



**Purchase & Store Section,**  
**Liaquat University of Medical & Health Sciences, Jamshoro.**

Tender opened: 17-01-2025

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SPPRA ID# EPADS-S - 250151210

**Technical Comparative Statement of Procurement, installation and commissioning of UPS 100KVA with batteries for District Headquarters Hospital (DHQ) Dadu.**

Sr. No.	Description of required Items	M/s ABA Enterprises, Hyderabad	REMARKS
1.	<p style="text-align: center;"><b>UPS 100 kva with built-in batteries</b></p> <p><b>TOTAL PROTECTION:</b> UPS with a 6-pulse thyristor-based rectifier.</p> <p><b>EASY SOURCE:</b> UPS uses the technology, reducing power loss in the system and coils, correcting the power factor and eliminating current harmonics created by the loads supplied by the UPS. In addition to this, the progressive rectifier start up (power walk-in) and the option to reduce battery charging currents, allow for a reduction in the input current uptake. This means less demand on the source, which is particularly useful when the source is a generator set.</p> <p><b>FLEXIBILITY:</b> The UPS is suitable for power capacitive loads such as blade servers, from 0.9 leading to 0.8 lagging. complex configurations and system architectures can be achieved to guarantee maximum power availability and the option to add new UPS without interruption to existing installation.</p> <p><b>BATTERY CARE SYSTEM:</b> <b>MAXIMUM BATTERY CARE</b> Normally the batteries are kept charged by the rectifier; when mains power fails, the UPS uses this energy source to power the consumers. Proper battery care is therefore critical to ensuring correct UPS operation under emergency conditions. The UPS battery care system consists of a series of functions designed to optimise battery management and achieve the best performance and operating life possible. Master is also compatible with different battery technologies:</p> <p><b>ADVANCED COMMUNICATIONS:</b> Advanced multi-platform communications for all operating systems and network environments: PowerShield monitoring and shutdown software included for Windows operating systems 10, 8, 7, Hyper-V, 2019, 2016, 2012, and previous versions, Mac OS X, Linux, VMWare ESXi, Citrix XenServer and other Unix operating systems.</p>	<p><b>UPS 100KVA WITH BUILTIN BATTERIES (160KVA)</b> Provision, Installation &amp; Commissioning of Unit <b>Make:</b> SOCOMEC <b>Model:</b> DELPHYS GP 2.0 Power Rating: 160KVA Country of Origin: FRANCE 3 Years of Comprehensive warranty Quantity: 1 Complete Unit <b>SPECIFICATIONS: TOTAL PROTECTION:</b> UPS with a 6-pulse thyristor-based rectifier. <b>EASY SOURCE:</b> UPS uses the technology, reducing power loss in the system and coils, correcting the power factor and eliminating current harmonics created by the loads supplied by the UPS. In addition to this, the progressive rectifier start up (power walk-in) and the option to reduce battery charging currents, allow for a reduction in the input current uptake. This means less demand on the source, which is particularly useful when the source is a generator set. <b>FLEXIBILITY:</b> The UPS is suitable for power capacitive loads such as blade servers, from 0.9 leading to 0.8 lagging complex configurations and system architectures can be achieved to guarantee maximum power availability and the option to add new UPS without interruption to existing installation. <b>BATTERY CARE SYSTEM:</b> <b>MAXIMUM BATTERY CARE</b> Normally the batteries are kept charged by the rectifier; when mains power fails, the UPS uses this energy operation under emergency conditions. The UPS battery care system consists of a series of functions designed to optimize battery management and achieve the best performance and operating life possible. Master is also compatible with different battery technologies:</p>	<p>M/s ABA Enterprises, Hyderabad has single firm quoted accepted as per specification in Bidding Documents</p> <p style="text-align: right;"><i>[Signature]</i> <i>[Signature]</i></p>

Double RS232 serial;  
 2 slots for the installation of optional communications accessories such as network adapters, potential free contacts, etc.;  
 REPO Remote Emergency Power Off for switching off the UPS via a remote emergency button;  
 Input for the connection of the auxiliary contact of an external manual bypass; Input for synchronisation from an external source.

**MAXIMUM RELIABILITY AND AVAILABILITY:**

Distributed or centralised parallel configuration of up to 8 units redundant (N+1) or power parallel system. Parallel configurations using models with different power ratings are also possible;

Hot System Expansion (HSE): allows the addition of a further UPS into an existing system, without the need to switch off the existing UPS or transfer them to bypass mode. This guarantees maximum load protection, even during maintenance and system expansion; Maximum levels of availability, even in the event of an interruption to the parallel bus cable: the system is "FAULT TOLERANT".

It is not affected by connection cable faults and continues powering the load without disruption, signalling an alarm condition;

Efficiency Control System (ECS): a system to optimise the operating efficiency of parallel systems, according to the power required by the load. N+1 redundancy is guaranteed, with every UPS working in parallel at the best load level possible to achieve higher overall efficiency.

**INPUT:**

- Rated voltage [V] : 380 / 400 / 415 three-phase
- Voltage tolerance [V] : 400 +20% -25% @ full load<sup>1</sup>
- Frequency [Hz] : 45 - 65
- Soft start : 0 - 100% in 120 sec.  
(selectable)
- Permitted frequency tolerance : ±2% (selectable from ±1% to ±5% from front panel)
- Standard equipment provided : Back Feed protection;  
separable bypass line

**BYPASS:**

- Rated voltage [V] : 380 / 400 / 415 three-phase + N
- Rated frequency [Hz] : 50 or 60 (selectable)

**OUTPUT:**

- Nominal power [kVA] : 100
- Active power [kW] : 90
- Number of phases : 3 + N
- Rated voltage [V] : 380 / 400 / 415 three-phase + N (selectable)
- Static stability : ±1%
- Dynamic stability : ±5% in 10 msec.
- Voltage distortion with non- linear load : <1% with linear load / <3%
- Crest factor [Ipeak/Irms] : 3:1

**ADVANCED COMMUNICATIONS:**

Advanced multi-platform communications for all operating systems and network environments: Power Shield monitoring and shutdown software included for Windows operating systems 10, 8, 7, Hyper-V, 2019, 2016, 2012, and previous versions, Mac OS X, Linux, VMWare ESXi, Citrix XenServer and other Unix operating systems. Double RS232 serial; 2 slots for the installation of optional communications accessories such as network adapters, potential free contacts, etc.; REPO Remote Emergency Power Off for switching off the UPS via a remote emergency button; Input for the connection of the auxiliary contact of an external manual bypass; Input for synchronization from an external source.

**MAXIMUM RELIABILITY AND AVAILABILITY:**

Distributed or centralized parallel configuration of up to 8 units redundant (N+1) or power parallel system. Parallel configurations using models with different power ratings are also possible; Hot System Expansion (HSE): allows the addition of a further UPS into an existing system, without the need to switch off the existing UPS or transfer them to bypass mode. This guarantees maximum load protection, even during maintenance and system expansion; Maximum levels of availability, even in the event of an interruption to the parallel bus cable: the system is "FAULT TOLERANT".

It is not affected by connection cable faults and continues powering the load without disruption, signaling an alarm condition; Efficiency Control System (ECS): a system to optimize the operating efficiency of parallel systems, according to the power required by the load. N+1 redundancy is guaranteed, with every UPS working in parallel at the best load level possible to achieve higher overall efficiency.

It is not affected by connection cable faults and continues powering the load without disruption, signaling an alarm condition; Efficiency Control System (ECS): a system to optimize the operating efficiency of parallel systems, according to the power required by the load. N+1 redundancy is guaranteed, with every UPS working in parallel at the best load level possible to achieve higher overall efficiency.

**INPUT:**

- Rated voltage [V] : 400v three-phase
- Voltage tolerance [V] : 200v to 480v
- Frequency [Hz] : 50 - 60 ▪ Soft start : 0 - 100% in 120 sec. (selectable)
- Permitted frequency tolerance : ±10 Hz
- Standard equipment provided : Back Feed protection;  
separable bypass line

**BYPASS:**

- Rated voltage [V] : 400v three-phase + N
- Rated frequency [Hz] : 50 - 60 (selectable)

**OUTPUT:**

- Nominal power [kVA] : 160 ▪ Active power [kW] : 90
- Number of phases : 3 + N
- Rated voltage [V] : 400 three-phase + N(selectable)
- Static stability : ±1%
- Dynamic stability: ±5% in 10 ms
- Voltage distortion : Crest factor [Ipeak/Irms] : 3:1

*Handwritten signatures and initials in blue ink.*

<ul style="list-style-type: none"> <li>• Frequency stability on battery : 0.05%</li> <li>• Frequency [Hz] : 50 or 60 (selectable)</li> <li>• Overload : 110% for 60 min.; 125% for 10 min.; 150% for 1 min.</li> </ul> <p><b>BATTERIES:</b></p> <ul style="list-style-type: none"> <li>• Residual ripple voltage : &lt;1%</li> <li>• Recharge voltage compensation : <math>-0.11\% \times V \times ^\circ C</math></li> <li>• Typical charge current : <math>0.2 \times C10</math></li> </ul> <p><b>OVERALL SPECIFICATIONS:</b></p> <ul style="list-style-type: none"> <li>• Weight without batteries [kg] : 620</li> <li>• Dimensions (WxDxH) [mm] : 800x800x1900</li> <li>• Remote signals : dry contacts</li> <li>• Remote controls : ESD and bypass</li> <li>• Communications : Double RS232 + dry contacts + 2 slots for communications interface</li> <li>• Ambient temperature for the UPS: <math>0^\circ C - +40^\circ C</math></li> <li>• Recommended temperature for battery life: <math>+20^\circ C - +25^\circ C</math></li> <li>• Range of relative humidity : 5-95% non-condensing</li> <li>• Noise level at 1 m(ECO Mode) [dBA]: 65</li> <li>• IP rating : IP20</li> </ul> <p>ECO Mode efficiency : up to 98%</p> <ul style="list-style-type: none"> <li>• Standards : European directives: L V 2014/35/EU Low voltage Directive EMC 2014/30/EU</li> </ul> <p>Electromagnetic Compatibility Directiv standards: Safety 1: EMC IEC 62040-2: RoHS</p> <p>IEC EN 62040-Compliant</p> <p>Classification in accordance with IEC 62040-3 (Voltage Frequency Independent) VFI-SS-111</p> <ul style="list-style-type: none"> <li>• Classification in accordance with EN 62040-3: (voltage frequency Independent) VFI-SS-111</li> </ul>	<ul style="list-style-type: none"> <li>• Frequency stability on battery : 0.05%</li> <li>• Frequency [Hz] : 50 or 60 (selectable)</li> <li>• Overload : 110% for 60 min.; 125% for 10 min.; 150% for 1 min.</li> </ul> <p><b>BATTERIES:</b></p> <ul style="list-style-type: none"> <li>• Residual ripple voltage : 1%</li> <li>• Recharge voltage compensation : <math>-0.11\% \times V \times ^\circ C</math></li> <li>• Typical charge current : <math>0.2 \times C10</math></li> </ul> <p><b>VERALL SPECIFICATIONS:</b></p> <ul style="list-style-type: none"> <li>• Weight without batteries [kg] : 470</li> <li>• Dimensions (WxDxH) [mm] : 700x800x1930</li> <li>• Remote signals : dry contacts</li> <li>• Remote controls : ESD and bypass</li> <li>• Communications : Double RS232 + dry contacts + 2 slots for communications interface</li> <li>• Ambient temperature for the UPS: <math>0^\circ C - +40^\circ C</math></li> <li>• Recommended temperature for battery life: <math>+20^\circ C - +25^\circ C</math></li> <li>• Range of relative humidity : 5-95% non-condensing</li> <li>• Noise level at 1 m(ECO Mode) [dBA]: 65</li> <li>• IP rating : IP20</li> </ul> <p><b>ECO Mode efficiency : up to 98%</b></p> <ul style="list-style-type: none"> <li>• Standards : SAFETY: IEC/EN 62040-1, AS 62040 1.1 AS 6240 1.2 6240 1.2</li> </ul> <p>EMC: IEC/EN 62040-2, AS 62040-2. PERFORMANCE: IEC/EN 62040-3, AS 62040.3</p> <p>SEISMIC COMPLIANCE: Uniform building code UBC 1997, EN 60068-3-3/1993. EN60068-2-6/2008, EN 60068-2-47/2005. PROD DECLARATION: CE, RCM, 2376</p>	
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Remarks: M/s ABA Enterprises, Hyderabad has single firm quoted accepted as per specification in Bidding Documents

**Dur Muhammad Mirjat**  
Incharge, Purchase & Store Section,  
LUMHS, Jamshoro (Member/Secretary)

**Director Finance/Nominee**  
LUMHS, Jamshoro (Member)

**Abdul Raheem Shaikh**  
Director, IT (Services),  
LUMHS, Jamshoro Member)

**Medical Superintendent,**  
DHQ Hospital Dadu (Co. Opt. Member)

**Tariq Ahmed Shaikh**  
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**Muhammad Aasim Soomro**  
Additional Director, Planning & Development,  
LUMHS, Jamshoro (Chairman)