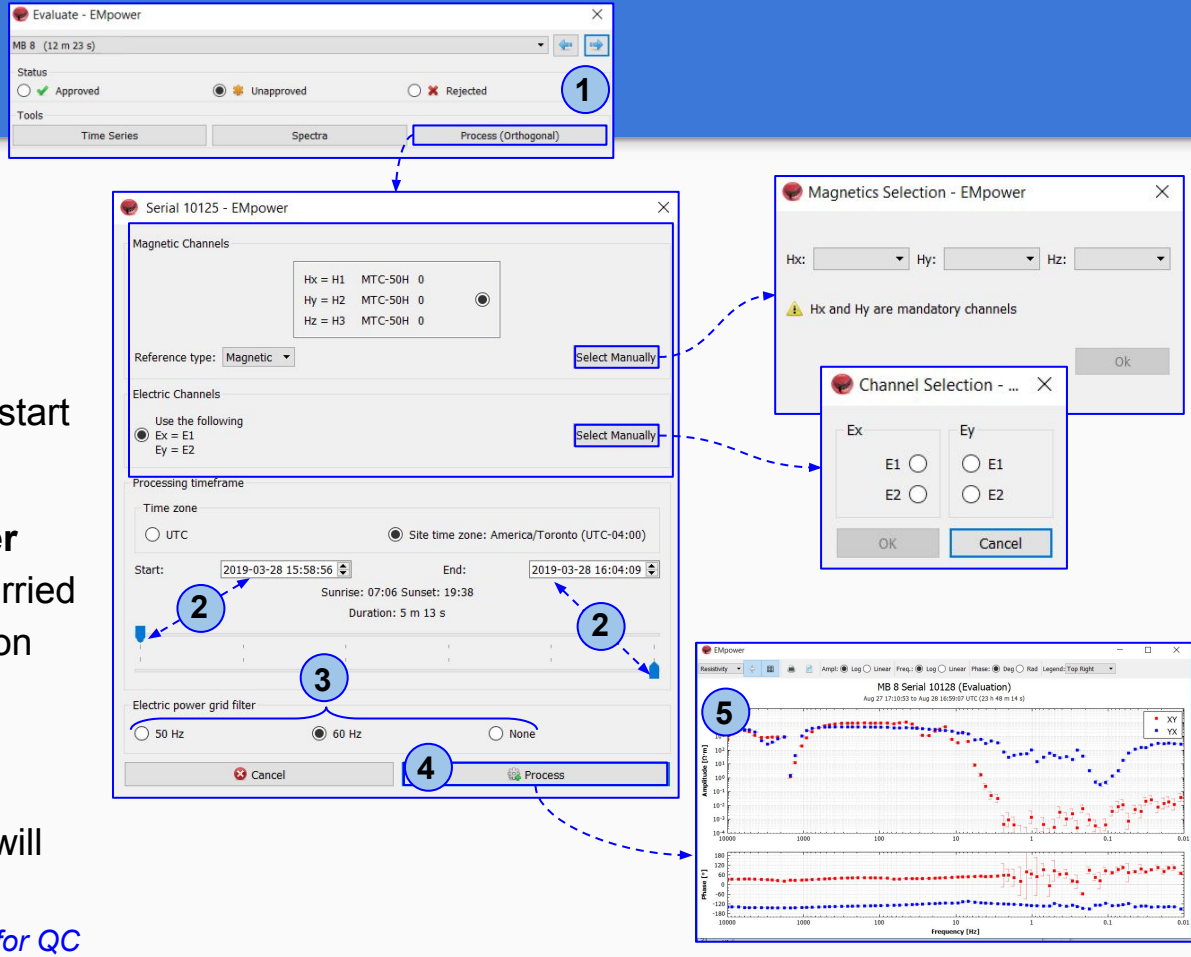
The warning icon indicates that something might be wrong with the recording, review the recording information and make necessary changes



Process Data

1. Click the **Process** button
   - Verify that the channels and references selected are the desired ones
2. Define the time period by entering a start and end date/time
3. **Enable the electric power grid filter** that corresponds to the frequency carried by the power lines in the survey region *(50Hz, 60Hz or None)*
4. Click the **Process** button
5. A live display of the resistivity curve will appear after a few seconds

   **This resistivity curve is not saved. It is purely for QC purposes).*



View Recording Details

Review that the following levels are within valid limits for quality control:

1. **Battery Voltage**
2. **Internal Temperature**
3. **Number of Satellites**
4. **Saturated Frames**
   - If saturation is not close to ~0%, review the channel configuration *(see pages 4 - 6)*, the channel gain might be too high and/or there is artificial noise on your site
5. **Time Series Level**