Clarius Ultrasound Scanners

Clarius Ultrasound Scanners are wireless and work with a mobile app that is compatible with most iOS and Android smart devices. Clarius Scanners are designed to be carried around for quick exams and to guide procedures such as nerve blocks and targeted injections.

Clarius Scanner Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Frequency</th>
<th>Max Depth</th>
<th># Elements</th>
<th>Radius</th>
<th>Field of View</th>
<th>Pitch</th>
</tr>
</thead>
<tbody>
<tr>
<td>C3</td>
<td>2 - 6 MHz</td>
<td>32 cm</td>
<td>192</td>
<td>45 mm</td>
<td>73°</td>
<td>300 µm</td>
</tr>
<tr>
<td>L7</td>
<td>4 - 13 MHz</td>
<td>7 cm</td>
<td>192</td>
<td>N/A</td>
<td>38.4 mm</td>
<td>208 µm</td>
</tr>
<tr>
<td>C7</td>
<td>3 - 10 MHz</td>
<td>20 cm</td>
<td>192</td>
<td>20 mm</td>
<td>112°</td>
<td>205 µm</td>
</tr>
<tr>
<td>EC7</td>
<td>3 - 10 MHz</td>
<td>15 cm</td>
<td>192</td>
<td>10 mm</td>
<td>164°</td>
<td>150 µm</td>
</tr>
</tbody>
</table>

Imaging

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

Beamforming & Reception
- 4 Parallel Beamformers
- Synthetic Aperture Beamforming for 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

Internally Optimized Parameters

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

- Frequency Range: 2 to 13 MHz
- Focal Zones Range: 1 to 10
- Compression Dynamic Range: 30 to 90 dB
- Reject: Yes
- Sector Width Range: 50% to 100%
- Grey Map: Yes
- Frame Rate: 15 to 30 FPS

Imaging Modes

- B-Mode: Yes
- M-Mode: Yes
- Power Doppler: Upgradeable
- Color Doppler: Upgradeable
- Pulsed-wave Doppler: Upgradeable
- Needle Enhance (L7): Upgradeable

Interface Controls

- Depth: Yes
- Read Zoom: Yes
- 3 TGC sliders or Automated TGC: Yes
- Flip / Mirror: Yes
- Freeze: Yes
- Color / Power ROI: Yes
- Flow Speed: Yes
- Doppler Gate: Yes
- Doppler Correction Angle: Yes
- Doppler Steer: Yes
Pre-set Applications

C3
- Abdominal
- Emergency Cardiac
- Obstetrics / Gynecology
- Lung
- Bladder
- Superficial

L7
- Breast
- Lung
- Musculoskeletal
- Nerve
- Ocular (excluding Canada)
- Vascular
- Small Parts (e.g. Thyroid)

C7
- Abdominal
- Emergency Cardiac
- Small Parts

EC7
- Early OB
- IVF
- Pelvic
- Prostate

Mobile Platforms

iOS
- iOS 9.0 or later and the following devices:
  - iPhone 4s (and later)*
  - iPod Touch 5th gen (and later)
  - iPad 3rd gen (and later), iPad mini, iPad Air

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 4.1.

NOTE: The iPhone 4s doesn't support 5GHz Wi-Fi. For best performance a smart device that supports 5GHz Wi-Fi is recommended.

Security & Encryption

Wi-Fi data channel
- TLS 1.2
Bluetooth
- AES128 and RSA4096

Data Management

Local Export
- Yes
Cloud Export
- Yes
DICOM Store
- Yes
DICOM Worklist
- Yes

Connectivity

Wi-Fi
- 802.11n, dual band 2.4GHz & 5GHz
Bluetooth
- Bluetooth Low Energy 4.1

Measurements & Calculations

TOOLS
- Distance
- Trace
- Ellipse
- Heart Rate
- Time
- Velocity

CALCULATION PACKAGES

Obstetrics
- BDP, HC, FL, AC, CRL, GS, AFI. EFW from GA.
- Hadlock tables.
IVF
- Left/Right Follicles

MEASUREMENT ACCURACY

Lateral Distance
- Relative Error: < ± 2%
- Minimum Range: ≤ 0.2mm
- Maximum Range: ≥ 24cm
Axial Distance
- Relative Error: < ± 2%
- Minimum Range: ≤ 0.2mm
- Maximum Range: ≥ 24cm

Doppler Sensitivity

C3
- Depth Sensitivity: 8.2cm
- Flow Sensitivity: 0.5 mL/sec at a depth of 5.0 cm
L7
- Depth Sensitivity: 5.1cm
- Flow Sensitivity: 0.8 mL/sec at a depth of 5.0 cm
C7
- Depth Sensitivity: 6.4cm
- Flow Sensitivity: 0.5 mL/sec at a depth of 5.0 cm
EC7
- Depth Sensitivity: 6.4cm
- 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 1m immersion for 30min

C3, L7, C7
- Dimensions: 167(h) x 99(w) x 42(d) mm
- Mass (w/battery): 540g
- 1.2 lbs

EC7
- Dimensions: 330(h) x 100(w) x 41.5(d) mm
- Mass (w/battery): 563g
- 1.2 lbs

Battery, Charging & Bootup

Battery Life
- ~60 min scanning
Standby
- ~7 days idle
Charge Time
- ~90 min
Max Scan Time Per Exam
- ~20 min
Bootup
- Platform dependent, generally < 30 seconds
Standards Compliance

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


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, the Clarius team has delivered a high quality, point-and-shoot ultrasound™ scanner that works with virtually any smart device.

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