



PILOT Diagnostic Center

Modular diagnostics system

otopront®



PILOT Diagnostic Center: Endoscopy, imaging and diagnostics

Over 25 years of experience in video endoscopy and diagnostics

Since the introduction of the portable endoscopy system PES in 1999, Otopront has successfully developed video endoscopy and diagnostic systems to complement the ENT workstation. Meanwhile, these groundbreaking systems have become an indispensable function of the ENT workstation.

The PILOT Diagnostic Center meets all the diagnostic needs of a modern ENT workstation. All modules are available individually and can be assembled to the respective needs of the patient. The plug & play design concept allows an extension or upgrade at any time. In addition to the basic video endos-

copy unit, stroboscopy, tympanometry, sonography and video nasopharyngoscope (CHIP-ON-THE-TIP) can be added modularly.

Our systems can easily be integrated into the workplace as a stand-alone system without the need of a fully equipped trolley. The system is open for seamless integration into the HIS of the hospital or practice by DICOM/HL7 or GDT. Functions such as patient administration or video processing are easy to operate, partly via touch screen and voice control.



CONFIGURATION OPTIONS

Endoscopy Basic System



PILOT 15"
PILOT Diagnostic
Center



PILOT 9"

+

Cameras

+

Full HD endoscopy camera

Option
4K
ULTRA HD



2nd Full HD camera for
automatic integration
of the microscope image

Option
4K
ULTRA HD



CHIP-ON-THE-TIP
Video-Nasopharyngoscope VN-1



CHIP-ON-THE-TIP
Video-Nasopharyngoscope VN-S



Carts

+



PILOT STROBO
CART

Integration

DICOM
conformance
statement

HL7

GDT
integration

HIS

LED-light sources

LED light sources



LED strobe
light source



+

Diagnostic

TYMP module



DIGITAL 5 module



Sonography
module



+

Software and Performance Options

Scientific package



Voice letter

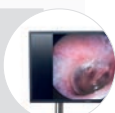


Carts-accessories

UPS for
Strobo Cart



27" Screen
for Strobo Cart



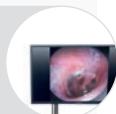
Drawer



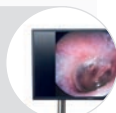
+

Screens

19" Screen



27" Screen



50" Screen



+

General accessories

Medical grade
keyboard



1TB hard disk



Protective covers
for VN-S and VN-1



Endoport for
Zeiss OPMI® pico



PILOT DIAGNOSTIC CENTER



Modular design in plug & play technology

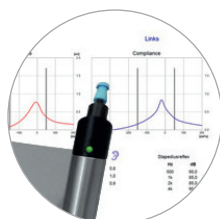
The PES PILOT HDpro can be upgraded directly at your workplace to a compact but complete diagnostic system. In addition to the Full HD (optional 4K) camera, it can be retrofitted with

our proven components such as LED stroboscopy, tympanometry (TYMP) and A-sonography (DIGITAL 5 module). All findings can be archived in a patient database.



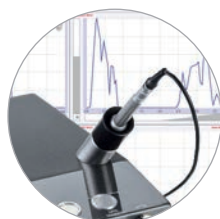
STROBOSCOPY module

- + Freely adjustable high-power LED
- + kHz and dB indication integrated in the video
- + Frame-by-frame analysis, image extraction



TYMP module

- + Fully automatic impedance measurement
- + Compliance measurement in only two seconds
- + Exact automatic measuring system allows one-hand operation



DIGITAL 5 module

- + Ultrasound procedures: A-mode, 4.25 MHz
- + Amplification infinitely variable (65 - 120 dB)
- + Optional single image or comparison image display



SONOGRAPHY module

- + Frequency range 6.0-11 MHz
- + Examination modes: B, M, 2B, THI, Color, Power, PW
- + Excellent image quality in pocket size



CHIP-ON-THE-TIP-CAMERA

- + High resolution bright and colour-true pictures
- + Operation via touch screen or foot pedal
- + FEES and general studies on dysphagia

4K
ULTRA HD

Full HD
1080p

CMOS
chip-
technology

DICOM
conformance
statement

HL7

GDT
integration

HIS

PES PILOT HDpro stroboscope



Professional image quality for phoniatrists

For the PES PILOT HDpro stroboscope, our well-known video endoscopy system, was supplemented by a highly efficient LED stroboscopy light. This enables extremely short exposure times, which in combination with the Full-HD camera delivers razor-sharp images of the vocal folds. The PES PILOT HDpro is a professional stroboscopy system yet in a compact format.

The PES PILOT HDpro stroboscope can be operated intuitively, is equipped with a frame-by-frame analysis and can be connected via DICOM. The PILOT software has been enhanced with useful stroboscopy features. Captured videos can be analysed frame-by-frame, played back in ultra slow motion and cut later. Photos can then be extracted from video – including dB and Hz numbers.

Flexible positioning due to compact dimensions

The PES PILOT HDpro stroboscope can be expanded into an equipment trolley. This allows a flexible use in outpatient rooms, changing treatment rooms or next to a patient's bed. The optional UPS battery guarantees uninterrupted work while swapping rooms.



Complete functionality

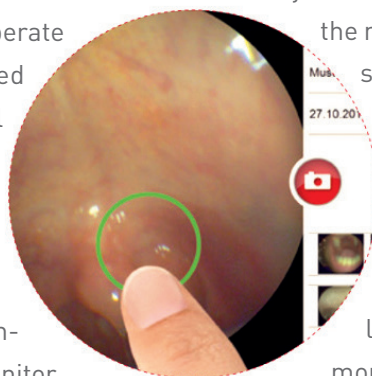


The software can be operated intuitively. The photo/video acquisition is made by a simple click on the foot switch or by trigger on the touchscreen. The findings can then be marked directly with the finger on the touchscreen. All functions, such as image selection or zoom, can be operated by using standard finger gestures or alternatively controlled by mouse.

The system is ready for the automatic exchange of patient data with the hospital/practice information systems using DICOM/HL7 and GDT standards.

Optimal handling - in workplace and outpatient setting

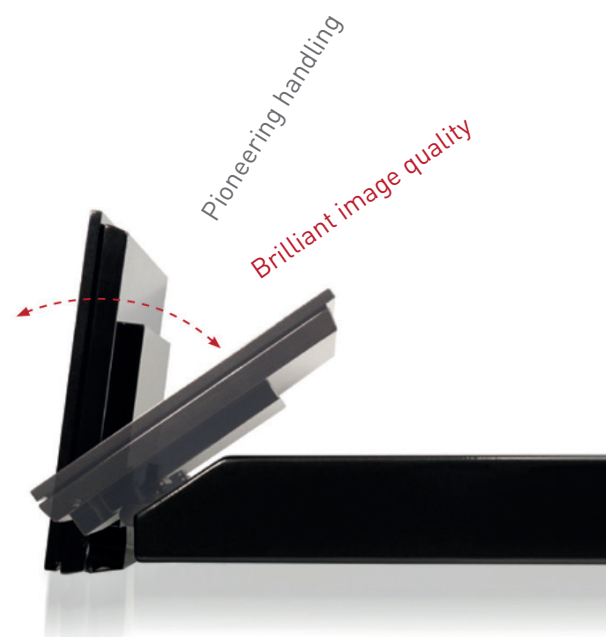
The compact size of the system allows a perfect integration into the workspace. The user can directly interact with the touchscreen and operate the software while staying focused on the treatment. Two additional monitors can be connected to the system. The doctor's monitor mounted behind the patient simplifies endoscopy and removes the strain from turning the head to the touchscreen monitor. On the patient's monitor clinical findings can be easily explained to the



patient. The patient monitor can also be turned off any time. A second Full-HD camera integrates the microscope picture into the PES PILOT system. The automatic switch activates the microscope picture on the screen ready for recording into the patient data file. As all Otopront PES video systems, the PES PILOT HDpro is mobile and can be used at various locations flexibel without an additional monitor due to its small dimensions and uncomplicated assembly and disassembly.

Compact, yet complete: PES PILOT HDpro Stroboscope

- + Operation via touchscreen
- + Touchscreen in 2 sizes selectable (9" and 15")
- + Connection of 2 additional monitors
- + Connection of 2 cameras
- + CMOS technology with high light sensitivity
- + Simple IT integration into HIS using DICOM/HL7/GDT
- + Intuitive software with report processing
- + LED strobe light source
- + CHIP-ON-THE-TIP camera (optional)
- + Integrated patient browser and analysis software
- + FEES and general studies on dysphagia



TYMP module

With the Otopront TYMP module, a fully automatic inspection measurement can be carried out in seconds. All functions as well as curves and data are displayed on the PILOT Diagnostic Center. The result of the measurement can be viewed before storing or printing the results. The TYMP module is used for routine examination as well as for clinical diagnosis. The compliance measurement only

takes two seconds and is therefore ideally suited for children and restless patients. The collected measurement is objective and therefore independent of the patient's involvement. The ease-of-use allows the examiner to incorporate the tympanometry directly into the general examination procedure avoiding waiting times for additional exams.

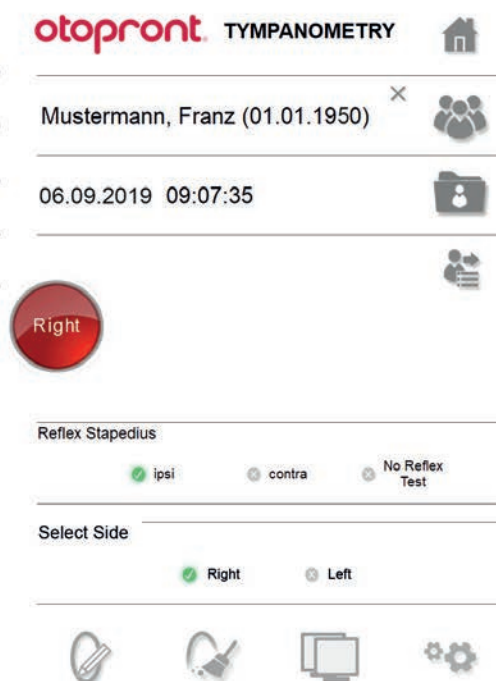
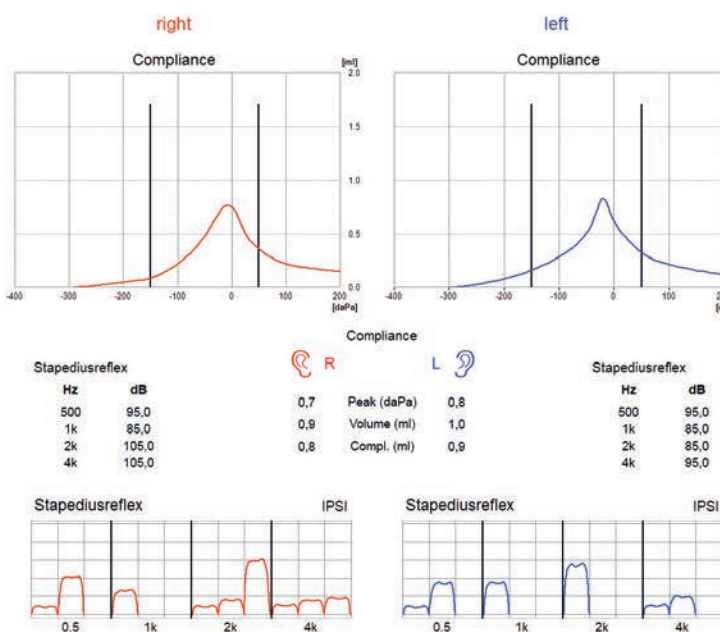


TYMP module

PES PILOT HDpro
stroboscope

The precise automatic measuring system allows one-handed operation, so that the patient's head can be fixed with the other hand. For the examination only the probe is held closely against the external auditory canal. A two-coloured LED at the handle indicates the correct position of the probe and the measuring process starts automatically. The stapedius reflex can be triggered ipsi- or contra-

lateral. The middle ear pressure is automatically adjusted in the external auditory canal. All functions can be operated by common finger gesture control or alternatively controlled by mouse. An integration allows the fully automatic exchange of patient data with the practice EDP or the HIS. In addition, findings can be sent to the printer via LAN and saved directly to USB stick or internal memory.



DIGITAL 5 / Sonography module

The PILOT Diagnostic Center can be equipped with two easy-to-use sonography modules. Similar to a classic stand-alone ultrasound unit, it offers the most important functions like signal amplification, data storage and printing. The software is intuitive and allows rapid exams without having to enter patient data. All functions can be operated by

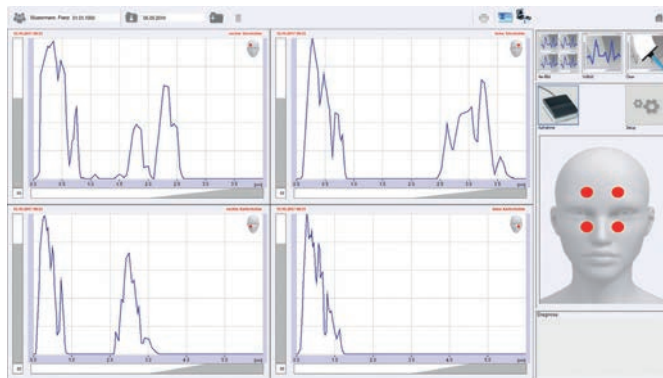
common finger gesture control or alternatively controlled by mouse. An integration allows the fully automatic exchange of patient data with the practice IT or the HIS. In addition, findings can be sent to the printer via LAN, or saved directly to USB stick or internal memory.



DIGITAL 5 module

The US-A scanner is an easy-to-use and comfortable device with highest sensitivity and noise reduction. The signal amplification is varied by

touching the PILOT Diagnostic Center, all other functions can be controlled via the touchscreen or foot switch.

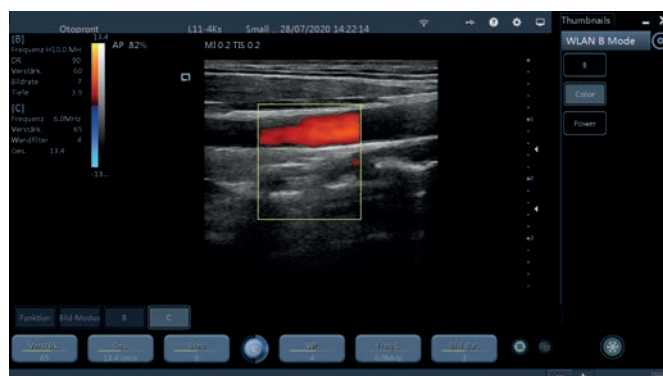


DIGITAL 5 probe

Sonography module

The sonography module meets all requirements of modern ultrasound technology. The very precise imaging and exchangeable probe heads enable the user to perform precise diagnostics. A very low

weight of only 160 grams allows easy operation with only one hand. The examination modes available for the color version are B, M, 2B, THI, Color, Power, PW.



Sonography probe

Video Nasopharyngoscope VN-S (CHIP-ON-THE-TIP)

High-resolution, bright and colour-true

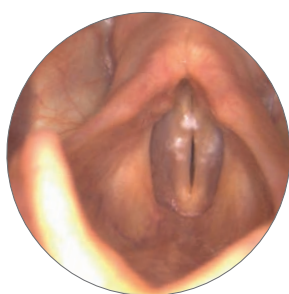
The VN-S video nasopharyngoscope is a useful addition to our PES PILOT devices especially for stroboscopy. The VN-S excels in pleasant operation, handling and displays sharp images. The nasopharyngoscope can be easily integrated into our PES PILOT systems. Generated images and videos

are stored in the internal memory of the PES PILOT or transferred to hospital / practice HIS. The operation and visualization is possible by a trigger on the device, via touchscreen or foot control. The light-intensive chip generates convincing results in terms of sharpness and colour-true images.



Video-Nasopharyngoscope VN-1 (CHIP-ON-THE-TIP)

The VN-1 video nasopharyngoscope is available as a simple but powerful alternative to the VN-S video nasopharyngoscope. It fulfills all functions of a modern CHIP-ON-THE-TIP optic.



	VN-S	VN-1
Working length	310 mm	310 mm
Diameter	3,9 mm	3,9 mm
Working distance	25 to 130 mm	10 to 50 mm
Angle of view	90°	90°
Distal angle	up/down each 130°	up/down each 130°
Resolution	291.000 pixels	76.800 pixels
Camera sensor	CCD Chip	CMOS Chip
Illumination	Fiber optic	Fiber optic
+ Protection class against environmental impact: IP 68		
+ Completely insertable and machine-processable up to 65 °C		
+ Tightness meter		
+ Compatible with disposable protective covers		



Technical Data

PES PILOT HDpro/PES PILOT HDpro Stroboscope PILOT Diagnostic Center

System

- + High-performance system with dual-core processor
- + 256 GB internal SSD memory (optional expansion to 1TB) for approx. 15 hours of video recording or 10,000 images
- + Storage of data on USB stick
- + 2 LAN interfaces for printer and practice EDP integration
- + Up to 2 monitor interfaces DVI/HDMI
- + Connections for mouse and keyboard, optionally wireless

Software / communication interfaces

- + Otopront Application Manager with PES PILOT Module
- + Clear and intuitive software interface operation via the PILOT touch screen; by touch, mouse and keyboard.
- + Easy installation in practice EDP (e.g. Medistar, Turbomed, Albis, tomedo etc.) via GDT protocol
- + Automatic order recognition of the practice EDP, optionally at the push of a button
- + Complete integration into HIS and PACS via standard interfaces (HL7, DICOM compliant)
- + Optional transmission of video data, communication with worklists (e.g. DICOM video, DICOM worklists)
- + DICOM Conformance Statement

Screen / Operation

- + Touchscreen can also be operated with gloves
- + Photo/video shutter release by touch, mouse or foot pedal
- + Recording of video and photo (MPEG and JPEG, Full-HD,  optional)
- + Photo can be taken during video recording
- + Manage patient and examination data
- + Print, save and export findings via GDT protocol
- + Processing of findings and marking on the screen or by mouse

- + Comparison of 4 diagnostic images, single image view, zoom
- + Finger gesture control or alternatively by mouse
- + Management and control of several cameras, optional automatic camera change (e.g. between microscopy and endoscopy)
- + Control of up to 2 external monitors, each of which can be switched on and off directly on the PILOT screen

LED strobe light source

- + Operating modes: continuous light and strobe mode
- + Light barrier in the light output (to avoid glare)
- + Colour temperature: approx. 4000 K
- + CRI >92 %
- + Service life min. 10,000 hours
- + Noiseless

Microphone

- + Optionally integrated in the camera head
- + 70 to 12,500 Hz
- + Integrated loudspeaker

TYMP module

- + System: microprocessor controlled
- + Measurement tone: 226 Hz, 85 dB SPL
- + Pressure range: +200 to -400 daPa
- + Pressure change: 300 daPa/sec
- + Measuring time: 2 sec for compliance
- + Reflex tones: 500, 1000, 2000 and 4000 Hz at 85, 95 and 105 dB HL (according to paragraph 1597)
- + Tone sequence: automatic
- + Reflex detection: automatic
- + Reflex threshold: adjustable via software
- + Reflex measurements: ipsilateral and optionally contralateral
- + Print calibration: automatically on selection

- + Status display: three-colour LED in the probe detailed display - symbols
- + Page change: automatic or manual
- + Pump: low-noise piston pump
- + Dimensions: 400 x 140 x 400 mm (L x H x D)
- + Weight: 10 kg
- + Power supply: 230 V~, 50 Hz, 60 VA
- + CE marking: in accordance with MDR (EU) 2017/745
- + Accessories:
 - Measuring probe with cable
 - 1 set of earplugs
 - 1 headset for DT 252 contralateral test (optional)
 - 1 probe holder

DIGITAL 5 Sonography

- + Ultrasound procedures: A-Mode
- + Transducer: 4.25 MHz
- + Colour Doppler (Duplex)
- + Pulsed wave Doppler (Duplex)
- + Probe holder: stainless steel, can be placed at different housing positions via magnetic contact
- + Gain: 65 to 120 dB infinitely variable
- + Display: optional single image or comparison image display
- + Depth compensation: TGC amplification function, freely scalable
- + Image spread: 40 to 100 mm
- + User interface: operable via cursor or touch screen
- + Documentation: via local or network printer
- + Archiving: via LAN interface to the practice EDP
- + Dimensions: 16.5 x 4.8 x 26.3 cm (W x H x D)
- + CE marking: in accordance with MDR (EU) 2017/745

Sonography module

- + Examination modes: B, M, 2B, THI, Color, Power, PW
- + Frequency range: 6.0-11.0 MHz, 40 mm linear transducer

- + Exchangeable transducers
- + Maximum sound depth: 310 mm
- + DICOM interface
- + Grayscale: 256
- + Dimensions: 15 x 4 x 2.5 cm (W x H x D)
- + Weight: approx. 160 g
- + Protection class against environmental conditions: IPX4

Video Nasopharyngoscope VN-S (CHIP-ON-THE-TIP) (only available for PES Pilot HDpro with LED or strobe extension)

- + Optimised for stroboscopy
- + Working length: 310 mm
- + Diameter: 3.9 mm
- + Working distance: 25 to 130 mm
- + Angle of view 90°
- + Distal angulation up/down 130° each
- + Resolution: 291.000 pixels
- + Camera sensor: CCD chip
- + Lighting: glass fibre
- + Protection class against environmental impacts: IP68
- + Protection class against electric shock: Class II
- + Completely insertable and machine processing up to 65° C
- + With tightness meter
- + Compatible with disposable protective covers

Video Nasopharyngoskop VN-1 (CHIP-ON-THE-TIP) Technical data see VN-S except for the following differences

- + Working distance: 10 to 50 mm
- + Angle of view 90°
- + Resolution: 76,800 pixels
- + Camera sensor: CMOS chip

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