

Release Notes

Vaisala Ceilometer CL31

CL31 SW version 3.204

Released: 2023-05-10

This document summarizes the firmware changes of Vaisala Ceilometer CL31 with CLE321 engine board up to firmware version 3.204.

Version 3.204

Standard version.

This standard version includes ASEA messages, so a separate ASEA version is no longer needed.

Changes compared to version 3.000:

- Airplane filter height made configurable.
 - Set using advanced level command **set factory algo_sensit airplane_filter_height**. Value given in meters in the range 0-1000.
 - Read using command **get params algorithm**.
- Fix software update on old boards with old flash chip.
- Name and uptime added to **dump** command.
- Blower self-test logic changed.
 - Changed to check the blower (out) temperature rise instead of difference to ambient (blower in) temperature. The logic is now as follows:
 1. Turn blower on and blower heater off.
 2. Wait 2 minutes for cooling down in case heater has been on.
 3. Turn blower heater on.
 4. Wait 2 minutes for temperature to rise.
 5. Check that blower temperature has risen more than 4 °C.
 - The blower self-test is not run if the external temperature is above +40 °C.
- ASEA messages included in standard version.



Release contents

Version 3.130

Version only for ASEA, built and released in March 2022.

Changes affecting ASEA version only:

- Fix ASEA report checksum.
- Fix to avoid occasional watchdog reset.

Changes affecting all versions:

- Fix software update on old boards with flash chip A29L008.

Version 3.000

Released 2019-02-20.

Note that this software is for CLE321 boards only. For CLE311 boards use software 1.xxx.

Changes compared to version 2.028:

- The flash memory circuit is obsolete and a layout change was required to support a new memory type.
- Removed the feature that opens service connection when #1 is received on serial port, and closes service connection when #2 is received. This feature caused problems with RS-485 communication when used with the AWS310 weather station.

Version 2.028

Released 2017-03-31.

Note that this software is for CLE321 boards only. For CLE311 boards use software 1.xxx.

Changes compared to version 2.027:

- Removed the feature that opens service connection when #1 is received on serial port, and closes service connection when #2 is received. This feature caused problems with RS-485 communication when used with AWS310 weather station.

Version 2.027

Released 2014-05-15.

10th production version.

Note that this software is for CLE321 boards only. For CLE311 boards use software 1.xxx.

Changes compared to version 2.026:

- Secondary message added. Two different messages can now be output independently to the 2 serial ports. Configured using the commands **set message secondary interval/transmission/type**.
- Command **set echo on/off** added. When set to **off**, received characters are not echoed to the user interface. By default, echo is on for CL31 and off for CL31M.
- Command **dump** added. Outputs the printouts of the following commands: **system, status, get failure status, get failure history, get params factory, get params message, get params port, get params algorithm, get failure diag**.
- Default message type changed to `msg2_base` (was `msg2_20x385`).
- Miscellaneous fixes:
 - Software update was sometimes stuck. This happened if a long report was sent to the other port with too short an interval when the software update was started.
 - Warning instead of alarm generated for +12 VO (12 V output) voltage error.
 - Command **set message transmission periodic** sets message type to the configured type (the current type may have changed when polling).
 - Command **get params message** shows the configured type, not the last polled type.
 - Software update was corrupting the loaded software if the loaded software was large enough.

Version 2.026

Released 2013-06-10.

9th production version.

Note that this software is for CLE321 boards only. For CLE311 boards use software 1.xxx.

Changes compared to version 2.025:

- Blower hot limit parameter added. When the external temperature is above this limit, the blower is kept on to cool down the ceilometer. Previously this limit was fixed at +40 °C.
 - The limit is set using command **set factory blower_hot_limit**.
 - The limit is read using command **get params factory** (shown as **Blower hot limit**).
 - The default is +40 °C. The feature can be disabled by setting the parameter to its maximum value, 199. The blower is then never turned on based on this temperature limit. Note that in direct sunshine, the external temperature measured by CL31 may be a lot higher than the actual air temperature (as it is measured inside the shield).

Version 2.025

Released: 2013-03-25.

8th production version.

Note that this software is for CLE321 boards only.

Changes compared to version 2.024:

- Other changes:
 - Commands that can be used to adjust laser power moved from advanced to factory level (for laser safety certification). The following commands moved to hidden level:
 - **set factory outlaser**
 - **set data_acq transmit inlaser**

Version 2.024

Released 2012-12-12.

7th production version.

Note that this software is for CLE321 boards only.

Changes compared to version 2.018:

- Other changes:
 - Fix of a bug causing the blower to be left OFF after battery use when the blower manually set ON.
 - If the blower is manually set on, then also the blower heater is set on after reset.
 - Self-diagnostics improvement to avoid rare occasional false warnings (**Transmitter Expires** or **Receiver Warning**) in heavy snowfall.

Version 2.018

Released 2012-06-28.

6th production version.

Note that this software is for CLE321 boards only.

Changes compared to version 2.017:

- Other changes:
 - Fix to solve test problems in production.

Version 2.017

Released 2011-06-23.

5th production version.

Note that this software is for CLE321 boards only.

Changes compared to version 2.015:

- Cloud algorithm changes:
 - CL31M only: Uses sky condition algorithm ported from CT25KAM.
 - The sky condition reports overcast in more cases (standard CL31 only).
- Self-diagnostics changes:
 - CL31M only: Blower line removed from command **service self_check** (CL31M has no blower diagnostics).

Version 2.015

Released 2010-06-18.

4th product version.

Note that this software is for CLE321 boards only.

Changes compared to version 2.014:

- Other changes
 - CIBUS message fix: When the checksum was 0, no checksum was transmitted with the message.
 - CT12K message number 1 added (`ct12k_dmsg1`).

Version 2.014

Released 2010-04-19.

3rd production version.

Note that this software is for CLE321 boards only.

Changes compared to version 2.013:

- Other changes
 - CIBUS message format updated.

Version 2.013

Released 2010-02-09.

2nd product version.

Note that this software is for CLE321 boards only.

Changes compared to version 2.012:

- Cloud algorithm changes:
 - Cloud reporting resolution changed to 10 m/30 ft in standard mode (it is still 5 m/10 ft in high_res mode).
- Self diagnostics changes:
 - Humitter measurement is used for internal heater control. The heater is set ON if RH > 80 % and OFF if RH < 78 %.
 - Internal heater control logic changed. The heater is set on if the internal-external temperature difference is <10 (previously <6).
- Other changes:
 - Small changes in commands.
 - CIBUS support added.
 - Message transmission timing improved to avoid sending the same message twice.

Version 2.012

Released 2009-08-31.

1st production version.

Note that this software is for CLE321 boards only.

- Support for new hardware:
 - Support added for the CLE321 board only.
 - Receiver type selection added (to support replacing a broken CLE311 with a spare part CLE321).
- Self diagnostics:
 - Self diagnostics logic when the ceilometer is looking into the sun improved for cases when the sun suddenly comes or disappears (behind a cloud).
 - In-laser adjustment blocked while the ceilometer is looking into the sun.

- Other changes:
 - Small changes in commands.
 - Message polling was fixed to work according to the manual.