External Telluric Low Pass Filter XLPFH

PHOENIX
GEOPHYSICS

1. System Description
2. Field setup
3. Field setup - Switch position
4. Compensating for the XLPFH Filters in EMpower
5. Technical Support

System Description

The XLPFH **E-line Low Pass Filter** is designed to reduce adverse effects caused by undesired high frequency noise that might be picked up by the E-lines in the field layout setting.

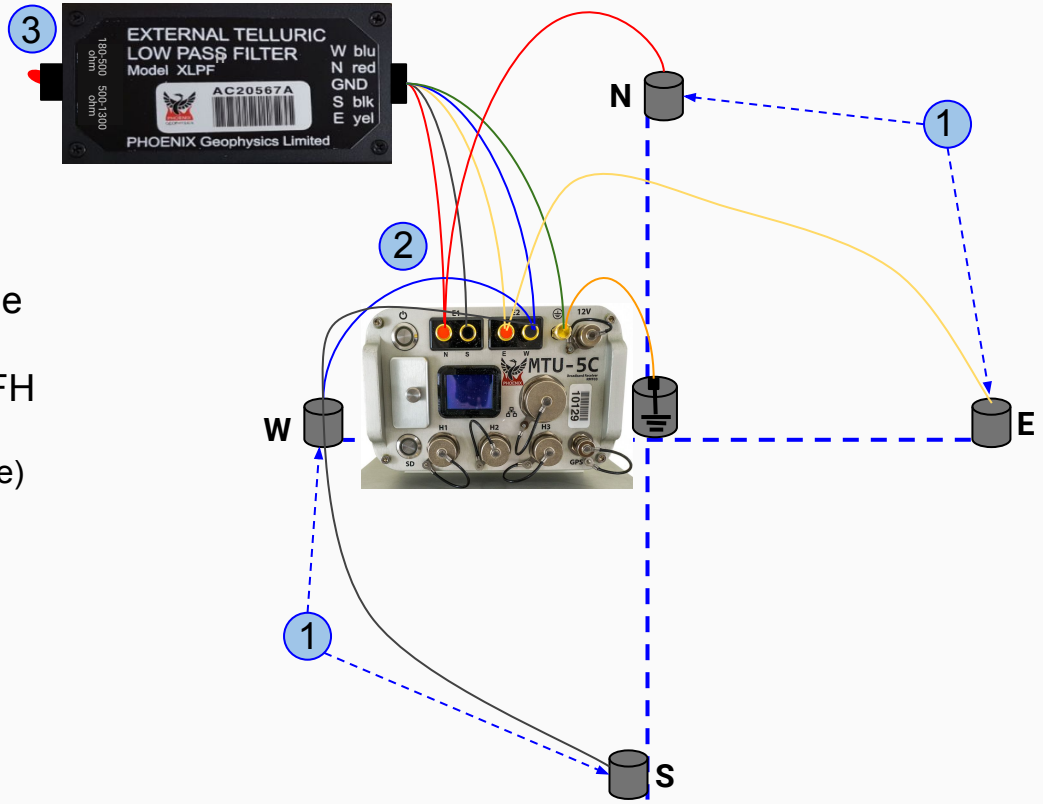
The XLPFH is suitable for BMT applications where the electrode contact resistance reaches up to 1.3 kOhm for BMT applications and up to 20 kOhm for MT applications.

Depending on the electrode resistance the filter may introduce a phase shift to the signal, which will be compensated for by signal processing in EMpower.

Field setup

Connect the receiver to the XLPFH Filter

1. Measure the contact resistance of each electrode (N,S,E,W) against the ground electrode. Take note of these values.
2. Twist the end of the wire from each electrode (N,S,E,W and Gnd) together with the corresponding color-coded wire of the XLPFH Filter.
    - Connect the twisted wire (filter+electrode line) to the corresponding binding post of your receiver.
3. Set the desired position of the switch in the XLPFH, as explained in the following page

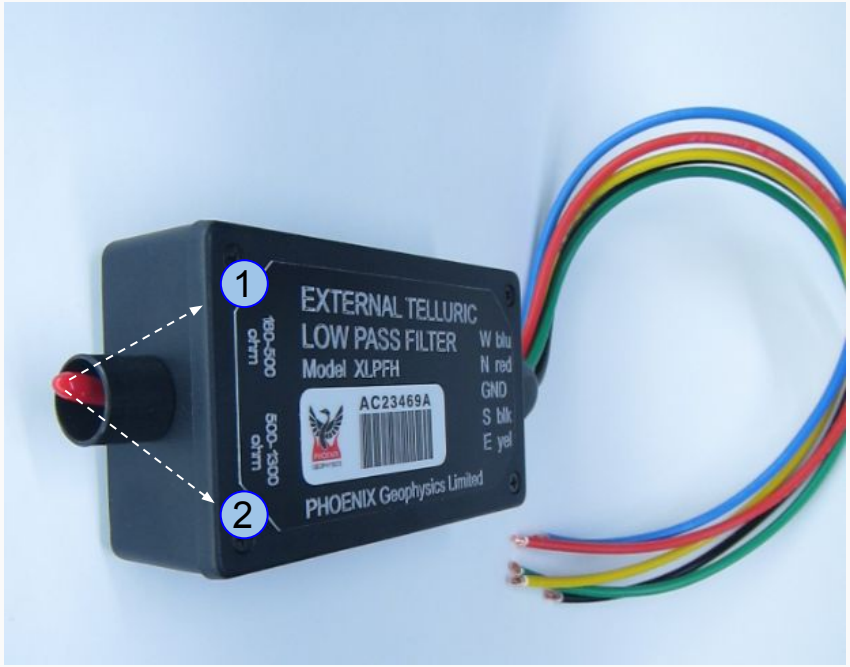


Field setup - Switch position

Before recording, make sure to take note of the position of the switch used for each recording at each station, this information is needed when processing data with EMpower

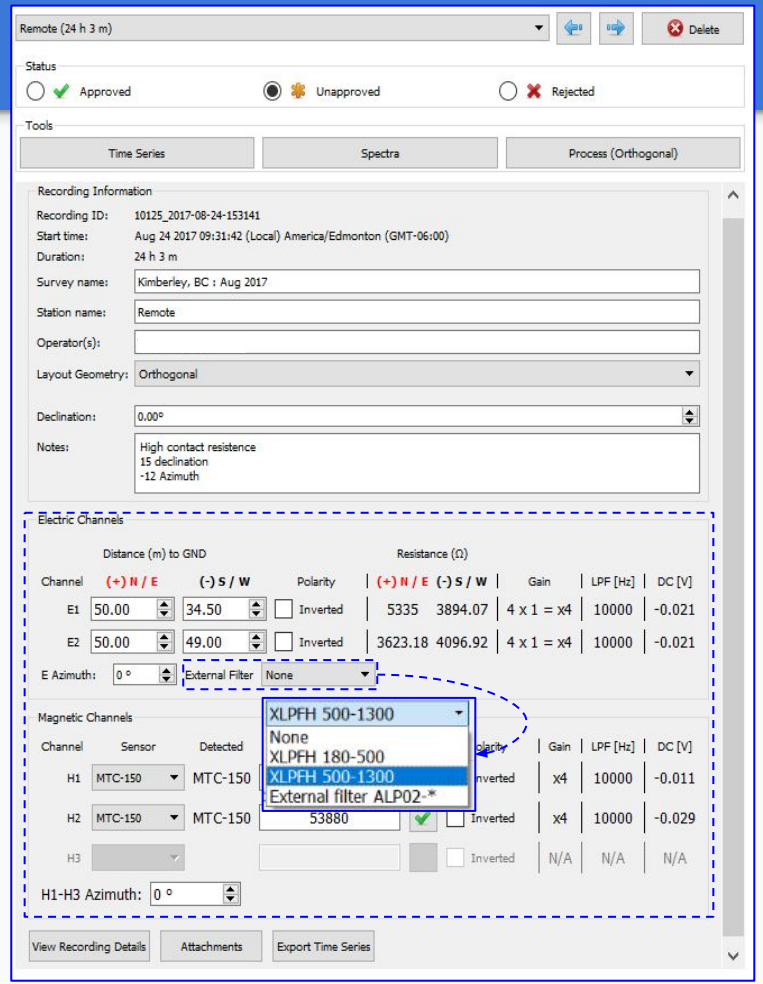
1. Set the switch to **180-500 Ohm**, when the contact resistance of all electrodes is between 180 - 500 Ohms
2. Set the switch to **500-1300 Ohm,** when the contact resistance of at least one electrode is over 500 Ohms.

   Note that:
   - The filter works best when a pair of electrodes (i.e. N-S or E-W) have similar contact resistances
   - The filter will still work over 1300 Ohms of contact resistance, but might start introducing some distortion at the highest frequencies of your resistivity curve.



Compensating for the XLPFH Filters in EMpower

In order to obtain better results, if an XLPFH Filter was used during recording, this should indicated in EMpower before processing the data. This setting can be saved in the "External filter" field of the information sheet of the recording. Make sure to select the XLPFH option that matches the position of the switch that was used to acquire the recording.



EMpower Version V1.48.0 or any subsequent version is required

Technical Support Contact

Email: *support@phoenix-geophysics.com*
Phone: *+ 1 416 491 7340*