



Clarius Ultrasound Scanner

Technical Specifications

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

Model	Frequency	Max Depth	# Elements	Radius	Field of View	Pitch
C3	2 - 6 MHz	32 cm	192	45 mm	73°	300 µm
L7	4 - 13 MHz	7 cm	192	N/A	38.4 mm	208 µm
C7	3 - 10 MHz	20 cm	192	20 mm	112°	205 µm

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

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

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

Pre-set Applications

C3	<ul style="list-style-type: none">- Abdominal- Emergency Cardiac- Obstetrics / Gynecology- Lung- Bladder- Superficial
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L7	<ul style="list-style-type: none">- Breast- Lung- Musculoskeletal- Nerve- Ocular (excluding Canada)- Vascular- Small Parts (eg. Thyroid)
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C7	<ul style="list-style-type: none">- Abdominal- Emergency Cardiac- Small Parts
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Mobile Platforms

iOS	iOS 9.0 or later and the following devices: <ul style="list-style-type: none">- iPhone 4s (and later)*- iPod Touch 5th gen (and later)- iPad 3rd gen (and later), iPad mini, iPad Air
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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.
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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
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Bluetooth	Bluetooth Low Energy 4.1
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Measurements & Calculations

TOOLS

Distance	Yes
Trace	Yes
Ellipse	Yes
Heart Rate	Yes
Time	Yes
Velocity	Yes

CALCULATION PACKAGES

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

Mechanical

Enclosure	<ul style="list-style-type: none">- Light weight magnesium- Durable- IP67 rated for probe and battery separately, rated for 1m immersion for 30min
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Dimensions	<ul style="list-style-type: none">- 167(h) x 99(w) x 42(d) mm- 6.7" x 4.1" x 1.6"
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Mass (w/battery)	<ul style="list-style-type: none">- 540g- 1.2 lbs
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Battery, Charging & Bootup

Battery Life	~60 min scanning
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Standby	~7 days idle
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Charge Time	~90 min
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Max Scan Time Per Exam	~20 min
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Bootup	Platform dependent, generally < 30 seconds
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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
- 2 Rechargeable Batteries
- 1 Charger with global AC Adapter
- Access to Clarius Cloud platform

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

Clarius Mobile Health

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