Pirop – Ophthalmic Scanner (A+B+CCT)

SINCE 1993

ECHOSON
ULTRASOUND SCANNERS

PL

Pirop

PIROP – state-of-the-art ophthalmic ultrasonic device for Biometry ,

Visualization and Pachymetry of eyeballs (A-Scan + B-Scan + CCT- Pachymeter) – modified version.

***A-SCAN* – Ocular Lens biometrics**

Digital 'A-scan' tool for ophthalmology, biometry and lens power calculation of intra-ocular implants.

***B-SCAN* – Eye examination**

Modern 'B-scan' tool for ophthalmology, interior eyeball imaging, retina, optical nerve ...

***CCT- PACHYMETER (P-SCAN)* – Ocular cornea biometrics**

Up-to-date ultrasonic pachymeter used to measure the thickness of the eye's cornea (glaucoma screening and refractive surgery), with a very high sampling frequency –***400MHz*** (a significant increase in measurement accuracy – ≤ **2 µm**). Corneal pachymetry is an important test in the early detection of glaucoma (central corneal thickness CCT), and it help also surgeons by providing graphical surgical plans to eliminate corneal astigmatism.

PIROP user's interface based on touch screen technology makes operation easy and user-friendly. The touch screen can be also

Specifications

A-SCAN

- Complete and quick biometry :
  – eye axial length (AXL)
  – anterior chamber depth (AC)
  – lens thickness (LENS)
  – vitreous length (VITR)

- Measurement of all eye types: normal, cataract, dense cataract, aphakic,silicone oil vitreous, pseudoaphakic (PMMA, ACRYLATE, SILICONE)

- OL six formulas: SRK II, SRK T, Holladay, Hoffer-Q, Binkhorst II, Haggis

- Post refractive formulas: Double-K SRKT, Latkany / Flat-K SRKT/, Latkany /avg-K SRKT/, Masket

- IOL power calculation comparison (for different lenses and calculation methods)

- Contact and immersion methods (the immersion tube attached)

- Automatic TGC adjustment,GAIN adjustment up to 110dB
- Memory of 20 scans with measurements for further analysis
- Calculations of means and standard deviations
- Automatic control of measurement scatters (with manual correction)
- Customizable for 10 users, 10 profiles for each.
- Adjusting and testing via attached calibrator
- Probe frequency – 12 MHz
- Range of scan 45 mm / 2500 points per line
- Clinical resolution 0.1 mm
- Electronic resolution –/+ 0.01 mm

POWER SUPPLY

- Power supply from external AC/DC power adapter:
  – input: 100-230V AC 50/60Hz / max 0.7A
  – output: +12V DC / 2 A
- Power consumption (12 DC supply) – ca 12 W
- Electrical safety standards
  – Medical device Class IIa complies with MDD 93/42 EEC
  – Scanner complies with requirements for Class II devices of EN/IEC 60601-1

B-SCAN

- Probe frequency: 12 .. 15 MHz
- Scanning angle : 55º

- Gain/dynamics up to 110dB / 90dB
- TGC – zone gain adjustment in selected eye
- 256 Levels Gray Scale
- Axial clinical resolution: 0.12 mm
- Lateral clinical resolution : 0.3 mm
- Display modes : B, B+A, B+B
- A-mode for selected line CV (in Run and Freeze modes)
- Dynamic Range Correction
- Image cache memory M1..M4 independent for right and left eyes
- Zoom function (x2) in Run and Freeze modes
- Digital Gain Correction in Freeze mode
- Cineloop function (about 6 second) independent for left/right eyes
- Distances measurements with ultrasound velocity correction
- Area and angle measurements
- Pointers, comments entered by the user
- Composite video output for videoprinter

CCT – PACHYMETER

- Quick thickness measurements for all corneal types
  – the measurement of central corneal thickness (CCT)
  – thickness measurement at arbitrarily selected points

– standard deviation of the measured thickness
– ability for rejecting inaccurate measurements

- Very high level of accuracy and repeatability of all measurements:
  – sophisticated algorithms for the accuracy improvement
  – very high frequency for measuring purpose- 400 MHz
  – high averaging ratio
  – 512 automatic measurements cycles
- Intra-ocular pressure (IOP) calculations with measuring and/or manual correction
- Ten IOP correction formulas : Kohlhas/Shah, Argus et al. Whitarce et al, Doughty, Ehlers, Dresden, Stodmeister, custom-own
- BIAS percentage deviation of the measured thickness from 60% to 130%
- TEST function for automatic checking of operation correctness (without using external phantoms or patterns)
- Nine defined maps of corneal thickness with the number of points: 1, 5, 9, 13, 21, 25, 1 MULTI, 5 MULTI, 9 MULTI (central, paracentral, peripheral, parietal, mixed)
- 20 MHz probe operating frequency
- Default sound velocity – 1640 m/s ; range from 1400 to 2000 m/s
- Measurement range from 220 μm to 1100 μm
- Measuring accuracy ≤ 2 μm
- Resolution 1 μm

- Touch screen
  – easy, ergonomic and user-friendly operation via displayed menu
  – virtual keyboard for entering patient data, etc.
- Functional knob (gain control, review results, cine etc.)
- Color LCD 7” display
- Internal patient’s databas
- Ten (10) user profiles
- Support for barcode reader
- Possibility of connecting an external alphanumeric keyboard
- Recording of images in internal and USB-Pendrive memory.
- Internal thermal small printer (for A-scan and P-scan reports)
- Composite-video output PAL (for videoprinter or video monitor)
- Support of multiple languages
- Easy firmware upgrade via USB port

PIROP-PC software (optional)

- a special software that enables management of the patient database and measurements (images) obtained from PIROP scanner.
- it can be installed in any external PC computer, tablet etc. operated by Windows.

a direct USB connection.

- possibility to print on any printer the special report of exams
- additional option – possibility to use the standard DICOM 3.0 to communicate with PACS/RIS systems (Store, Print, Worklist).

WEIGHT AND DIMENSIONS

- Dimensions (with built-in printer): 290 x 205 x 85 mm
- Weight (with built-in printer): 1.5 kg

Probes

OA12 A-scan

Frequency: 20 MHz
Application: biometry and lens power calculation for intraocular implants.

OB12 B-Scan

Frequency: 12/15 MHz
Application: imaging of interior of an eyeball, retina, optical nerve ..

OP20 Pachymetr

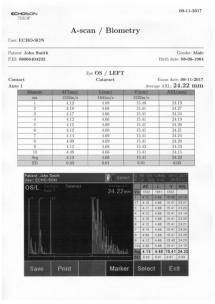
Frequency: 20 MHz
Application: measurements of thickness for all corneal types

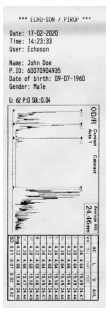
E - brochures

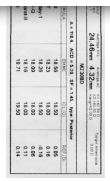
e – Bochure A+B+CCT

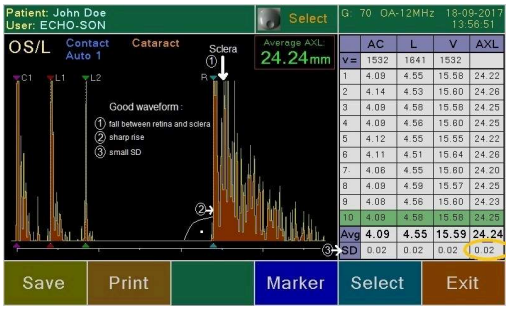
Scanner images

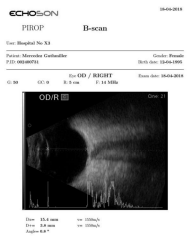
Images gallery

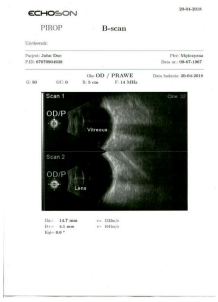


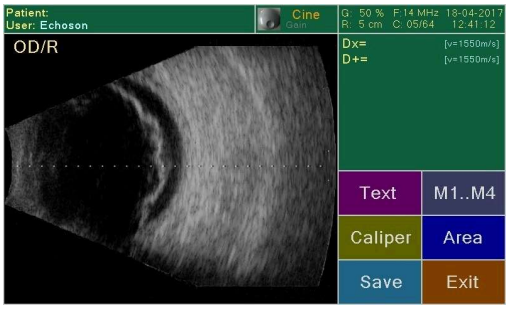





Patient: John Doe
User: ECHO-SON
Select
G: 70 OA-12MHz 18-09-2017 13:56:51
OS/L
Contact
Auto 1
Cataract
Sclera
Average AXL: 24.24mm
Good waveform :
① fall between retina and sclera
② sharp rise
③ small SD
AC L V AXL
V= 1532 1641 1532
1 4.09 4.55 15.58 24.22
2 4.14 4.53 15.60 24.26
3 4.09 4.58 15.58 24.25
4 4.09 4.56 15.60 24.25
5 4.12 4.55 15.55 24.22
6 4.11 4.51 15.64 24.26
7 4.06 4.55 15.60 24.20
8 4.09 4.59 15.57 24.25
9 4.08 4.56 15.60 24.23
10 4.09 4.58 15.58 24.25
Avg 4.09 4.55 15.59 24.24
SD 0.02 0.02 0.02 0.02
Save
Print
Marker
Select
Exit

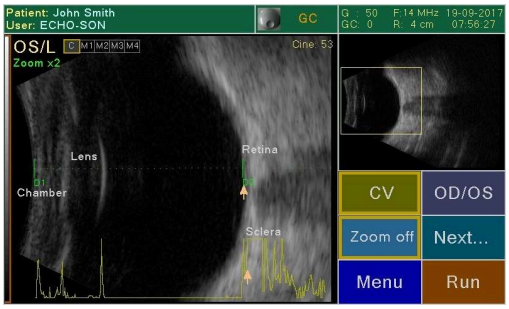

ECHOSON
PIROP
B-scan
OD/R


ECHOSON
PIROP
B-scan
OD/P
Vitreous
OD/P
Lens


Patient:
User: Echoson
Cine
Gain
G: 50 % F:14 MHz 18-04-2017
R: 5 cm C: 05/64 12:41:12
OD/R
Dx= [v=1550m/s]
D+= [v=1550m/s]
Text
M1..M4
Caliper
Area
Save
Exit

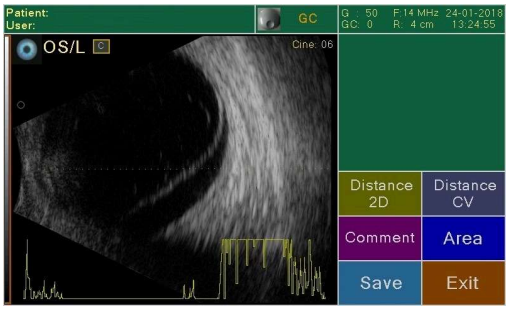

Patient:
User: Echo-Son
Gain
G : 44 F:14 MHz 03-04-2017
R: 4 cm 10:36:19
OD/R M1 M2 M3 M4
CV
DR
Zoom
Range
B+B
Freeze

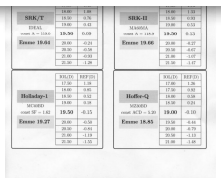

Patient: John Doe
User: Echoson
GC
G : 50 F:13 MHz 20-06-2017
GC: 0 R: 5 cm 13:50:25
OD/R C
Cine: 46
Dx= 22.5 mm [v=1550m/s]
D+= 4.3 mm [v=1641m/s]
Angle=1.3 °
Distance 2D
Distance CV
Comment
Area
Save
Exit

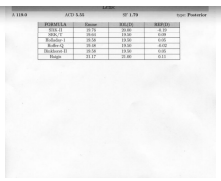

Patient: John Smith
User: ECHO-SON
GC
G : 50 F:14 MHz 19-09-2017
GC: 0 R: 4 cm 07:56:27
OS/L C M1 M2 M3 M4
Zoom x2
Cine: 53
Lens
Retina
Chamber
Sclera
CV
OD/OS
Zoom off
Next...
Menu
Run

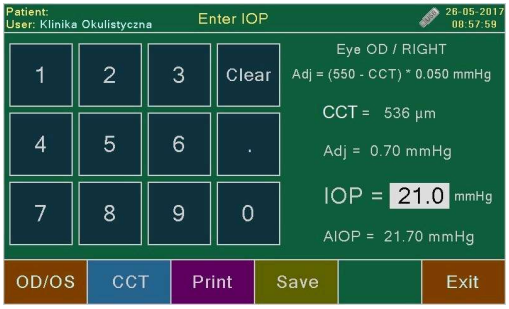

Patient: John Smith
User: ECHO-SON
GC
G : 68 F:13 MHz 19-09-2017
GC: 0 R: 5 cm 08:14:20
Scan 1
Cine: 30
OD/R
Vitreous
Optic Nerve
Lens
Dx= 3.1 mm [v=1532m/s]
D+= 0.9 mm [v=1532m/s]
Angle=2.6 °
Scan 2
OD/R
Distance 2D
Comment
Area
Save
Exit


Patient:
User:
GC
G : 50 F:14 MHz 24-01-2018
GC: 0 R: 4 cm 13:21:50
OS/L C
Cine: 55
Distance 2D
Distance CV
Comment
Area
Save
Exit

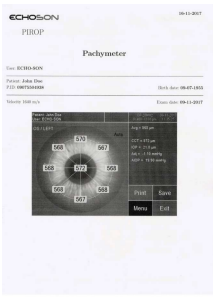

Patient:
User:
GC
G : 50 F:14 MHz 24-01-2018
GC: 0 R: 4 cm 13:24:55
OS/L C
Cine: 06
Distance 2D
Distance CV
Comment
Area
Save
Exit



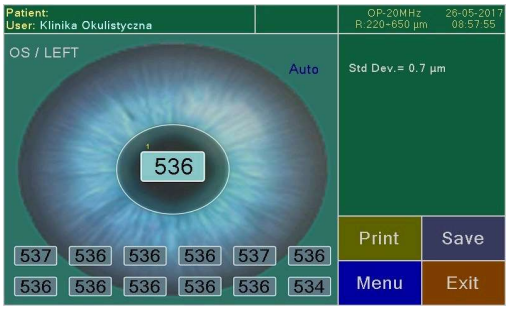



Patient:
User: Klinika Okulistyczna
Enter IOP
26-05-2017
08:57:59
1
2
3
Clear
4
5
6
.
7
8
9
0
Eye OD / RIGHT
Adj = (550 - CCT) * 0.050 mmHg
CCT = 536 µm
Adj = 0.70 mmHg
IOP = 21.0 mmHg
AIOP = 21.70 mmHg
OD/OS
CCT
Print
Save
Exit


Pacjent:
Użytkownik: Echoson
GC
G: 50 OB-14MHz
GC:0 R:4cm P:0
28-11-2018
08:49:55
OD/P
Cine: 13
Odległość 2D
Komentarz
Pole
Zapisz
Wyjście


ECHOSON
PIROP
Pachymeter


Patient: John Smith
User: Echoson
OP-20MHz
R:400-1100 µm
18-04-2017
08:18:49
OD / RIGHT
607
607
607
607
606
607
607
607
607
Avg = 607 µm
Std Dev.= 0.0 µm
CCT = 605 µm
IOP = 23.8 mmHg
Adj = -2.75 mmHg
AIOP = 21.05 mmHg
Range
Next...
Bias
OD/OS
Menu
Start


Patient:
User: Klinika Okulistyczna
OP-20MHz
R:220-650 µm
26-05-2017
08:57:55
OS / LEFT
Auto
536
537 536 536 536 537 536
536 536 536 536 536 534
Std Dev.= 0.7 µm
Print
Save
Menu
Exit

NIP: 7160005139
REGON: 430302780
KRS: 00001 36693

Export:

export@echoson.eu

National matters:

info@echoson.com.pl

Domestic service:

serwis@echoson.com.pl

tel. +48 81 886 36 13

fax +48 81 886 83 10

Multi -organ ultrasound

Albit - ultrasound scaner
Specialized applications

Ophthalmology and dentistry

PIROP - Ophthalmology Biometer
PIROP - G -SCAN

Bladder scanner

Pinit - bladder scanner

Opening Hours: 8.00 - 15.00