RMS INSTRUMENTS
Data Recording Systems

RELEASE NOTES

AARC500 Adaptive Aeromagnetic Real-Time Compensator

DAARC500 DAS & Adaptive Aeromagnetic Real-Time Compensator

Front End Firmware Releases RMS1877-03-C, 03-B, 03-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 include information about enhancements, adaptive changes, and corrections to known problems. Please read this documentation carefully.

Compatibility:

AARC500 –   requires Host firmware RMS1878-02-E or later
DAARC500 – requires Host firmware RMS1936-02-E or later
AARC510 –   requires Host firmware RMS1999-01-C or later

RMS1877-03-C:

1. Enhancements to facilities for Factory tracking of operating conditions. (Transparent to the end-user.)

2. The field for Event #3, in the *event input tags* in data packets, is now used to encode error/warning messages. This information is included in data packets recorded and transmitted by the Host. This provides a form of redundancy, allowing (unambiguous) identification of error conditions that may have been missed by the operator/pilot during flight.

    Note that this will effectively disable the original function of the Event #3 input, as an *event input marker*. The functionality of the other event inputs (Events #0, #1 and #2), remains unchanged.

RMS1877-03-B:

[This release of the firmware was *internal* only, not distributed to end users.]

3. The Front End firmware now supports four general-purpose analog inputs in the RMS4915 Fluxgate Magnetometer Interface Module.

These Front-End-sampled analog inputs are sampled at the same rate (up to 1280 Hz), and processed in the same manner, as all other magnetics signals. The inputs are differential, with 16-bit resolution and ±5V input range.

For AARC5XX systems, this allows recording signals such as radar or laser altimeter, which are commonly needed in aeromagnetic surveys. For basic magnetics-only surveys, an AARC5XX equipped with this option, and an embedded GPS receiver, offers a complete solution – no additional data acquisition equipment is required.

Although at present this function provides only the additional general-purpose inputs, in future firmware releases this capability will be used (by the Host sub-system) for advanced enhancements to the compensation algorithms. This will have an impact in both AARC5XX and DAARC500 units.

The function is optional, and licensed separately.

4. The new firmware monitors processing power usage and reports violations (error code 31). This has become more relevant given the various combinations of magnetics, GPS and analog data now possible.

5. The system monitors and reports communications errors with the GPS receiver (error code 50).

RMS1877-03-A:

[This release of the firmware was *internal* only, not distributed to end users.]

6. The firmware handles correctly GGA packets from the optional GPS receiver that contain "blank" fields (i.e., no data between comma delimiters).

7. The firmware monitors the ERROR strobe in OEMV-2 receivers, and reports error conditions accordingly (error code 40).

8. Increased the time-out for switching from *external-PPS* to *internal* triggering when no pulses are detected at the input. The switch now occurs after 512 sampling periods (e.g., 51.2 seconds with F_{SH} = 10 Hz). In the past, the switch would take place after 128 sampling periods (e.g., 12.8 seconds with F_{SH} = 10 Hz).

9. The access level for commands that select the optional GPS receiver's type (external or internal) and status (enabled or disabled) was changed from 3 to 2. This allows users that have not purchased the *Advanced Functions* option access to these parameters.