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## TRI-SONICA MINI™ Firmware Release Notes

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### 2.2.0 (November 2021)

- Added an option to the serial menu to switch to command line mode directly from the menu. This is useful for systems that do not pass the CTRL+C character.
- Added a Checksum value to the data output string.
  - Sum all characters before the checksum characters including the checksum tag and tag delimiter. Truncate the sum to 8 bits and calculate the two-complement value. The upper four bits are converted to a hex character and displayed as the first value of the checksum. The lower four bits are the second hex character of the checksum. The CRLF characters are not included in the checksum.

### 2.1.3 (September 2021)

- Fixed invalid data peaks in the output data.
- Add a “clear” parameter to the **trisonicaid** command so the id field can now be removed
- Fixed a few minor issues.

### 2.1.1 (July 2021)

- Fixed erroneous compass not present error in diagnostics.
- Fixed help menu crash at **paramdelim**.

### 2.1.0 (July 2021)

- Changes necessary for operating on Rev G PCBAs.
- Fixed a tilt related issue with the Magnetic Heading calculations.
- Fixed the spelling of “declination” in the **settings** command output.
- Added Model information, Low Power settings, and Trigger settings to the **settings** command output.
- Renamed the serial menu command “Instrument Reset” to “Reset TriSonica Mini” to clarify the purpose of this menu option.
- Added the missing capability of the **tagdelim** and **paramdelim** commands to set the space character as the delimiter.

### 2.0.2 (May 2021)

- Added an ESC menu. Pressing ESC key provides a text menu to users.
- Improved ultrasonic detection algorithm that is more stable over temperature fluctuations.
- Removed the **acclimate** command.
- Improved the shadow correction of the TriSonica Mini.
- Added slope and offset settings for humidity, so users can adjust the humidity output.
- Added slope and offset settings for pressure, so users can adjust the pressure output.
- Added a default group to the show and hide commands that resets the output back to the factory default display.
- Added a **factoryrestore** command to restore the TriSonica Mini back to the settings established at the factory.
- Fixed a condition where Temperature returns NAN when humidity sensor returns 0.0.
- Added more details to the **diagnostic** command with the 'details' parameter, **diagnostic details**.
- Added a timeout to the command line interface so that if there is no user input for one minute, the TriSonica Mini will return to sampling mode.
- User definable delimiters for data output tags and parameter separators.
- Other minor bug fixes.

#### 1.9.5 (Jun 2020)

- Fixed error in dew point calculation that was reporting slightly lower dew point values.
- Fixed hard fault exception when running the **acclimate** command.
- Added **kalmanfilter** command to expert menu
- Fixed issue that caused extreme temperature and humidity values to be reported when two acoustic pathways are partially blocked.
- Added tilt calibration values to the **settings** command output.
- Added compass calibration values to the **settings** command output.
- Added firmware version to the **settings** command output.

#### 1.9.2 (May 2020)

- Fixed spelling in **declination** command
- Returned **declination** command to menu when using a Rev D board
- Added LVTTTL to protocol options
- Added board revision output to **version** command using the 'board' argument
- Fixed Digimesh Help Missing `\r\n`
- Fixed an issue where RH, pressure, tilt, and compass sensors were returning incorrect values when in low power mode.
- Fixed **compasscalibrate** for LSM303AGR so that it outputs proper compass data
- Adjusted the compass calibrate function for both old and new magnetometers to correct reported calibration errors.

#### 1.9.0 (October 2019)

- Updated to work with Rev E PCBs.
- Fixed error that caused unexpected internal humidity, pressure, tilt, or compass errors.
- Fixed the temperature and humidity to be -99.1 and the corrected humidity to be the RH Sensor Raw Humidity value, when in a fully blocked condition.
- Fixed the **display** command output to display the Pressure decimals indicator.

#### 1.8.0 (August 2019)

- Fixed long help for **show**, **hide**, **decimals**, **tag**, **untag** to include proper `\r\n`.
- Fixed **display** and **decimals** to show and set humidity decimal places.
- Added **tagid** command.
- Fixed bug where the temperature and humidity can get stuck with 'nan'
- Rewrote humidity calculations to use partial pressures to determine molar mass. The calculations are no longer dependent on the previous temperature reading.
- Modified the **calibration** command to accept a pressure value so that a more accurate value of molar mass can be calculated for determining the speed of sound.
- Added output mode to Run DigiMesh Radios
- Added low power stop mode
- Enabled trigger line for use as a wake-up signal for low power stop mode
- Set output data format to text mode when the 232 signal is connected to ground.
- Fixed **nvwrite** error where output data format was being set to 232 mode while the 232 signal was connected to ground, regardless of the user selected output format mode.
- Modified output tags to make them unique.

#### 1.7.4 (March 2019)

- Changed **acclimate** command to use 40 samples like the calibrate command
- Fixed bug with incorrect temperature output when in Wind Sensor mode.

#### 1.7.0 (February 2019)

- Reduced power consumption
- Changed spelling error of **acclimate** to **acclimate**
- Added Shadow Correction calculations to reflect wind-tunnel testing
- Changed input of the Dew Point Calculation to use Average of the RH Sensor and Average Air Temperature

#### 1.6.0 (October 2018)

- Improved Noise
- Improved the Calibration Routine
- Reset Calibration time to 10 seconds
- Added **unit** user command for unit types, and calculations to give output values in chosen units
- Gave Direction outputs decimals
- Added **acclimate** command (spelling corrected in version 1.7.0)
- Added help command instructions about not including [] or <>.
- Removed Deprecated commands and their functions.

- Added **orientuv** command to output in Met std coord, ATI coord, or old (error!) TSM coord.
- Increased averaging time of Dew Point to humidity calculation to average over 30 seconds.

#### 1.5.2 (June 2018)

- Improved Internal Diagnostic
- *\*\*\*(Please contact Anemoment if you have a TriSonica Mini with this version and you are interested in upgrading firmware.)\*\*\**

#### 1.5.1 (March 2018)

- Added Decimals to Pitch and Roll Outputs
- Enabled External Trigger
- Tripled the Calibration Time
- Added TriSonica ID Field

#### 1.4.1 (January 2018)

- Improved **calibrate** command
- Adjusted **version** command to indicate "present" instead of "installed"
- Updated Function with the TriSonica PCBA Rev D to add 422 capability
- Added **protocol** command for 232 and 422
- Enabled the 232 input signal to force a known state.

#### 1.3.4 (November 2017)

- Fixed Accelerometer and Magnetometer Values to display properly
- Fixed Crash when **show all** is executed.
- Fixed Temperature Decimals setting and display
- Added compass **declination**
- Use the long-term temperature average to calculate humidity
- Added **json** command to show the current support level for JSON outputs.
- Settings Command uses JSON Format output (JSON Level 1)

#### 1.2.2 (May 2017)

- Fixed a display issue where previously enabled features were not being removed from the display output and the **show**, **hide**, **help** displays
- Fixed error in Dew point calculation from temp and rh.
- Properly set baud rate from flash.
- Add the adjustment to the humidity sensor to calculate the outside humidity, based on the internal temperature, internal humidity, and the outside or sonic temperature.
- Adjust **distance** and **offset** command to allow setting independent channels.

Items in **bold** indicate commands.