

RTmap31

data logging & mapping system

for Windows Mobile

The **RTmap** system for Geonics EM31 consists of two programs: field data acquisition component RTmap31 for Windows Mobile (5.0 to 6.5) and the Windows (XP/7/8) based data processing software RTM31.

The **RTmap31** system will provide unmatched real time QA/QC and speed in the field. Viewing the displayed spatial image will allow the user to adjust the survey speed according to where anomalies are seen. The **RTmap31** 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 above features also comes the simultaneous full control of the EM31 output, data quality, EM31 settings, as well as GPS receiver parameters and GPS warning mask.

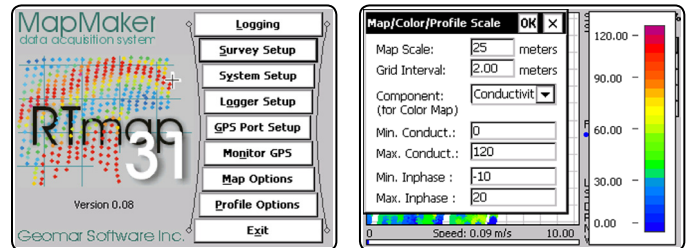
It also provides a view of any previously collected data files with a Geonics instrument that is supported by the **RTmap** and **TrackMaker** software and will assist the operator to return to previously collected stations.

The **RTmap31** program works with virtually any GPS receiver by supporting NMEA messages: GGA, POS, GLL, LLQ, LLK, GGK, and selected Robotics Total Stations, and collects EM31 and GPS data into one file simultaneously, while providing a graphical view of amplitude (pseudo-grid) in real time.



In the event of any field obstruction 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.

In addition to acquiring EM31 data the **RTmap** system will convert any Field PC to a stand-alone logger for GPS/DGPS/RTK data collection, taking away the need to purchase additional more expensive GPS components.

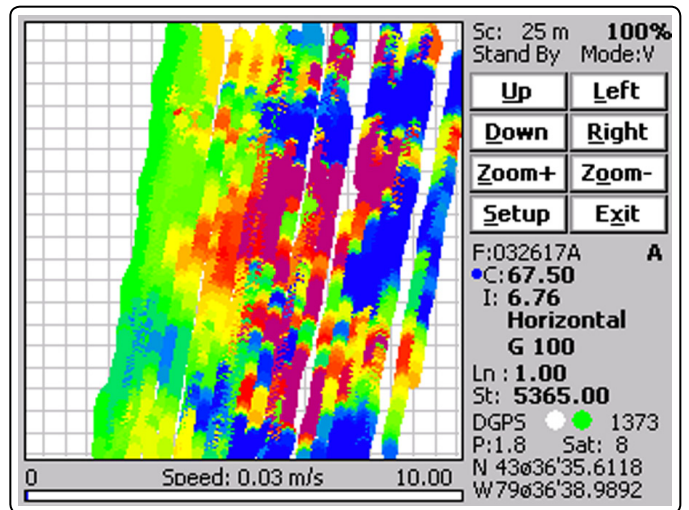
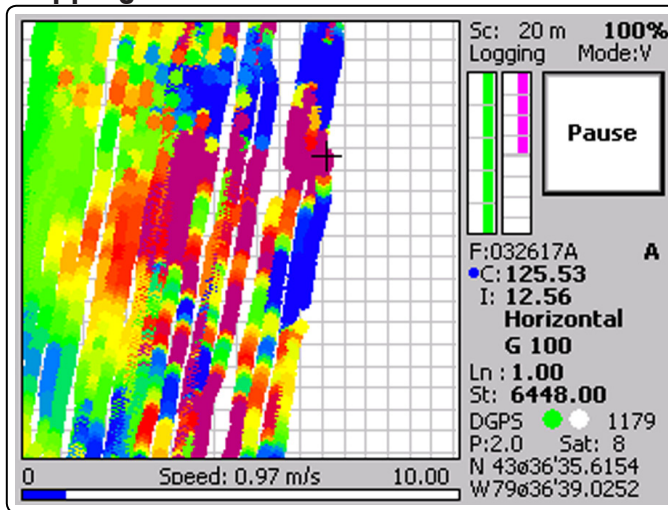


Numerous options for survey procedure and display parameters are available

Mapping Mode

View from RTmap31 program running on the Allegro Field PC

Review Mode



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RTmap31 Features (data acquisition program)

Display functions:

- Real time display of locations of recorded EM31 readings in form of colour scaled pseudo-grid (for selected component) and current location of an operator
- Colours and size of current cursor and dot position are user specified
- Scale of map and grid lines interval are user specified (m or ft) and the screen scrolls automatically once the display limit is reached
- EM31 conductivity and Inphase data is displayed with moving bars and in numeric form, dipole mode and range also monitored
- Current GPS antenna position in Latitude/Longitude, type of differential corrections (DGPS, RTK), PDOP or other equivalent parameter (depends on NMEA used), number of satellites, and number of GPS positions in the file
- Indicates when the user specified GPS warning mask is surpassed
- Monitors and alarms when the EM31 is disconnected
- Actual speed of the system is continuously displayed
- Display of stations from other RTmap and TrackMaker files (for any supported instrument) which are entered as an external file allow you to repeat survey layout (i.e. with another instrument), fill in new survey lines, or to re-start survey at proper location
- Positions of interpreted anomalies which are entered as an ASCII file allow you to navigate to points of interest
- Review mode: collected data can be reviewed in form of pseudo-grid using Zoom In and Out, and Pan function in any direction, step for Zoom and Pan, and selection of viewed EM31 component

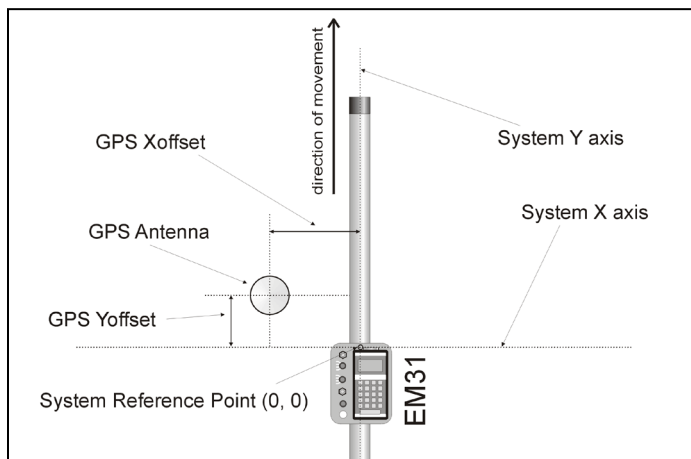
Survey parameters:

- Survey modes supported (Auto, Wheel, or Manual)
- Integration of readings available in Manual mode (up to 100 readings per station)
- Maximum rate of data acquisition is 10 Hz (at 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 Trimble or Leica Robotics Total Station
- Offset for GPS antenna in any direction, applies to any type of survey (instrument carried by the operator or towed by vehicle)
- Option to act as a stand-alone GPS logger (includes fast auto mode as well as more precise positions averaging), which allows data to be collected in GXY file format

Add real time mapping capabilities to your EM31 surveys

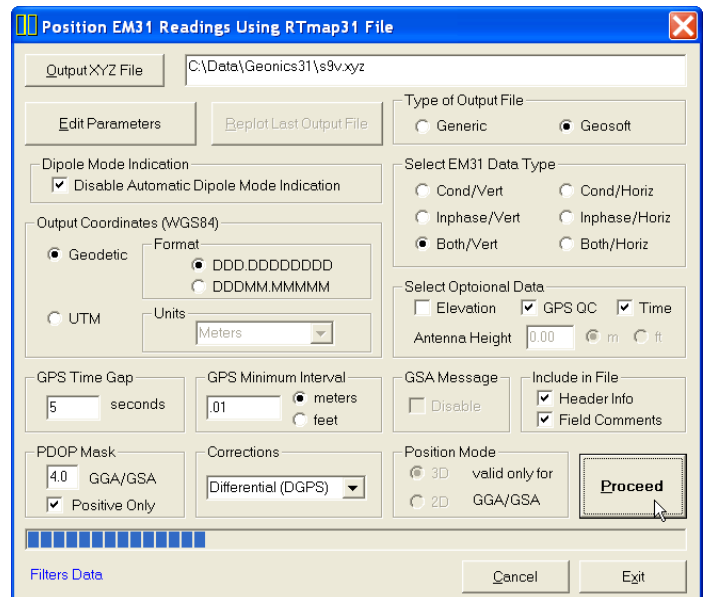


Example of specifying system geometry for EM31 and GPS antenna

RTM31 Features (data processing program)

Position EM31 readings and create XYZ file based on standalone RTmap31 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 collected EM31 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 EM31 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. It is assumed that GPS positions are logged in RTmap31 and in GPS logger simultaneously.)

- 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 collected EM31 readings position is obtained by specifying the GPS Time Gap and GPS Minimum Interval
- Coordinates system, units and GPS positioning accuracy is determined by a content of an external GPS file

Miscellaneous:

- Field QC parameters (Quality Indicator, number of Satellites and PDOP) are written into the generated XYZ file
- Convert RTmap31 files to Geonics DAT31 format
- Convert RTmap31 files to general format ASCII file
- Convert GXY file to ASCII file containing positions and elevations
- Retrieve and position field comments from RTmap31 file
- Apply System Time Constant delay (lag) in generated XYZ file
- Transfer data file from field DOS based field computer to PC
- Edit, view, and save RTmap31 file contents