

# Titan

Middle Ear Analyzer



*Fast, multi-purpose  
and portable*



**Interacoustics<sup>®</sup>**

leading diagnostic solutions

# Titan

## Middle Ear Analyzer

### “Ready, Get Set, GO!”

A short window of opportunity? Getting a middle ear analysis done is not always easy. Higher patient volumes and the growing demand for more efficient work routines demand strict requirements for every element involved in the clinic - including instrumentation. Titan is designed to help!

Titan is a compact middle ear analyzer with all the functions and flexibility in a remarkably portable device. As a tool, Titan emphasizes ease-of-use and speed without compromising test flexibility and reliability.

#### Full test battery

Titan spans the complete test battery range, from screening to clinical. Titan's hardware platform has been specially designed to accommodate future enhancements and upgrades.

Furthermore, Titan's revolutionary new pump design yields unprecedented performance. Its “endless airflow” concept enables the clinician to complete tests without resetting, facilitating results even under the toughest testing conditions.

#### Easy handling

Titan's slim neck and lightweight form allow for easy use in handheld mode. Together with its contemporary design, Titan suggests a professional appearance in the clinic. The high-resolution color display provides an excellent overview of test progress and results.

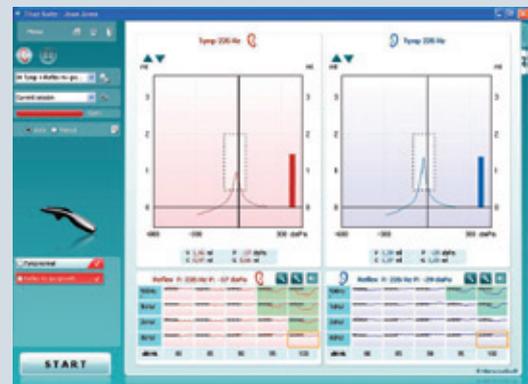
The various available probe configurations enable a strong focus on patient-centered testing, toward the aim of achieving consistently reliable measurements - all with little need for user attention to the underlying technology. Test status is always viewable by LEDs on the probe. A small shoulder-mounted unit allows easy choice of ear and test start/stop. Additionally, calibration values are stored in the probe itself, allowing easy changes of probe configuration and significantly reducing clinic down time should the probe ever need to be replaced.

#### PC integration

Besides handheld use, Titan can also be operated through a PC software suite. There the clinician can adapt the instrument to specific needs by customizing protocols, displays, and printouts. From the PC, the clinician can perform the entire test battery, or exchange patient and session data with the handheld instrument for full portability. The intuitive user interface makes the PC application easy to navigate and use.

#### Bottom-line

**Titan - a robust solution to help your practice perform more effectively!**



#### Titan

- Portable and lightweight
- Fully customizable
- Complete clinical test battery
- Flexible printout with .PDF capability
- Integrated and customized display and reporting
- PC integration and standalone option

# Portability

## Power on the move!

To fully accommodate the variety of clinic circumstances and testing needs, Titan provides a strong, flexible platform in a remarkably compact, portable design - a small, lightweight unit with yet many configuration options.

## Functional design

Titan's design is both attractive and functional, conveying clinic professionalism with a contemporary appearance. Indeed, Titan assures a comfortable testing environment. Its truly lightweight (360 grams/0.8 lbs) design makes it ideal to take on ward rounds, to share among multiple exam rooms, or to take on the road.

## Power for the long haul

Titan takes advantage of the latest battery technology to enhance its portability. The hardware platform has been optimized to provide up to 3½ hours of continuous test time on a single charge - more than enough power for several days' testing in a busy clinic. The compartment for the single battery is easily accessible for quick replacement. The cradle incorporates a separate charging station, meaning that Titan is always ready to perform.

## Memory

Titan's built-in memory holds up to 250 patients' test data before a transfer is required. Patient information can be uploaded to the unit in advance for quick pairing of session data and easy transfer to a database upon return to the clinic.

## Carrying case

Titan's portability is further enhanced by a convenient and lightweight carrying case.



*Titan carrying case*



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### *Everything you need!*

Titan is a flexible platform configurable to range from quick screening to advanced clinical testing. The test battery features standard tympanometry, ipsi- and contralateral acoustic reflexes, reflex decay and reflex latency, as well as three Eustachian tube function tests. Together with optional high frequency probe tones (678, 800 and 1000 Hz), Titan is designed to meet and perform the most demanding of clinical testing requirements, such as infant testing.

Besides coming preloaded with factory protocols, each of the tests included can be independently set up and freely integrated into one's own test sequences to reflect local clinical preferences.

#### **Tympanometry**

Interacoustics utilizes two beneficial advanced technologies to acquire tympanograms. The first is an "endless airflow" technology which improves the instrument's ability to obtain a tympanogram on difficult-to-test patients or when a slight leak is present. Titan is always immediately ready to start a new measurement. The second is an intelligent pump control system with an adaptive speed control around the tympanic peak. This feature, combined with high-resolution recording of both compliance and pressure level, provides the fastest and most reproducible tympanometry measures available.

#### **Acoustic reflex test**

Acoustic reflexes are measured ipsi- and contralaterally (through headphone or insert phone). Protocols can be set up for quick screenings at a single intensity or for fast reflex threshold searches. If yet more testing is needed, the clinician can then manually select individual stimulus types at various intensity levels.

If needed, Titan corrects reflex stimulus intensities using automatic gain control. Thus, even in the smallest ears, reflex stimulation is performed at a safe intensity.

#### **Reflex Decay**

Acoustic reflex decay testing is available with ipsilateral as well as contralateral stimulation. Titan is configurable with a single headphone (TDH39), or, for stimulating the contralateral ear, an insert receiver, the CIR55 or the optional 3A is available.

#### **Reflex latency**

The reflex latency test focuses on the first few hundred milliseconds of the acoustic reflex. It allows a detailed investigation of the onset of the reflex as a function of stimulus type and intensity. As in decay testing, Titan will automatically search for the reflex threshold if that is not yet known, and perform the ipsi- or contralateral stimulus 10 dB above the threshold level.

#### **Three Eustachian tube function tests**

Titan performs three different Eustachian Tube Function tests for different conditions of the eardrum and Eustachian tube: ETF for intact eardrum, ETF for perforated eardrum, and ETF for a patulous Eustachian tube. Each test sequence is preceded with appropriate instructions. In addition to recording information about Eustachian tube function, the third ETF test is suitable for measuring spontaneous changes in the middle ear system; for example, due to heart beat pulsation in a glomus tumor. Acoustic reflexes evoked by a cochlear implant can also be easily measured.

#### **Extension cord with shoulder unit and probe indicator LED**

At times when the clinician cannot step away from the patient, the extension cord with the shoulder unit enables full operational control (ear choice, start/stop). The LED indicates if the probe is sealed correctly or blocked. A short flash, in the selected ear color, indicates that Titan has finished measuring.



### **Clinical highlights**

- *Automatic and manual testing*
- *High frequency probe tones (678, 800 and 1000Hz)*
- *Ipsi and contra acoustic reflexes*
- *3 ETF tests: Intact, perforated and patulous*
- *Reflex decay*
- *Reflex latency*



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## Middle Ear Analyzer

# Reporting and printing

Titan sets the standard for modern audiology clinics. It enables results to be output in electronic form to EMR systems or to be easily shared over a network. This means that information can follow the patient between departments and specialists.

### Design your own reports

Although electronic communication plays an increasing role in audiology, the printed report is still important. The Titan software suite includes an embedded print wizard, a very flexible tool enabling the realization of individual reporting needs, as well as adherence to internal reporting and archiving structures to streamline clinic workflow.

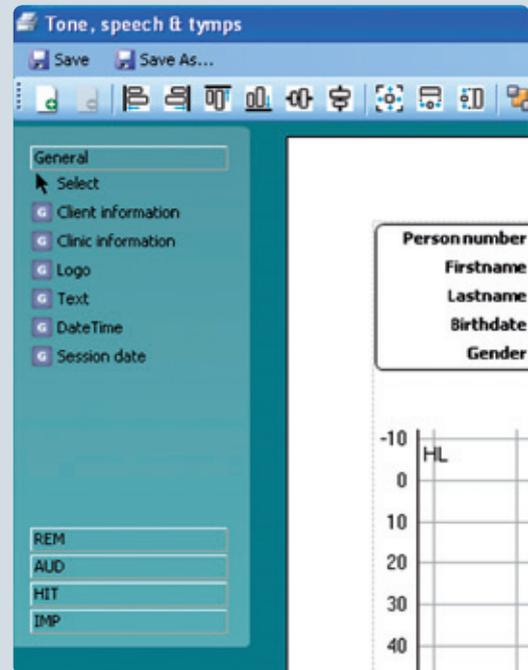
The print wizard can merge audiometric and impedance data for full patient reporting. Once completed, test data is automatically routed to predefined templates, eliminating redundancy and the labor intensive tasks routinely involved in getting all information presented on a single page. Reports can either be printed or saved as .PDF's for insertion into EMR systems.

### Printing Options

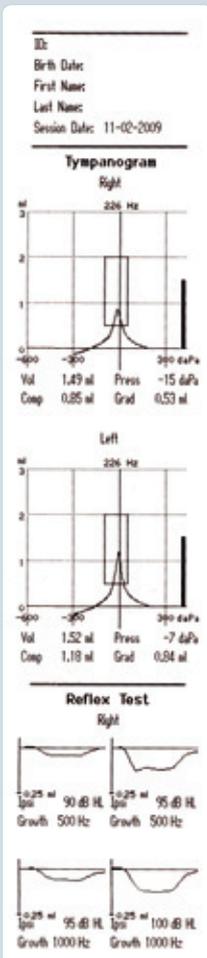
A fast thermal printer is available as an option for handheld use, connectable by wire or Bluetooth. It is also possible to make a direct printout on HP A4 printers (Officejet H470, HP Deskjet 6940) via the BlueTooth connection from the handheld unit.

### Integrated database

Titan transfers all results to OtoAccess™ or a NOAH3 compatible database. There is no data transcription required, and results are immediately available in other departments. And reports can just as easily be emailed to colleagues.



Merge and configure input from different sources in the Print Wizard



Printout from Titan via the optional printer

### Reporting highlights

- Customizable print-outs
- NOAH3 and OtoAccess™ compliant
- EMR integration
- Portable printer option

# Comprehensive reporting

Retrieve patient demographics from OtoAccess™ and NOAH

Person number: 1234567890  
 Firstname: Joan  
 Lastname: Jones  
 Birthdate: 05-05-1962  
 Gender: Female

Interacoustics A/S  
 Drejervejnet 8  
 DK - 5610 Assens  
 Denmark

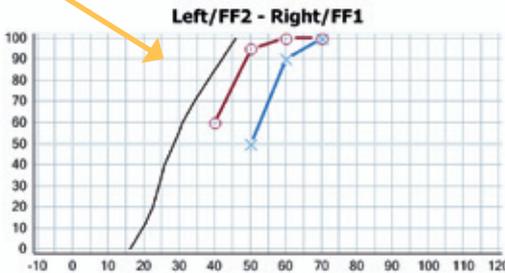
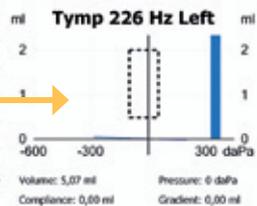
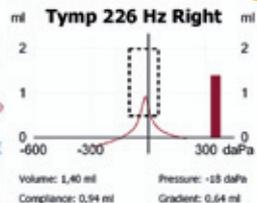
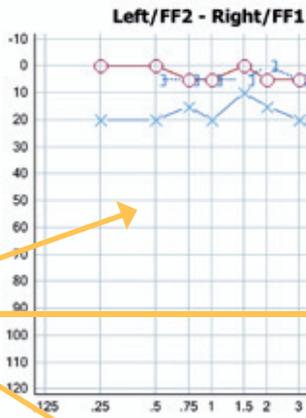


BHP 12-02-2009  
 AUD 12-03-2009

Insert bitmaps such as clinic logo

Individual session dates

Merge audiometric and impedance test data on a single page



Text field for session observations and conclusions

Both left audiogram and tympanogram fit to the known perforation.  
 John Smith  
 Clinical audiologist

|     | Right | Left | Score R | Score L | FF1 | FF2 |
|-----|-------|------|---------|---------|-----|-----|
| HL  | O     | Δ    | X       | <       | >   | ○   |
| UCL | m     | □    | □       | □       | □   | □   |

Highly configurable symbols for quick reference

# Titan

## Middle Ear Analyzer

### Create your own Titan

Don't let the equipment dictate how to optimize your day. Create your own Titan and let it support you instead! From its foundation, the Titan platform was designed to provide a seamless tool for almost any test situation imaginable.

#### Hardware configurations

Whether your current instrument is too bulky to carry around and use handheld or is taking up too much clinic space, Titan, by design, is more accommodating of your own work flow and clinic space. The embedded flexibility to use Titan as a desktop or wall-mounted unit, or simply to put it in your pocket as a handheld unit, allows you to focus on the patient, wherever they may be.

#### Protocol designer

Titan can be set up to support local work routines, hence optimizing the time spent on testing. This enables multiple users to make test selections suitable for their individual applications. User-defined protocols are saved under a unique name for easy recall via a drop-down menu. Protocols can easily be shared across multiple computers or Titan units, to enhance consistency. Larger clinics or dispensing facilities will find this feature particularly useful as protocols can be transferred to multiple sites over the internet. Customized protocols can even be modified on the fly, while testing, to ensure full acquisition of relevant information.

#### The Titan probe

Titan comes with a flexible probe system easily interchanged for screening and clinical testing purposes. The screening probe tip is ideal for quick tymps, while the clinical probe provides more stability and flexibility for more lengthy exams that include tymps, reflexes, reflex decay and ETF. The clinical version has an integrated shoulder unit for easy control of test progress while focusing on the patient. The shoulder unit easily clips onto the patient or pillow, thus freeing both hands during probe insertion. Titan's ingenious probe design holds all calibrations values, facilitating easy changes of configuration or replacement.

#### Create your Titan

- Desktop, wall-mounted or handheld
- Customizable test procedures
- Modular concept
- Flexible probe system

*The light indication in the probe is guide for probe status and ear.*



# The complete solution



# Titan

## Specifications

### Impedance Measuring System

**Probe tone:** Frequency: 226 Hz and optionally 678 Hz, 800 Hz and 1000 Hz  
Level: 69 dB HL with AGC, assuring constant level at different ear canal volumes.

**Air pressure:** Control: Automatic.  
Indicator: Measured value is displayed on the graphical display.  
Range: -600 to +300 daPa.  
Pressure limitation: -750 daPa and +550 daPa.  
Pressure change rate: Very slow, Slow, Medium, Fast, Automatic with slow speed at compliance peak. Selectable in the set-up.

**Compliance:** Range: 0.1 to 8.0 ml at 226 Hz probe tone (Ear volume: 0.1 to 8.0 ml) and 0.1 to 15 mmho at 678, 800 and 1000 Hz probe tone.

**Indicators:** Graphical display Compliance is indicated as ml and pressure as daPa. In PC-controlled mode admittance, susceptance and conductance can be printed.  
Stimulus level is indicated as dB Hearing Level.

**Memory:** Tympanometry: 1 curve per ear per tympanometry test. 3 curves per ear per Eustachian tube function test. And theoretically an infinite number of tests per protocol.

| Test types:   | Screening | Diagnostic | Clinical |
|---|-----------|------------|----------|
| • Tympanometry Automatic (flexible start and stop pressure)                                 | x         | x          | x        |
| • Tympanometry Manual   | -         | -          | x        |
| • ETF1 – Non perforated eardrum (Williams test)   | n/a       | x          | x        |
| • ETF2 – Perforated eardrum (Toynbee test)  | n/a       | n/a        | x        |
| • ETF3 – Patulous Eustachian tube (Sensitive baseline tympanometry for 10 up to 60 seconds) | n/a       | n/a        | x        |

### Reflex Functions

**Signal sources:** Tone - Contra, Reflex: 250, 500, 1000, 2000, 3000, 4000, 6000, 8000 Hz.  
Tone - Ipsi, Reflex: 500, 1000, 2000, 3000, 4000 Hz.  
NB noise - Contra, Reflex: 250, 500, 1000, 2000, 3000, 4000, 6000, 8000 Hz.  
NB noise - Ipsi, Reflex: 1000, 2000, 3000, 4000 Hz.  
Noise - Contra, Reflex: Wide Band, High Pass, Low Pass.  
Noise - Ipsi, Reflex: Wide Band, High Pass, Low Pass.

**Outputs:** Contra Earphone: TDH39 earphone, EARTone 3A and/or CIR55 insert for Reflex measurements.  
Ipsi Earphone: Probe earphone incorporated in the probe system for Reflex.

| Test types:  | Screening | Diagnostic | Clinical |
|--|-----------|------------|----------|
| • Automated Reflex with single intensities or reflex growth  |           |            |          |
| - Ipsilateral  | x         | x          | x        |
| - Contralateral  | n/a       | x          | x        |
| • Manual control of all reflex functions   | x         | x          | x        |
| • Reflex decay, automatic 10 dB above threshold or manually controlled with stimulus duration of 10 up to 30 s | n/a       | x          | x        |
| • Reflex latency, automatic 10 dB above threshold or manually controlled, first 300 ms from stimulus start     | n/a       | n/a        | x        |

|   |   |            |          |
|---|---|------------|----------|
| <b>USB:</b>                             | Input/output for computer communication. Titan can be fully operated from PC. The measurements can then be followed on PC screen. Data can be sent to and saved on the PC and stored in OtoAccess™. |            |          |
| <b>Printer</b>                          | Optional thermal printer (wired or BT) as well as print option through PC suite. Possibility of printout on HP A4 printers (Officejet H470, HP Deskjet 6940) via Bluetooth                          |            |          |
| <b>Compatible Windows software:</b>     | Interacoustics Database OtoAccess™ and NOAH3  |            |          |
| <b>Power supply:</b>                    | ASA30M – 0301   |            |          |
| <b>Consumption:</b>                     | 0,8 – 0,4 A   |            |          |
| <b>Dimensions/weight:</b>               | (LxWxH) 6x6x28cm/2.4x2.4x11inch. Weight: 360 grams/0.8 lbs  |            |          |
| <b>Impedance standard:</b>              | IEC 60645-5/ANSI S3.39, Type 1  |            |          |
| <b>Safety standard:</b>                 | IEC 60601-1, Class I, Type B.   |            |          |
| <b>Medical CE-mark:</b>                 | Yes   |            |          |
| <b>Included parts Titan:</b>            | Screening   | Diagnostic | Clinical |
| Titan handheld unit with basic probe    | x   | x          | x        |
| Cradle                                  | optional  | x          | x        |
| ASA30M Power supply (with converter)    | x   | x          | x        |
| Clinical probe extension                | optional  | x          | x        |
| CIR55 contra insert headset             | n/a   | x          | x        |
| BET55 Ear tips and box                  | x   | x          | x        |
| DG – LiBat – 001 back-up battery        | x   | x          | x        |
| 4 cavities (0.2, 0.5, 2 and 5cc)        | x   | x          | x        |
| Titan PC suite with IMP440              | x   | x          | x        |
| OtoAccess™                              | optional  | x          | x        |
| Operation manual                        | x   | x          | x        |
| Multilingual CE manual                  | x   | x          | x        |
| TCB Carrying Bag                        | x   | x          | x        |
| <b>Optional parts Titan:</b>            | optional  | optional   | optional |
| Short probe extension                   | optional  | optional   | optional |
| Thermal printer AB1310/AB1310 Bluetooth | optional  | optional   | optional |
| TDH39 contra cup headset                | n/a   | optional   | optional |
| EARTone 3A insert headset for contra    | n/a   | optional   | optional |



Read more here:  
[www.interacoustics.com/com/Titan](http://www.interacoustics.com/com/Titan)



**Interacoustics®**

leading diagnostic solutions

### Interacoustics – the best choice

With over 40 years of experience, Interacoustics is dedicated to supplying its customers with the best possible solutions for their audiologic needs. This is accomplished by maintaining a continuous dialogue with healthcare professionals working in all sectors of audiology. Our equipment meets the highest possible engineering standards and we provide design know-how that can only come from close contact with clinical practice.

### Solutions on every scale

Designing equipment for every size clinic in so many countries puts us in the unique position of being able to offer solutions that fit your requirements exactly. Audiometry, tympanometry, electrophysiology, hearing aid testing, and balance investigation are all within our scope and can be integrated to suit your needs.

### Design for diagnosis

We design equipment to make testing and interpretation easier. This means better interfaces, well designed screen layouts, printed reports and interaction over networks with databases and electronic records systems. In most cases, you can configure the settings and layout yourself.

### Support worldwide

The Interacoustics name is not only your guarantee of quality and functionality, but also for support. We operate in over 100 countries worldwide through a well coordinated network of distributors and service centres to ensure that you receive total support and service.



### Other middle ear analyzers:

- AT235 Middle Ear Analyzer
- AT235h Middle Ear Analyzer
- MT10 Handheld Tympanometer



### Audiometry and Middle Ear Analyzer in one:

- AA222 Audio Traveller

### Other relevant products from Interacoustics:

- Equinox<sup>2.0</sup> Clinical PC-based Audiometer
- Affinity<sup>2.0</sup> Hearing Aid Analyzer

### Sales and service in your area:

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Read more here:  
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