



## RELEASE NOTES

### AARC500 (Gen-2)

#### Adaptive Aeromagnetic Real-Time Compensator

#### Host Firmware Release RMS11029-02-A

*These release notes contain important information about the new firmware and how it will affect the performance of instruments in which it is installed. The notes outline functional enhancements, adaptive changes and, if applicable, problem corrections.*

*Please read this documentation carefully. References to pertinent sections in the product's user's guide are shown in square brackets.*

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#### *Compatibility:*

*(D)AARC500 Front End – Requires firmware RMS1877-03-E or later*

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1. The numerical section of the main screen, used to display signal values in real-time, can now work with either the *standard* configuration, or with a *custom* configuration.  
  
The standard configuration remains as it has been in the past – the first row of numerical values shows uncompensated Mag1–Mag8, the second row shows fourth differences, and the third row compensated values.  
  
The custom configuration allows the user to select the signals for display. They can be selected from the set of 111 signals available (which are also accessible for graphical display on the screen and/or chart recorder). Signal values are shown in their “native” units (e.g., ‘nT’ for all magnetics, engineering units for analog channels, etc.), and each is preceded by a unique mnemonic identifying it.  
  
[User's Guide, Section 3.3.2]
2. Operation of the unit at *access level 0* has become significantly more restricted, in terms of access to configuration parameters. This is the most basic of the access levels available, and the only one that requires no password. Amongst others, a number of entries in the *options* menu, for set up of various configuration parameters, are no longer visible/accessible.

This is intended to (i) prevent accidental changes to configuration parameters by field operators, and (ii) simplify the *options* menu making it easier to identify the entries commonly used during day-to-day operation.

[User's Guide, Section 3.4.1.1a]

3. Enhanced the command set supported by the *remote control* interface (J13). A new command allows selection of any of the graph configuration files (*graph1.y–graph16.y*). Two other commands were also added, which allow to easily scroll (“up” and “down”) the set of graph configuration files that have been defined.

[User's Guide, Section 3.8.2]

4. The up-arrow and down-arrow keys on a keyboard connected to the unit can be used to scroll through the various graph configuration files.

[User's Guide, Section 3.8.3]

5. Graph traces are cleared after switching to a different graph screen.
6. The firmware now supports the GP300-family of chart recorders.

The AARC500 (Gen-2) supports real-time output to a chart recorder. It will automatically set up the recorder upon entering a run mode (calibration or compensation), and will continuously output data to it (up to a maximum of 16 channels) for as long as the run mode continues. This offers a powerful real-time monitoring capability that complements all other functionality available, also in real-time, in the AARC500.

Recorder types in two families of RMS Instruments' products are supported: (a) the GR33A family of chart recorders, with legacy products no longer in production, and (b) the GP300 family of state-of-the-art graphic printers/chart recorders.

[User's Guide, Sections 2.3.8, 3.4.4]

7. Dynamic compensation of on-board electronic (OBE) systems.

The firmware incorporates new technology that allows real-time dynamic compensation of the effects of DC currents from OBE systems, such as radios, avionics, hydraulic pumps, intercoms, and other instrumentation. The compensation model is augmented by a suitable set of terms calculated by running a simple “calibration” procedure.

The OBE compensation is carried out in real-time, for all the total-field and gradient signals in the system.

OBE compensation offers important benefits to users – it simplifies operational requirements for survey operators, increases robustness and tolerance to electrical sources, and improves overall compensation performance. The technology will work both for devices with fixed-current and with variable-current draws.

The new functionality is above-and-beyond the “conventional” (adaptive) real-time compensation in the AARC500. Its use is entirely optional, and can be readily enabled/disabled as required under different conditions.

[Note: The optional FE Analog Inputs option for the AARC500 is required.]

[User's Guide, Appendix J]

8. The `monasc.txt` log file now includes, as an initial “header”, system information identifying the Host and Front End subsystems. The information (which includes serial numbers, firmware revision numbers, maximum/minimum power-on temperatures, etc.) is useful to unambiguously identify the system to which a set of data files belongs.

[User's Guide, Section 3.3.3]

9. Eliminated the restriction that in previous firmware releases forced the *standard* form of the numerical display, when the main program was re-started through a right-click on the desktop.

With the new firmware the selection made in the user interface (*standard* or *custom* numerical display) is always observed, regardless of how the program is (re-)started.

[User's Guide, Section 3.1.4]

10. Added protection to prevent a second instance of the main program from being started.
11. Added protection to prevent a second instance of the real-time graphic display from being started.