

CARDIOLOGY

INFUSION PUMP

INFUSION PUMP PURPOSE: Infusion Pump Used For Continuous Controlled Administration Of I.V Drugs.

MAIN FEATURE: Infusion Pump Should Be One With Of Infusion Rate,

DELIVERY RATE **0.1 ML/HR TO 999.9 ML/HR** SMALLEST INCREMENT OF 0.1 ML/HR

User friendly

Air in line detector minimizes risk of air infusion

Compatible with all commonly used medical grade i.v administration sets

DELIVERY RATE / CAPACITY: rate 0.1 ml/hr to 999.9 ml/hr

Universal drop sensor

HOLDING STAND: Universal Type Pole Clamp Rotable

BATTERY BACKUP TIME: up to 3.0. hr at max delivery rate

BATTERY TYPE: Nicd (Rechargeable)

GROUND SUPPORT EQUIPMENT: Vertical Stand Mobile Type.

VOLUME SELECTION: 0.1...9999.9 ML /

TIME SELECTION: MAX. 99 H 59 MIN

Automatic Calculation Of Delivery Rate - From Volume And Time

PURGE PARAMETERS:

Bolus volume 0.1 to 99.9

bolus rate 1 to 999.9 ml/hr.

THREE METHOD FOR GIVING BOLUS:-

- a. Bolus with volume pre-selection.
- b. Bolus without volume pre-selection.
- c. Interval bolus.

DO\$AGE CALCULATION.

The Dosage Calculation Automatically Calculates The Delivery Rate In ML/H By Putting The Parameter Like Concentration, Weight Of Patient (Optional) And Entry Of Dosage

LOUDNESS CONTROL OF ALARM TONE.

The loudness of the audible alarm can be adjustable through keypad.

STANDBY INFUSION PAUSE: max 99 h 59 min., pre-set values remain store

DRUG SELECTION: Display 6 Or More Drugs With Names

Deactivation of drop control - in conjunction with volume pre-selection

Data lock: in this function locks the keypad against unwanted alteration of the parameter entered.

Variable occlusion pressure (low & high)

Large illuminated LCD display

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SYRINGE PUMP

MAIN FEATURE:

- Syringe Pump Should Have Controlled Rates

USER FRIENDLY:-

- Light in weight
- Compact size
- Automatic recognition of syringe size
- Automatic calculation of the infusion rate: based on volume and time pre-selection,
- Bottom loading syringe technique
- Large illuminating display
- Online changing of delivery rate possible
- Variable occlusion pressure limits
- Data lock function
- Standby function

DELIVERY RATE FROM:

- 1 ml/hr to 100.0 ml/hr or 0.01 ml/hr to 200 ml/hr.

BOLUS DELIVERY RATE:

- 01.00ml/hr to 1200.00ml/hr (with different sizes of syringe)
- Compatible to all types of syringes commonly used and available in pakistani market
- Sizes of syringes:-
- 2/3, 5, 10, 20, 30, 50 & 60 ml of any brand can be used.

RATING / CAPACITY OF EQUIP:-

- 1 MI/Hr To 100 MI/Hr

PUMP TYPE:-

Portable, The Handy Syringe Pump, Easy To Move For Mobile Operation

OTHER\$ DETAIL:-

Rechargeable battery type nicd,

Battery operating time: min. 5 hours during delivery rate < 10 ml/hr

Microprocessor controlled syringe pump

M. Qureshi
hmr

BIPHASIC DEFIBRILLATOR WITH PACING:

Display 6.5" inch or more color LCD TFT

- Defibrillator with color monitor and recorder mains 220V/50Hz 1 phase.
- Built in rechargeable battery for minimum 100 shocks at maximum energy.
- Energy delivered 2-270 joules or more.
- Quick ECG waveform recovery after defibrillation, the ECG waveform recovers within 3 seconds.
- Defibrillator should have discharge button on both main unit and the paddle.
- Charging time should be less than 5 seconds for 270 joules.
- Self-test should be available to ensure reliable use of the defibrillator, whenever the power is turned on or off or the power cord is connected or disconnected. The self-test checks the battery expiration date and remaining voltage, and the High-Voltage circuit.
- Self-test result should be saved in internal memory for later review.
- Bi-Phasic waveform delivery system, ECG through paddles and patient cable,
- Trace Speed 25 mm/sec.
- Contact Indicator to check for optimal skin contact via LED'S on paddles, delivered energy level to be printed on the print out.
- Recorder speed 25mm/sec with standard paper, digital HR with low/high alarm and Adult & Paediatric Paddles.
- Voice recording Surrounding sound, synchronized with the ECG waveform, and should be recorded.
- AED Cable with pad.
- Non invasive pacing.
- Should have upgradable capability to measure SPO2, NIBP & CO2 (Main Stream) for intubated patient & non-intubated patients.

• Adhesive hand free
Defibs + Pacing cables.

M. W. / marks
C.S.

BIPHASIC DEFIBRILLATOR WITHOUT PACING:

Display 6.5" inch or more color LCD TFT

- Defibrillator with color monitor and recorder mains 220V/50Hz 1 phase.
- Built in rechargeable battery for minimum 100 shocks at maximum energy.
- Energy delivered 2-270 joules or more.
- Quick ECG waveform recovery after defibrillation, the ECG waveform recovers within 3 seconds.
- Defibrillator should have discharge button on both main unit and the paddle.
- Charging time should be less than 5 seconds for 270 joules.
- Self-test should be available to ensure reliable use of the defibrillator, whenever the power is turned on or off or the power cord is connected or disconnected. The self-test checks the battery expiration date and remaining voltage, and the High-Voltage circuit.
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- Trace Speed 25 mm/sec.
- Contact Indicator to check for optimal skin contact via LED'S on paddles, delivered energy level to be printed on the print out.
- Recorder speed 25mm/sec with standard paper, digital HR with low/high alarm and Adult & Paediatric Paddles.
- Voice recording Surrounding sound, synchronized with the ECG waveform, and should be recorded.
- AED Cable with pad.
- Should have upgradable capability to measure SPO₂, NIBP & CO₂ (Main Stream) for intubated patient & non-intubated patients.

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6-CHANNEL ECG MACHINE WITH COMPLETE ACCESSORIES AND THERMAL HEAD HAVING:

- BRIGHT BACKLIT COLOR LCD 5.7" or more LCD Display.
- 12-LEAD ECG SIMULTANEOUS DISPLAY. UNIT SHOULD BE CAPABLE TO EXTEND ECG IN CASE ANY ARRHYTHMIA OCCURS.
- HIGH LEVEL 12-LEAD ECG ANALYSIS PROGRAM OF AT LEAST 200 FINDINGS.
- LATEST INTERPRETATION PROGRAM AND ALPHA NUMERIC KEYBOARD FOR PATIENT ID INPUT AND REPORTING.
- BATTERY BACK-UP OF AT LEAST 60 MINUTES CONTINUOUS RECORDING.
- LARGE DATA STORAGE OF 1000 OR MORE ECG FILES.
- 6-ECG TRACES RECORDING ON 110MM PAPER.
- PROVISION OF TRANSFERRING WAVE FORMS AND ANALYSIS RESULTS TO A PC.
- EASY DATA TRANSFER BY USB OR WIRELESS LAN.
- PATIENTS PRINTING DENSITY OF 200DPI (8 DOTS/MM), 320 DOTS/MM² (25MM/SEC.) WITH PAPER SPEED OF 10, 12.5, 25, 50MM/SEC.
- SENSITIVITY: 5, 10, 20MM/mV
- Built-in thermal array recorder records 6 ECG traces on 110 mm paper .
- Waveforms and analysis results can be transferred to a PC (ECG Viewer software).
- LAN Connectivity.
- Rhythm lead recording facility.
- Cascaded ECG recorded for one minute facility.
- 1 or 3 channel rhythm lead recording should be selectable.

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TECHNICAL SPECIFICATION OF EQUIPMENT FOR AYUB TEACHING HOSPITAL.

1. 3 CHANNEL ECG MACHINES.

- a. Integrated rechargeable battery for at least 120min or more of normal use.
- b. ECG interpretation software consistent with current/latest STEMI guidelines.
- c. 5 inch or more color LCD screen for viewing traces and input of patients details
- d. QWERTY Pad Main and battery operation
- e. Tabs electrode option
- f. Advance filter for baseline electrical and muscle tremor interference
- g. Copy print out option automatic and manual mode option.
- h. Print review capability option if possible.
- i. Defibrillation protection thermal recorder for printout and pc print out option and ECG
- j. Storage of 50 ECG OR MORE.
- k. Z folds ECG paper/ ECG Roll
- l. Choice of six/12 leads and 4x3 plus rhythm strips.

M. J. [Signature]

PROPOSED SPECIFICATION FOR THE PURCHASE OF FLAT PANEL

DIGITAL ANGIOGRAPHY SYSTEM IN AMTI ABBOTTABAD :

Flat Panel single plane fully digital Cardio-Vascular Angiography system (Latest Version).

Coverage from Head to Toes. The bear Minimum Technical specification of Angiography system is as follows.

POSITIONING ARM:

STAND:

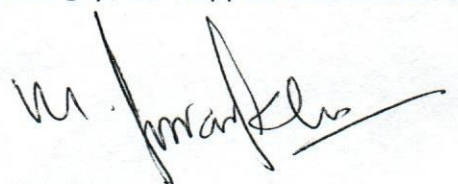
- Ceiling/floor mounted stand with manual and motorized movements, providing free access to patient table from all 3x sides
- Real time display of rotation angulations.
- Geometry: C-arm
- C arm depth of 85cm or more
- RAO / LAO +/- 120 ° or more
- C-arm permits 45° cranial and 45° caudal angulations of the imaging system or Above
- 3D Rotational angiography with a speed of upto 50°/sec or more.
- Isocentric Height: Variable / Fixed. Variable / Fixed. Focus spot to iso-center should be 75 cm or more
- Auto Positioning: Programmable auto positioning of selected angulations. Ability to recall stand position by reference image should be possible.
- The control panel can be mounted at any side of the patient table.
- All the rotational / angles should be available and digitally displayed in the control and examination room.
- Motorized & manual parking of the positioning arm should be possible

DIGITAL FLAT PANEL:

- Image matrix of **1.3 x 1.3 x 14 bit**; or more. Systems with higher matrix will be preferred
- 30x30cm/ **26X29cm** Approx. sized detector with five formats or more
- Built in temperature stabilizer
- Digital flat panel detector with pixel pitch of 194 micron or better and DQE of 70% at 0 lp/mm or more
- All other standard accessories according to this digital flat panel.
- Removable Ant scatter grid for lowering dose to infants & Peads

PATIENT SUPPORT/ TABLE:

- Interventional Table:
- Floor mounted with up down / vertical, longitudinal table top length of minimum **280 cm** or more
- Longitudinal travel.: 110 cm or more
- Lateral Travel + - **17 cm or more**
- CPR: with tabletop In any table longitudinal position, without the need of retraction
- Table top should be of such construction in material and durability to accept patients weight of not less than 220 kg or more
- Table top should have metal free over hang for un-obstructed imaging coverage & having integrated hemodynamic monitoring system controls
- Complete accessories should be provided including arm holder, hand grip, arm support and arm rest and positioning aids.
- Pivot +/- 90Deg or better



X-RAY GENERATOR:

- Microprocessor based high frequency using fiber optic for data communication between each imaging system.
- Dedicated X-Ray generator of 100 kW.
- Radiographic rating minimum 1000 mA at 100KV
- Serial filming exposures, Auto exposure optimization with shortest exposure of 1ms, with automatic kV and mA control for optimum image quality.
- The system should have capability of digital radiography and fluoroscopy.
- Should have capability of doing digital pulsed fluoroscopy at 3.75/7.5/ 15 / 30 pulses per second. Automatic kV, mA & pulse width regulation facility.

DIGITAL IMAGING AND ACQUISITION / FLUOROSCOPY.

DIGITAL SYSTEM:

- Pulse Fluoroscopy at 30/25 FPS, 15/12.5 FPS, 7.5/6 FPS or better in 1024 x 1024 x 16 bits
- Parallel processing capability / multitasking facility.
- Real time filtering and road map function.
- Cine Acquisition at 3.75, 7.5, 15 and 30 pulses per seconds
- Storage capacity 50,000 images or more in 1024x1024x12 bits matrix
- Integrated dose monitoring and dose structured reporting in Dicom.
- System should be capable to display and store images in 512 x 512 acquisitions at **30fps; for pediatric**

X-RAY TUBE with GRID SWITCH Technology

- Dual focal with at least **03 MHU** or better anode heat storage capacity with anode heat dissipation rate of **2900 W** or more to enable continuous heat dissipation during serial exposure.
- Dual focus, rotating anode. Focal spot sizes 0.4 - 0.8 mm or better:
- Dose management with fluoro Cu filters. : Copper filters: 0.2, 0.5, and 0.9 mm CU equivalent

MONITORS:

- Flat Screen 19" or more TFT of 1024 x 1024 matrix
- Monitors should be ceiling mounted in the operation room.
- One 56" or better 8MP medical grade monitor with integrated tableside control in touch panel
- All the monitors will be of Medical Grade, complied with international standards for medical monitors.

CONTROLS:

- All controls of digital imaging system, incl. Post Processing & Quantification analysis shall be in the control room while replay / display of reference image should be available in the examination room. Wired/Wireless remote control for playback and processing functions. Table side control through touch panel at the table side should be available.
- Table side controls are essential. Controls should be manageable from both sides of the table.

RECORDING / ARCHIVING & COMMUNICATION SYSTEM:

- Recording / archiving system should be DICOM-3 compatible.
- DICOM (send/storage, commitment, retrieve/query)
- Ethernet connection to connect with other terminals.
- Intercom system.

W. Markel

Workstation: OEM Only

- Dedicated cardiovascular Workstation quoted should be from the original manufacturer of the cath lab with integrated tableside controls for reviewing prior data
- DICOM-3 Compatible.
- Edge enhancement, adjustable view speeds & post processing, QCA & LVA Quantifications on Workstation should be offered as standard
- High resolution 19" TFT Monitor or more
- CD/DVD writer and CD/DVD ROM drive.

SOFTWARE / HARDWARE PACKAGES:

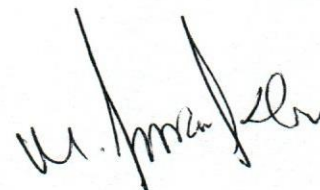
- Advance roadmap imaging capability based on superimposition of live fluoro imaging on Angio imaging
- Automatic loop replay after acquisition or fluoroscopy.
- Dynamic real time pan / zoom.
- DSA
- Standard Quantification packages vascular quantitative analysis including vessel analysis, vessel size and stenosis assessment.
- Online image density (gray scale) correction.
- System should be able to perform single axis rotation from all 3x sides i-e head end and both sides of the patient end
- All controls of digital imaging system incl. Post-processing & Quantification shall be in the examination as well as control room.
- All the advance clinical packages offered by the vendor should be from the OEM of the Angio system
- Stent Visualization with enhanced stent in relation of the vessel lumen. **Real Time stent enhancement for facilitation of cardiac procedure.** The feature should be controllable from the tableside touch panel of the angio table. All the quoted advance clinical applications should be offered with OEM catalogue no

RADIATION PROTECTION:

- Ceiling suspended tilt able lead glass for radiation protection of operators head / neck regions.
- Collision tolerant.
- Lower body radiation protection flaps.
- **Zero Dose Positioning/Similar**

PHYSIOLOGICAL HEAMODYNAMIC MONITORING SYSTEM : OEM Only

- Should be from the original manufacturer of the Angio system & have integrated table side controls in the touch panel of the table (including control for Auto record capability, capture & storage of hemodynamic waveforms and ECG's, control of Cardiac Output measurements, NIBP measurement etc.,
- Multichannel (16 channels or more) to record at least 2 channels IBP, Cardiac out put with thermo dilution method, Surface ECG in any configuration and simultaneous 12 lead ECG, NIBP and SpO2 measurement.
- Digital display of all the parameters like IBP, Heart rate, cardiac out put parameter.
- It should be possible to store the waveforms on the hard disk of the physiological recording system.



- The hemodynamic monitoring system should include following accessories :
- Pulse oximeter probes 2x
- 2x invasive blood pressure reusable transducer.
- Reusable interface for 12 lead ECG (2 Nos)
- NIBP cuffs (02 Nos)
- Holder for mounting the IBP transducer alongside the patient table.

ACCESSORIES:

- 160 KVA UPS for Angio System
- Lead aprons 10x
- Compatible Injector
- Syringes 100.

WARRANTY:

- 3 Years Comprehensive warranty with Parts and 02 Years without parts from the Manufacturer.
- 10 year part availability of the quoted model.

FIRM RESPONSIBILITY:

All firms should quote all their latest applications/solutions for dose reduction (Like CARE, CLARITY , SNRF)

Renovation of site along with Electrical work complete in all respect, Civil Work complete in all respect , Lead lining, Scrubbing Facilities will be the responsibility of the vendor .

M. Marfil