

### System Description

The Z6/Z6T/Z6S/Z6W is an ergonomically designed portable and ease-of-use machine for multi-speciality use like adults, pregnant women, paediatric patients and neonates.

#### Intended Use

- CE Region: It is intended for use in gynaecology, obstetrics, abdominal, paediatric, small organ, cephalic, transcranial, musculo-skeletal, cardiac, vascular, urology, orthopaedics, nerve and intraoperative exams.
- FDA Region: It is intended for use in fetal, abdominal, intraoperative (abdominal, thoracic, and vascular), paediatric, small organ (breast, thyroid, testes), neonatal and adult cephalic, trans-rectal, trans-vaginal, musculo-skeletal (conventional, superficial), cardiac (adult, paediatric), peripheral vessel and urology exams.

### General Specification

#### Dimensions and Weight

- Unfolded:
  - Depth: 476mm (18.74 inch)
  - Width: 415mm (16.34 inch)
  - Height: 396mm (15.59 inch)
- Folded:
  - Depth: 190mm (7.48 inch)
  - Width: 415mm (16.34 inch)
  - Height: 378mm (14.88 inch)
- Net Weight:  $\leq 8.8$ kg (including ACDC and battery)

#### Electrical Power

##### Input power

- Voltage: 100-240V~
- Frequency: 50/60Hz
- Input current: 1.5- 0.8A

##### Battery

- Lithium-ion Battery Pack: 14.8 V  $\equiv$  , 6600 mAh

- Charge time: < 3 hours (connected on AC power supply, with the system powered off)

- Endurance time: > 100 min

#### Boot time

- Boot time:  $\leq 30$  s
- Wake up time (from standby):  $\leq 5$  s

#### Operating Environment

Ambient temperature: 0°C ~ 40°C

Relative humidity: 30% ~ 85% (no condensation)

Atmospheric pressure: 700 hPa ~ 1060 hPa

#### Storage & Transportation Environment

Ambient temperature: -20°C ~ 55°C

Relative humidity: 30% ~ 95% (no condensation)

Atmospheric pressure: 700 hPa ~ 1060 hPa

### Probe

#### Probe Types

- Convex array
- Linear array
- Phased array

#### Scanning Methods

- Electronic convex with extend FOV
- Electronic linear with slant scanning and trapezoid
- Electronic sector

#### Probe Model

> 3C5P	Convex
> 6C2P	Convex
> 6CV1P	Endocavity Micro-Convex
> CB10-4P	Bi-plane (convex & convex)
> 7L4P	Line
> 7L5P	Line
> L14-6P	Linear
> 2P2P	Phased
> V10-4BP	Convex
> 7LT4P	Linear
> 6LE7P	Linear

### **Available Needle-guided Bracket for Probe:**

➢ 6CV1P	NGB-004
➢ CB10-4P	NGB-004
➢ V10-4BP	NGB-004
➢ 6C2P	NGB-005
➢ 3C5P	NGB-006
➢ 7L4P	NGB-007
➢ 7L5P	NGB-007
➢ 6LE7P	NGB-009
➢ 7LT4P	NGB-010
➢ 2P2P	NGB-011
➢ L14-6P	NGB-016

## **System Configuration**

### **Standard Configuration**

- Display
  - 15-inch LCD, High-Resolution 1024 x 768
  - Contrast & Brightness adjustable
  - Screen Saver: Time and picture presettable
  - Angle adjustable: 30°
- Control Panel
  - Alphanumeric Keys
  - Function Keys
  - Knobs
  - User-defined Keys: function presettable
  - 8 segment TGC
  - Trackball: Colour & Speed presettable
  - Key Backlight Brightness & Volume presettable
  - Integrated Speakers
- Indicators: Power/Battery/Standby/HDD status
- Handle
- Phase Shift harmonic imaging
- Steer scanning for linear probes (2D Steer)
- iBeam™
- iClear™ (Speckle Suppression Imaging)
- Colour/Power module
- PW module
- iTouch™
- ExFOV Imaging
- iStation™
- 320G integrated hard disk
- I/O Interfaces
  - Transducer port: 2
  - Power input port: 1 (Connect to the AC power supply)

- USB port: 4
- VGA OUT port: 1
- Video OUT: 1
- S-Video OUT: 1 (Separate video output)
- Ethernet port: 1 (Connect to network)
- Remote control port: 1
- Equipotential terminal: 1
- Multi-language screen display and control panel overlay
- Application categories
  - Abdomen
  - Obstetrics
  - Gynaecology
  - Cardiology
  - Small Parts
  - Urology
  - Vascular
  - Orthopaedics
  - Emergency
  - Nerve

### **Accessories**

- Operator's manual
  - Basic Volume.
  - Advanced Volume
  - Operation Note
- Gel
- Power cord
  - 3-Flat-Pin Power Cord
  - EU Power Cord
  - US Power Cord
  - UK Power Cord
- Probe holder
- Grounded Cable
- Video Printer Remote Cable

### **System Language**

- Software display and keyboard input available: Chinese/English/German/Spanish/French/Italian/Portuguese/Russian/Czech/Polish
- Keyboard input available only: Icelandic/Norwegian/Swedish/Finnish/Turkish/Danish
- Control panel overlay available: Chinese/German/Spanish/French/Italian/Portuguese/Russian/Czech/Polish
- Operation manual available: Chinese/English/German/Spanish/French/Italian

/Portuguese/Russian

## **Options**

- IMT (Auto Calculation of Intima-Media Thickness)
- HPRF
- CW module
- iScape View
- Free Xros M (Anatomical M)
- Smart 3D (not applied in FDA region)
- Application software package (including related exam mode, comments, measurements, body marks and report)
  - Abdominal package
  - Obstetrical package
  - Gynaecological package
  - Cardiac package
  - Small parts package
  - Urological package
  - Vascular package
  - Paediatric package
  - Nerve blocks package
  - Emergency medicine package
- DICOM basic
  - Task management
  - DICOM storage
  - DICOM print
  - DICOM storage commitment
  - DICOM media storage (including DICOM DIR)
- DICOM Worklist
- DICOM MPPS
- DICOM Query/Retrieve
- DICOM OB/GYN structured report
- DICOM vascular structured report
- DICOM cardiac structured report
- Keys for optical functions
- Battery Pack
- External USB DVD-RW: SE-S224
- Footswitch:
  - 971-SWNOM (2-pedal or 3-pedal)
  - FS-81-SP-2 (1-pedal)
- Mobile trolley: UMT-150
  - Weight: 21 kg
  - Width: 445 mm
  - Depth: 535 mm
  - Height: selective (not available after installed): 810 mm, 870 mm, 2 levels

- Mobile trolley: UMT-160
  - Weight: 20 kg
  - Width: 616 mm
  - Depth: 702 mm
  - Height: selective (not available after installed): 1247 mm, 1147 mm, 2 levels
- Carrying Case
- Wireless-LAN adapter: D-Link DWA-125
- Bar code reader: SYMBOL LS2208-SR
- Gel
- Print paper
- Probes
- Needle-guided brackets

## **Peripherals Supported**

- Black and White Video Printer
  - SONY UP-897MD Analog
  - MITSUBISHI P93W-Z Analog
  - SONY UP-D897 Digital
- Colour Video Printer
  - SONY UP-20 Analog
  - MITSUBISHI CP910E Analog
- Graph / text printer
  - HP Colour LaserJet CM1015 MFP
  - HP LaserJet p1007
  - HP LaserJet 1020 plus
  - HP Officejet 7000 wide format
  - HP Deskjet 1050
  - HP Deskjet Ink Advantage 2020hc
  - HP Deskjet Ink Advantage 2010
  - HP Deskjet Ink advantage Printer K109g
  - HP Officejet Pro 8100
  - HP Deskjet 1000-J110a
  - EPSON Stylus PHOTO R230
  - EPSON Stylus PHOTO R270
  - HP LaserJet CP1025 Colour

## **Exam Mode**

- Adult ABD (Adult Abdomen)
- ABD-Difficult (Abdomen-Difficult)
- Paed-ABD
- GYN (Gynaecology)
- OB1
- OB2/3
- Fetal Cardiac

- Kidney
- Urology
- Prostate
- Carotid
- IMT (Intima-Media Thickness)
- Upper Ext Artery
- Lower Ext Artery
- Upper Ext Vein
- Lower Ext Vein
- Thyroid
- Breast
- Testicle
- MSK (Musculoskeletal)
- General Nerve
- Superficial
- Orthopaedic
- Adult Cardiac
- CAR-Difficult
- TCI
- Paed-cardiac
- Neonatal Head
- Neonatal Cardiac
- Neonatal ABD
- EM ABD
- EM FAST
- EM OB
- EM Vascular
- EM Superficial
- CVC (Central Venous Catheterisation)
- Vascular Access
- Superficial Nerve
- Deep Nerve
- Ped Epidural Block
- Sciatic Nerve
- Epidural Block

## Imaging Mode

- B-Mode
  - Tissue Harmonic Imaging
  - Phase Shift Harmonic Imaging
- Slant scanning for linear probes (B, colour/power, PW/CW independent)
- ExFOV Imaging for Convex Probe (trapezoid imaging for linear probe)
- M Mode
- Colour M Mode (CM)

- Free Xros M Mode
- iScape™ (iScape View)
- Colour
- Power
- Smart 3D (not applied in FDA region)
- PW (Pulse Wave Doppler)
- HPRF (High Pulse Repeat Frequency)
- CW (Continuous Wave Doppler)
- TDI (Tissue Doppler imaging)
  - TVI (Tissue Velocity Imaging)
  - TEI (Tissue Energy Imaging)
  - TVD (Tissue Velocity Doppler Imaging)
  - TVM (Tissue Doppler Velocity M Mode)
- Display Mode:
  - Single window
  - B/C/D triplex mode
  - Dual live: B/C, B/TDI,
  - Adjustable time line display format (V1:1, V1:2, V2:1, Full)
  - Dual-split: B/C, B/TDI, B/M, B/PW
  - Quad-split

## Imaging Features

- iBeam™ (Spatial Compounding Imaging for Linear and Convex Probe)
- iScape™
- Multi-frequency probes for 2D imaging modes
- iClear™ (adaptive speckle suppression imaging for all probes)
- iTouch™ (B/PW): Auto Optimization
- TSI (Tissue Specific Imaging)
- iZoom™
- Spot Zoom and Pan Zoom

## B Mode

- Display Depth
  - Minimum: 0.9 cm
  - Maximum: 38.8 cm
- Frame rate (Max.):
  - B mode: 400 fps (2P2P)
- Adjustable focus number: 4
- Adjustable focus positions (Max.): 16
- Magnification factor:
  - Spot Zoom: continuously adjustable
  - Pan Zoom: 80%-1000%
- iZoom: instant full screen view, two levels

- System dynamic range: 30~220, 5/step
- Gain: 0~100dB, 51steps
- TGC: 8
- Tint map: on/off, 1~16
- Gray map: 1~8
- FOV: on/ off, continuously adjustable
- ExFOV: on/ off (Trapezoid imaging for linear probe)
- Persistence: 0~7
- R/L, U/D Flip
- Line Density: L, M, H, UH
- iTouch Bright: -12~12dB, 9steps
- A.power: 7%~100%, 32steps
- TSI: General, Fat, Fluid, Muscle
- Steer: -6°, 0°, 6°, linear probe only
- HScale: on/ off
- Lithotriety: on/ off
- iClear: on/off, 1~4
- iBeam: on/off
- Gray Invert: on/ off
- Auto Merge: on/ off, linear probe, Dual display mode

### **M Mode**

- Speed: 1~6
- Edge Enhance: 0~14
- M Soften: 0~14

### **Colour Mode**

- Frame rate (Max.): 376 fps (2P2P)
- PFR (kHz): 0.3 (2P2P)~ 15.7 (2P2P)
- Flow velocities (cm/s, probe dependent): 5.0 (L14-6P)~ 302 (2P2P)
- Gain: 0~100, 2/step
- Baseline: -8~8
- Persistence: 0~4
- Smooth: 0~4
- ROI adjustment: continuously
- Colour Map: V0~V10; VV0~ VV9
- Priority: 0%~100%, 11 levels
- WF: 0~7
- Line Density: L, M, H, UH
- Dual Live: on/ off
- Invert: on/ off
- B/C Align: on/ off
- Packet Size: 0~3

### **Power Mode**

- Dynamic Range: 10~70, 5/step
- Power Map: P0~P3; dP0~dP3

### **PW/CW Mode**

- PRF (kHz)
  - PW: 0.7 (L14-6P)~ 24.0 (2P2P)
  - CW: 0.4 (2P2P)~ 160.0 (2P2P)
- Flow velocities (cm/s, probe dependent):
  - PW: 4.1 (L14-6P)~ 462 (2P2P)
  - CW: 7.1 (2P2P)~ 3080 (2P2P)
- Gain: 0~100, 2/step
- Baseline: -4~4
- Audio volume: 0~100%, 2%/step
- Angle: -89°~89°
- Quick Angle: -60°~60°
- SVD (CW focus depth): 10%-100%
- Speed: 1~6
- iTouch (PW): on/off
- SV:
  - 0.5~3 mm, 0.5 mm/step
  - 3~5 mm, 1 mm/step
  - 5~10 mm, 2.5 mm/step
  - 10~20 mm, 5 mm/step
- Dynamic range: 24~72, 2/step
- WF: 0~6
- Duplex/Triplex: on/ off
- HPRF: on/ off
- T/F Res: 0~4
- Auto Calc: on/ off
- Auto Calc Cycle: 1~5
- Auto Calc Param: setting auto spectrum calculation results
- Trace Area: Above/ Below/ All

### **Display Annotations**

- Manufacturer logo
- Hospital name: up to 64 characters can be displayed
- Exam date: 3 types selectable, YY/MM/DD, MM/DD/YY, DD/MM/YY
- Exam time: 2 formats
- Acoustic output indices: MI, TIC, TIS, TIB
- Freeze icon
- Gender
- Age
- ID: up to 64 characters can be displayed
- Other ID: up to 64 characters can be displayed

- Name: up to 64 characters can be displayed
- Probe model
- Current exam mode
- Accession#
- Operator: up to 64 characters can be displayed
- Menu
- Image
- Probe orientation mark
- Time line
- Coordinate axis, including depth, time, frequency
- TGC curve
- Focus
- Comment
- Body Mark
- Measure calliper
- Grey/colour scale bar
- Thumbnail
- Help information
- Status icons
- Biopsy guideline
- Measure result window (up to 8 results can be displayed)
- Image parameters

## Comments and Body Mark

### **Comment**

#### **Text comment**

- Comment text for all exam modes
- Custom: add/delete/edit comment units in current menu.

#### **Arrow**

- Arrow size
- Arrow position
- Arrow orientation

### **Body Mark**

#### **Application package**

- Body marks for all exam modes:
- Custom: import/delete body marks

## Storage/ Connection

- 320G integrated hard disk
- External DVD-R/W (Optional)
- 4 USB ports
- Image archive on hard disk, DVD, network storage

(iStorage) or temporary saving in cine memory

- Clipboard
- Thumbnail
- Single-frame image formats: BMP, JPG, DCM, FRM (supports off-line analysis)
- Multi-frame images formats: AVI, DCM, CIN, (supports off-line analysis)
- Storage area:
  - Image area: 640x480
  - Standard area: 800x600
  - Full-screen: 1024x768
- iVision: Demo player
- Cine review: Auto, Manual (auto review segment can be set), supports linked cine review for 2D, M/D images.
- Cine memory capacity (Max.)
  - Clip length presettable: 1-60s
  - B mode: 12394 frames
  - M mode: 181.1 s
  - PW/CW: 169.6 s
  - Colour: 10121 frames
- Max. frames in HDD
  - 12905551 frames (JPG format)
  - 232397 frames (FRM format)
- iStorage
- DICOM:
  - DICOM Basic
    - Task management
    - DICOM storage
    - DICOM print
    - DICOM storage commitment
    - DICOM media storage (including DICOM DIR)
  - DICOM Worklist
  - Query/ Retrieve
  - Structured Report (SR)
  - MPPS

## iStation™

Intelligent patient data management system

- Integrated search engine for patient data
- Detailed patient information view
- Intelligent data backup/ restore
- Patient data/ image sending
- Patient data deleting
- Exam managing: create new exam, activate exam

and continue exam

- Recycle Bin
- Task manager

## Measure/Calc/Study

### **Caliper**

#### **2D-mode**

- Depth
- Distance
- Angle
- Area & Circumference (Trace/ Ellipse/ Spline/ Cross)
- Volume
- Cross
- Parallel
- Trace Length
- Ration (D)
- Ratio (A)
- B-Hist
- B-Profile
- Volume Flow
- Colour Vel
- IMT

#### **M-mode**

- HR
- Slope
- Distance
- Time
- Velocity

#### **Doppler mode**

- D Vel
- HR
- Time
- Acceleration
- D Trace
- PS/ED
- Volume Flow

### **Application**

#### **Abdomen**

- 2D-mode Measure
  - Liver
  - Renal L (Renal Length)

- Renal H (Renal Height)
- Renal W (Renal Width)
- Cortex (Renal Cortical Thickness)
- Adrenal L (Adrenal Length)
- Adrenal H (Adrenal Height)
- Adrenal W (Adrenal Width)
- CBD (Common bile duct)
- Portal V Diam (Portal Vein Diameter)
- CHD (Common hepatic duct)
- GB L (Gallbladder Length)
- GB H (Gallbladder Height)
- GB wall th (Gallbladder wall thickness)
- Panc duct (Pancreatic duct)
- Panc head (Pancreatic head)
- Panc body (Pancreatic body)
- Panc tail (Pancreatic tail)
- Spleen
- Aorta Diam (Aorta Diameter)
- Aorta Bif
- Iliac Diam (Iliac Diameter)
- Pre-BL L (Previous-Bladder Length)
- Pre-BL H (Previous-Bladder Height)
- Pre-BL W (Previous-Bladder Width)
- Post-BL L (Posterior-Bladder Length)
- Post-BL H (Posterior-Bladder Height)
- Post-BL W (Posterior-Bladder Width)
- Ureter
- 2D-mode Calculation
  - Renal Vol (Renal Volume)
  - Pre-BL Vol (Previous-Bladder Volume)
  - Post-BL Vol (Posterior-Bladder Volume)
  - Mictur.Vol (Micturated Volume)
- 2D-mode study
  - Kidney
  - Adrenal
  - Bladder
- Doppler-mode Measure
  - Ren A Org (Renal Artery Origin)
  - Arcuate A (Arcuate Artery)
  - Segment A (Segmental Artery)
  - Interlobar A (Interlobar Artery)
  - Renal A (Renal Artery)
  - M Renal A (Main Renal Artery)
  - Renal V (Renal Vein)
  - Aorta

- Celiac Axis
- SMA (Superior Mesenteric Artery)
- C Hepatic A (Common Hepatic Artery)
- Hepatic A (Hepatic Artery)
- Splenic A (Splenic Artery)
- IVC (Inferior Vena Cava)
- Portal V (Portal Vein)
- M Portal V (M Portal Vein)
- Lt Hepatic V (Left Hepatic Vein)
- Rt Hepatic V (Right Hepatic Vein)
- Hepatic V (Hepatic Vein)
- M Hepatic V (Middle Hepatic Vein)
- Splenic V (Splenic Vein)
- SMV (Superior Mesenteric Vein)

- FTA (Fetal Trunk Cross-sectional Area)
- THD (Thoracic Diameter)
- HrtC (Heart Circumference)
- TC (Thoracic circumference)
- Umb VD (Umbilical Vein Diameter)
- F-kidney (Fetal kidney Length)
- Mat Kidney (Matrix Kidney Length)
- Cervix L (Cervical Length)
- AF (Amniotic Fluid)
- NF (Nuchal Fold)
- Orbit (Orbit)
- PL Thickness (Placental Thickness)
- Sac Diam1 (Gestational Sac Diameter 1)
- Sac Diam2 (Gestational Sac Diameter 2)
- Sac Diam3 (Gestational Sac Diameter 3)
- AF1 (Amniotic Fluid 1)
- AF2 (Amniotic Fluid 2)
- AF3 (Amniotic Fluid 3)
- AF4 (Amniotic Fluid 4)
- LVIDd (Left Ventricular Internal Diameter at End-diastole)
- LVIDs (Left Ventricular Internal Diameter at End-systole)
- LV Diam (Left Ventricular Diameter)
- LA Diam (Left Atrium Diameter)
- RVIDd (Right Ventricular Internal Diameter at End-diastole)
- RVIDs (Right Ventricular Internal Diameter at End-systole)
- RV Diam (Right Ventricular Diameter)
- RA Diam (Right Atrium Diameter)
- IVSd (Interventricular Septal Thickness at End-diastole)
- IVSs (Interventricular Septal Thickness at End-systole)
- IVS (Interventricular Septal Thickness)
- LV Area (Left Ventricular Area)
- LA Area (Left Atrium Area)
- RV Area (Right Ventricular Area)
- RA Area (Right Atrium Area)
- Ao Diam (Aorta Diameter)
- MPA Diam (Main Pulmonary Artery Diameter)
- LVOT Diam (Right Ventricular Outflow Tract Diameter)
- RVOT Diam (Right Ventricular Outflow Tract Diameter)

### **Obstetrics**

- 2D-mode Measure
  - GS (Gestational Sac Diameter)
  - YS (Yolk Sac)
  - CRL (Crown Rump Length)
  - NT (Nuchal Translucency)
  - BPD (Biparietal Diameter)
  - OFD (Occipital Frontal Diameter)
  - HC (Head Circumference)
  - AC (Abdominal Circumference)
  - FL (Femur Length)
  - TAD (Abdominal Transversal Diameter)
  - APAD (Anteroposterior Abdominal Diameter)
  - TCD (Cerebellum Diameter)
  - Cist Magna (Cist Magna)
  - LVW (Lateral Ventricle Width)
  - HW (Hemisphere Width)
  - OOD (Outer Orbital Diameter)
  - IOD (Inter Orbital Diameter)
  - HUM (Humerus Length)
  - Ulna (Ulna Length)
  - RAD (Radius Length)
  - Tibia (Tibia Length)
  - FIB (Fibula Length)
  - CLAV (Clavicle Length)
  - Vertebrae (Length of Vertebrae)
  - MP (Middle Phalanx Length)
  - Foot (Foot Length)
  - Ear (Ear Length)
  - APTD (Anteroposterior trunk diameter)
  - TTD (Transverse trunk diameter)



- HrtA (Heart area)
- Facial Angle
- MV Diam (Mitral Valve diameter)
- PV Diam (Pulmonary valve Diameter)
- Ao Asc Diam (Ascending Aorta Diameter)
- Ao Desc Diam (Descending Aorta Diameter)
- Duct Art Diam (Ductus Arteriosus Diameter)
- TV Diam (Tricuspid valve Diameter)
- LPA Diam (Left pulmonary Artery Diameter)
- RPA Diam (Right pulmonary Artery Diameter)
- IVC Diam (Inferior vena cava Diameter)
- 2D-mode Calculation
  - Mean Sac Diam (Mean Gestational Sac Diameter)
  - AFI
  - EFW (Estimated Fetal Weight)
  - EFW2 (Estimated Fetal Weight 2)
  - HC/AC
  - FL/AC
  - FL/BPD
  - AXT
  - CI
  - FL/HC
  - HC(c)
  - HrtC/TC
  - TCD/AC
  - LVW/HW
  - LVD/RVD
  - LAD/RAD
  - AoD/MPAD
  - LAD/AoD
- 2D-mode Study
  - AFI
- M-mode Measure
  - FHR (Fetal Heart Rate)
  - LVIDd (Left ventricular diameter at end diastole)
  - LVIDs (Left ventricular diameter at end systole)
  - RVIDd (Right ventricular diameter at end diastole)
  - RVIDs (Right ventricular diameter at end systole)
  - IVSd (interventricular septal thickness at end diastole)
  - IVSs (interventricular septal thickness at end systole)
- Doppler-mode Measure
  - Umb A (Umbilical Artery)

- Duct Venos (Ductus Venos)
- Placenta A (Placenta Artery)
- MCA (Middle Cerebral Artery)
- Fetal Ao (Fetal Aorta)
- Desc Aorta (Descending Aorta)
- Ut A (Uterine Artery)
- Ovarian A (Ovarian Artery)
- FHR (Fetal Heart Rate)

### **Available Obstetrics Formulae**

- GA (gestational age) and FG (fetal growth) Formulae

<b>Items</b>	<b>GA</b>	<b>FG</b>
EFW:	2	5
EFW2:	2	5
GS:	4	4
CRL:	10	6
BPD:	12	12
HC:	7	7
AC:	8	9
FL:	12	10
OFD:	3	4
APAD:	/	1
TAD:	/	1
FTA:	1	1
THD:	1	1
HUM:	2	2
Ulna:	/	1
Tibia:	/	1
RAD:	/	2
FIB:	/	2
CLAV:	1	1
TCD:	2	3
OOD:	1	/
Cist Magna:	/	1
Mean Sac Diam:	1	/
AFI:	/	1
Umb A RI:	/	JUM
Umb A PI:	/	JSUM
MCA RI:	/	JSUM
MCA PI:	/	JSUM

- Fetal Weight Formulae: 11

### **Cardiology**

- 2D-mode Measure
  - LA Diam (Left Atrium Diameter)
  - LA Major (Left Atrium major Diameter)

- LA Minor (Left Atrium minor Diameter)
- RA Major (Right Atrium major Diameter)
- RA Minor (Right Atrium minor Diameter)
- LV Major (Left Ventricular major Diameter)
- LV Minor (Left Ventricular minor Diameter)
- RV Major (Right Ventricular major Diameter)
- RV Minor (Right Ventricular minor Diameter)
- LA Area (Left Atrium area)
- RA Area (Right Atrium area)
- LV Area(d) (Left Ventricular area at end-diastole)
- LV Area(s) (Left Ventricular area at end-systole)
- RV Area(d) (Right Ventricular area at end-diastole)
- RV Area(s) (Right Ventricular area at end-systole)
- LVIDd (Left Ventricular Internal Diameter at end-diastole)
- LVIDs (Left Ventricular Internal Diameter at end-systole)
- RVDd (Right Ventricular Diameter at end-diastole)
- RVDs (Right Ventricular Diameter at end-systole)
- LVPWd (Left Ventricular Posterior wall thickness at end-diastole)
- LVPWs (Left Ventricular Posterior wall thickness at end-systole)
- RVAWd (Right Ventricular Anterior wall thickness at end-diastole)
- RVAWs (Right Ventricular Anterior wall thickness at end-systole)
- IVSd (Interventricular Septal thickness at end-diastole)
- IVSs (Interventricular Septal thickness at end-systole)
- Ao Diam (Aorta Diameter)
- Ao Arch Diam (Aorta arch Diameter)
- Ao Asc Diam (Ascending Aorta Diameter)
- Ao Desc Diam (Descending Aorta Diameter)
- Ao Isthmus (Aorta Isthmus Diameter)
- Ao st junct (Aorta ST junct Diameter)
- Ao Sinus Diam (Aorta Sinus Diameter)
- Duct Art Diam (Ductus Arteriosus Diameter)
- Pre Ductal (Previous ductal Diameter)
- Post Ductal (Posterior ductal Diameter)
- ACS (Aortic Valve Cusp Separation)
- LVOT Diam (Left Ventricular Outflow Tract Diameter)
- AV Diam (Aorta Valve Diameter)
- AVA (Aortic Valve Area)
- PV Diam (Pulmonary valve Diameter)
- LPA Diam (Left pulmonary Artery Diameter)
- RPA Diam (Right pulmonary Artery Diameter)
- MPA Diam (Main pulmonary Artery Diameter)
- RVOT Diam (Right Ventricular Outflow Tract Diameter)
- MV Diam (Mitral Valve diameter)
- MVA (Mitral Valve area)
- MCS (Mitral Valve Cusp Separation)
- EPSS (Distance between point E and Interventricular Septum when mitral valve is fully open)
- TV Diam (Tricuspid valve Diameter)
- TVA (Tricuspid Valve Area)
- IVC Diam(Insp) (Inferior vena cava inspiration Diameter)
- IVC Diam(Expir) (Inferior vena cava expiration Diameter)
- SVC Diam(Insp) (Superior vena cava inspiration Diameter)
- SVC Diam(Expir) (Superior vena cava expiration Diameter)
- LCA (Left Coronary Artery)
- RCA (Right Coronary Artery)
- VSD Diam (Ventricular Septal defect Diameter)
- ASD Diam (Atrial Septal defect Diameter)
- PDA Diam (Patent ductus Arteriosus Diameter)
- PFO Diam (Patent Oval Foramen Diameter)
- PEd (Pericardial Effusion at diastole)
- PEs (Pericardial Effusion at systole)
- HR (Heart Rate)
- Diastole
- Systole
- 2D-mode Calculation
  - LA/Ao (Left Atrium Diameter/Aorta Diameter)
  - Ao/LA (Aorta Diameter/Left Atrium Diameter)
- M-mode Measure
  - LA Diam (Left Atrium Diameter)
  - LVIDd (Left Ventricular Internal Diameter at end-diastole )
  - LVIDs (Left Ventricular Internal Diameter at end-systole)
  - RVDd (Right Ventricular Diameter at end-diastole)

- RVDs (Right Ventricular Diameter at end-systole)
- LVPWd (Left Ventricular Posterior wall thickness at end-diastole)
- LVPWs (Left Ventricular Posterior wall thickness at end-systole)
- RVAWd (Right Ventricular Anterior wall thickness at end-diastole)
- RVAWs (Right Ventricular Anterior wall thickness at end-systole)
- IVSd (Interventricular Septal thickness at end-diastole)
- IVSs (Interventricular Septal thickness at end-systole)
- Ao Diam (Aorta Diameter)
- Ao Arch Diam (Aorta arch Diameter)
- Ao Asc Diam (Ascending Aorta Diameter)
- Ao Desc Diam (Descending Aorta Diameter)
- Ao Isthmus (Aorta Isthmus Diameter)
- Ao st junct (Aorta ST junct Diameter)
- Ao Sinus Diam (Aorta Sinus Diameter)
- LVOT Diam (Left Ventricular outflow tract Diameter)
- ACS (Aortic valve Cusp Separation)
- LPA Diam (Left pulmonary Artery Diameter)
- RPA Diam (Right pulmonary Artery Diameter)
- MPA Diam (Main pulmonary Artery Diameter)
- RVOT Diam (Right Ventricular outflow tract Diameter)
- MV E Amp (Amplitude of the Mitral Valve E wave)
- MV A Amp (Amplitude of the Mitral Valve A wave)
- MV E-F Slope (Mitral Valve E-F slope )
- MV D-E Slope (Mitral Valve D-E slope)
- MV DE (Amplitude of the Mitral Valve DE wave)
- MCS (Mitral Valve Cusp Separation)
- EPSS (Distance between point E and the interventricular septum)
- PEd (Pericardial effusion at diastole)
- PEs (Pericardial effusion at systole)
- LVPEP (Left Ventricular pre-ejection period)
- LVET (Left Ventricular ejection time)
- RVPEP (Right Ventricular pre-ejection period)
- RVET (Right Ventricular ejection time)
- HR (Heart Rate)
- Diastole
- Systole
- M-mode Calculation
  - LA/Ao (Left Atrium diameter/Aorta diameter)
  - Ao/LA (Aorta Diameter/Left Atrium Diameter)
- Doppler Measure
  - MV Vmax (Mitral Valve Maximum Velocity)
  - MV E Vel (Mitral Valve E-wave Velocity)
  - MV A Vel (Mitral Valve A-wave Velocity)
  - MV E VTI (Mitral Valve E-wave Velocity-Time Integral)
  - MV A VTI (Mitral Valve A-wave Velocity-Time Integral)
  - MV VTI (Mitral Valve Velocity-Time Integral)
  - MV AccT (Mitral Valve Acceleration Time)
  - MV DecT (Mitral Valve Deceleration Time)
  - IVRT (isovelocity Relaxation Time)
  - IVCT (isovelocity Compression Time)
  - MV E Dur (Mitral Valve E-wave Duration)
  - MV A Dur (Mitral Valve A-wave Duration)
  - LVOT Vmax (Left Ventricular Outflow Tract Velocity)
  - LVOT VTI (Left Ventricular Outflow Tract Velocity-Time Integral)
  - LVOT AccT (Left Ventricular Outflow Tract Acceleration Time)
  - AAO Vmax (Ascending Aorta Maximum Velocity)
  - DAo Vmax (Descending Aorta Maximum Velocity)
  - AV Vmax (Aorta Valve Maximum Velocity)
  - AV VTI (Aorta Valve Velocity-Time Integral)
  - LVPEP (Left Ventricular Pre-ejection Period)
  - LVET (Left Ventricular Ejection Time)
  - AV AccT (Aorta Valve Acceleration Time)
  - AV DecT (Aorta Valve Deceleration Time)
  - RVET (Right Ventricular Ejection Time)
  - RVPEP (Right Ventricular Pre-ejection Period)
  - TV Vmax (Tricuspid Valve Maximum Velocity)
  - TV E Vel (Tricuspid Valve E-wave Flow Velocity)
  - TV A Vel (Tricuspid Valve A-wave Flow Velocity)
  - TV VTI (Tricuspid Valve Velocity-Time Integral)
  - TV AccT (Tricuspid Valve Acceleration Time)
  - TV DecT (Tricuspid Valve Deceleration Time)
  - TV A Dur (Tricuspid Valve A-wave Duration)
  - RVOT Vmax (Right Ventricular Outflow Tract Maximum Velocity)
  - RVOT VTI (Right Ventricular Outflow Tract Velocity-Time Integral)
  - PV Vmax (Pulmonary Valve Maximum Velocity)

- PV VTI (Pulmonary Valve Velocity-Time Integral)
- PV AccT (Pulmonary Valve Acceleration Time)
- MPA Vmax (Main Pulmonary Artery Maximum Velocity)
- RPA Vmax (Right Pulmonary Artery Maximum Velocity)
- LPA Vmax (Left Pulmonary Artery Maximum Velocity)
- PVein S Vel (Pulmonary Vein S-wave Flow Velocity)
- PVein D Vel (Pulmonary Vein D-wave Flow Velocity)
- PVein A Vel (Pulmonary Vein A-wave Flow Velocity)
- PVein A Dur (Pulmonary Vein A-wave Duration)
- PVein S VTI (Pulmonary Vein S-wave Velocity-time Integral)
- PVein D VTI (Pulmonary Vein D-wave Velocity-time Integral)
- PVein DecT (Pulmonary Vein Deceleration Time)
- IVC Vel (Insp) (Inferior Vena Cava Inspiration Maximum Velocity)
- IVC Vel (Expir) (Inferior Vena Cava Expiration Maximum Velocity)
- SVC Vel (Insp) (Superior Vena Cava Inspiration Maximum Velocity)
- SVC Vel (Expir) (Superior Vena Cava Expiration Maximum Velocity)
- MR Vmax (Mitral Valve Regurgitation Maximum Velocity)
- MR VTI (Mitral Valve Regurgitation Velocity-Time Integral)
- MS Vmax (Mitral Valve Stenosis Maximum Velocity)
- dP/dt (Rate of Pressure Change)
- AR Vmax (Aortic Valve Regurgitation Maximum Velocity)
- AR VTI (Aortic Valve Regurgitation Velocity-Time Integral)
- AR DecT (Aortic Valve Regurgitation Deceleration Time)
- AR PHT (Aortic Valve Regurgitation Pressure Half Time)
- AR Ved (Aortic Valve Regurgitation Velocity) at end-Diastole)
- TR Vmax (Tricuspid Valve Regurgitation Maximum Velocity)
- TR VTI (Tricuspid Valve Regurgitation Velocity-Time Integral)
- PR Vmax (Pulmonary Valve Regurgitation Maximum Velocity)
- PR VTI (Pulmonary Valve Regurgitation Velocity-Time Integral)
- PR PHT (Pulmonary Valve Regurgitation Pressure Half Time)
- PR Ved (Pulmonary Valve Regurgitation Velocity) at end-Diastole)
- VSD Vmax (Ventricular Septal Defect Maximum Velocity)
- ASD Vmax (Atrial Septal Defect Maximum Velocity)
- PDA Vel (d) (Patent Ductus Arteriosus Velocity at End-diastole)
- PDA Vel (s) (Patent Ductus Arteriosus Velocity at End-systole)
- Coarc Pre-Duct (Coarctation of Pre-Ductus)
- Coarc Post-Duct (Coarctation of Post-Ductus)
- HR (Heart Rate)
- RAP (Right Atrium Pressure)
- Doppler-mode Calculation
  - MV E/A (MV E Vel (cm/s) / MV A Vel (cm/s))
  - MVA(PHT) (MVA(PHT) (cm<sup>2</sup>) = 220 / MV PHT (ms)Mitral Valve Orifice Area (PHT))
  - TV E/A (Tricuspid Valve E-Vel/A-Vel)
  - TVA(PHT) (Tricuspid Valve Orifice Area (PHT))
- TDI Measure
  - Ea(medial) (Mitral Valve medial Early diastolic motion)
  - Aa(medial) (Mitral Valve medial Late diastolic motion)
  - Sa(medial) (Mitral Valve medial Systolic motion)
  - ARa(medial) (Mitral Valve medial Acceleration Rate)
  - DRa(medial) (Mitral Valve medial Deceleration Rate)
  - Ea(lateral) (Mitral Valve lateral Early diastolic motion)
  - Aa(lateral) (Mitral Valve lateral Late diastolic motion)
  - Sa(lateral) (Mitral Valve lateral Systolic motion)
  - ARa(lateral) (Mitral Valve lateral Acceleration

- Rate)
  - DRa(lateral) (Mitral Valve lateral Deceleration Rate)
- Cardiac Study Items
  - 2D-mode:
    - S-P Ellipse
    - B-P Ellipse
    - Bullet
    - Mod.Simpson
    - Simpson SP (A2C)
    - Simpson SP (A4C)
    - Simpson BP
    - Cube
    - Teichholz
    - Gibson
    - LA Vol(A-L)
    - LA Vol (Simp)
    - RA Vol (Simp)
    - LV Mass (Cube)
    - LV Mass (A-L)
    - LV Mass (T-E)
    - Qp/Qs
    - PISA MR
    - PISA AR
    - PISA TR
    - PISA PR
  - M-mode:
    - LVIMP
    - Cube
    - Teichholz
    - Gibson
    - LV Mass (Cube)
  - Doppler-mode:
    - MVA(VTI)
    - AVA(VTI)
    - LVIMP
    - RVSP
    - PAEDP
    - RVIMP
    - Qp/Qs
    - PISA MR
    - PISA AR
    - PISA TR
    - PISA PR
- 2D-mode Calculation
  - CCA IMT (Common Carotid Artery IMT)
  - Bulb IMT (Bulbillate IMT)
  - ICA IMT (Internal Carotid Artery IMT)
  - ECA IMT (External Carotid Artery IMT)
- 2D-mode Study
  - Stenosis D (Stenosis Diameter)
  - Stenosis A (Stenosis Area)
- 2D-mode Study
  - Stenosis
  - IMT (Intima-Media Thickness)
- Doppler-mode Measure
  - CCA (Common Carotid Artery)
  - Bulb (Bulbillate)
  - ICA (Internal Carotid Artery)
  - ECA (External Carotid Artery)
  - Vert A (Vertebral Artery)
  - Innom A (Innominate Artery)
  - Subclav V (Subclavian Vein)
  - Axill A (Axillary Artery)
  - Brachial A (Brachial Artery)
  - Ulnar A (Ulnar Artery)
  - Radial A (Radial Artery)
  - Subclav A (Subclavian Artery)
  - Axill V (Axillary Vein)
  - Cephalic V (Cephalic Vein)
  - Basilic V (Basilic Vein)
  - Ulnar V (Ulnar Vein)
  - Radial V (Radial Vein)
  - C.Iliac A (Common Iliac Artery)
  - Ex.Iliac A (External Iliac Artery)
  - CFA (Common Femoral Artery)
  - SFA (Superficial Femoral Artery)
  - Pop A (Popliteal Artery)
  - TP Trunk A (Tibial Peroneal Trunk Artery)
  - Peroneal A (Peroneal Artery)
  - P.Tib A (Posterior Tibial Artery)
  - A.Tib A (Anterior Tibial Artery)
  - Dors.Ped A (Dorsalis Pedis Artery)
  - C.Iliac V (Common Iliac Vein)
  - Ex.Iliac V (External Iliac Vein)
  - Femoral V (Femoral Vein)
  - Saph V (Great Saphenous Vein)
  - Pop V (Popliteal Vein)
  - TP Trunk V (Tibial Peroneal Trunk Vein)
  - Sural V (Sural Vein)

**Vascular**

- 2D-mode Measure

- Soleal V (Soleal Vein)
- Peroneal V (Peroneal Vein)
- P.Tib V (Posterior Tibial Vein)
- A.Tib V (Anterior Tibial Vein)
- ACA (Anterior Cerebral Artery)
- MCA (Middle Cerebral Artery)
- PCA (Posterior Cerebral Artery)
- AComA (Ant.communicating br.)
- PComA (Post.communicating br.)
- BA (Basilar Artery)
- IIA (Internal Iliac Artery)
- PFA (Deep Femoral Artery)
- Ba V (Basilar Vein)
- Brachial V (Brachial Vein)
- IIV (Internal Iliac Vein)
- CFV (Common Femoral Vein)
- SFV (Superficial Femoral Vein)
- PFV (Deep Femoral Vein)
- SSV (Small Saphenous Vein)
- ASP (Ankle Systolic Pressure)
- BSP (Brachial Systolic Pressure)
- Doppler-mode Calculation
  - ICA/CCA
- Doppler-mode Study
  - ABI (Ankle Brachial Index)

### **Gynaecology**

- 2D-mode Measure
  - UT L
  - UT H
  - UT W
  - Cervix L
  - Cervix H
  - Cervix W
  - Endo
  - Ovary L
  - Ovary H
  - Ovary W
  - Follicle1-16 L
  - Follicle1-16 W
  - Follicle1-16 H
- 2D-mode Calculation
  - Ovary Vol
  - UT Vol
  - Uterus Body

- UT-L/ CX-L
- Follicle 1~16
- 2D-mode Study
  - Uterus (Length, height and width of uterus, endometrium thickness)
  - Uterine Cervix (Length, height and width of uterine cervix)
  - Ovary (Length, height and width of ovary)
  - Follicle 1-16 (Length and width of follicle 1-16)

### **Urology**

- 2D-mode Measure
  - Renal L
  - Renal H
  - Renal W
  - Cortex
  - Adrenal L
  - Adrenal H
  - Adrenal W
  - Prostate L
  - Prostate H
  - Prostate W
  - Seminal L
  - Seminal H
  - Seminal W
  - Testis L
  - Testis H
  - Testis W
  - Ureter
  - Pre-BL L
  - Pre-BL H
  - Pre-BL W
  - Post-BL L
  - Post-BL H
  - Post-BL W
  - Prostate Mass1 d1~d3
  - Prostate Mass2 d1~d3
  - Prostate Mass3 d1~d3
  - Testis Mass1 d1~d3
  - Testis Mass2 d1~d3
  - Testis Mass3 d1~d3
- 2D-mode Calculation
  - Renal Vol
  - Prostate Vol
  - Testis Vol
  - Pre-BL Vol
  - Post-BL Vol

- Mictur.Vol
- 2D-mode Study
  - Kidney
  - Adrenal
  - Prostate
  - Seminal Vesicle
  - Testis
  - Bladder
  - Prostate Mass1~3
  - Testis Mass1~3

### **Small Parts**

- 2D-mode Measure
  - Thyroid L
  - Thyroid H
  - Thyroid W
  - Isthmus H
  - Testis L (Testicular Length)
  - Testis H (Testicular Height)
  - Testis W (Testicular Width)
  - Breast Mass1 d1-d3
  - Breast Mass2 d1-d3
  - Breast Mass3 d1-d3
  - Thyroid Mass1 d1-d3
  - Thyroid Mass2 d1-d3
  - Thyroid Mass3 d1-d3
- 2D-mode Calculation
  - Thyroid Vol
- 2D-mode Study
  - Thyroid
  - Testis
  - Breast Mass1-3
  - Thyroid Mass1-3
- Doppler-mode Measure
  - STA
  - ITA

### **Orthopaedics**

- 2D-mode Measure
  - HIP
  - HIP-Graf
  - d/D

### **Emergency**

- 2D-mode Measure
  - Renal L (Renal Length)
  - Renal H (Renal Height)
  - Renal W (Renal Width)

- CBD (Common bile duct)
- Portal V Diam (Portal Vein Diameter)
- CHD (Common hepatic duct)
- GB wall tha (Gallbladder wall thickness)
- Aorta Diam (Aorta Diameter)
- Aorta Bif
- Ureter
- Pre-BL L (Pre-Animal Bladder Length)
- Pre-BL H (Pre-Animal Bladder Height)
- Pre-BL W (Pre-void Bladder Width)
- Post-BL L (Post-void Bladder Length)
- Post-BL H (Post-void Bladder Height)
- Post-BL W (Post-void Bladder Width)
- GS (Gestational Sac Diameter)
- YS (Yolk Sac)
- BPD (Biparietal Diameter)
- CRL (Crown Rump Length)
- UT L (Uterine Length)
- UT H (Uterine Height)
- UT W (Uterine Width)
- Endo (Endometrium Thickness)
- Ovary L (Ovary Length)
- Ovary H (Ovary Height)
- Ovary W (Ovary Width)
- 2D-mode Calculation
  - Renal Vol (Renal Volume)
  - Pre-BL Vol (Pre-void Bladder Volume)
  - Post-BL Vol (Post-void Bladder Volume)
  - Mictur.Vol (Micturated Volume)
  - Ovary Vol (Ovary Volume)
  - UT Vol (UT Volume)
  - Uterus Body
- 2D-mode Study
  - Uterus
  - Ovary
  - Kidney
  - Bladder
- M/Doppler-mode Measure
  - FHR (Fetal Heart Rate)

### **Diagnostic Report**

- View/add images
- Data edit
- Print
- Save/ load comment

- export (to PDF/RTF file)
- View history report
- Obstetric analysis
- Fetal growth curve

## **Safety & Conformance**

### **Quality Standards**

- ISO 9001:2008
- ISO 13485:2003

### **Design Standards**

- EN 60601-1 and IEC 60601-1
- EN 60601-1-2 and IEC 60601-1-2
- EN 60601-2-37 and IEC60601-2-37
- EN ISO 14971 and ISO 14971
- EN ISO10993-1 and ISO10993-1
- EN 62366 and IEC 62366
- EN 62304 and IEC 62304
- EN ISO 17664
- EN 1041
- EN 980
- IEC 60878

### **CE Declaration**

Z6/Z6T/Z6S/Z6W system is fully in conformance with the Council Directive 93/42/EEC Concerning Medical Devices, as amended by 2007/47/EC. The number adjacent to the CE marking (0123) is the number of the EU-notified body that certified meeting the requirements of the Directive.

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

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The contents of this manual are subject to change without prior notice and without our legal obligation.

Note: the contents in this datasheet are applied to Version 1.0 of system software for Z6/Z6T/Z6S/Z6W diagnostic ultrasound system.