

June 2, 2022

Dear customer,

PATH MEDICAL is pleased to announce the release of new Senti and Sentiero device firmware (2.8.3) and Mira PC software (2.4.3).

The main updates of firmware 2.8, 2.8.1, 2.8.2, 2.8.3 and Mira 2.4.0, 2.4.1, 2.4.2, 2.4.3 are described below. Please pay particular attention to the important information described in chapter 3 ("Important Notices").

1. FIRMWARE MODULES AND FEATURE UPDATES

The following new features are now available with Senti/Sentiero firmware:

- **ABR:**

- Increase number of traces per measurement. Now up to 10 can be selected during the test.
- Add the option to measure from low to high levels in addition to the default order from high to low levels.
- Add Wave I insert earphone normative values for click stimulus.
- Improved the effectiveness of the mains filter and added the option to select the frequency (50 Hz / 60 Hz) in addition to the automatic selection by the device.
- Fix and improve transducer handling if the electrode trunk cable and insert earphones have been used.
- Decrease the threshold of the trigger voltage in eABR for better compatibility with some CI fitting hardware (2.8.1).
- Trace labels in eABR saved for both ears (2.8.1).
- Reduced minimum number of averages (100) for eABR (2.8.2).

- **ASSR**

- Optimized timeouts for improved test performance, following the 1/f rule for human body noise to prolong the test time at lower frequencies and speed up the test at higher frequencies.
- Ask for user confirmation to enable excessive levels.
- A bug is fixed where certain settings in ASSR adaptive mode would not test up to the configured max level but stop 10 dB earlier. Example: min level 20 dB, max

level 80 dB, start level 50 dB would only test up to 70 dB even if no response is detected. FW 2.8.3 correctly proceeds to 80 dB in this example.

- **ECochG:**

Allow higher differences in impedances that might arise from different types of electrodes of up to 17 kΩ

- **Otoacoustic Emissions:**

- Improve robustness of the in-the-ear calibration in newborns' ears
- Show test level in the detail result of TEOAE measurements and at reports.
- Add new measurement module to record multiple spontaneous otoacoustic emissions (**SOAE**) at the same time binaurally in the range between 400 Hz and 9.6 kHz (order no.: 101316).
- Add new measurement module for research (upon request for evaluation only) to record TEOAE when contralateral acoustical stimulation is applied (**TE-CAS**)

- **Pure Tone Audiometry:**

- Add **2 channel tinnitus matching** measurement module. The **stimuli** (pure tone, pulsed tone, wobble, narrow band noise), **level** (1 dB step size) and **frequency** (range: 125 Hz to 10 kHz; step size: 0.1 Hz to 1 octave) can be set independently at each ear (order no.: 101317).
- Show "Tone Audiometry" sub menu button in main menu if tinnitus matching and pure tone audiometry (PTA) is activated.
- In PTA automated Hughson-Westlake test fix glitch that caused a threshold not being set at the maximum level, if it was already marked as not heard.
- Improve touch points and touch gesture detection during PTA measurements.

- **Vestibular Evoked Myogenic Potentials (VEMP)**

- New measurement module. Clinical use availability is depending on regulatory status in the different territories around the globe. Otherwise only for evaluation and research.
- cVEMP and oVEMP
- Stimulation via air conduction and via bone conduction
- EMG monitoring
- 5 presets preconfigured for cVEMP and oVEMP to enable quick startup of the test without the need of complicated configuration

- Click, Chirp and Tone burst stimuli
- Configurable tone bursts: frequencies from 500 Hz to 4kHz; linear or blackman window; different duration for onset, plateau and offset
- Polarity: Condensation, rarefaction, alternating, randomized; option to invert right ear trace polarity
- Free text labeling of traces
- Auto EMG scaling and amplitude calculation in PC-Software
- Compare any left and right ear measurement side-by-side in PC-Software

● **Miscellaneous**

- Updated and improved Ukrainian user interface translation.
- Add new user interface language: Kazakh
- Data transfer to tracking center: Ease transfer of test records that had been measured to an anonymous session.
- The availability of the function to edit the diagnosis status of a patient in newborn hearing screening and follow-up has been made configurable via central user management.
- The electrode cable test is now directly accessible from the functional checks menu.
- HHIE-S questionnaire: Fix result view after the test to correctly show the footer. The module is now enabled by a separate license.
- Polish MATCH version now included; upon request and for evaluation only.
- Under certain circumstances, the device did hang for some seconds in test preferences. Fixed now.
- The message box to inform the user about loud stimulus levels contains an additional icon to make it easier to understand.
- The patient search function has been extended to support more properties to search for, such as, recently selected, test date or test method.
- Speech in noise normative values included for German MATCH (2.8.1).
- Support scoring for additional speech tests in Recorded / CD-Player (2.8.1).
- Facility selection fixed when multiple facilities are available (2.8.1).
- Representation of specific French characters fixed (2.8.1).
- Add new headphone DD450 and support latest PD-81 (2.8.2).
For maximum the levels and the test modules supported by the headphones please see the latest technical details at the website: <https://www.pathme.de/downloads>

2. PC SOFTWARE

- **Mira:**

- Add article number (REF #) to software information dialog
- Improve reports to accurately scale graphs for computers using high resolution displays.
- GDT: add 2 additional 8402 field mapping schemas.
- Add new viewers and reports for VEMP and SOAE
- Introduce new simultaneous left and right result view for VEMP measurements
- Add Kazakh user interface translation (2.4.1).
- Add viewer for Tinnitus Matching module (2.4.1).
- Stimulus level information in TEOAE Diagnostic viewer fixed (2.4.1).
- Handling of GDT sender/receiver ID fixed (2.4.1).
- Update FTDI Chip drivers to version 2.12.36.4 (2.4.2).

3. IMPORTANT NOTICES

Please read the following important information carefully and make sure to inform your customers about this information.



PATH MEDICAL STRONGLY RECOMMENDS TO USE THE LATEST MIRA AND THE LATEST PATH SERVICE TOOL INCLUDING THE LATEST SPEECH SAMPLES AND FIRMWARE AND TO UPDATE ALL DEVICES WITH THE LATEST FIRMWARE BY USING MIRA OR THE PATH SERVICE TOOL UPDATE FUNCTION. PLEASE NOTE THAT SOME DEVICE TYPES ARE NOT RECOGNIZED BY OLDER MIRA AND PATH SERVICE TOOL VERSIONS.



WHEN UPDATING DEVICE FIRMWARE, THE TEST MODULE PARAMETERS ON THE DEVICE MAY BE RESET TO FACTORY PRESETS UNDER SPECIAL CIRCUMSTANCES (E.G. WHEN UPDATING DEVICES WITH FIRMWARE 1.6.4485 OR LOWER), I.E. INDIVIDUALLY SET TEST MODULE PARAMETERS MAY BE OVERWRITTEN. THEREFORE, PLEASE MAKE SURE TO KEEP TRACK OF INDIVIDUAL PARAMETERS BEFORE UPDATING THE FIRMWARE.

4. GENERAL INFORMATION

For service requests (i.e., technical or handling problems) regarding Senti and Sentiero hardware, firmware or software and related accessories and service tools please contact PATH MEDICAL service at service@pathme.de.

For further information about PATH MEDICAL products please refer to <http://www.pathme.de> or contact info@pathme.de.
