

# Clarius HD Scanner



## Technical Specifications

### Clarius HD Scanner Specifications

Model	Frequency	Max Depth	# Elements	Radius	Field of View	Pitch
<b>C3 HD</b> Convex	2–6 MHz	40 cm	192	45 mm	73°	300 µm
<b>L7 HD</b> Linear	4–13 MHz	7 cm	192	N/A	38 mm	200 µm
<b>L15 HD</b> Linear	5–15 MHz	7 cm	192	N/A	50 mm	260 µm
<b>C7 HD</b> Microconvex	3–10 MHz	15 cm	192	20 mm	112°	205 µm
<b>EC7 HD</b> Endocavity	3–10 MHz	15 cm	192	10 mm	164°	150 µm
<b>PA HD</b> 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>B-Mode</b>	Yes
<b>M-Mode</b>	Yes
<b>Power Doppler</b>	Yes
<b>Color Doppler</b>	Yes
<b>Pulsed-Wave Doppler</b>	Optional
<b>Needle Enhance (L7 HD/L15 HD)</b>	Optional
<b>Elastography</b>	Optional
<b>Harmonic Imaging</b>	Cardiac

### Internally Optimized Parameters

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

<b>Frequency Range</b>	1 to 16 MHz
<b>Focal Zones Range</b>	1 to 10
<b>Compression Dynamic Range</b>	30 to 90 dB
<b>Reject</b>	Yes
<b>Sector Width Range</b>	50% to 100%
<b>Grey + Color Maps</b>	Yes
<b>Frame Rate</b>	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

- L7 HD/  
L15 HD**
- Breast\*
  - Lung
  - MSK
  - Nerve
  - Ocular
  - Plastic Surgery
  - Small Parts (e.g. Thyroid)
  - Vascular

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

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

- PA HD**
- Abdominal
  - Bladder
  - Cardiac
  - Lung
  - OB/GYN
  - Superficial

## Mobile Platforms

**iOS** iOS 11.0 or later

**Android** Android 4.4.2 (API 19) or greater and devices which have the following architectures: x64 and ARM. Devices must be compatible with Wi-Fi 802.11n and BLE.

## 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's 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: 8.2 cm  
Flow Sensitivity:  
0.5 mL/sec at a depth of 5.0 cm

**L7 HD/L15 HD** Depth Sensitivity: 5.1 cm  
Flow Sensitivity:  
0.8 mL/sec at a depth of 5.0 cm

**C7 HD** Depth Sensitivity: 6.4 cm  
Flow Sensitivity:  
0.5 mL/sec at a depth of 5.0 cm

**EC7 HD** Depth Sensitivity: 6.4 cm  
Flow Sensitivity:  
0.5 mL/sec at a depth of 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

**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
- MetriCide™ OPA Plus High Level Disinfectant Solution
- 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

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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.

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