

Simple Survey Mode

In simple survey mode, the unit keeps track of MARK (start line, and waypoints) and END LINE (end of line) key presses, and the direction of each line. This allows a full and complete survey. Later, after downloading the data into the PC, the MagMap program will attach an x and y coordinate to each reading.

Simple survey mode allows the simplest operation of the G-858, at the expense of a slightly more complicated operation of the PC host software. You must manually keep track of where you are taking data, and enter this information into the host software to locate the readings.

Magnetic Surveying Checklist

Here we give a quick checklist for performing a magnetic survey. Please see Appendix 1 if you are unfamiliar with magnetic surveying. Subsequent chapters will explain in detail the operation of the G-858 during the survey.

1. Setting up the survey grid

- Designate an individual to be responsible for making a sketch of the survey site, with notes and comments on all relevant objects such as power lines, fences, pipes, and surface debris.
- Establish a base line, which will provide the start or end points for all profile lines. Designate the left hand corner of the base line to be (0,0) for the X and Y axes. Note that the survey lines can run in any direction, but if a choice exists, the preferred direction would be North and South.
- Using the smallest search target size, determine the separation of the profile lines. For small targets such as a one pound ferrous mass with worst case shape and orientation, lines spaced 2 meters apart is a good initial choice.
- Place non-magnetic, brightly colored markers at the start and stop of each profile. If the lines are long or require irregular walking speeds, place a marker at regular intervals (perhaps each 20 or 50 meters) along the profile. These will become fiducial or waypoint entries in the data stream.
- If the survey is to be broken into separate but adjacent areas, it will help you to stitch the sections together if there is at least one profile line of overlap. Also insure that the profiles extend beyond the actual survey boundary by at least 2 or 3 times the estimated target depth.
- Locate the survey area corners and reference them to other surface objects. If the site will be relocated in the future, it may be useful to permanently mark the corners with an iron stake (re-bar) driven down to ground level. Note that these corner stakes are the only magnetic objects that are used on the entire survey site. Flags, cones, stakes and other markers must be carefully inspected to be non-magnetic.

2. Turn on and warm up the G-858, using the procedure described in Chapter 2.. Select the Search Mode, and adjust the sensor for the proper operating orientation, i.e. there should be continuous signal and correct instrument operation in all directions of the survey profiles. The program CSAZ will help to determine the best sensor orientation to avoid dead zones.

3. Demagnetize the magnetometer operator. Using the G-858 in the Search Mode, insure that the operator does not contribute an error greater than 1 nT in any direction. (Refer to the Applications Manual, chapter 4 for a fast, simple, "magnetic swing" procedure that will measure the operator's magnetic cleanliness.) Pay particular attention to the operator shoes, eye glasses, and the removal of rings, keys, belt buckle, and all pocket items. Only a small amount of magnetic material is needed to seriously distort the magnetic data. (Shoes are always suspect and are the closest moving parts to the sensor.)

4. Select a survey "Test Profile" line. This profile should be run in each direction at the start and end of each survey day as a check of data repeatability and quality. It is an excellent check of proper system operation and may be useful as "proof of operation" to the end user.
5. Perform the data acquisition for all survey profiles and record the direction of each profile on the survey sketch map. Also record the start and end locations and the direction of the first and last survey profiles for each survey day. This may be duplication of effort, but is independent of the data logged in the instrument and may be very helpful in editing the data during processing.
6. During the course of the survey it is important that the operator has adequate support in finding and staying on the line. However, if the operator is disrupted during data acquisition, the G-858 easily allows data to be deleted and/or retaken. The G-858 has been designed to reduce mistakes and save money.
7. Finally, at the end of the survey, download the data to your host PC via the RS-232 port, edit the positions if necessary, perform diurnal corrections, and convert the file to a suitable output for 3rd party software, such as Surfer for Windows or Geosoft. An example of processed data is shown below.