

Civil Aviation Regulatory commission (CARC) wants to purchase Three-Phase Uninterruptable Power Supply (UPS) with the following Technical Specifications:

1. General requirements:

- Supplier shall **deliver, install, operate, and commission** three-phase-UPS systems in different locations specified by CARC.

Location	QTY	Capacity	3ph	Existing Battery
Queen Alia International Airport	1	20 KVA	Three phase UPS	12V-26Ah QTY= 60
Amman Civil Airport	1	40KVA	Three phase UPS	-
Queen Alia International Airport	1	10 KVA	Three phase UPS	-
Amman Civil Airport (Abu Alanda)	1	10 KVA	Three phase UPS	-
Queen Alia International Airport	1	20 KVA	Three phase UPS	-

- UPS systems shall operate as an active power control system, working in conjunction with the building electrical system to provide power conditioning and on-line power protection for the critical loads.
- All related documents should be submitted to CARC such as material data sheets, priced spare parts list, maintenance manuals, operations manuals, and project's Action plan.
- The offer includes all electrical and safety work.
- UPS shall be True Online Double Conversion type.
- UPS shall contain a maintenance bypass switch and a display.
- All UPS units shall have a battery self-test feature.
- UPS shall support installation with 4-wire (L1, L2, L3, N, PE) WYE.
- Supplier should hold a high-quality maintenance and operation technical training course internally, and externally (optional) (Factory Training/ Certified Training center). The training shall cover but not restricted to: UPS theory, location of subassemblies, safety, battery considerations, maintenance troubleshooting, UPS operation and repair of the UPS system.
- Supplier shall provide syllabus for internal training, detailing training courses.
- After successful completion of the training course, the manufacturer shall issue official training certificates to the participants.
- Two separate offers (technical and financial includes sales tax) should be submitted.
- Supplier shall provide optional financial offer includes external training.
- Battery calculation shall be attached within the technical offer.
- The bidder shall provide a buyback price (optional) of existing 30KVA, 20KVA, and 40 KVA UPS with existing batteries of 40 KVA UPS 12V-70Ah batteries (QTY= 80).
- Total price shall not include any optional item.

1. Specification compliance sheet of (20KVA) UPS without battery:

General			Comply (Yes / No)	Comments
1	UPS Capacity	20 KVA		
2	Input / Output connection	3ph/3ph		
3	Type Topologies	True online double conversion technology		
4	System architecture	TOWER		
5	Efficiency in double conversion mode	≥ Up to 93% in Online mode, 97% in ECO mode		
6	Inverter / rectifier topology	Transformer – free, IGBT with PWM		
7	Brand	Well-known brand, West Europe		
8	Origin	West Europe preferred		
9	Related Electrical works	Installation work only		
10	Control Switch (MCB/Fuse/Isolator)	• Input ON/OFF • Output ON/OFF • Battery • Maintenance Bypass Switch		
11	Protections	UPS shall trip on following faults: - Input AC Under/Over voltage - Output overload / Short circuit - DC Under/Over voltage - High temperature		
Input				
12	Rated voltage	400V 3-phase (adjustable for 380V or 415V 3-phase)		
13	Frequency	50 HZ		
14	Input Frequency Range	45Hz-66Hz,		
15	Power factor	> 0.99 at full load		
Output				
16	Nominal voltage	400V 3-phase (adjustable for 380V or 415V 3-phase)		
17	Voltage Regulation	±2%		
18	Frequency	50 HZ		
19	Power factor	≥ 0.9		
20	(THDU%)	<3%		

21	Overload capability / Inverter	110%: ≥05 Minutes 125%: ≥01 Minutes 150%: ≥10 Seconds >150% : 100ms		
Connectivity and function extensions				
22	Front panel	Graphical LCD		
Indications & Alarms				
23	Alarms (Audible for Trouble/fault)	- Mains fail - Charger fail - DC Under/Over voltage - Battery low/ discharging - Output overload - High temperature.		
Metering				
24	LCD Display	- Input/Mains voltage - Ups output voltage - UPS output current - Battery voltage - Charging/ discharging current.		
Environmental				
25	Operating temperature range	0 °C to 40 °C		
26	Audible noise at (1) meter	≤ 55 (dBA) at normal mode		
Standards and certifications				
27	Safety	IEC/EN 62040-1 / EN50091-1-1		
28	Electromagnetic compatibility (EMC)	IEC/EN 62040-2 / EN50091-2		
29	Approvals	CE, CB report (TUV)		
30	Performances and testing rules	IEC/EN 62040-3 / EN50091-3		
31	Environmental aspects	EN 62040-4		
32	WARRANTY	Two years		
33	The supplier should be a certified service center (provide the certificates)			
34	The supplier should have a trained engineer on the same UPS (provide the certificates)			
35	The supplier should be distributor for the UPS Brand in Jordan (provide the certificates)			
36	The supplier should Provide a List of References in Jordan (related to UPS installation)			

2. Specification compliance sheet of (40KVA) UPS with battery:

- **Site survey** is required for 40KVA UPS, the supplier shall visit the location to identify and evaluate the work prior to submitting his offer. Work will be according to the operations affording hours, which shall be into consideration by the contractor.
- (40KVA) UPS shall offer **N+1 redundancy** by providing an extra power module (40KVA) to ensure full redundancy.
- UPS shall be using a **modular design** (for 40 KVA) in which power functions, static bypass, **batteries**, and system control are embedded in modules for optimal MTTR.

General			Comply (Yes / No)	Comments
1	UPS Capacity	40KVA		
2	Input / Output connection	3ph/3ph		
3	Type Topologies	True online double conversion technology		
4	System architecture	Modular design		
5	Efficiency in double conversion mode	≥ Up to 93% in Online mode, 97% in ECO mode		
6	Inverter / rectifier topology	Transformer – free, IGBT with PWM		
7	Brand	Well-known brand, West Europe		
8	Origin	West Europe preferred		
9	Related Electrical works	Distribution Board (input and output) CBs (input and output) Cables (input and output)		
10	Control Switch (MCB/Fuse/Isolator)	• Input ON/OFF • Output ON/OFF • Battery • Maintenance Bypass Switch		
11	Protections	UPS shall trip on following faults: - Input AC Under/Over voltage - Output overload / Short circuit - DC Under/Over voltage - High temperature		
Input				
12	Rated voltage	400V 3-phase (adjustable for 380V or 415V 3-phase)		
13	Frequency	50 HZ		

14	Input Frequency Range	45Hz-66Hz,		
15	Power factor	> 0.99 at full load		
Output				
16	Nominal voltage	400V 3-phase (adjustable for 380V or 415V 3-phase)		
17	Voltage Regulation	±2%		
18	Frequency	50 HZ		
19	Power factor	≥ 0.9		
20	(THDU%)	<3%		
21	Overload capability / Inverter	110%: ≥05 Minutes 125%: ≥01 Minutes 150%: ≥10 Seconds >150% : 100ms		
Connectivity and function extensions				
22	Front panel	Graphical LCD		
23	SNMP Card	For Remote Monitoring		
Indications & Alarms				
24	Alarms (Audible for Trouble/fault)	- Mains fail - Charger fail - DC Under/Over voltage - Battery low/ discharging - Output overload - High temperature.		
Metering				
25	LCD Display	- Input/Mains voltage - Ups output voltage - UPS output current - Battery voltage - Charging/ discharging current.		
Battery				
26	Type	Maintenance-free VRLA batteries (AGM)		
27	Architecture	Modular design		
28	Soft start capability	Yes		
29	Backup time	≥ 100 min @8KVA Load		
30	Date of production	≤ 6 Months		
31	Lifetime	≥ 5 years		
32	Battery Technology	Smart Advanced Battery Management Technology		
33	Battery test	Automatic battery test		
Environmental				

34	Operating temperature range	0 °C to 40 °C		
35	Audible noise at (1) meter	≤ 55 (dBA) at normal mode		
Standards and certifications				
36	Safety	IEC/EN 62040-1 / EN50091-1-1		
37	Electromagnetic compatibility (EMC)	IEC/EN 62040-2 / EN50091-2		
38	Approvals	CE, CB report (TUV)		
39	Performances and testing rules	IEC/EN 62040-3 / EN50091-3		
40	Environmental aspects	EN 62040-4		
41	WARRANTY	Two years		
42	The supplier should be a certified service center (provide the certificates)			
43	The supplier should have a trained engineer on the same UPS (provide the certificates)			
44	The supplier should be distributor for the UPS Brand in Jordan (provide the certificates)			
45	The supplier should Provide a List of References in Jordan (related to UPS installation)			

3. **Specification compliance sheet of (10KVA) UPS with battery (at QAIA and AMN):**

- 10 KVA UPS and batteries shall be housed in the same cabinet (internal batteries).

General			Comply (Yes / No)	Comments
1	UPS Capacity	10 KVA		
2	Input / Output connection	3ph/1ph (3 in, 1 out)		
3	Type Topologies	True online double conversion technology		
4	System architecture	TOWER		
5	Efficiency in double conversion mode	≥ Up to 93% in Online mode, 97% in ECO mode		
6	Inverter / rectifier topology	Transformer – free, IGBT with PWM		
7	Brand	Well-known brand, West Europe		
8	Origin	West Europe preferred		
9	Related Electrical works	Installation work		
10	Control Switch (MCB/Fuse/Isolator)	• Input ON/OFF • Output ON/OFF • Battery • Maintenance Bypass Switch		
11	Protections	UPS shall trip on following faults: - Input AC Under/Over voltage - Output overload / Short circuit - DC Under/Over voltage - High temperature		
Input				
12	Rated voltage	400V 3-phase (adjustable for 380V or 415V 3-phase)		
13	Frequency	50 HZ		
14	Input Frequency Range	45Hz-66Hz,		
15	Power factor	> 0.99 at full load		
Output				
16	Nominal voltage	400V 3-phase (adjustable for 380V or 415V 3-phase)		
17	Voltage Regulation	±2%		
18	Frequency	50 HZ		
19	Power factor	≥ 0.9		

20	(THDU%)	<3%		
21	Overload capability / Inverter	110%: ≥05 Minutes 125%: ≥01 Minutes 150%: ≥10 Seconds >150% : 100ms		
Connectivity and function extensions				
22	Front panel	Graphical LCD		
Indications & Alarms				
23	Alarms (Audible for Trouble/fault)	- Mains fail - Charger fail - DC Under/Over voltage - Battery low/ discharging - Output overload - High temperature.		
Metering				
24	LCD Display	- Input/Mains voltage - Ups output voltage - UPS output current - Battery voltage - Charging/ discharging current.		
Battery				
25	Type	Maintenance-free VRLA batteries (AGM)		
26	Architecture	Modular design housed in the same UPS cabinet		
27	Soft start capability	Yes		
28	Backup time	10 min. @ full load		
29	Date of production	≤ 6 Months		
30	Lifetime	≥ 5 years		
31	Battery Technology	Smart Advanced Battery Management Technology		
32	Battery test	Automatic battery test		
Environmental				
33	Operating temperature range	0 °C to 40 °C		
34	Audible noise at (1) meter	≤ 55 (dBA) at normal mode		
Standards and certifications				
35	Safety	IEC/EN 62040-1 / EN50091-1-1		
36	Electromagnetic compatibility (EMC)	IEC/EN 62040-2 / EN50091-2		
37	Approvals	CE, CB report (TUV)		
38	Performances and testing rules	IEC/EN 62040-3 / EN50091-3		

39	Environmental aspects	EN 62040-4		
40	WARRANTY	Two years		
41	The supplier should be a certified service center (provide the certificates)			
42	The supplier should have a trained engineer on the same UPS (provide the certificates)			
43	The supplier should be distributor for the UPS Brand in Jordan (provide the certificates)			
44	The supplier should Provide a List of References in Jordan (related to UPS installation)			

4. Specification compliance sheet of (20KVA) UPS with battery

- Site survey is required for 20KVA UPS, the supplier shall visit the location to identify and evaluate the work prior to submitting his offer. Work will be according to the operations affording hours, which shall be into consideration by the contractor.
- (20KVA) UPS shall offer N+1 redundancy by providing an extra power module (20KVA) to ensure full redundancy.
- UPS shall be using a modular design (for 20 KVA) in which power functions, static bypass, batteries, and system control are embedded in modules for optimal MTTR.
- 20 KVA UPS and batteries shall be housed in the same cabinet (internal batteries).

General			Comply (Yes / No)	Comments
1	UPS Capacity	20KVA		
2	Input / Output connection	3ph/3ph		
3	Type Topologies	True online double conversion technology		
4	System architecture	Modular design		
5	Efficiency in double conversion mode	≥ Up to 93% in Online mode, 97% in ECO mode		
6	Inverter / rectifier topology	Transformer – free, IGBT with PWM		
7	Brand	Well-known brand, West Europe preferred		
8	Origin	West Europe preferred		
9	Related Electrical works	Distribution Board (input and output) CBs (input and output) Cables (input and output)		
10	Control Switch (MCB/Fuse/Isolator)	• Input ON/OFF • Output ON/OFF • Battery • Maintenance Bypass Switch		
11	Protections	UPS shall trip on following faults: - Input AC Under/Over voltage - Output overload / Short circuit - DC Under/Over voltage - High temperature		
Input				
12	Rated voltage	400V 3-phase (adjustable for 380V or 415V 3-phase)		

13	Frequency	50 HZ		
14	Input Frequency Range	45Hz-66Hz,		
15	Power factor	> 0.99 at full load		
Output				
16	Nominal voltage	400V 3-phase (adjustable for 380V or 415V 3-phase)		
17	Voltage Regulation	±2%		
18	Frequency	50 HZ		
19	Power factor	≥ 0.9		
20	(THDU%)	<3%		
21	Overload capability / Inverter	110%: ≥05 Minutes 125%: ≥01 Minutes 150%: ≥10 Seconds >150% : 100ms		
Connectivity and function extensions				
22	Front panel	Graphical LCD		
23	SNMP Card	For Remote Monitoring		
Indications & Alarms				
24	Alarms (Audible for Trouble/fault)	- Mains fail - Charger fail - DC Under/Over voltage - Battery low/ discharging - Output overload - High temperature.		
Metering				
25	LCD Display	- Input/Mains voltage - Ups output voltage - UPS output current - Battery voltage - Charging/ discharging current.		
Battery				
26	Type	Maintenance-free VRLA batteries (AGM)		
27	Architecture	Modular Design housed in the same UPS cabinet		
28	Soft start capability	Yes		
29	Backup time	≥ 120 min @7KW Load		
30	Date of production	≤ 6 Months		
31	Lifetime	≥ 5 years		
32	Battery Technology	Smart Advanced Battery Management Technology		
33	Battery test	Automatic battery test		

Environmental				
34	Operating temperature range	0 °C to 40 °C		
35	Audible noise at (1) meter	≤ 55 (dBA) at normal mode		
Standards and certifications				
36	Safety	IEC/EN 62040-1 / EN50091-1-1		
37	Electromagnetic compatibility (EMC)	IEC/EN 62040-2 / EN50091-2		
38	Approvals	CE, CB report (TUV)		
39	Performances and testing rules	IEC/EN 62040-3 / EN50091-3		
40	Environmental aspects	EN 62040-4		
41	WARRANTY	Two years		
42	The supplier should be a certified service center (provide the certificates)			
43	The supplier should have a trained engineer on the same UPS (provide the certificates)			
44	The supplier should be distributor for the UPS Brand in Jordan (provide the certificates)			
45	The supplier should Provide a List of References in Jordan (related to UPS installation)			