TE Air

Color Doppler Ultrasound System

Datasheet

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1 System Overview

The TE Air is a wireless handheld ultrasound system. The wireless transducer is paired with App on mobile devices over Wi-Fi.

1.1 Application

- Cardiac
- Abdominal
- Thoracic/pleural
- Gynecology
- Obstetrics
- Pediatric
- Vascular
- Urology
- Cephalic
- Small organ
- Musculo-skeletal
- Nerve

1.2 Imaging modes

- B-Mode
- M-Mode
- Color Doppler Imaging
- Power Doppler Imaging
- Pulsed Wave Doppler
- TDI (Tissue Doppler Imaging)

1.3 Standard features

- B-Mode
- M-Mode
- Color Doppler Imaging
- Power Doppler Imaging
- Pulsed Wave Doppler
- iClear™ (Speckle Suppression Imaging)
- iTouch™ (Auto Image Optimization)
- Smart Bladder
- VA Grid (Vascular Access Grid)

1.4 Optional features

- TDI
- AutoEF (Automatic Ejection Fraction Measurement)
- Extended Connection
- iNeedle (Needle Visualization Enhancement)
- iTouch+ (Auto Image Optimization Plus)
- Smart Calc (Auto Diameter and Area Measurement of Lesions)
- iWorks (Workflow Protocol)
- iScanHelper (Embedded Tutorial Function)
- Air Capsule
  - Input voltage: 5V DC
  - Input current: 3A
  - Output voltage: 5V DC
  - Output current: 3A
  - Battery: 3.6V, 3000mAh
  - Charging Cycle: about 2.5 times for a transducer
  - Wired charging: Type-C charging cable, charging time 4 hours
  - Wireless charging: wireless charging dock, charging time 8 hours
  - Wireless Charging Dock Model: CP61 HUAWEI
    Input voltage: 5V-10V
    Input current: 4A Max

1.5 Language support

- Software: English and Chinese
- User manual: German, Spanish, French, Italian, Portuguese, Polish, Danish, Russian, Dutch, Turkish

2 Transducer Specification

2.1 Power Supply

- Input voltage: 5V or 9V
- Input current: 3Amax
- Adaptor:
  - Output interface: USB TypeA
  - Output voltage: 5V DC
  - Output current: ≥3A

2.2 Built-in Battery

- Lithium-Ion battery: 3.85V, 1650mAh
- Support fast charging by adaptor and Air Capsule, charging time from 0% to 90%: ≤35mins
- Fast charging environment
  - Ambient temperature: 10~26℃
  - The transducer is in a state of temperature equilibrium, usually shut down for > 1 hour
  - The transducer or Air Capsule is in an

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open desktop environment, without cover, without surrounding heat sources, and without direct sunlight
- Wired charging: Type-C charging cable
- Wireless charging: Air Capsule
- Battery power supply duration: no less than 90 min in B mode when the battery is fully charged
- Continuous scanning duration for battery power supply: no less than 50 min in B mode when the battery is fully charged

2.3 Operating Environment
- Ambient temperature: 0-35 ℃
- Relative humidity: 20%-85% (no condensation)
- Atmospheric pressure: 700hPa-1060hPa

2.4 Storage & Transportation Environment
- Ambient temperature: -20-45 ℃
- Relative humidity: 20%-85% (no condensation)
- Atmospheric pressure: 700hPa-1060hPa

2.5 Dimensions and Weight
- Dimensions:
  - 46.5×33×170 mm (i3P);
  - 70×33×170 mm (e5M)
- Weight:
  - 199±3g (i3P);
  - 229±3g (e5M)

2.6 Dustproof and waterproof
- IP68 rated

2.7 Programmable button
- User-defined functions

3 Operating Environment

3.1 iPhone:
- Processor: Apple A10 processor or newer
- Operating System: iOS 13 or above
- Capacity: 128 GB or larger
- Running memory: 2 GB or larger
- Display size: 4.7 inches (Diagonal) or larger
- Display resolution: 1334 × 750 or higher
- Display brightness: 400 nit

3.2 iPad:
- Processor: Apple A12 processor or newer
- Operating System: iOS 14 or above
- Capacity: 64 GB or larger
- Running memory: 3 GB or larger
- Display size: 7.9 inches (Diagonal) or larger
- Display resolution: 2048 × 1536 or higher
- Display brightness: 500 nit

3.3 Android Phone
- Processor: Qualcomm Snapdragon 855
- Operating System: Android 10 or above
- Capacity: 256 GB or larger
- Running memory: 8 GB or larger
- Display size: 6.41 inches (Diagonal) or larger
- Display resolution: 2340 × 1080 or higher
- Display brightness: 400 nit

3.4 Android Pad
- Processor: Qualcomm Snapdragon 855
- Operating System: Android 10 or above
- Capacity: 256 GB or larger
- Running memory: 6 GB or larger
- Display size: 10.5 inches (Diagonal) or larger
- Display resolution: 2560 × 1600 or higher
- Display brightness: 200 nit

4 User Interface

4.1 Comments
- Supports text input and arrow
- Support freehand marking
- Covers various applications
- User defined

4.2 Body mark
- 251 body marks for versatile application

4.3 Numbers of exam mode presets
- 23 system exam modes

4.4 Screen information*
- Acoustic power
- Imaging parameters

*Not all items are listed in this part. For detail information, please refer to the user manual.

5 Imaging Parameters

5.1 Overview
- Up to 8-beamforming

5.2 B-mode
- A.Power

- TGC: 6 sliders
- Depth: 30 Levels
- Gain: 0-100, 1/step
- Image Quality
- Dyn Ra.: 30-240
- iClear: On/Off
- L/R Flip: Right, Left
- TIS/TIC/TIB
- iTouch: On/Off
- iTouch+: On/Off (only for e5M)
- Zoom
- VA Grid

5.3 M-mode

- A.Power
- Gain: 0-100, 1/step
- Depth: the same as B mode
- Image Quality: the same as B mode
- Speed: 20, 25, 35 ,50 ,75 ,145mm/s
- Dyn Ra.: 30-240

5.4 Color Doppler Imaging

- A.Power
- Max velocity: 146 cm/s
- Gain: 0-100, 2/step
- Scale
- ROI Width: random adjustable
- ROI Height: random adjustable
- Image Quality: 3 levels
- iTouch: On/Off
- iTouch+: On/Off (only for e5M)
- Steer
- Q-Steer

5.5 Power Doppler Imaging

- A.Power
- Gain: 0-100, 2/step
- Scale: 30 levels
- ROI Width: random adjustable
- ROI Height: random adjustable
- Image Quality: 3 levels
- iTouch: On/Off
- iTouch+: On/Off (only for e5M)
- Steer
- Q-Steer

5.6 PW-Mode

- A.Power
- PW velocity:
  - max.1265.20 cm/s
  - min. 1.0 cm/s
- Gain: 0-100, 2/step
- Baseline: random adjustable
- Scale: 30 levels
- Image Quality: 3 levels
- Speed: 20, 25, 35, 50, 75, 145 mm/s
- SV: 0.5-20mm, random adjustable
- Dyn Ra.: 24-72, 2/step
- Angle: random adjustable
- iTouch: On/Off
- iTouch+: On/Off (only for e5M)
- Auto Calc:
  - Auto Calc Cycle: 1-4, 1/step
  - Auto Calc Parameter
  - Trace Sensitivity: -3-3, 1/step
  - Trace Smooth: -2-2, 1/step
  - Trace area: Above, Below, All

5.7 Tissue Velocity/Energy Imaging (included in TDI option)

- A.Power
- Gain: 0-100, 2/step
- Scale: 22 levels
- ROI Width: random adjustable
- ROI Height: random adjustable
- Image Quality: 2 levels
- Dyn Ra.: 10-70, 5/step (only TEI)

5.8 Tissue Velocity Doppler (included in TDI option)

- A.Power
- Gain: 0-100, 2/step
- Baseline: random adjustable
- Scale
- SVD: random adjustable
- Image Quality: 2 levels
- Speed: 20, 25, 35, 50, 75, 145mm/s
- SV: the same as PW
- Dyn Ra.: 24-72, 2/step
- iTouch: On/off

5.9 Smart Bladder

Automatically detect and calculate bladder volume

5.10 AutoEF

- Automatic measuring of the diastolic and

systolic sectional planes.
- Only for i3P

5.11 iNeedle
- Needle visualization enhancement
- Needle Dir.: Left, Right
- Only for e5M

5.12 VA Grid
- Vascular Access Grid
- Only for e5M

5.13 iWorks
- Auto workflow protocol
- Templates are user configurable
- Functions: select view, delete view
- iWorks setup mode: B/ Dual/ B+Color/ B+PW/ B+Color+PW/ B+CW/ B+Color+CW/ B+M
- iWorks setup protocols and views: select existing library

5.14 iScanHelper
- Tutorial function as a guidance to show basic scanning skill with graphic of probe position, schematic of anatomy and example clinical image.

6 Cine Review and Post Processing

6.1 Cine review
- Available in all modes
- Playback available
- Maximum cine memory up to 125 frames
- Freeze and real-time storage are available and length is pre-settable: 2~5s

6.2 Post processing
- B-mode:
  - Dyn Ra.
  - iClear
  - L/R Flip
  - Zoom
- M-mode:
  - Speed
  - Dyn Ra.
- PW:
  - Baseline
  - Speed
  - Dyn Ra.
  - Angle

7 Measurement

7.1 Cardiac
- B-mode
  - Distance
  - Area
  - AutoEF
  - LVOT Diam
  - Simpson
- Color/Power mode
  - Distance
  - Area
- PW/CW mode
  - Vel
  - HR
  - Time
  - VTI
  - MV E Vel
  - MV A Vel
  - LVOT VTI
- M-mode
  - Distance
  - HR
  - Time
  - Slope
  - LVIDd
  - LVIDs
  - IVC
- TDI-TVD mode
  - Vel
  - HR
  - Time
  - MV Ea (medial)
  - MV Ea (lateral)

7.2 Cardiac Diff
- B-mode
  - Distance
  - Area
  - AutoEF
  - LVOT Diam
  - Simpson
- Color/Power mode
  - Distance

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- Area
- PW/CW mode
  - Vel
  - HR
  - Time
  - VTI
  - MV E Vel
  - MV A Vel
  - LVOT VTI
- M-mode
  - Distance
  - HR
  - Time
  - Slope
  - LVIDd
  - LVIDs
  - IVC
- TDI-TVD mode
  - Vel
  - HR
  - Time
  - MV Ea (medial)
  - MV Ea (lateral)

7.3 EM FAST

- B-mode
  - Distance
  - Area
  - Volume
- Color/Power mode
  - Distance
  - Area
- PW/CW mode
  - PS/ED
  - Vel
  - HR
  - Time
- M-mode
  - HR

7.4 Lung

- B-mode
  - Distance
- Color/Power mode
  - Distance
  - Area
- PW/CW mode
  - PS/ED
  - Vel
  - HR
  - Time
- M-mode
  - Distance

7.5 TCI

- B-mode
  - Distance
  - Volume Flow
- Color/Power mode
  - Distance
  - Area
- W/CW mode
  - PS/ED
  - Vel
  - HR
  - Time
  - Volume Flow
- M-mode
  - Distance

7.6 Abdomen

- B-mode
  - Distance
  - Area
  - Volume
  - Angle
  - Volume Flow
- Color/Power mode
  - Distance
  - Area
- PW/CW mode
  - PS/ED
  - Vel
  - Time
  - Volume Flow
- M-mode
  - Distance
  - IVC

7.7 Abdomen Diff

- B-mode
  - Distance
  - Area

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- Volume
- Angle
- Volume Flow

- Color/Power mode
  - Distance
  - Area
- PW/CW mode
  - PS/ED
  - Vel
  - Time
  - Volume Flow
- M-mode
  - Distance
  - IVC

7.8 EM AAA

- B-mode
  - Distance
  - Area
  - Volume
  - Stenosis (D)
  - Stenosis (A)
  - Volume Flow
- Color/Power mode
  - Distance
  - Area
- PW/CW mode
  - PS/ED
  - Vel
  - Time
  - Volume Flow
- M-mode
  - Distance

7.9 Bladder

- B-mode
  - Distance
  - Volume
  - Smart Bladder
- Color/Power mode
  - Distance
  - Area
- PW/CW mode
  - PS/ED
  - Vel
  - Time
- M-mode
  - Distance

7.10 GYN

- B-mode
  - Distance
  - Area
  - Volume
  - Volume Flow
- Color/Power mode
  - Distance
  - Area
- PW/CW mode
  - PS/ED
  - Vel
  - Time
  - Volume Flow
- M-mode
  - Distance

7.11 OB

- B-mode
  - Distance
  - Area
  - Volume
  - Volume Flow
  - BPD
  - HC
  - AC
  - FL
  - AFI
- Color/Power mode
  - Distance
  - Area
- PW/CW mode
  - PS/ED
  - HR
  - Vel
  - Time
  - Volume Flow
  - Umb A
- M-mode
  - Distance
  - HR
  - Time

7.12 Vascular

- B-mode
  - Distance
  - Area
  - Stenosis (D)
  - Stenosis (A)
  - Volume Flow
- Color/Power mode
  - Distance
  - Area
- PW/CW mode
  - PS/ED
  - HR
  - Vel
  - Time
  - Volume Flow
- M-mode
  - Distance

8 Exam Storage and Management

8.1 Exam storage

- Direct digital storage of single frame and cine 2D, color and Doppler.

8.2 Exam management

- iStation™ workstation dedicated for patient exam management
- Patient exam query/retrieve
- Support review of current and past exam
- Export images as JPG format; export cine as MP4 format
- Support data encryption and transmission encryption

9 Connectivity

9.1 Ethernet Network Connection

- Wireless connection

9.2 DICOM 3.0

- DICOM basic
  - Store
  - Media Exchange
- DICOM Worklist

9.3 Q-path

9.4 Remote Help (CE Only)

Remote Help: Mindray's collaboration solution for remote assistance, training, quality control, case discussion.

- Integrate Mico+ into the App, sharing real-time ultrasound and synchronize ultrasound images, audio and video to the terminal device (mobile phone/computer/tablet)
- Support sharing original ultrasound images to Mico+

9.5 Tricefy: You can use the ultrasound system to send data (exam images and report) to the Tricefy.

9.6 Shared folder: After preset, you can send data (exam images and worksheet) to the specified PC folder.

10 Transducers

10.1 i3P

- Application: Cardiac, Abdomen, Thoracic/Pleural, Gynecology, Obstetrics, Pediatric, Vascular, Urology, Cephalic
- Bandwidth: 0.9-4.4 MHz
- Number of Elements: 64
- Field of View (max): 90°
- Extended FOV: 90°
- Depth: 2-38cm
- Physical Footprint: 44.7mm × 31.2mm
- Footprint: 24.2mm × 15.6mm
- B-mode Frequencies: 2.0, 2.5, 4.0 MHz
- Harmonic Frequencies: 2.6, 3.0, 3.0, 3.3, 3.3MHz
- Color Frequencies: 2.0, 2.3, 2.5 MHz; TDI: 2.5, 3.3MHz
- PW Frequencies: 2.0, 2.3, 2.5 MHz; TDI: 2.5, 3.3MHz
- Biopsy Guide: not available

10.2 e5M

- Application: Linear: Small Organ, Vascular, Musculo-skeletal, Nerve; Convex: Abdominal, Gynecology, Obstetrics, Cardiac, Urology, Thoracic/Pleural, Small Organ, Vascular, Musculo-skeletal, Nerve
- Bandwidth: 2.0-9.0 MHz
- Number of Elements: 128
- Field of View (max): Linear:180°; Convex: 70°
- Extended FOV: Linear: 180°; Convex: 70°

- Physical Footprint: 66.3mm × 29.8mm
- Footprint: 44.2mm × 11.5mm
- Depth: 1.5-40.0cm
- B-mode Frequencies: Linear: 2.0~5.2, 4.0~7.4, 5.0~8.2 MHz; Convex: 2.0~3.6, 2.2~3.8, 3.0~5.0 MHz
- Harmonic Frequencies: Linear: 6.0, 7.0, 8.0 MHz; Convex: 4.4, 4.43, 4.43b MHz
- Color Frequencies: Linear: 4.0, 4.4, 5.0 MHz; Convex: 2.5, 2.8, 3.3 MHz; TDI: 3.3, 4.0MHz
- PW Frequencies: Linear: 4.0, 4.4, 5.0 MHz; Convex: 2.5, 2.8, 3.3 MHz; TDI: 3.3, 4.0MHz
- Biopsy Guide: not available

11 Safety and Conformance

11.1 Quality standards

- ISO 9001
- ISO 13485

11.2 Design standards

- EN 60601-1 and IEC 60601-1
- EN 60601-1-2 and IEC 60601-1-2
- EN 60601-1-6 and IEC 60601-1-6
- EN 60601-2-37 and IEC60601-2-37
- EN 62304 and IEC 62304
- EN 62366 and IEC 62366
- EN ISO 17664 and ISO 17664

11.3 CE declaration

The ultrasound system is fully in conformance with the Regulation (EU) 2017/745 Concerning Medical Devices. The number adjacent to the CE marking (0123) is the code of the EU-notified body that certified meeting the requirements of Annex II excluding (4). of the Directive.

Notice:
Not all features or specifications described in this document may be available in all transducers and/or modes. Mindray reserves the right to make changes in specifications and features shown herein, or discontinue the product at any time without notice or obligation. Contact Mindray Representative for the most current information.

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