

QBit 7

Color Doppler System Datasheet

V2.0



General Information

Dimensions and Weight

- Dimensions of main unit (approx.): 747mm (Length) *517mm (Width) *1283mm
- Net weight of main unit (approx): 50kg (no probe included)

Electrical Power

- Power supply voltage: Auto adaptable for AC100-240V
- Power supply frequency: 50-60 Hz
- Power consumption: 600 VA

User Interface

Operation Panel

- Control panel
- Alphanumeric keyboard
- 8 TGC Slides
- Interactive backlit keys
- High resolution color LCD
 - Diagonal dimension: 19 inch
 - Resolution: 1280X1024
 - Brightness and contrast adjustment
- Integrated speaker
 - Volume adjustable

System Overview

Applications

- Abdominal (Gynecology & Urology)
- Fetal/OB
- Small Organ (Breast,Testes,Thyroid)
- Pediatric
- Peripheral Vascular
- Musculo-skeletal Conventional & Superficial
- Cardiac (adult & pediatric)
- Transvaginal

Scanning Method

- Electronic convex
- Electronic linear
- Electronic micro convex
- Electronic phased array
- Volume convex

Transducer Types

- Convex transducer: D3C60L
- Linear transducer: D7L40L
- Linear transducer: D7L30L
- Linear transducer: D7L60L
- Linear transducer: D12L40L
- Trans-vaginal transducer: D6C12L
- Trans-vaginal transducer: D7C10L
- Micro convex transducer: D3C20L
- Micro convex transducer: D5C20L
- Micro convex transducer: D6C15L
- Phased array transducer: D3P64L
- Phased array transducer: D6P64L
- 4D volume transducer: V4C40L

Image Modes

- B Mode
- 2B Mode
- 4B Mode
- B/M mode
- M mode
- CFM Mode
- CPA Mode
- DPD Mode
- B/BC Mode
- Pulse Doppler Mode
- Trapezoidal imaging
- Multiple Compound Imaging
- SRA
- AIO
- 2D Steer
- Triplex
- Quadplex
- CWD
- Free Steering M Mode
- TDI
- Color M Mode
- Curved Panoramic Imaging
- ECG
- Super Needle
- 4D
- Virtual HD
- FHI mode
- Elastography

Display Mode

- Quad/dual display
- Duplex mode
- Triplex mode
- Quadplex mode

Display Annotation

- Hospital name
- Date/Time
- Patient Name and Patient ID
- System status
- Gray/Color bar
- Cine guide
- Scanning direction
- Measurement summary window
- Measurement results window
- Transducer type
- Frequency
- Application name
- Menu indication
- Trackball functions indication
- Imaging parameters displayed on the screen

Standard Configuration

- High resolution 19 inch LCD display
- 4 active transducer ports
- Color Doppler Flow Imaging
- Pulse Wave Doppler
- Power Doppler Flow Imaging
- Directional Power Doppler Flow Imaging
- $\geq 250\text{G}$ integrated hard disk
- USB ports:6
- Ethernet port
- S-video Out port
- VGA port
- Remote
- Video out port
- General measurement package
- Multi-language screen display
- EasyView: image archive system
- Patient information management system

- Building reporting system
- AIO
- Intelligent Zoom
- Speckle Reduction Algorithm
- Auto Doppler spectrum trace and auto calculate

Software Options

- DICOM
- 4D software package
- Virtual HD
- Curved Panoramic Imaging
- Super Needle
- Cardiac Package: CW, Free Steering M Mode, Color M Mode, TDI, ECG
- Auto IMT
- 2D Steer
- Clinical measurement package
- Q-Image
- Q-flow
- Q-beam
- X-Contrast

Hardware Option

- Convex transducer: D3C60L
- Linear transducer: D7L40L
- Linear transducer: D7L30L
- Linear transducer: D7L60L
- Linear transducer: D12L40L
- Trans-vaginal transducer: D6C12L
- Trans-vaginal transducer: D7C10L
- Micro convex transducer: D3C20L
- Micro convex transducer: D5C20L
- Micro convex transducer: D6C15L
- Phased array transducer: D3P64L
- Phased array transducer: D6P64L
- 4D volume transducer: V4C40L

- Footswitch
- ECG cable

Peripherals

- Video printer: SONY UP-897MD, SONY UP-D25MD, SONY UP-D711MD
SONY UP-D898MD/X898MD
- PC printer :
 - HP LaserJet 1020
 - HP LaserJet CP2055d
 - HP LaserJet P1102
 - HP LaserJet 200 color M251

Imaging Processing and Presentation

B Mode

- Gain : 0-255 (256 steps)
- TGC : 8 segments
- Depth : Max.36.5cm (Depends on the probes)
- Frame Rate : Max.1261 (Depends on the probes)
- Scan Width : 6%-100% (15 steps)
- Image Rotate : 0-270° (4 steps)
- Gamma : 0-8 (9 steps)
- Smooth : 0-7 (8 steps)
- Edge Enhance : 0-6 (7 steps)
- Acoustic Power : 0-100% (101 steps)
- Freq. : Min.1.5MHz, Max. H15.0MHz (Depends on the probes)
- Dynamic : 30-165 (16 steps)
- Focus Number : 1-9 (9 steps)
- Focus Position : 16 steps
- Compound : Off/1-2 (3 steps)
- Q-image : 0-4 (5 steps)
- SRA : On/Off
- Persistence : 0-7 (8 steps)
- Density : High/Low
- Noise Reject : 0-255 (256 steps)
- 2D Map : Color Sample 1-20 (20 steps)
- Chroma (30 Types) : User, Type1-29 (30 steps)
- Flip : Left/Right
- Zoom : 12 steps
- Trapezoidal Mode : On/Off
- Super Needle : On/Off
- 2D steer : -20-20 (41 steps)
- X-contrast : Enhance/ Normal/ Suppress

M Mode

- 2D Map : Color Sample 1-20 (20 steps)

- Color Map : User, Type1-9 (10 steps)
- Sweep Speed : 1-4 (4 steps)
- Layout : LR/UD
- Free M Mode : Off/1-3 (4 steps)
- Display Format : 1:2 / 1:1 / 2:1

Color Mode

- Gain : 0-255 (256 steps)
- Frame Rate : 495 (Depends on the probes)
- Scale : Color Sample 1-20 (20 steps)
- Color Mode : Velocity, Variance
- Wall Thre : 0-15 (16 steps)
- Blood Efection : Smooth, HRes, HRes2, HRes3 (4 steps)
- B/BC : On/Off
- Freq. : Min.1.5MHz, Max. H15.0MHz (Depends on the probes)
- Steer : -20, -15, -10, 0, 10, 15, 20 (7 steps)
- Wall Filter : 0-3 (4 steps)
- Color Map : User, Type1-9 (10 steps)
- PRF : Min. 150Hz, Max.16.1MHz (Depends on the probes)
- Color Invert : On/Off
- Persistence : 0-7 (8 steps)
- Density : High/Low
- Baseline : -3-3 (7 steps)
- Q-flow : On/Off
- Q-beam : On/Off

CPA/DPD Mode

- Gain : 0-255 (256 steps)
- Frame Rate : 495 (Depends on the probes)
- Wall Thre : 0-15 (16 steps)
- Freq. : Min.1.5MHz, Max. H15.0MHz (Depends on the probes)
- Steer : -18, -15, -10, 0, 10, 15, 18 (7 steps)
- Wall Filter : 0-3 (4 steps)
- Color Map : User, Type1 (2 steps)
- PRF : Min. 150Hz, Max.16.3MHz (Depends on the probes)

- Density : High/Low
- Persistence : 0-7 (8 steps)

PW Mode

- Gain : 0-255 (256 steps)
- Scale : Color Sample 1-20 (20 steps)
- Spectrum Enhance : 0-3 (4 steps)
- Dynamic Range : 46-67 (8 steps)
- Auto Cal : On/Off
- Freq. : Min.1.5MHz, Max. H15.0MHz (Depends on the probes)
- Color Map : User, Type1-29 (30 steps)
- Wall Filter : 0-3 (4 steps)
- Audio : 0-100% (101 steps)
- Triplex : On/Off
- PRF : Min.150Hz, Max. H20.0MHz(Depends on the probes)
- Speed : 1-3 (3 steps)
- Quadplex : On/Off
- Baseline : 0-6 (7 steps)
- Invert : Left/Right
- DA : -80-80 (32 steps)
- SV : 1.0-8.0mm (8 steps)

CW Mode

- Gain : 0-255 (256 steps)
- Scale : Color Sample 1-20 (20 steps)
- Spectrum Enhance : 0-3 (4 steps)
- Dynamic : 46-67 (8 steps)
- Invert : Left/Right
- Color Map : User, Type1-9 (10 steps)
- Wall Filter : 0-3 (4 steps)
- Audio : 0-100% (101 steps)
- PRF : Min.6250Hz, Max. 50.0KHz
- Speed : 1-3 (3 steps)
- Baseline : 0-6 (7 steps)
- DA : -80-80 (32 steps)

Cineloop

- Support 2D, M, PW, CFM, CPA, DPD, CW, Color M, Free Steering M
- Simultaneous and independent review in duplex mode
- Cineloop auto/manual
- Variable cine playback speed
- User-define start and end frame of cine storage
- User-define start and end frame of cine review
- storage in hard disk and display in real-time modes
- Slide show: slide show function

Storage

- \geq 250GB integrated hard drive
- DVD R/W driver
- USB ports
- Still images storage format: IMAG
- Still images export format: BMP, JPG, DCM, PNG, TIFF
- Cine loops storage format: CINE
- Cine loops export format: AVI
- Fast storage setting

EasyView

- Image review Layout: $1 \times 1, 2 \times 2$
- Image management

Exam Review

- Search Exam
- Exam review: patient view, study view
- Exam management
 - Delete selected exam
 - Export selected exam
 - Backup selected exam
 - Recover from the backup exam
 - Selected all
 - Expand all
 - Collapse all
 - Edit selected Exam

- Review selected Exam
- Continue selected Exam

Measurement & Calculation

General Measurement Package

- Software packages for various specific clinical use
- Comprehensive analysis methods
- Clinical analysis reports
- **General measurement package**
- B mode normal measurement
 - Distance
 - Length__Area (Ellipse)
 - Length__Area (Trace)
 - Volume (1 Distance)
 - Volume (2 Distance)
 - Volume (3 Distance)
 - Volume (1 Ellipse)
 - Volume (2 Ellipse)
 - Volume (1 Distance 1 Ellipse)
 - Ratio
 - Angle
 - Breast
- M mode normal measurement
- PW mode Normal measurement

Clinical Analysis Packages

- OB
- GYN
- Pediatrics
- URO
- Cardiac
- Vessel
- Abdomen
- Carotid
- Small parts

Probe Specification

	D3C60L	D7L40L	D7L40L-REC	D6C15L	D5C20L	D3C20L	D7C10L
Application	ABD, OB, GYN, Urology, Chest	Vascular, Small Parts, Nerve, Chest Orthopedics, Musculoskeletal, Pediatric,	Urology	Pediatrics	Pediatrics	ABD, Fast, Chest	OB,GYN,
Preset	ABD, Kidney, ABD(Difficult), ABD& Kidney, Abdomen, Ovary, Early Pregnancy, Mild-late Pregnancy, Fetal Heart, UT,Lung Prostate, Kidney& Ureter.	Carotid, Thyroid, Upper Ext Artery, Upper Ext Vein, Lower Ext Artery, Lower Ext Vein, Breast, Scrotum, Nerve, MSK, Superfical, ABD, PED-ABD, HIP , Neonatal, Lung	Prostate, Bladder	ABD, Chest	ABD, Chest	ABD,RUQ, LUQ, Subcostal, Pelvic, Lung	Early Pregnancy, UT, Ovary
Bandwidth	2.0-6.8MHz	4-15MHz	4-15MHz	4-12MHz	4-10.7MHz	2-6.8MHz	4-15MHz
Main Frequency	3.5MHz	7.5MHz	7.0MHz	6.0MHz	5.0MHz	3.5MHz	7.0MHz
Number of Elements	128	128	128	128	128	128	128
Mode	B,C,D,M,FHI, CPA,DPI	B,C,D,M,FHI, CPA,DPI	B,C,D,M,FHI, CPA,DPI	B,C,D,M,FHI, CPA,DPI	B,C,D,M,FHI, CPA,DPI	B,C,D,M,FHI, CPA,DPI,	B,C,D,M,FHI, CPA,DPI
Physical Footprint	73mm*16mm	44mm*11mm	44mm*11mm	28mm*11mm	34mm*15mm	73mm*16mm	34mm*12mm

Radius of Curvature	60mm	40mm	40mm	15mm	20mm	20mm	10mm
Field of View (Adjustable)	65°	39mm	37mm	89°	82°	117°	171°
Biopsy Guide	Optional longitudinal type	Optional longitudinal type	Optional longitudinal type	No	No	Optional longitudinal type	Optional longitudinal type
Depth	4.42-27.83cm	2.46-11.09cm	3.7-9.86cm	3.22-14.31cm	3.14-15.46cm	5.12-28.53cm	2.67-10.06cm
Cable Length	Approx. 2.1 meters	Approx. 2.1 meters	Approx. 2.1 meters	Approx. 2.1 meters	Approx. 2.1 meters	Approx. 2.1 meters	Approx. 2.1 meters
Weight (excl. cable and connector)	770g	686g	750g	702g	715g	725g	790g
Ingress Protection Rating	IPX 7	IPX 7	IPX 7	IPX 7	IPX 7	IPX 7	IPX 7
Frame rate							
B Mode	1261	1064	1064	1124	1191	472	1191
C Mode	495	462	381	461	503	357	303
Frequency							
2D and M-Mode	2.0MHz ,	4.0MHz,	4.0MHz,	4.0MHz,	4.0MHz,	2.0MHz,	4.0MHz ,
	3.0MHz,	6.5MHz,	6.5MHz,	5.3MHz,	4.5MHz,	3.5MHz,	5.3MHz ,
	3.5MHz ,	7.5MHz,	7.5MHz,	6.0MHz,	5.3MHz ,	4.0MHz,	6.4MHz ,
	4.0MHz,	8.5MHz,	8.5MHz,	8.0MHz,	6.4MHz ,	5.3MHz,	7.5MHz ,
	5.3MHz,	10.0MHz,	10.0MHz,	10.7MHz,	8.0MHz,	6.4MHz,	10.7MHz,
FHI	3.0MHz,	6.0MHz,	6.0MHz,	4.8MHz,	4.2MHz,	3.0MHz,	4.8MHz,
	3.5MHz,	7.8MHz,	7.8MHz,	6.4MHz,	4.8MHz,	4.2MHz,	6.4MHz ,
	4.0MHz,	9.0MHz,	9.0MHz,	7.7MHz,	6.4MHz ,	4.8MHz,	7.7MHz ,
	4.5MHz,	10.2MHz,	10.2MHz,	9.6MHz,	7.7MHz ,	6.4MHz,	9.0MHz,

	6.8MHz,	15.0MHz,	15.0MHz,	12.0MHz,	10.7MHz,	6.8MHz,	15.0MHz,
Color	2.0MHz,	4.0MHz,	4.0MHz,	4.0MHz,	4.0MHz,	2.0MHz,	4.0MHz,
/power Doppler	3.0MHz,	6.5MHz,	6.5MHz,	5.3MHz,	4.5MHz,	3.5MHz,	5.3MHz,
/PW	3.5MHz,	7.5MHz,	7.5MHz,	6.0MHz,	5.0MHz,	4.0MHz,	6.4MHz,
	4.0MHz,	8.5MHz,	8.5MHz,	8.0MHz,	6.4MHz,	5.3MHz,	7.5MHz,
	5.3MHz,	10.0MHz,	10.0MHz,	10.7MHz,	8.0MHz,	6.4MHz,	10.7MHz,
C Mode							
PRF	600Hz-6KHz	150Hz-19.5KHz	150Hz-19.9KHz	1KHz-10KHz	1KHz-10.0KHz	1KHz-6kHz	800Hz-6KHz
Scale of Velocity	±1.44-±187.8cm/s	±0.91-±282.23cm/s	±0.18-±382.61cm/s	±1.21-±192.5cm/s	±1.6-±180.75cm/s	±2.4-±187.8cm/s	±0.97-±115.5cm/s
D Mode							
PRF	600Hz-6KHz	150Hz-20KHz	150Hz-20.0KHz	1KHz-10KHz	1KHz-10KHz	1KHz-6kHz	800Hz-6KHz
Scale of Velocity	±1.4-±946.3cm/s	±0.4-±1455.9cm/s	±0.4-±1455.9cm/s	±1.2-±970cm/s	±1.2-±1093cm/s	±2.4-±946.3cm/s	±0.7-±582cm/s
CW Mode							
PRF	No	No	No	No	No	No	No
Scale of	No	No	No	No	No	No	No

	D6C12L	D3P64L	D6P64L	V4C40L	D12L40L	D7L60L
Application	OB,GYN, Urology	Cardiac, ABD, Fast, Special	Cardiac, Special	Abdominal, OB,Phantom	Vascular, Small Parts, Nerve, Musculoskeletal, Pediatric, Orthopedics	Small Parts, Vessel,MSK
Preset	UT,Ovary, Early Pregnancy, Prostate	Cardiac, Cardiac(Difficult), ABD, RUQ, LUQ, Subcostal, Pelvic, Special	Cardiac, Special	Abdominal,Kidney, Early Pregnancy, Mild Pregnancy, Late Pregnancy, Phantom	Carotid, Thyroid, Upper Ext Artery, Upper Ext Vein, Lower Ext Artery, Lower Ext Vein, Breast, Scrotum, Nerve, Superfical, Musculoskeletal, Neonatal ABD, PED-ABD, HIP	Breast, Thyroid, Vascular, MSK
Bandwidth	4-12MHz	1.5-5.3 MHz	2.0-8.0 MHz	2.0-6.8 MHz	7.0-18 MHz	4.0-15 MHz
Main Frequency	6.0MHz	3.0MHz	6.0MHz	4.0MHz	12.0MHz	7.5MHz
Number of Elements	128	64	64	128	128	128
Mode	B,C,D,M,FHI,CPA,D PI	B,C,D,M,FHI, CPA,DPI,CW, Color M,Free M,TDI	B,C,D,M,FHI, CPA,DPI,CW, Color M,Free M,TDI	B,C,D,M,FHI, CPA,DPI	B,C,D,M,FHI, CPA,DPI	B,C,D,M,FHI, CPA,DPI
Physical Footprint	40mm*12mm	24mm*18mm	12.1mm*11.6mm	/	44mm*11mm	65mm*10.5mm

Radius of Curvature	12mm	/	/	40mm	40mm	60mm
Field of View (Adjustable)	119°	84°	481	63°	37.5mm	55.5mm
Biopsy Guide	Optional longitudinal type	No	No	No	Optional longitudinal type	Optional longitudinal type
Depth	3.04-11.66cm	4.9-31.5cm	3.7-19.71cm	5.37-28.78cm	2.46-9.86cm	3.7-14.78cm
Cable Length	Approx. 2.1 meters	Approx. 2.1 meters	Approx. 2.1 meters	Approx. 2.1 meters	Approx. 2.1 meters	Approx. 2.1 meters
Weight (excl. cable and connector)	795g	640g	611g	963.5g	716g	723g
Ingress Protection Rating	IPX 7	IPX 7	IPX 7	IPX 7	IPX 7	IPX 7
Frame rate						
B Mode	1124	764	918	807	1064	1064
C Mode	282	166	355	319	296	330
Frequency						
2D and M-Mode	4.0MHz,	1.5MHz ,	2.0MHz,	2.0MHz,	7.0MHz ,	4.0MHz,
	5.3MHz,	2.5MHz ,	5.3MHz,	3.0MHz,	8.5MHz ,	5.3MHz,
	6.0MHz ,	3.0MHz ,	6.0MHz,	3.5MHz,	10.0MHz ,	6.0MHz ,
	8.0MHz ,	4.0MHz,	8.0MHz,	4.5MHz,	12.0MHz,	8.0MHz ,
	10.0MHz,			5.3MHz,	15.0MHz,	10.0MHz,
FHI	4.8MHz ,	3.0MHz ,	4.8MHz,	3.0MHz,	8.4MHz ,	4.8MHz ,
	6.4MHz ,	3.6MHz ,	6.4MHz,	3.6MHz,	10.2MHz ,	6.4MHz ,
	7.2MHz,	4.2MHz,	7.7MHz,	4.2MHz,	12.0MHz,	7.7MHz,
	9.6MHz ,	5.3MHz,	8.0MHz,	4.8MHz,	14.4MHz,	9.6MHz ,

	12.0MHz,			6.8MHz,	18.0MHz,	15.0MHz,
Color	4.0MHz,	1.5MHz,	2.0MHz,	2.0MHz,	7.0MHz ,	4.0MHz,
/power Doppler	5.3MHz,	2.5MHz ,	5.3MHz,	3.0MHz,	8.5MHz ,	5.3MHz,
/PW	6.0MHz,	3.0MHz,	6.0MHz,	3.5MHz,	10.0MHz ,	6.0MHz ,
	8.0MHz ,	4.0MHz,	8.0MHz,	4.5MHz,	12.0MHz,	8.0MHz ,
	10.0MHz ,			5.3MHz,	15.0MHz,	10.0MHz,
C Mode						
PRF	800Hz-6KHz	1KHz-4773Hz	800Hz-10.0KHz	800Hz-6KHz	250Hz-19.1kHz	150Hz-16.0kHz
Scale of Velocity	±1.28-±115.5cm/s	±3.2-±149.38cm/s	±1.28-±192.5cm/s	±1.93-±187.8cm/s	±0.3-±275.83cm/s	±0.18-±308cm/s
D Mode						
PRF	800Hz-6KHz	1KHz-9KHz	800Hz-10.0KHz	2kHz-6KHz	250Hz-20.0KHz	150Hz-16.0kHz
Scale of Velocity	±0.7-±582cm/s	±4.2-±1746cm/s	±1-±970cm/s	±3.6-±946.3cm/s	±1.7-±1455.9cm/s	±0.1-±1164.7cm/s
CW Mode						
PRF	No	6250Hz-50KHz	6250Hz-50KHz	No	No	No
Scale of	No	±30.1-±9699.9cm/s	±15-±4850cm/s	No	No	No

System Setup

By using system setup, users could

- Customize hospital information
- Customize language
- Customize fast storage time
- Customize color map
- Customize functions to Footswitch,P1 key,Print key
- Customize functions to alphanumeric 0~9
- Customize PC and Video Print Option
- Customize Measure
- Customize Comment library
- Customize Report

User Define Functions

By user-define function, users could customize user-define preset, including

- Applications name, Presets name, User defined name
- Applications exam type
- Imaging parameters

Multi-language Display Interface

- English
- Chinese
- Other languages

Note: other languages for detailed, please contact CHISON.

Inputs & Outputs

- AC Power In: 1
- AC power Out: 1
- Power Button: 1
- USB Port: 6
- Ethernet: 1
- Remote Control: 1
- S-Video Out: 1
- Audio: L,R
- DVI: 1
- VGA Out: 1
- Video Out: 1
- Footswitch Port: 2
- Ground pole: 1

Operating Conditions

- Ambient temperature: 10°C to 40°C
- Relative humidity: 30% to 75% (no condensation)
- Atmospheric pressure: 700 hPa to 1060 hPa

Storage and Transport

- Ambient temperature: -5°C to 40°C
- Relative humidity: ≤80% (no condensation)
- Atmospheric pressure: 700 hPa to 1060 hPa

Not all features or specifications described in this document may be available in all probes and/or modes.

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