

PC-BASED COLOR DOPPLER ULTRASOUND

SmartUs EXT-1M / EXT-3M

A high-performance color Doppler system with PW, CW and HPRF Doppler – with one or three transducer ports, on the PC of your choice.


1 or 3 ports

EXT-1M or EXT-3M

PW · CW · HPRF

Spectral Doppler

1.5–18 MHz

Transducer frequency range

Triplex

B + Color + Spectral

OVERVIEW

Color Doppler performance in a compact module

Digital Doppler multi-beam processing and high PRF give Color, Power and Spectral Doppler examinations high sensitivity and frame rate. SmartUs supports wideband, multi-frequency transducers with high-density elements from 1 to 18 MHz, and the included Echo Wave II software is continuously improved with free updates.

SmartUs EXT-1M

Beamformer with one transducer port — a complete color Doppler system for the clinic, the office or the field.

SmartUs EXT-3M

Beamformer with three transducer ports, including support for the rectal biplane transducer. Switch transducers without unplugging.



KEY FEATURES

Full Doppler package

CFM, Power and Directional Power Doppler, PW and CW Doppler with HPRF.

Triplex imaging

B-mode, color and spectral Doppler on one screen for vascular and cardiac work.

Image quality

Spatial compounding, B-steer, WideView, tissue harmonic imaging and speckle reduction.

One-touch optimization

Automatic image optimization adjusts gain and dynamic range with a single click.

Three ports

SmartUs EXT-3M keeps three transducers connected, including the rectal biplane.

Your own computer

Runs on a Windows laptop, desktop or tablet — update the computer whenever you like.

IMAGING MODES AND FUNCTIONS

B, B+B, 4B

B+M, M

B-steer

Spatial compounding

Trapezoid

WideView

Color Flow Mapping (CFM)

Power Doppler (PDI)

Directional Power Doppler

Pulsed Wave Doppler

Continuous Wave Doppler

HPRF

Duplex

Triplex

Tissue harmonic imaging (iTHI)

Speckle reduction

COMPATIBLE TRANSDUCERS

Transducers from 1 to 18 MHz

	MODEL	FREQUENCY	SPECIFICATIONS	APPLICATIONS
	MCV9-5R10N-3 Endocavity convex	5–9 MHz	Radius 10 mm	Transrectal, transvaginal
	MC10-4R12N-4 Microconvex	4–10 MHz	Radius 12 mm	Small parts, paediatrics, veterinary
	C7-3R50NI-5 Convex	3–7 MHz	Radius 50 mm	Abdominal, obstetrics, paediatrics
	C5-2R60NI-5 Convex	2–5 MHz	Radius 60 mm	Abdominal, obstetrics, paediatrics
	C5-2R60HI-5 Convex	2–5 MHz	Radius 60 mm	Research Not for clinical use
	L15-6L25N-4 Linear	6–15 MHz	Width 25.6 mm	Paediatrics, small parts, vascular
	L18-10L30H-4 Linear	10–18 MHz	Width 28.8 mm	Paediatrics, small parts, vascular
	L12-5L40N-4 Linear	5–12 MHz	Width 38.4 mm	Paediatrics, small parts, vascular, veterinary
	L15-7L40H-5 Linear	7–15 MHz	Width 38.4 mm	Research Not for clinical use
	L13-4L55H-4 Linear	4–13 MHz	Width 54.91 mm	Small parts, vascular
	P5-1L15SI-6 Phased array	1–5 MHz	—	Cardiac, abdominal
	BIPC9-4R10H-4 + BIPL12-5L70H-4 Rectal biplane	Convex 4–9 MHz Linear 5–12 MHz	Two heads in one handle: convex and linear	SmartUs EXT-3M only

Frequency bars on a common 0–20 MHz scale.

SMARTUS EXT-1M — IN THE BOX

- SmartUs EXT-1M beamformer
- Type-B to Type-A USB 2.0 cable
- Power supply, 100–240 VAC, 50–60 Hz (EN 60601-1), and AC cable
- Software and manuals on a USB stick
- Optional: transducers

SMARTUS EXT-3M — IN THE BOX

- SmartUs EXT-3M beamformer
- USB cable
- Power supply, 100–240 VAC, 50–60 Hz (EN 60601-1), and AC cable
- Software and manuals on a USB stick
- Optional: transducers

TECHNICAL SPECIFICATIONS

Specifications

IMAGING MODES

- B
- B+B
- 4B
- B+M
- M
- B-steer for linear transducers
- Compound for linear transducers
- Trapezoid for linear transducers
- Color Doppler (CFM)
- Power Doppler (PDI)
- Directional Power Doppler (DPDI)
- Pulsed Wave Doppler (PWD)
- Continuous Wave (CW)
- B+PWD (Duplex)
- B+CFM/PDI/DPDI+PWD (Triplex)
- High Pulse Repetition Frequency (HPRF)
- Tissue Harmonic Imaging (THI)

DISPLAY PERFORMANCE

- ultrasound image size: automatically adjustable to screen resolution
- gray scale: 256
- color scale: 256 (scanners with Color Doppler mode)
- full screen and window modes
- full motion and full size real-time ultrasound imaging, up to 300 fps (depends on scanner model, selected scan depth, scan angle, focus mode, lines density setting, computer speed)
- cineloop recording/play: several thousands frames (depends on computer memory size and scan mode)
- zoom mode: from 60% to 600% in all modes (Scan, Freeze, B, B+B, 4B, Doppler modes, M-zoom, cine and etc.)
- viewing area variable for frame rate maximizing: 6 steps
- thumbnail mode: up to 32 images
- "Freeze" mode
- "Auto Freeze" mode

SCANNING METHODS

2-30 cm

TRANSDUCERS

from 1,5 MHz to 18,0 MHz

COLOR DOPPLER (CFM / PDI / DPDI)

- PRF values: 0.5-10 kHz
- angle steering for linear transducers: up to $\pm 25^\circ$
- gain control: 45 dB
- wall filter settings: 3 steps (5%, 10%, 15% PRF)
- real-time spatial filter: 4 values
- CFM palette: 10 maps
- PDI palette: 12 maps
- B/Color priority control
- color threshold control
- CFM baseline control
- Doppler frequency selection: 2 frequencies / each transducer
- color frame averaging: 8 values
- Transparent Color Mapping (TCM): 10 values

PULSED WAVE DOPPLER (PWD)

- PRF values: 1-15 kHz
- wall filter settings: 16 steps (2%-20% PRF)

FOCUSING

- transmit: variable, 8 zones
- receive: point to point, dynamic

AUTOMATIC IMAGE OPTIMIZATION

- B-image gain
- B-image dynamic range
- B-image TGC sliders
- CFM/PDI/DPDI gain

PROCESSING

- lines density control for better resolution
- TGC Control
- dynamic range
- overall gain control
- M - mode sweep speed control
- acoustic power control
- variable frame averaging
- brightness, contrast
- advanced gamma control, fixed and custom curves
- scan direction, rotation, up-down controls
- negative / positive control
- bi-linear interpolation
- echo enhancement control
- noise rejection function
- speckle reduction and structure improvement PureView, NeatView, QuickView
- iContrast (ArtUs, ArtUs Compact)
- Adaptive Gain (ArtUs, ArtUs Compact)

DICOM

- Verification SCU
- Modality Worklist (MWL) SCU
- Modality Performed Procedure Step (MPPS) SCU
- Store SCU (images, cines)
- Print SCU (grayscale, color)

For more information see Echo Wave II Software DICOM Conformance Statement

FUNCTIONS

- mouse / trackball / keyboard operation
- image and video save / load:
 - AVI ○ MP4 ○ JPG ○ BMP ○ PNG ○ TIF ○ XLSX
 - DCM (DICOM uncompressed) ○ DCM (DICOM-JPEG RGB/YBR)
 - DCM (DICOM-JPEG RGB/YBR Video) ○ TPD (Telemed Picture Data)
 - TVD (Telemed Video Data)
- unlimited programmable presets for clinically specific imaging
- vascular puncture guidelines
- biopsy guidelines
- brachytherapy/biopsy grids
- anatomical icons with transducer position indicator
- direct e-mail sending with image or video attachment via Internet
- DICOM file push to server
- printing on system printer
- TV output via computer display adapter
- multi-monitor support
- full screen and window mode

INTERFACE CUSTOMIZATION

- the set of predefined skin schemes for software interface
- the set of predefined buttons images
- multilanguage support, languages:
 - ☐ Chinese ☐ English ☐ French ☐ German ☐ Italian ☐ Korean
 - ☐ Lithuanian ☐ Magyar ☐ Polish ☐ Romanian ☐ Russian
 - ☐ Spanish
- B+M, B+PW/CW layout position, size
- ultrasound area size
- font size

MEASUREMENTS AND CALCULATIONS

- General measurements and calculations: B and Color Doppler, M, PW/CW modes
- PW/CW cardiology measurements and calculations

Human packages:

- General
- Musculoskeletal
- Obstetrics / Gynecology (OB / GYN)
- Gynecology (GYN)
- Abdominal
- Urology
- Endocrinology
- Vascular
- Cardiology

Veterinary packages:

Canine OB · Feline OB · Ovine OB · Bovine OB · Equine OB · Llama OB · Goat OB · Animal Cardiology

Full lists of measurements and calculations:

www.pcultrasound.com/products/products_ewii/

POWER

- external power supply, 100-240V AC, 50-60 Hz

DIMENSIONS AND WEIGHT

SmartUs EXT-1M:

- aluminium enclosure
- dimensions W x D x H, mm: 158 x 220 x 54
- weight, kg: 1.3

SmartUs EXT-3M:

- aluminium enclosure
- dimensions W x D x H, mm: 213 x 155 x 90
- weight, kg: 2.0

ULTRASOUND SOFTWARE

- TELEMED Drivers Package (32/64-bit Windows)
- Echo Wave II software (32/64-bit Windows)
- SDK documentation / sample code (available by agreement)
- Echo Wave II start-up time: 25 sec (i7 2.66 GHz, 8 Gb RAM)

RECOMMENDED COMPUTER CONFIGURATION

- Windows based computer
- HD/Full HD screen resolution, IPS technology
- CPU: Intel i5/i7/i9 2.0 GHz or faster
- 8 Gb RAM or more
- 256 Gb internal Solid State Drive (SSD)
- USB connector: USB 2.0 (Type-A)
- OS: Windows 10/11 (all versions 32/64-bit)

Let's find the right ultrasound solution for you

Request a quotation, ask about options and transducers, or find a TELEMED distributor near you.

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