

TrackMaker data logging system for EM61-MK2

The **TrackMaker61MK2** system for Geonics EM61-MK2 consists of two programs: field data acquisition component (NAV61MK2) and the Windows (98/2K/XP) based data processing software (TrackMaker61MK2).

TrackMaker61MK2 software works with virtually any GPS receiver by supporting NMEA messages: GGA, POS, GLL, LLQ, LLK, GGK, and Leica Robotics Total Station TPS1100, and collects EM61-MK2 and GPS data into one file simultaneously, while providing a graphical view of the collected GPS positions to better control the survey line direction. A profile view of the collected EM61-MK2 data is provided for the improvement of field data quality analysis.

It also provides a view of any previously collected data files with any Geonics instrument that is supported by the **TrackMaker** software and will assist the operator to return to previously collected stations.

In addition to acquiring EM data the **TrackMaker** system will convert any Field PC to a stand-alone logger for GPS/DGPS data collection. Just disconnect EM61-MK2 and start position site features using TrackMaker automatic, or more precise averaging mode. Purchase of any additional expensive GPS components is not necessary.

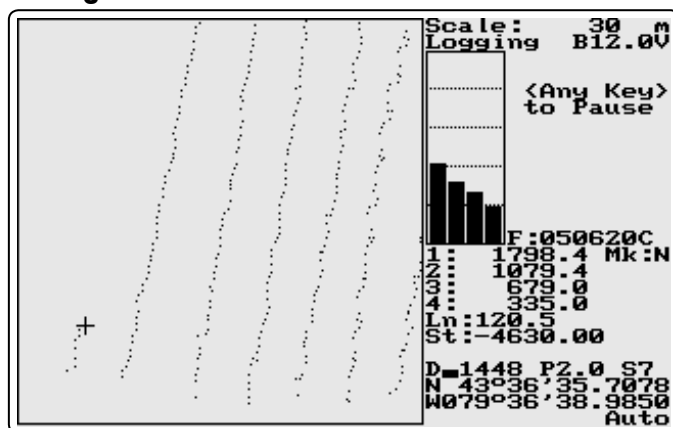
The **TrackMaker** system will allow you to perform surveys faster by covering sites with uniformly spaced lines while



avoiding skipping areas, and preventing the potential unnecessary overlap of survey lines. And with these features also comes the simultaneous full control of the specific EM61-MK2 output, data quality, current instrument settings, as well as GPS signal quality parameters and Latitude/Longitude coordinates display.

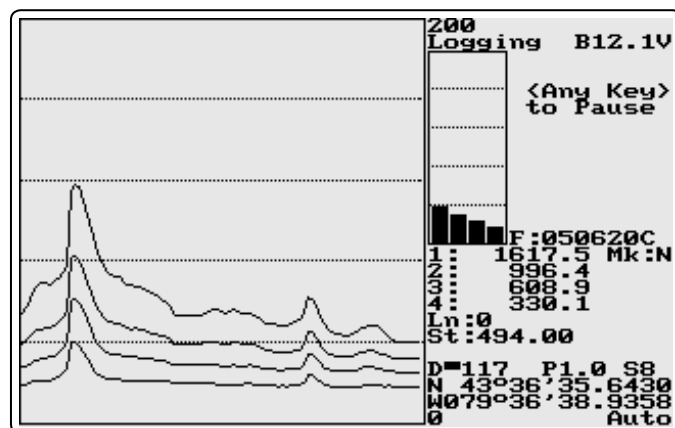
In the event of any field obstruction or any pause you can resume your survey line at a precise location, without using conventional methods of positioning (tapes, stakes, etc.). You can complete your survey even with low visibility or darkness and still maintain full control over the area of coverage and the quality of electromagnetic instrument readings.

Navigation Mode



NAV61MK2 Display Modes on the Allegro Field PC

Profile Mode



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NAV61MK2 Features (data acquisition program)

Display functions:

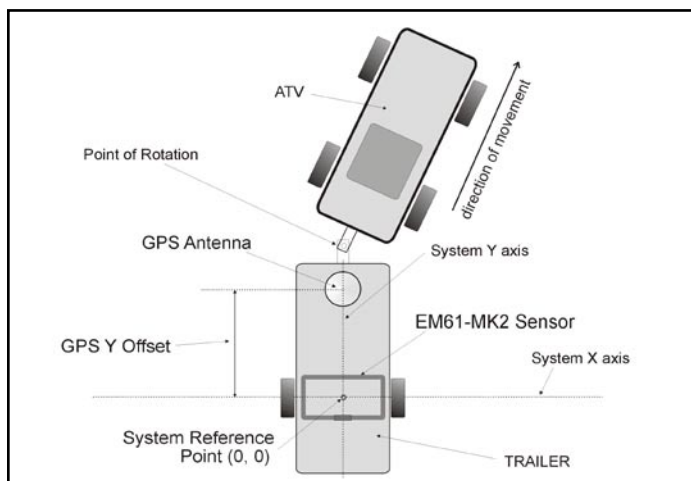
- Displays locations of logged GPS positions and current location of an operator in real time while in Navigation mode, the screen is updated at the rate of the GPS receiver frequency
- Scale of map is user specified (meters or feet) and it scrolls automatically once the end of the screen is reached
- EM61-MK2 Channels 1, 2, 3, and 4 or T are displayed with moving graphic bars and in numeric form, EM61-MK2 mode and instrument battery level also monitored
- Current GPS antenna position in Latitude/Longitude, type of differential corrections (DGPS and various modes of RTK), PDOP or other equivalent parameter (depends on NMEA used), number of satellites, and number of GPS positions in the file
- Display of stations from other TrackMaker (for any supported instrument) files which are entered as an external file allow you to repeat survey layout (with another instrument), fill in new lines, or to re-start survey at adequate location
- Positions of interpreted anomalies which are entered as an ASCII file allow you to navigate to points of interest

Survey parameters:

- Survey modes supported (Auto, Wheel, or Manual)
- Maximum rate of data acquisition is 16 Hz (assuming 1 Hz GPS output)
- New Line, New Station, Comment entry
- Change of scale in Navigation and Profile modes at any time

GPS functions:

- Configuration of logger serial port to accommodate any GPS settings
- GPS output monitoring
- Support for NMEA messages: GGA, GGA/GSA, GLL, POS, LLQ, LLK, GGK, and stream from Leica Robotics Total Station TPS1100
- Offset for GPS antenna in any direction, applies to any mode of survey
- Option to act as a stand-alone GPS logger (includes automatic data collection or positions averaging at chosen stations), which allows data to be collected in GXY file format (compatible with any TrackMaker or Multi program), supports comments entry



Example of specifying system geometry for EM61-MK2 placed on a trailer

TrackMaker61MK2 Features (data processing program)

Position EM61-MK2 readings and create XYZ file based on standalone TrackMaker61MK2 file:

- Apply GPS antenna offset in any direction (as entered in the field with option of correcting this parameter during data processing)
- Include elevation data with correction for antenna height
- Filters the quality of positioned data based on GPS parameters as PDOP (or equivalent) and the degree of differential corrections
- Further enhancement of the EM61-MK2 readings position is obtained by specifying the GPS Time Gap and GPS Minimum Interval.
- Choice of coordinates in generated XYZ file: Geodetic coordinates (Latitude/Longitude in degrees) or in UTM coordinates (meters, feet or US Survey Feet, WGS1984 datum)

Position EM61-MK2 readings and create XYZ file based on external GPS file (This function is used when real time GPS differential corrections are not available, or when further post processing of GPS data may improve positioning accuracy)

- Apply GPS antenna offset in any direction (as entered in the field with option of correcting this parameter during data processing)
- Further enhancement of the EM61-MK2 readings position is obtained by specifying the GPS Time Gap and GPS Minimum Interval

Position EM61-MK2 readings edited in DAT61MK2 (This function is used when NAV61MK2 readings were converted to M61 format and processed in DAT61MK2 program)

Miscellaneous:

- Field QC parameters (Quality Indicator, number of Satellites and PDOP) are written into the generated XYZ file
- Convert TrackMaker61MK2 files to Geonics DAT61MK2 format
- Convert TrackMaker61MK2 files to general format ASCII file
- Convert GXY file to ASCII file containing positions
- Retrieve and position field comments from TrackMaker61MK2 file
- Apply System Time Constant delay (lag) in generated XYZ file
- Transfer data file from field computer to PC
- View TrackMaker61MK2 file contents