

System Description

The Z5 is an ergonomically designed portable and ease-of-use machine for multi-specialty use like adults, pregnant women, pediatric patients and neonates.

Intended Use

- CE Region: It is intended for use in gynecology, obstetrics, abdominal, cardiac, pediatric, vascular, cephalic, musculo-skeletal, orthopedics, nerve, transcranial, small organ, and urology exams.
- FDA Region: It is intended for use in Fetal, Abdominal, Pediatric, Musculo-skeletal Conventional, Peripheral Vascular, Trans-rectal, Trans-vaginal, Small organ, Neonatal Cephalic, Musculo-skeletal Superficial, Adult Cephalic, Cardiac Adult, Cardiac Pediatric 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: 8.8kg (including 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 --- , 6600 mAh
- Charge time: < 3 hours (connected on AC power supply, with the system powered off)

- Endurance time: > 100 min

Boot time

- Boot time: ≤ 30 s
- Wake up time (from standby): ≤ 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

Scanning Methods

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

Probe Model

- | | |
|------------|-------------------------|
| > 35C50EA | Convex |
| > 65C15EA | Micro-Convex |
| > 65EC10EA | Endocavity Micro-Convex |
| > 75L38EA | Linear |
| > 10L24EA | Linear |
| > 35C20EA | Micro-Convex |

Available Needle-guided Bracket for Probe:

- | | |
|------------|---------|
| > 35C50EA | NGB-001 |
| > 35C20EA | NGB-003 |
| > 65C15EA | NGB-005 |
| > 65EC10EA | NGB-004 |
| > 75L38EA | NGB-002 |
| > 10L24EA | 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: Color & 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™
- iTouch™
- ExFOV Imaging
- Color
- Power
- PW
- HPRF
- 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

- Gynecology
- Cardiology
- Small Parts
- Urology
- Vascular
- Orthopedics
- Emergency
- Nerve

Accessories

- Operator's manual
 - Basic Volume.
 - Advanced Volume
 - Operation Note
- 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)
- iScape™
- 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)
 - SP-997-350 (3-pedal)
 - FS-81-SP (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
- Print paper
- Probes
- Needle-guided brackets

Peripherals Supported

- Black and White Video Printer
 - SONY UPD-897MD Digital
 - SONY UP-897MD Analog
 - MITSUBISHI P93W-Z Analog
- Color Video Printer
 - SONY UP-20 Analog
 - MITSUBISHI CP910E Analog
- Graph / text printer
 - HP Color LaserJet
 - HP LaserJet p1007
 - HP LaserJet 1020 plus

Exam Mode

- Adult ABD (Adult Abdomen)
- ABD-Difficult (Abdomen-Difficult)
- Ped-ABD

- GYN (Gynecology)
- OB1
- OB2/3
- Kidney
- Prostate
- Carotid
- IMT (Intima-Media Thickness)
- Upper Ext Artery
- Lower Ext Artery
- Upper Ext Vein
- Lower Ext Vein
- Thyroid
- Breast
- Testicle
- MSK (Musculoskeletal)
- Nerve
- Superficial
- Orthopedic
- Adult Cardiac
- EM ABD
- EM FAST
- EM OB
- EM Vascular
- EM Superficial

Imaging Mode

- B-Mode
 - Tissue Harmonic Imaging
 - Phase Shift Harmonic Imaging
- Slant scanning for linear probes (B, color/power, PW independent)
- ExFOV Imaging for Convex Probe (trapezoid imaging for linear probe)
- M Mode
- Color
- Power
- PW (Pulse Wave Doppler)
- HPRF (High Pulse Repeat Frequency)
- Display Mode:
 - Single window
 - B/C/D triplex mode
 - Dual live: B/C,
 - Adjustable time line display format (1:1, 1:2, Full)
 - Dual-split: B/C, 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: 37 cm
- Frame rate (Max.):
 - B mode: 400 fps (35C50EA)
- 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, 51 steps
- 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
- Lithotrity: 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

Color Mode

- Frame rate (Max.): 221 fps (35C50EA)
- PFR (kHz): 0.3 (35C50EA)~ 14.8 (10L24EA)
- Flow velocities (cm/s, probe dependent): 5.0 (10L24EA)~ 100 (35C50EA)
- Gain: 0~100, 2/step
- Baseline: -8~8
- Persistence: 0~4
- Smooth: 0~4
- ROI adjustment: continuously
- Color 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 Mode

- PRF (kHz)
 - PW: 0.7 (35C50EA)~ 24.0 (35C50EA)
- Flow velocities (cm/s, probe dependent):
 - PW: 4.73 (10L24EA)~ 369.6 (35C50EA)
- Gain: 0~100, 2/step
- Baseline: -4~4
- Audio volume: 0~100%, 2%/step
- Angle: -89°~89°
- Quick Angle: -60°~60°
- 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 caliper
- Gray/color 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: 640×480
 - Standard area: 800×600
 - Full-screen: 1024×768
- 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: 17265 frames
 - M mode: 181.1 s
 - PW: 169.6 s
 - Color: 14043 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
- Color 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)
- 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)
 - 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)
- 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

Items	GA	FG
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)

- 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)
 - DAAo 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) (cm²) = 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

Vascular

- 2D-mode Measure
 - CCA IMT (Common Carotid Artery IMT)
 - Bulb IMT (Bulbillate IMT)
 - ICA IMT (Internal Carotid Artery IMT)
 - ECA IMT (External Carotid Artery IMT)
- 2D-mode Calculation
 - 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)
- 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)

Gynecology

- 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

Orthopedics

- 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

Z5 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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Note: the contents in this datasheet are applied to Version 1.0 of system software for Z5 diagnostic ultrasound system.