

## System Description

The DP-10 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, pediatric, small organ, cephalic, musculo-skeletal, cardiac, vascular, urology, orthopedics.

## General Specification

### Dimensions and Weight

- Depth: 161mm (6.34 inch)
- Width: 290mm (11.42 inch)
- Height: 354mm (13.94 inch)
- Net Weight: <6 kg (without accessories)

### Electrical Power

#### Input power

- Voltage: 100-240V~
- Frequency: 50/60Hz
- Input current: 1.0-0.5A

### 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

- Electronic linear

### Probe Model

- |            |                   |
|------------|-------------------|
| ➢ 35C20EA  | Micro-Convex      |
| ➢ 35C50EB  | Convex            |
| ➢ 65C15EA  | Micro-Convex      |
| ➢ 65EC10EB | Endocavity Convex |
| ➢ 75L38EB  | Linear            |
| ➢ 75L53EA  | Linear            |

### Available Needle-guided Bracket for Probe:

- |            |         |
|------------|---------|
| ➢ 35C20EA  | NGB-003 |
| ➢ 35C50EB  | NGB-001 |
| ➢ 65C15EA  | NGB-005 |
| ➢ 65EC10EB | NGB-004 |
| ➢ 75L38EB  | NGB-002 |
| ➢ 75L53EA  | NGB-007 |

## System Configuration

### Standard Configuration

- Display
  - 12.1-inch LED, High-Resolution 1024 x 768
  - Contrast & Brightness adjustable
  - System Dormancy: Time presettable
  - Angle adjustable: 30°
- Control Panel
  - Alphanumeric Keys
  - Function Keys
  - Knobs
  - User-defined Keys: function presettable
  - 8 segment TGC
  - Trackball: Speed presettable
  - Key Backlight Brightness & Volume presettable
  - Integrated Speakers
- Indicators: Power/Battery/Standby/HDD status
- Handle
- I/O Interfaces
  - Transducer port: 2 (1 optional)

- Power input port: 1 (Connect to the AC power supply)
- USB port: 2
- VGA OUT port: 1
- Video OUT: 1
- S-Video OUT: 1 (Separate video output)
- Ethernet port: 1 (Connect to network)
- Remote control port: 1
- Application categories
  - Abdomen
  - Obstetrics
  - Gynecology
  - Orthopedics

### **Accessories**

- Operator's manual
  - Basic Volume.
  - Advanced Volume.
  - Operation Note.
- Gel
- Power cord
- Probe holder
- Gel holder
- Grounded Cable

### **System Language**

- English
- Chinese

### **Options**

- DICOM 3.0: Image storage and printing
- Footswitch:
  - 971-SWNOM (2-pedal)
- Mobile trolley: UMT-110
  - Weight: 21kg
  - Width: 445mm
  - Depth: 535mm
  - Height: selective (not available after installed): 810mm, 870mm, 2 levels
- Carrying Case
- Gel
- Keyboard dust-proof cover
- Probes
- Needle-guided brackets

### **Peripherals Supported**

- Video Printer
  - SONY UP-895MD
  - SONY UP-896CN
  - SONY UP-897MD
  - MITSUBISHI P93W
- Graph / text printer (USB port)
  - HP DeskJet 5652/ 5650/ 3820/ 1280
  - Business Inkjet 1200
  - HP LaserJet2420d
  - HP DeskJet 6548

### **Exam Mode**

- ABD (Abdomen)
- GYN (Gynecology)
- OB (Obstetric)
- SMP (Small Parts)

### **Imaging Mode**

- B-Mode
- M -Mode
- Display Mode:
  - B+M: left/right
  - Single window
  - Dual-split: B/B
  - Quad-split: 4B

### **Imaging Features**

- Multi-frequency probes for 2D imaging modes
- Image Zooming

### **B Mode**

- Display Depth
  - Minimum: 2.16cm
  - Maximum: 24.8cm
- Frame rate (Max.):
  - B mode: 153 fps
- Adjustable focus number: 4
- Adjustable focus positions (Max.): 16
- Image Zooming:
  - Available for real-time and frozen B image
  - Magnification factor adjustable: 100%-400%, 8 steps
- System dynamic range: 30~90dB, 15steps

- Frequency: 2.5~10.0MHz (transducer dependant), 3 steps
- Gain: 30~98dB, 17steps
- TGC: 8
- Scan Mode
  - Hi density/ Hi frm rate
- IP: 1~8
- R/L, U/D revert
- Rotation: 0°, 90°, 180°, 270°
- A.power: 0~7
- 
- Post Process:
  - Gray Map: 1~8
  - Rejection: adjustable
  - γ: 0~3
  - Curve: adjustable
- Frame Average: 0~7

### **M Mode**

- M Speed: 1~4
- IP: 1~8
- Edge Enhance: 0~4
- M Soften: 0~3
- M Mark: on, off

## **Display Annotations**

- Manufacturer logo
- Hospital name: up to 32 characters can be displayed
- Exam date: 3 types selectable, YY/MM/DD, MM/DD/YY, DD/MM/YY
- Freeze icon
- Gender
- Age
- ID: up to 12 characters can be displayed
- Name: up to 12 characters can be displayed
- Probe model
- Current exam mode
- Menu
- Image
- Probe orientation mark
- Time line
- Coordinate axis, including depth, time
- TGC curve
- Focus
- Comment

- Body Mark
- Measure caliper
- Gray scale bar
- 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 (option)
  - Abdomen: 46
  - Gyn& OB: 19
  - Cardiology: 19
  - Small Part: 18
  - Other: 8
  - Lesion: 40

#### **Arrow**

- Arrow position
- Arrow orientation

### **Body Mark**

#### **Application package (Option)**

- Abdomen: 16
- OB: 18
- Cardiology: 12
- GYN: 7
- Small Part: 16

## **Storage/ Connection**

- 2 USB ports
- Image archive on hard disk and USB mobile storage medium, temporary saving in cine memory
- Single-frame image formats: BMP, JPG, DCM, FRM
- Multi-frame images formats: DCM, CIN
- iVision: Demo player
- Cine review: Auto, Manual (auto review segment can be set)
- Cine memory capacity (Max.)
  - B mode: 128 frames
  - M mode: 12.4 s

- Max. frames in HDD
  - > 134 frames (JPG format)
  - > 52 frames (FRM format)

## Measure/Calc/Study

### Caliper

#### 2D-mode

- Distance
- Cir/Area
- Volume
- Ratio
- Parallel
- T Length
- % Stenosis
- Angle
- Histogram
- Profile

#### M-mode

- Distance
- Time
- Slope
- Heart Rate

### Available Obstetrics Formulae

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

Item	Formula	Usage			
GS	Tokyo	FG+GA	EFW	Tokyo	/
	Hellman	FG		Hadlock1	/
	Rempen	FG+GA		Hadlock2	/
	Hansmann	FG+GA		Hadlock3	/
	China	GA		Hadlock4	/
CRL	Tokyo	FG+GA		Shepard	/
	Jeanty	GA		Campbell	/
	Hadlock	FG+GA		Merz1	/
	Nelson	GA		Merz2	/
	Robinson	FG+GA		Hansmann	/
	Rempen	FG+GA		Osaka	/
	Hansmann	FG+GA	OFD	Merz	FG
BPD	Osaka	FG+GA		Hansmann	FG+GA
	China	GA	BD	Jeanty	GA
	Tokyo	FG+GA	CER	Hill	FG+GA

Hadlock	FG+GA	
Jeanty	GA	
Kurtz	FG	
Sabbagha	FG	
Hansmann	FG+GA	
Merz	FG+GA	
Rempen	FG+GA	
Osaka	FG+GA	
China	GA	
ChittyOI	FG+GA	
HC	Hadlock	FG+GA
	Jeanty	GA
	Merz	FG
	Hansmann	FG+GA
	ChittyPL	FG+GA
AC	Hadlock	FG+GA
	Jeanty	FG
	Merz	FG
	ChittyPL	FG
FL	Tokyo	FG+GA
	Hadlock	FG+GA
	Jeanty	GA
	Hohler	GA
	Merz	FG+GA
	Hansmann	FG+GA
	O'Brien	FG
	Warda	FG+GA
	Osaka	FG+GA
	China	GA
	Chitty	FG+GA

	Goldstein	FG
THD	Hansmann	FG+GA
TAD	Merz	FG
APAD	Merz	FG
FTA	Osaka	FG+GA
HUM	Jeanty	GA
	Merz	FG
Ulna	Merz	FG
Tibia	Merz	FG

## **Application Package**

### **B-OB MEANS & OB TWIN MEANS**

- GS (gestational sac diameter)
- CRL (crown rump length)
- BPD (biparietal diameter)
- HC (head circumference)
- AC (abdominal circumference)
- FL (femur length)
- EFW (estimated fetal weight)
- AFI (amniotic fluid index)
- FBP (fetus biophysical profile)
- Advanced measurements
  - OFD (occipital frontal diameter)
  - BD (binocular distance)
  - CER (cerebellum diameter)
  - THD (thoracic diameter)
  - TAD (transverse abdominal diameter)
  - APAD (anteroposterior abdominal diameter)
  - FTA (fetal trunk cross-sectional area)
  - HUM (humerus length)
  - Ulna (ulna length)
  - Tibia (tibia length)

### **B-GYN MEAS**

- Uterine
  - UT-L (Uterus length)
  - UT-H (Uterus height)
  - UT-W (Uterus width)
  - UT-V (Uterus volume) calculation
  - UT (Uterus diameter) calculation
- Endo (Endometrium)
- OV-V
  - L.OV-H (Left ovary height)
  - L.OV-W (Left ovary width)

- L.OV-V (Left ovary volume) calculation
- R.OV-L (Right ovary length)
- R.OV-H (Right ovary height)
- R.OV-W (Right ovary width)
- R.OV-V (Right ovary volume) calculation
- FO-D
  - L.FO-L (Left follicle length)
  - L.FO-W (Left follicle width)
  - R.FO-L (Right follicle length)
  - R.FO-W (Right follicle width)
- Cx
  - CX-L (Uterine cervix length)
  - CX-W (Uterine cervix width)
  - CX-P (Uterine cervix ply)
- UT-L/CX-L (Uterine body / cervix)

### **B-ORTH MEAS**

- 2D-mode Measure
  - HIP

### **Diagnostic Report**

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- Print
- Fetal growth curve

## **Safety & Conformance**

### **Quality Standards**

- ISO 9001:2008
- ISO 13485:2003\AC:2007

### **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

### **CE Declaration**

DP-20/DP-20T/DP-21/DP-25/DP-28 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 Annex II 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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whole or in part, without written permission.

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 DP-10 Digital Ultrasonic Diagnostic Imaging System.

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