

Technical specification for Portable Color Doppler Ultrasound Unit with Echocardiography:

A state of art fully digital, compact Color Doppler Ultrasound machine with pin less connector is required with following technical features:

1. Unit should be able to give very high image quality with advance technologies like compound imaging for better contrast resolution, tissue differentiation and edge detection, equivalent to high end cart based systems.
2. Unit should be compact, durable & less than 5 kg in weight with pin less connector.
3. Imaging modes of Real time 2D, Color Doppler, Power Doppler, Pulsed wave Doppler, Continuous wave Doppler must be available.
4. System should have both online (Read) as well as offline(Write) zoom facility
5. System must have fast start up to scanning in less than 30 seconds from off condition, for use in critical care environment and emergency field situations.
6. System should support transducer technologies like phased array, convex, linear & TEE format.
7. The system should have a broadband architecture with an operating frequency of at least 1 to 15 MHz
8. Cine memory should be available on all operating modes.
9. The system shall process a dynamic range that is at least 165db. The system must display at a maximum depth of 35 cm.
10. The system must have dedicated calculation packages for cardiac, Vascular measurements.
11. The offered unit must have Flat LCD/ TFT monitor of at least 12 inches with Anti-glare coating and wide viewing angle.
12. Alphanumeric soft keys backlit and splash resistant keypad with easy access scans controls, facility to sanitize the system keyboard to avoid cross contamination.
13. Needle visualization software should be present which can dynamically optimize the image to give the best possible view of the needle in real time
14. The system must have the ability to function by AC/DC or battery power with the same degree of functionality, the battery life (run time) shall be at least 2 (Two) hours, this need to demonstrated.
15. The system must have archive capability for storage & retrieval of images and clips. It should have HDMI, atleast 2 USB slots, which allow for direct sharing of images (JPEG) and clips (AVI) to a PC.
16. The stored images database should be sorted by name & date.
17. Unit & transducers must be rugged, resistant to breakage & damage on fall/hit in ICU environment.

18. The system shall support the all DICOM functionality, Storage, Print, and Work List, also ready to connect to PACS.
19. System should have ISO/BIS/ European CE/ US FDA quality certification.

**Transducers & other accessories to be supplied as standard:**

1. 6-15 MHz ( $\pm 1$  MHz) multi-frequency, broadband linear array transducer for vascular, venous, small parts, musculoskeletal, Lung, nerve imaging with less than 40mm size. Higher frequency will be preferred.
2. 1-5 MHz ( $\pm 1$  MHz) multi-frequency broadband Phased array transducer for Adult cardiology applications.
3. Multi-frequency broadband curved array transducer with frequency range of 2-5 MHz ( $\pm 1$  MHz) for general abdominal, deep nerve access, Lung & MSK applications with footprint of 60 mm ( $\pm 5$ mm).
4. 8-5 MHz curved transducer for gyn obs usage
5. Trolley of same make must be supplied along with the system.
6. Triple Transducer Connector with electronic switching facility to toggle between transducers.
7. Rates of various transducers, accessories and consumables should be freezed for 5-10 years.
8. Should be supplied with color/B&W thermal printer.
9. 50 jelly bottles should be supplied as standard.

*Shah* *Shah* *Bel*