

WhaleTeq SECG5.0 Changelog

Limitation:

1. only when using single pacing can the pacing duration be set to below 0.1 ms
2. only support outputting ECG + Pacing (Single) + Respiration signals; double pacing is not supported

IMPORTANT:

1. only supported FW version 1.21.9 and later

Version 1.5.10.12 - 2026-06-10

1. NEW: Add R/IR output channel selection on the PWTT page
2. CHG: R and IR can only be played one at a time when Sync Pulse is off (WAP2012, WAP2112)
3. CHG: Output R and IR with the same AC/DC in asynchronous mode (WAP2012)

Version 1.5.10.11 - 2026-06-04

1. FIX: signal outputting is stopped when output lead status is updated
2. FIX: the parameters of auto pacing are not applied

Version 1.5.10.7 - 2026-05-16

1. CHG: adjust the play data sample rate to 5K if the respiration module is connected

Version 1.5.10.6 - 2026-04-22

1. FIX: failed to add noise to the playback data

Version 1.5.10.5 - 2026-04-15

1. FIX: numeric controls behave incorrectly

Version 1.5.10.4 - 2026-04-09

1. FIX: failed to configure apnea when playing raw data

Version 1.5.10.3 - 2026-04-01

1. FIX: incorrect pacing duration if respiration module is connected
2. FIX: fail to output PPG signal (WAP1001)

Version 1.5.9.33 - 2026-01-29

1. NEW: Add a stop button to SpO2 page
2. FIX: The channel selector on SpO2 page did not work
3. FIX: The title of update external module dialog went wrong after changing language
4. FIX: Parameters on the SpO2 and PWTT pages may be reset after page changing
5. FIX: Wrong initial DC value for in Auto Test SpO2

Version 1.5.9.29 - 2026-01-14

1. CHG: Auto scale PPG waveform to fit the max AC
2. FIX: No PPG channel options in asynchronous mode
3. FIX: Drop-down buttons scroll could not stop at the correct positions
4. FIX: The PPG setting "AC above DC" might not work
5. FIX: The PPG AC setting in "Load Raw Files" only had 2-digit integer
6. FIX: The page settings in ECG and SpO2 page might not be fully applied

Version 1.5.9.28 - 2026-01-08

1. FIX: Crash when showing error message dialog

Version 1.5.9.27 - 2026-01-06

1. NEW: Add R-curve tables for PPG module WAP2112
2. CHG: Baseline Reset Test no longer restricts signal frequency to 10 Hz

Version 1.5.9.26 - 2025-12-10

1. FIX: Wrong digit of AC input in SpO2 Table page
2. FIX: Display issue in Auto Test SpO2 page

Version 1.5.9.25 - 2025-12-09

1. FIX: Display issue of number input widget in SpO2 Infrared group
2. FIX: Display issue when changing tab during playing on Auto Test SpO2 page

Version 1.5.9.24 - 2025-12-08

1. NEW: Support external module firmware update for PPG module WAP2112
2. CHG: Change the min DC value for WAP2112 from 300 to 500
3. FIX: Display issue of the strength bar and reference DC values in Auto Test SpO2
4. FIX: Wrong text format in Output Summary

Version 1.5.9.23 - 2025-12-01

1. FIX: incorrect length of HRV test pattern
2. CHG: fine tune the signal strength detection (PPG module WAP2112)
3. CHG: fine tune the SpO2 accuracy (PPG module WAP2112)

Version 1.5.9.21 - 2025-10-02

1. CHG: update PPG DC range to 500mV ~ 3000mV (PPG module WAP2112)
2. CHG: in SpO2 page, when the 'Play' button is clicked, the button becomes 'Apply' button, and users can continue to edit settings
3. CHG: in Auto SpO2 page, added support to configure the IR-PI value
4. FIX: update the ECG signal frequency to 10Hz if the BaselineResetTest is enabled

Version 1.5.9.20 - 2025-09-16

1. CHG: update PPG AC range to 0.1mV ~ 300mV (PPG module WAP2112)
2. CHG: added AC above DC setting

Version 1.5.9.19 - 2025-09-08

1. CHG: added Overshoot 8 ms option in Auto Pacing
2. FIX: the ECG signal is not outputted if the BaselineResetTest is enabled

Version 1.5.9.18 - 2025-08-11

1. CHG: added 30/ 300/ 350 BPM options in Auto Heart Rate

Version 1.5.9.17 - 2025-08-07

1. CHG: fine the tune the SpO2 accuracy for WAP2012

Version 1.5.9.15 - 2025-07-01

1. FIX: the delay between pacing and overshooting

Version 1.5.9.12 - 2025-06-10

1. FIX: in SpO2 page, AC/ DC/ PI controls in Red/ Infrared may be disabled

Version 1.5.9.11 - 2025-05-27

1. CHG: fine tune the firmware update performance
2. FIX: incorrect respiration information in ECG page
3. FIX: incorrect ECG amplitude if modulation respiration is enabled
4. CHG: moved PPG AC below DC

Version 1.5.9.8 - 2025-05-12

1. CHG: update the PPG PI range to 0.01% ~ 20% (WAP2112)

Version 1.5.9.7 - 2025-05-07

1. FIX: incorrect waveform type when running Auto SpO2 (WAP2112)
2. FIX: waveform is incorrectly displayed in 0.5mm/mV

Version 1.5.9.6 - 2025-05-06

1. CHG: added support WAP2112 PPG module

Version 1.5.9.1 - 2025-03-20

1. FIX: (PWTT page) crash if BPM is set to 190

Version 1.5.8.2 - 2024-12-27

1. FIX: in auto sequence crash in long-run test
2. FIX: in PWTT page, the enabled status of PPG setting is not correct

Version 1.5.8.1 - 2024-11-25

1. FIX: in auto sequence, data after the 10th entry is not visible
2. CHG: added support to load PWTT and SpO2 file in Auto Sequence
3. NEW: in SpO2 page, added support to reset to default settings, save settings to file, and load settings from file

NOTE:

1. in auto sequence, up to 20 scripts can be added

Version 1.5.7.7 - 2024-08-19

1. FIX: failed to update firmware

Version 1.5.7.6 - 2024-08-09

1. FIX: failed to run PPG sampling
2. FIX: failed to get PPG trigger level

Version 1.5.7.4 - 2024-07-30

1. FIX: incorrect ECG signal when outputting ECG + Pacing + Respiration
2. CHG: update the minimum value of ECG Respiration BrPM to 1

IMPORTANT:

1. When outputting ECG + Pacing (Single) + Respiration, the ECG voltage and the pacing amplitude is limited to +/- 20mV
2. ECG + Pacing (Double) + Respiration is not supported; the output signal will produce unexpected results

Version 1.5.7.3 - 2024-07-26

1. FIX: 'White' noise is not supported
2. NEW: added support to load respiration raw data (only supported when respiration module is connected)
3. CHG: update the minimum value of ECG pacing duration to 0.1 ms if respiration module is connected
4. FIX: "PWTT" page is not disabled if respiration module is connected
5. FIX: ECG signal is incorrect for AHA txt file
6. CHG: added support to configure the sample rate for Dump Raw Data function
7. FIX: in ECG Special Functions > Auto page, the output lead RA is by default enabled

Version 1.5.6.49 - 2024-06-19

1. FIX: a delay appears when outputting pwtt signals in the beginning
2. FIX: change the amplitude limitation of dynamic range test to 40mV
3. FIX: fail to enable the save wave add-on button after stopping waveform signal output
4. FIX: fail to run frequency scan function
5. FIX: the prompt message is missing when running standard assistant
6. FIX: the pacing signal is not outputted in standard assistant
7. FIX: update assistant pass criteria
8. FIX: pacing should be 30ms before the P wave

Version 1.5.6.31 - 2024-04-09

1. CHG: disable electrode V1~V6 if respiration module is connected
2. FIX: the time range in Auto PWTT setting form is incorrect
3. FIX: the pacing amplitude adjustment is inappropriate

Version 1.5.6.29 - 2024-03-27

1. CHG: change the decimal places of QRS Amplitude to 2
2. FIX: incorrect ECG signal amplitude if respiration module is connected

Version 1.5.6.28 - 2024-03-19

1. CHG: update "Dump Raw Data"; only save AC data

Version 1.5.6.27 - 2024-03-11

1. FIX: incorrect pacing output after respiration apnea
2. NEW: added support respiration module (only supported FW version 1.3.31.04 and later)

Version 1.5.6.26 - 2024-03-04

1. FIX: incorrect pacing duration

Version 1.5.6.25 - 2024-02-23

1. CHG: update "Dump Raw Data"; update to fixed sample rate 1K and only save one cycle data

Version 1.5.6.23 - 2024-01-26

1. CHG: update the maximum respiration BrPM to 200
2. CHG: added support ECG noise frequency - 100/ 120/ 150/ 180/ 200/ 240 Hz
3. FIX: incorrect show the error message after successfully enable assistants
4. FIX: the variable dc is not restored to 0mV after stopping signal output
5. CHG: in Auto SpO2 page, show the stable DC value after stopping signal output

Version 1.5.6.20 - 2024-01-17

1. NEW: added Auto SpO2 page

Version 1.5.6.2 - 2023-11-03

1. FIX: Redundant option "0" in Inhale : Exhale Ratio
2. CHG: update the range of pacing duration to 0.03ms to 3ms (only supported FW version 1.3.22.12 and later)

IMPORTANT:

1. only supported FW version 1.3.22.12 and later

Version 1.5.5.19 - 2023-10-04

Note: Please use firmware version 1.3.19.02+ to ensure that all changes work.

Common

1. NEW: Add function to clear the cache and restart the app
2. CHG: Improve file browse dialog, add automatic scrolling
3. CHG: Improve the performance of reading variable DC calibration data from SECG
4. FIX: Variable DC calibration value may be incorrect when the connected SECG serial number changed
5. FIX: The dialog box message does not reset when updating FW consecutively
6. FIX: App crashes during version updates
7. FIX: App resources do not restore when downgrading versions
8. FIX: App may crash when accessing the file names with non-ASCII characters

ECG

1. CHG: The chart scale of ECG page now can restore when switch back from PPG pages
2. CHG: Adjusted Auto Sequence: If it includes deleted scripts, but there are other valid scripts, it can still be executed. Invalid ones will be automatically skipped.
3. FIX: Status not immediately update issue when deleting scripts in Auto Sequence
4. FIX: The app may crash when reading an old script
5. FIX: The app may crash when reading a txt file which format is incorrect
6. FIX: The app may crash when select a .hea file in File Replay
7. FIX: Incorrect 620kΩ status in Output Summary
8. FIX: Incorrect BPM and QRS Duration values in Output Summary when running Auto Heart Rate
9. FIX: The graph may not be cleared when switching from ECG page to other pages
10. FIX: ECG Respiration apnea time 60s setting does not work
11. FIX: Incorrect waveform amplitude in UI when enable ECG Respiration
12. FIX: Incorrect P wave amplitude in CAL waveform
13. FIX: Rounding error of BPM in decimal places

PPG

1. NEW: Add support for PPG reflective module and green light module
2. NEW: Add buttons to browse Raw Files
3. NEW: Add buttons to set Sampling, and move them to left side
4. CHG: Play Raw Files now supports Sync Pulse and Inverted Pulse
5. CHG: Updated method for PPG Play Raw second setting Output Setting, consistent with AECG
6. CHG: Improve the performance of PPG Sampling waveform
7. CHG: Trigger Level setting is now updated when clicking OK, except for restoring to default values, which are set immediately
8. CHG: Update Sync Pulse mode, now all channels output the signal respectively instead of outputting single waveform
9. FIX: Improve performance when output PPG first time from start-up
10. FIX: Correct the definition of PPG inverted waveform (inverted refers to output being opposite of the original waveform, but it does not reverse in the UI), and set inverted as default
11. FIX: PPG module output may be abnormal after using Sampling
12. FIX: Incorrect PPG waveform amplitude when using Respiration Baseline mode or Raw Files
13. FIX: Signals not reset when changing files in PPG Load Raw File page

SpO2

14. NEW: Add function to import and delete SpO2 Table
15. NEW: Add new SpO2 Tables: P_R-curve(T), G_R-curve(T)
16. CHG: Update the default SpO2 Table file names, please remove the old copy manually
17. FIX: Incorrect initial values of PI and SpO2
18. FIX: Incorrect behavior when adjusting formula coefficient in SpO2 (should recalculate SpO2)
19. FIX: Too low accuracy of R Value decimal, only three places

PWTT

20. NEW: Add new function: Auto PWTT
21. NEW: Add functions to save, load, and reset parameters
22. NEW: Add Sampling in this page
23. NEW: Add Load Raw Files function
24. CHG: Now all kinds of PPG waveforms can be loaded from the SpO2 page
25. CHG: When PWTT page loads SpO2 parameters, parameters can be adjusted using SpO2 value
26. FIX: PI value may be correct when loading parameters from SpO2 page
27. FIX: Remove redundant parameters when loading ECG 2-27 waveform (only three items left now)

Standard Assistant

1. FIX: The buttons on parameters dialog may be covered

Version 1.5.4.9-hotfix - 2023-07-04

1. Fix that waveform does not show when running frequency scan

Version 1.5.4.7 - 2023-07-04

Changed:

1. Release the Standard Assistant files
 - GB9706.225-2021 (2023/6/30)
 - GB9706.227-2021 (2023/6/30)
 - YY9706.247-2021 (2023/6/26)

Fixed:

2. Fix the crash in File Replay when playing the files which the file name are too long.

Version 1.5.3.0 - 2023-05-17

New:

1. **Support PPG-2TF-660 module, and add pages "SpO2" and "PWTT"**
Note: Require firmware version 1.3+
2. Add new Standard Assistant GB9706.225-2021?◆GB9706.227-2021?◆YY9706.247-2021 (beta)
3. Add serial number of connected PPG module on title bar
4. Add the 3rd, 4th code of firmware version on Setting dialog (1.3+)
5. Add scroll bar on Output Summary box

Changed:

6. **Change the page title "Signal Waveform" to "ECG"**
7. Ignore file extension case when searching update files
8. Improve the performance of upgrading firmware
9. Improve the preview waveform of Baseline Overload Test, and not reset when turning off

Fixed:

10. Fix the display issue of Hardware ID
11. Fix the issue of automatically adjusting ECG parameters
12. Fix the crash when saving SDK Log without a USB device
13. Fix the output and preview waveform of Baseline Overload Test
14. Fix some spelling mistakes of Output Summary
15. Fix the HRV parameters display issue in Output Summary
16. Fix the issue of loading DC calibration data
17. Fix the ECG wave modulation of Respiration, and make it synchronous with PPG wave modulation
18. Fix the display issue of ECG Noise 50Hz
19. Fix the preview waveform of Pacing Overshooting
20. Fix the failure of loading some txt files
21. Fix the display issue of the file name with non-alphabetic characters
22. Fix the issue of reconnecting to hardware
23. Fix the failure of importing license

24. Fix missing description line in exported raw data file
25. Fix missing waveform when outputting pacing
26. Fix the crash when saving files to USB device in some case
27. Fix the input variable dialog size mistake of Standard Assistant
28. Fix the combo box display issue of Standard Assistant

Version 1.4.5.5 - 2022-12-16

New:

1. Add feature of DC offset variable mode, and make it available in new scripts
2. Add firmware version showing on Setting dialog
3. Add feature of restoring the last status of Auto Sequence

Changed:

4. Update the upper limit of script playing period of Auto Sequence, and change the UI widgets
5. Update the feature of ECG Respiration wave modulation that the 3 modulation can be mixed now, and update the script
 - Note: the wave modulation setting in previous scripts will be no effect anymore.
6. Update T wave in ECG waveform: fixed period 180ms, and will be removed when it exceeds the QT Interval

Fixed:

7. Fix missing error message when failed to copy files to USB device
8. Fix that there will be one extra directory when exporting SDK Log
9. Fix that file names which is too long cannot be displayed on Auto Sequence
10. Fix that the parameters may not be adjusted when the ECG frequency exceeds 2Hz
11. Fix the display issue of ECG Respiration parameters
12. Fix that the parameters of ECG Respiration wave modulation are sometimes no effect
13. Fix that the parameters of Baseline Overload Test are sometimes no effect
14. Fix the display issue after turning off the screen when playing
15. Correct the Pacing waveform start position of non-ECG waveforms
16. Correct the Pacing Overshooting waveform
17. Fix that the Common Mode switch cannot be used after playing
18. Fix that Common Mode would not be toggled immediately
19. Fix some issue of Standard Assistant IEC60601-2-27:2011

Version 1.3.3.11 - 2022-03-22

1. ECG will be set to IEC60601-2-27 waveform when pacing is turned on.
2. Improve the performance of Auto Sequence.
3. Fix pacing waveform pulse time issue.
4. Fix pacing overshooting waveform.
5. Fix Assistant IEC60601-2-27 bugs
6. Fix Assistant YY1139 bugs

Version 1.3.2.2 - 2022-01-07

1. **Add new Standard Assistant: YY1139-2013**
2. Fix crash when switching IEC60601-2-27 HRV Test patterns
3. Fix failing to return to the main window after overwriting the dump raw file
4. Fix dumping raw data no device issue.
5. Fix crash if a file name is too long in File Replay.
6. Fix several mistakes in Output Summary
7. Fix the noise of pacing waveform of specific parameters.

Version 1.3.1.11 - 2021-11-29

1. **Improve the sample rate to 20kHz**
 2. **Improve the performance of waveform graph**
 3. Synchronize electrode button when frequency scan
 4. Fix the bug of BPM button
 5. Fix the bug of setting dialog displaying
 6. Fix the pacing waveform with overshooting
 7. Fix Auto Heart Rate output summary
 8. Fix AAMI EC13 preview waveform
 9. Fix the waveform of ECG frequency scan
 10. Fix pulse width button state
 11. Fix time label display bug
 12. Fix Assistant IEC60601-2-25 bugs
 13. Fix Assistant IEC60601-2-27 bugs
 14. Fix Assistant YY1079-2008 bugs
- 4.1.2.1 electrode display bug
 - 4.1.4 several bugs

- 4.2.6 output waveform bug
- 4.2.7.3 electrode display bug
- 4.2.8.1 electrode display bug
- 4.2.8.8 specific item no output issue

15. Fix crash when switching assistant tests

Version 1.2.1.23 - 2021-09-08

1. Update Assistant YY0885-2013

Version 1.2.1.21 - 2021-08-25

1. Change the step of pacing overshoot amplitude from 0.1 to 0.01 mV.

Version 1.2.1.20 - 2021-08-05

Common:

1. Change the default values of some items in Auto Heart Rete
2. Fix short duration pacing waveform (make it more accurate)
3. Fix negative pacing amplitude overshooting
4. Fix Auto Pacing bugs
5. Fix Baseline overload test bugs
6. Fix the output summary of Auto Pacing

Assistant:

1. Add pre-test command SetDCOffsetVariableMode(false)
2. Change IEC60601-2-27 Global Parameter: Full scale output value range to 0~10
3. Modify YY1079-2008 4.2.8.4
4. Fix 201.12.4.107.2 (IEC60601-2-25:2011)
5. Fix 201.12.1.101.8 (IEC60601-2-27:2011)
6. Fix 201.12.1.101.9 (IEC60601-2-27:2011)
7. Fix 201.12.1.101.12 (IEC60601-2-27:2011)
8. Fix 201.12.1.101.13 (IEC60601-2-27:2011)
9. Fix 201.12.1.101.17 (IEC60601-2-27:2011)
10. Fix Global Parameter radio button text bug (IEC60601-2-27:2011)
11. Fix 51.104.3 (YY0782-2010)
12. Fix 4.1.4 overshoot amplitude spec (YY1079-2008)

13. Fix 4.2.8.1 DC output (YY1079-2008)
14. Fix 4.2.8.1 input variable (YY1079-2008)
15. Fix 4.2.8.8 (YY1079-2008)

Version 1.2.1.1 - 2021-06-02

Common:

1. Reduce APK size
2. Modified the disabled-color of switch buttons
3. Add loop option on standard waveform and file replay page
4. Add delete button in file browse dialog
5. Show warning before overwriting file
6. Disable the script in sequence which file is lost
7. Implement Sine Wave dynamic range test
8. Implement standard waveform raw data dumping
9. Fix ECG parameters reset and auto-set issue
10. Fix NST Noise on HRV pattern issue

Assistant:

1. Support "(Please fill the ref value)" for unsolved reference value.
2. Support multiple report value input.
3. Support noise on ANE20000 waveform
4. Fix the side effect of multiple input result table value.
5. Fix YY Standard, wrong table header text shown.
6. Fix IEC60601-2-27 bugs
7. Fix IEC60601-2-25 bugs
8. Fix YY1079 bugs
9. Fix YY0782 bugs

Version 1.1.23.6 - 2021-02-25

1. Fix bugs in Assistant IEC60601-2-27
2. Fix ECG parameters auto adjustment
3. Implement electrode button state in Assistant
4. Implement noise on ANE20000 waveform

Version 1.1.23.1 - 2021-01-28

1. Fix pacing of some Assistant test items
2. Reduce the size of APK file

Version 1.1.22.17 - 2021-01-27

1. Improve USB driver
2. Change the minimum pulse width to 1 ms
3. Update Assistant files
4. Fix the potential bug of "dump standard"
5. Fix the display bug of baseline overload test
6. Fix standard waveform IEC60601-2-47 pattern 1
7. Fix auto adjusting for ECG parameters
8. Fix several bugs of Assistant
9. Fix the display bug of "Auto Sequence"

Version 1.1.22.2 - 2020-11-04

1. Initial version