

Clarius HD Scanner



Technical Specifications

Clarius HD Scanner Specifications

| Model | Frequency | Max Depth | # Elements | Radius | Field of View | Pitch |
|---------------------------|-----------|-----------|------------|--------|---------------|--------|
| C3 HD Convex | 2–6 MHz | 40 cm | 192 | 45 mm | 73° | 300 µm |
| L7 HD Linear | 4–13 MHz | 11 cm | 192 | N/A | 38 mm | 200 µm |
| L15 HD Linear | 5–15 MHz | 7 cm | 192 | N/A | 50 mm | 260 µm |
| L20 HD Linear | 8–20 MHz | 4 cm | 192 | N/A | 25 mm | 130 µm |
| C7 HD Microconvex | 3–10 MHz | 18 cm | 192 | 20 mm | 112° | 205 µm |
| EC7 HD Endocavity | 3–10 MHz | 15 cm | 192 | 10 mm | 164° | 150 µm |
| PA HD Phased Array | 1–4 MHz | 40 cm | 80 | N/A | 90° | 250 µm |

Imaging

Transmission

- 1 to 20 MHz waveforms
- Up to 20 continuous pulses
- Bi-polar output
- 10 to 80V peak-to-peak

Beamforming & Reception

- 8 parallel beamformers
- Synthetic aperture beamforming with virtual focal zones
- 60 MHz sampling rate @ 14 bits per channel

Post-processing

- Adaptive speckle reduction
- Edge enhancement
- Persistence

Total Input Dynamic Range

- 160dB

Automated Algorithms

- Time-gain-compensation (TGC)
- Frequency-depth adjustment
- Patient contact detection
- Needle enhancement
- Motion sensing

Imaging Modes

B-Mode Yes

M-Mode Yes

Power Doppler Yes

Color Doppler Yes

Pulsed-Wave Doppler Optional

Needle Enhance (L7 HD/L15 HD/L20 HD) Optional

Elastography (L7 HD/L15 HD/C3 HD/EC7 HD) Optional

Harmonic Imaging (C3 HD/PA HD) Yes

Internally Optimized Parameters

Clarius internally optimizes the following parameters to ensure the scanner is easy to use:

| | |
|----------------------------------|--------------|
| Frequency Range | 1 to 20 MHz |
| Focal Zones Range | 1 to 10 |
| Compression Dynamic Range | 30 to 90 dB |
| Reject | Yes |
| Sector Width Range | 50% to 100% |
| Grey + Color Maps | Yes |
| Frame Rate | Up to 30 FPS |

Interface Controls

- Depth
- Read zoom
- 3 TGC sliders or automated TGC
- Flip / mirror
- Freeze
- Color / power ROI
- Flow speed
- Doppler gate
- Doppler correction angle
- Doppler steer
- Baseline
- Invert

Clinical Applications

- C3 HD**
- Abdominal
 - Bladder
 - Cardiac
 - Lung
 - MSK
 - OB/GYN
 - Prostate
 - Superficial

- L15 HD**
- Breast*
 - Lung
 - MSK
 - Nerve
 - Plastic Surgery
 - Small Parts (e.g. Thyroid)
 - Vascular

- L7 HD**
- Breast*
 - Lung
 - MSK
 - Nerve
 - Ocular
 - Plastic Surgery
 - Small Parts (e.g. Thyroid)
 - Vascular

- L20 HD**
- Dermatology
 - MSK
 - Nerve
 - Pediatrics
 - Plastic Surgery
 - Podiatry
 - Rheumatology
 - Small Parts (e.g. Thyroid)
 - Vascular

- C7 HD**
- Abdominal
 - Bladder
 - Cardiac
 - Lung
 - MSK
 - Small Parts
 - Speech Therapy

- EC7 HD**
- Early OB
 - IVF
 - Pelvic
 - Prostate

Mobile Platforms

iOS iOS 11.0 or later

Android Android API 21 or later running on x64 or ARM based devices. Devices must be compatible with Wi-Fi 802.11n and BLE 4.0

Security and Encryption

Wi-Fi Data Channel TLS 1.2

Bluetooth AES128 and RSA4096

Data Management

Local Export JPG/PNG/DICOM/BMP

Cloud Export Yes

DICOM Store Optional

DICOM Worklist Optional

Connectivity

Wi-Fi 802.11n, dual band 2.4GHz & 5GHz

Bluetooth Bluetooth low energy 4.1

Measurements and Calculations

TOOLS

Distance Yes

Trace Yes

Ellipse Yes

Heart Rate Yes

Time Yes

Velocity Yes

Volumes Yes → Manual/Automated

CALCULATION PACKAGES

Obstetrics BDP, HC, FL, AC, CRL, GS, AFI, EFW from GA, Hadlock tables, HR

IVF Left/Right follicles

Vascular Stenosis, ICA, ECA, CCA

Cardiac Basic IVS, Basic LVID, LV/RV Tracing, HR, Basic LVPW, EPSS

* Available via Hologic Viera Breast Performance Package

MEASUREMENT ACCURACY

Lateral Distance

Relative Error < +- 2%

Minimum Range <= 0.2 mm

Maximum Range >= 24 cm

Axial Distance

Relative Error < +- 2%

Minimum Range <= 0.2 mm

Maximum Range >= 24 cm

Doppler Sensitivity

C3 HD/PA HD Depth sensitivity: 10 cm
Flow sensitivity: 0.1 mL/sec at 5.0 cm

L7 HD/L15 HD Depth sensitivity: 5.0 cm
Flow sensitivity: 0.1 mL/sec at 5.0 cm

L20 HD Depth sensitivity: 2.5 cm
Flow sensitivity: 0.1 mL/sec at 2.5 cm

C7 HD Depth sensitivity: 7 cm
Flow sensitivity: 0.1 mL/sec at 5.0 cm

EC7 HD Depth sensitivity: 6 cm
Flow sensitivity: 0.1 mL/sec at 5.0 cm

Mechanical

Enclosure

- Light weight magnesium
- Durable
- IP67 rated for probe and battery separately, rated for 1 metre immersion for 30 minutes

SCANNER DIMENSIONS AND WEIGHT (WITH BATTERY)

C3 HD Dimensions: 164 x 78 x 38 mm
Weight: 392 g

L7 HD Dimensions: 165 x 78 x 38 mm
Weight: 364 g

L15 HD Dimensions: 165 x 78 x 38 mm
Weight: 372 g

L20 HD Dimensions: 165 x 78 x 38 mm
Weight: 304 g

C7 HD Dimensions: 169 x 78 x 38 mm
Weight: 366 g

EC7 HD Dimensions: 328 x 78 x 38 mm
Weight: 410 g

PA HD Dimensions: 166 x 78 x 38 mm
Weight: 368 g

ACCESSORIES DIMENSIONS AND WEIGHT

Battery Dimensions: 27 x 72 x 32 mm
Weight: 68 g

Battery Charger (without plug adapter) Dimensions: 48 x 74 x 49 mm
Weight: 60 g

Battery, Charging and Bootup

Battery Life ~60 min scanning

Standby ~7 days idle

Charge Time ~90 min

Max Scan Time Per Exam ~30 min

Bootup Platform dependent, generally less than 30 seconds

Cleaning

Tested without adverse effects

- Accel® PREvention™ Wipes
- Accel® TB Wipes
- CaviWipes
- CIDEX® OPA
- Sani-Cloth® HB Germicidal Disposable Wipe
- Sani-Cloth® Plus Germicidal Disposable Cloth
- Tristel Trio Wipes System
- Virox™AHP® 5 RTU Wipes

Standard Configuration

- Scanner
- 1 Rechargeable battery
- 1 Charger with global AC adapter
- Access to Clarius Cloud platform

WARRANTY

Included 3 years limited warranty

Optional Clarius Care - 1/2/3 years

- Accidental damage
- Uptime
- RMA shipping
- Hospital theft

Standards Compliance

IEC 60601-1:2012, Medical Electrical Equipment – Part 1: General requirements for basic safety and essential performance

IEC 60601-1-2:2014, Medical Electrical Equipment – Part 1-2: General requirements for basic safety and essential performance – Collateral Standard: Electromagnetic disturbances – Requirements and tests

IEC 60601-2-37:2007, Medical Electrical Equipment – Part 2-37: Particular requirements for the basic safety and essential performance of ultrasonic medical diagnostic and monitoring equipment

NEMA UD-2, Acoustic Output Measurement Standard For Diagnostic Ultrasound Equipment, Revision 3

NEMA UD-3, Standard for Real-Time Display of Thermal and Mechanical Acoustic Output Indices on Diagnostic Ultrasound Equipment, Revision 2

IEC 60601-1-12:2014, Medical electrical equipment – Part 1-12: General requirements for basic safety and essential performance – Collateral Standard: Requirements for medical electrical equipment and medical electrical systems intended for use in the emergency medical services environment

FCC 47CFR Part 15, Radio frequency devices

ETSI EN 300 328:2006-05 – Electromagnetic compatibility and Radio spectrum Matters (ERM)

ETSI EN 301 489-1:2008-02 – Electromagnetic compatibility and Radio spectrum Matters (ERM)

ETSI EN 301 489-17:2009-05 – Electromagnetic compatibility and Radio spectrum Matters (ERM)

ISO 10993-1:2009, Biological evaluation of medical devices

IEC 60529:2013, Degrees of protection provided by enclosures (IP Code)

IEC 62133:2012, Secondary cells and batteries containing alkaline or other non-acid electrolytes – Safety requirements for portable sealed secondary cells, and for batteries made from them, for use in portable applications

UN 38.3, Transport of dangerous goods – Classification procedures, test methods and criteria relating to class 9 – Lithium metal and lithium ion batteries

About Us

Clarius Mobile Health was founded by experienced innovators who have played an instrumental role in the ultrasound industry. Our developers were the brains behind the first PC-based platform for ultrasound research. They also introduced the first touch screen ultrasound system with a simplified user interface.

We started with a simple mission: to enable more clinicians to use ultrasound to improve patient care. Thanks to the power of smart phones, advanced technology and decades of collective ultrasound experience, we've developed a high quality, Point-and-Shoot Ultrasound™ scanner that works with your smart device.

Clarius Mobile Health
350-3605 Gilmore Way
Burnaby, BC, V5G 4X5,
Canada
hello@clarius.com
Phone: 1-778-800-9975