DPOAE (order #100110):
- Leak check: analysis of feedback signal (440 Hz probe tone)
- Probe check: limit of maximum sound pressure (“stimulus”), comparison across speakers (“symmetry”), leak check (“probe IP”)
- Calibration: influence calibration with earmold volume adjustment
- Noise detection: narrow band noise around 25 Hz
- Residual noise calculation: weighted averaging, summed weighting factors, artifact rejection: weighted averaging
- Response detection: Fast, Fast at a single point [FSP], automatic retest option
- Frequency ratio f2/f1: 1 to 22. Sample rate: 48 kHz (stimulus, response)
- Minimum DPOAE level criterion: L1 – 70 dB
- Measurement interval: 4096 samples
- Stimulus modes with Frequency-modulated DPOAE license: f1 = 1.416 Hz, modulation depth = 50 Hz/1 kHz, 100 Hz/4 kHz
- Multichannel DPOAE: simultaneous measurement of DPOAEs at up to two f1 frequencies at a time
- Frequencies f1: 1, 1.5, 2, 3, 4, 5, 6, 8 kHz
- Logarithmic: 0 to 10 kHz (step size: 0.5 kHz from 1 to 10 kHz), steps 10 to 1000 Hz (step size: 10 Hz)
- Linear: 0 to 10 kHz (step size: 0.5 kHz from 1 to 10 kHz), steps 1 to 1000 Hz (step size: 1 kHz)
- Automatic reflex threshold and reflex decay testing
- Ipsilateral and contralateral reflex
- 5 Vpp, 32 Ω Power consumption: max. 2 W.
- Multi-frequency tympanometry (4 tones at once)
- Diagnostic and screening protocols, presets, configurable
- Pressure range: -600 to +400 daPa
- Auto stop function, manual control, 3D graph, cartoon mode
- Y/B/G components view (admittance, susceptance, conductance)
- Simultaneous OAE measurement on left/right ear - 2 probes!
- Results can be sorted by birthdate, name, ID, examiner, date, time
- Interface to wireless modem for data transfer to PATHTRACK
- Optional Database Software (MIRA) - Data Management
- Results and test reports can be printed to the MIRA database via USB
- Results can be sorted by birthdate, name, ID, examiner, date, time
- Display of 3D graph available
- Children entertainment mode - the new pilot test
- Optional Database Software (MIRA) - Data Management
- Results and test reports can be printed to the MIRA database via USB
- Results can be sorted by birthdate, name, ID, examiner, date, time
- Children entertainment mode - the new pilot test

DPOAE (order #100111):
- Noise detection: test mean square (RMS) of non-stimulus intervals
- Residual noise calculation & artifact rejection: weighted averaging
- Response detection: TEOQUICK: 8 values with changing sign fulfilling a 3 sigma criterion (representing 99.7% statistical significance)
- TEOAE Diagnostic: user defined stop criterion [SNR: 6 or 9 dB] in 3, 4, or 5 out of 5 frequency bands (1, 1.5, 2, 3, 4 kHz)
- Sample rate: 48 kHz (stimulus), 16 kHz (response)
- Window of analysis: 5 to 13 ms poststimulus
- Stimulus level: 85 dB peSPL
- Stimulus level: 20 to 65 dB SPL (automated threshold detection)
- Multi-frequency Tympanometry:
  - Traditional tympanometry with linear and logarithmic scale
  - Broadband, High and low pass noise stimulus up to 105 dB HL
  - Ipsilateral and contralateral reflex
  - Y/B/G components view (admittance, susceptance, conductance)
  - Auto stop function, manual control, 3D graph, cartoon mode
  - Pressure range -600 to +400 daPa
  - Multi-frequency tympanometry (4 tones at once)
  - Diagnostic and screening protocols, presets, configurable
  - Pressure range: -600 to +400 daPa
  - Auto stop function, manual control, 3D graph, cartoon mode
  - Y/B/G components view (admittance, susceptance, conductance)
  - Ipsilateral and contralateral reflex
  - Simultaneous OAE measurement on left/right ear - 2 probes!
  - Results can be sorted by birthdate, name, ID, examiner, date, time
  - Interface to wireless modem for data transfer to PATHTRACK
  - Optional Database Software (MIRA) - Data Management
  - Results and test reports can be printed to the MIRA database via USB
  - Results can be sorted by birthdate, name, ID, examiner, date, time
  - Children entertainment mode - the new pilot test

TEOAE (order #100109):
- Noise detection: test mean square (RMS) of non-stimulus intervals
- Residual noise calculation & artifact rejection: weighted averaging
- Response detection: TEOQUICK: 8 values with changing sign fulfilling a 3 sigma criterion (representing 99.7% statistical significance)
- TEOAE Diagnostic: user defined stop criterion [SNR: 6 or 9 dB] in 3, 4, or 5 out of 5 frequency bands (1, 1.5, 2, 3, 4 kHz)
- Sample rate: 48 kHz (stimulus), 16 kHz (response)
- Window of analysis: 5 to 13 ms poststimulus
- Stimulus level: 85 dB peSPL
- Stimulus level: 20 to 65 dB SPL (automated threshold detection)
- Multi-frequency Tympanometry:
  - Traditional tympanometry with linear and logarithmic scale
  - Broadband, High and low pass noise stimulus up to 105 dB HL
  - Ipsilateral and contralateral reflex
  - Y/B/G components view (admittance, susceptance, conductance)
  - Auto stop function, manual control, 3D graph, cartoon mode
  - Pressure range -600 to +400 daPa
  - Multi-frequency tympanometry (4 tones at once)
  - Diagnostic and screening protocols, presets, configurable
  - Pressure range: -600 to +400 daPa
  - Auto stop function, manual control, 3D graph, cartoon mode
  - Y/B/G components view (admittance, susceptance, conductance)
  - Ipsilateral and contralateral reflex
  - Simultaneous OAE measurement on left/right ear - 2 probes!
  - Results can be sorted by birthdate, name, ID, examiner, date, time
  - Interface to wireless modem for data transfer to PATHTRACK
  - Optional Database Software (MIRA) - Data Management
  - Results and test reports can be printed to the MIRA database via USB
  - Results can be sorted by birthdate, name, ID, examiner, date, time
  - Children entertainment mode - the new pilot test

Audiometry (order #100113):
- Full 2 channel diagnostic audiometer [DIN EN 60645-1 class 3]
- Air - bone - masking
- Children audiometry options (MAGIC #100112, MATCH #100356, BASO, many more)
- Speech
- Multiple transducer options including circumaural headphones, insert phones and bone conduction. Multiple upgrades available.
- Multi-frequency Tympanometry:
  - Traditional tympanometry with linear and logarithmic scale
  - Broadband, High and low pass noise stimulus up to 105 dB HL
  - Ipsilateral and contralateral reflex
  - Y/B/G components view (admittance, susceptance, conductance)
  - Auto stop function, manual control, 3D graph, cartoon mode
  - Pressure range -600 to +400 daPa
  - Multi-frequency tympanometry (4 tones at once)
  - Diagnostic and screening protocols, presets, configurable
  - Pressure range: -600 to +400 daPa
  - Auto stop function, manual control, 3D graph, cartoon mode
  - Y/B/G components view (admittance, susceptance, conductance)
  - Ipsilateral and contralateral reflex
  - Simultaneous OAE measurement on left/right ear - 2 probes!
  - Results can be sorted by birthdate, name, ID, examiner, date, time
  - Interface to wireless modem for data transfer to PATHTRACK
  - Optional Database Software (MIRA) - Data Management
  - Results and test reports can be printed to the MIRA database via USB
  - Results can be sorted by birthdate, name, ID, examiner, date, time
  - Children entertainment mode - the new pilot test

Additional features:
- Simultaneous OAE measurement on left/right ear - 2 probes!
- Results can be sorted by birthdate, name, ID, examiner, date, time
- Interface to wireless modem for data transfer to PATHTRACK
- Patient demographics on device
- Optional Database Software (MIRA) - Data Management
- Easily view, archive and export test results
- Transfer test results to the MIRA database via USB
- Easily attach test results to patient records with many EMR systems
- Export full-color, 8.5" x 11" reports in multiple formats, with graphic and tabular data, preset or free comments
- Noah compatible
- Entertainment mode for all
- Noah compatible
- Automatic reflex threshold and reflex decay testing

Multi-frequency Tympanometry:
- Simultaneous recording of 220 Hz, 678 Hz, 800 Hz and 1000 Hz Tympanometry: instantaneous results with only one button press
- Display of 3D graph available
- Children entertainment mode - the new pilot test

Additional features:
- Simultaneous OAE measurement on left/right ear - 2 probes!
- Results can be sorted by birthdate, name, ID, examiner, date, time
- Interface to wireless modem for data transfer to PATHTRACK
- Patient demographics on device
- Optional Database Software (MIRA) - Data Management
- Easily view, archive and export test results
- Transfer test results to the MIRA database via USB
- Easily attach test results to patient records with many EMR systems
- Export full-color, 8.5" x 11" reports in multiple formats, with graphic and tabular data, preset or free comments
- Noah compatible
- Entertainment mode for all
- Noah compatible
- Automatic reflex threshold and reflex decay testing

Technical Specifications:
- Device dimensions: 150 x 210 x 45 mm, ca. 4.3 kg, Display: 240 x 320 px, graphic LCD 5", resistive touch screen, real-time clock, piezo-electric sound generator, USB, Output voltage and nominal impedance (headphone socket) 5 Vpp, 32 Ω Power consumption: max. 2 W
- Memory capacity: up to 1000 patients, ca. 1000 tests (dependent on test type)
- Additional technical specifications can be found in the detailed technical manual [rev. 11 per 08/2017] available online https://pathmedical.de/support/#manuals

The world’s first integrated OAE, tympanometry and audiometry device.

Diagnostics made portable!

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info@path-medical.de / www.path-medical.de
A FULL ASSESSMENT OF MIDDLE EAR REFLECTANCE AND CONDUCTANCE CAN BE MADE EASIER WITHOUT WIDEBAND REFLECTANCE DEVICES

The most common probe tone frequency used in tympanometry is 226 Hz. Using 226 Hz, well known and categorized tympanogram shapes can be obtained. When testing infants younger than four months, a probe tone frequency at 1000 Hz is recommended. For many pathologies, the optimal probe tone frequency is not a well established value. Multifrequency tympanometry can improve on middle ear diagnostics, but can be time consuming with analysis sometimes not occurring immediately. However a subset of multifrequency information – based on the relevant and well established frequencies - can help in daily practice to speed up and improve the diagnostics. Therefore PATH MEDICAL introduced the simultaneous stimulation of 226 Hz, 678 Hz, 800 Hz and 1000 Hz while testing tympanometry. In a single recording four different traces are obtained and ready for immediate interpretation. No need to spend more time or money for post processing of 3D graphs to receive the reports which are used for diagnostics. And besides: 3D graphs are available on SENTIERO too.

Remote control and live display of results!

Database Software and Data Management

Easily view, archive and export test results:

- With the MIRA database you can transfer the SENTIERO test data in seconds via USB cable from device to MIRA through communication software
- Export full-color, 8.5” x 11” reports in multiple formats, with graphic and tabular data, allows for preset comments to be selected or add text and test information—perfect for consulting with parents, colleagues and for record keeping
- Easily attach test results to patient records within most EMR systems
- Remote display of results on your PC / monitor using the MIRA remote control
- Allows inputting patient demographics onto the device
- NOAA compatible
- Stores up to 1000 patients on the device
- Results can be sorted by birthdate, name, patient ID, examiner, date and time.
- Direct print from your device to pdf

Technology Leader in Otoacoustic Emissions

OPTIMAL DPOAE STIMULATION...

...is required in order to detect the DPOAE amplitude easily in noisy environments. Optimal combinations of level and frequency ratio are needed in order to record DPOAE amplitudes with good signal to noise ratio (SNR) higher than 6dB and amplitude higher than -5dB. PATH MEDICAL co-founder Dr. T. Janssen detected the advantages of using the optimal stimulus paradigm (Scissor Paradigm) in 1998. The Scissor Paradigm produces easy and robust detection of DPOAE responses. The technology is applied to a patented method in SENTIERO to produce a full cochlear audiogram.

FREQUENCY MODULATION IS USED TO REDUCE FINE STRUCTURE!

Applying FMDPOAE® eliminates all notches in the fine structure diagram displayed above. It is important to note that even a simple screening DPOAE would not have passed at the "notch frequencies" without the patented FMDPOAE® method. A priori, frequencies of notches are unknown, but often in the region of standard screening frequencies. Consequently FMDPOAE® enhances robustness and speed of DPOAE screening and diagnostic recordings.

BINAURAL AND MULTIFREQUENCY OAE:

- FMDPOAE® with frequency modulated stimulus: two pairs of frequencies can be tested at the same time per ear (multiple channel testing)
- Binaural DP-testing: both ears at the same time
- Up to four times faster than competition!
- Binaural TEOAE in screening mode or diagnostic mode.

Probes are colour-coded to provide the user with easy probe selection, left (blue) and right (red) when testing binaurally. The device detects the probes easily in noisy environments. Predefined comments can be selected or added to the test information. The device is automatically calibrated when inserted – keeping calibration information always updated.

MULTIPLE CONFIGURATIONS AVAILABLE - SAVE MONEY AND ORDER A BUNDLE. FUTURE UPGRADES ARE AVAILABLE TOO!

- order # 100497-US6
  Multi-frequency tympanometry class 1 incl. TEOAE (per US6) and binaural DPOAE & TEOAE.
- order # 100497-US7
  Full features (as per US6) & DPThresh-old (per US7) and binaural DPOAE & TEOAE.
- order # 100497-US8
  Full features (as per US6) & DPThresh-old (per US8) and binaural DPOAE & TEOAE.
- order # 100497-US9
  Full features (as per US6) & DPThresh-old (per US9) and binaural DPOAE & TEOAE.