Success Story: Supply and Commissioning of MDBs and 8 MW VFDs System

Project Information

Client: **Hussein Atieh & Sons Co.**

Project: **Upgrade Khaw Pump Station C-T-24-0084-FARA Phase IV no.2 & Upgrade Khaw Pump Abu-Alanda phase (II)**

Location: **Khaw & Abu-Alanda, Jordan**

Date of Completion: **November, 2025**

Project Overview

This project involved the supply, installation, and commissioning of a Main Distribution Board (MDB) and Variable Frequency Drive (VFD) system with a total capacity of 8000 kW **(8 Numbers)** to improve reliability and energy efficiency.

Scope of Work

• Supply and installation of MDB panels.

• Supply, programming, and commissioning of 8 X 1000 kW VFD system.

• Integration with existing systems and operator training.

Challenges & Solutions

• Managed commissioning with one transformer for each VFD and with one transformer using a bus coupler system.

• Applied ABB VFD ID Run for motor auto-tuning.

• Coordinated closely with client under tight timelines.

Results & Achievements

• Successful commissioning within schedule.
• Improved power quality and reduced starting current.
• Zero safety incidents.
• Positive client feedback.

Key Equipment

• MDB: ABB system, Form 4B, rated 2500A, 415V, 50Hz.

• VFD: ABB ACS880-37 cabinet-built ultra-low harmonic single drive series, 8 MW total capacity.

• Control Components: ABB breakers, UPS, relays, monitoring units.

Photos / Visuals


LayneBowler
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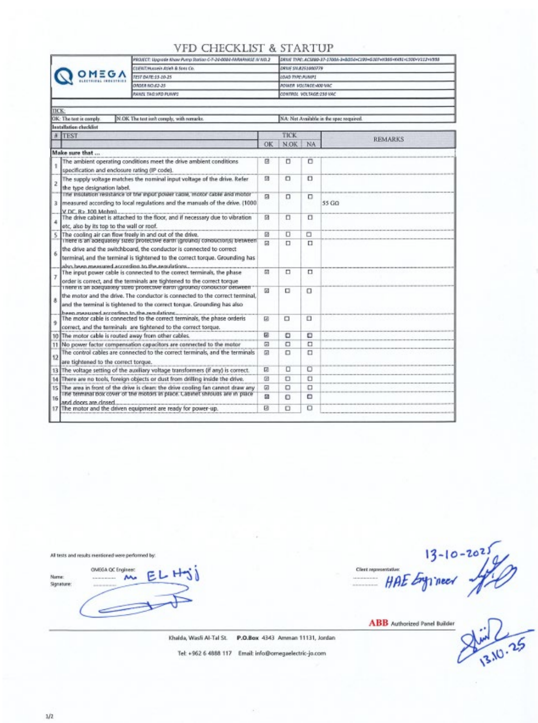

VFD CHECKLIST & STARTUP

OMEGA ELECTRICAL INDUSTRIES	
PROJECT: Upgrade Khaw Pump Station C-T-24-0084-FARAPHASE IV NO.2	DRIVE TYPE: ACS880-37-1700A-3+B054+C199+G307+H366+K491+L500+V112+V998
CLIENT: Hussein Atieh & Sons Co.	DRIVE SN: 8251000779
TEST DATE: 13-10-25	LOAD TYPE: PUMP1
ORDER NO. 62-25	POWER VOLTAGE: 400 VAC
PANEL TAG: VFD PUMP1	CONTROL VOLTAGE: 230 VAC

TICK:

OK: The test is comply. N.OK The test isn't comply, with remarks. NA: Not Available in the spec required.

Installation checklist

#	TEST	OK	N.OK	NA	REMARKS
	Make sure that ...				
1	The ambient operating conditions meet the drive ambient conditions specification and enclosure rating (IP code).	☑	☐	☐	
2	The supply voltage matches the nominal input voltage of the drive. Refer the type designation label.	☑	☐	☐	
3	The insulation resistance of the input power cable, motor cable and motor measured according to local regulations and the manuals of the drive. (1000 V DC, R> 100 Mohm)	☑	☐	☐	55 GΩ
4	The drive cabinet is attached to the floor, and if necessary due to vibration etc, also by its top to the wall or roof.	☑	☐	☐	
5	The cooling air can flow freely in and out of the drive.	☑	☐	☐	
6	There is an adequately sized protective earth (ground) conductor(s) between the drive and the switchboard, the conductor is connected to correct terminal, and the terminal is tightened to the correct torque. Grounding has also been measured according to the regulations.	☑	☐	☐	
7	The input power cable is connected to the correct terminals, the phase order is correct, and the terminals are tightened to the correct torque	☑	☐	☐	
8	There is an adequately sized protective earth (ground) conductor between the motor and the drive. The conductor is connected to the correct terminal, and the terminal is tightened to the correct torque. Grounding has also been measured according to the regulations.	☑	☐	☐	
9	The motor cable is connected to the correct terminals, the phase orderis correct, and the terminals are tightened to the correct torque.	☑	☐	☐	
10	The motor cable is routed away from other cables.	☑	☐	☐	
11	No power factor compensation capacitors are connected to the motor	☑	☐	☐	
12	The control cables are connected to the correct terminals, and the terminals are tightened to the correct torque.	☑	☐	☐	
13	The voltage setting of the auxiliary voltage transformers (if any) is correct.	☑	☐	☐	
14	There are no tools, foreign objects or dust from drilling inside the drive.	☑	☐	☐	
15	The area in front of the drive is clean: the drive cooling fan cannot draw any	☑	☐	☐	
16	The terminal box cover of the motors in place. Cabinet shrouds are in place and doors are closed	☑	☐	☐	
17	The motor and the driven equipment are ready for power-up.	☑	☐	☐	

All tests and results mentioned were performed by:

OMEGA QC Engineer: M. EL Hajj
Name:
Signature:

13-10-2025
Client representative: HAE Engineer

ABB Authorized Panel Builder

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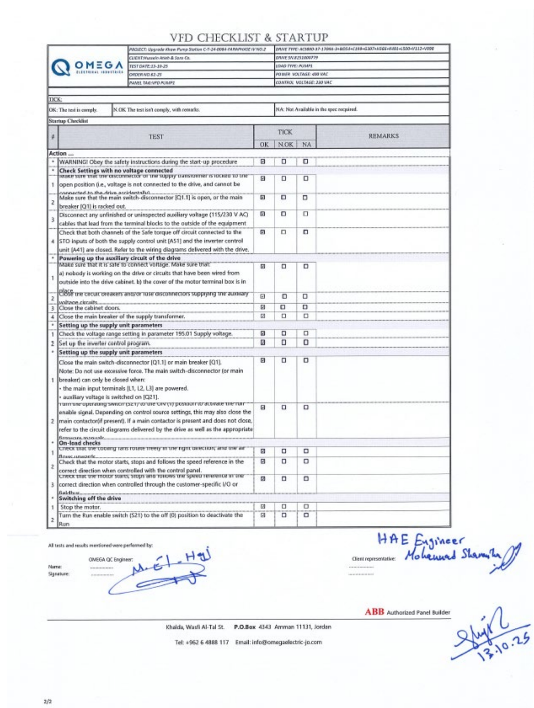

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PANEL TAG: VFD PUMP1	CONTROL VOLTAGE: 230 VAC

TICK:

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Startup Checklist

#	TEST	OK	N.OK	NA	REMARKS
	Action ...				
•	WARNING! Obey the safety instructions during the start-up procedure	☑	☐	☐	
•	**Check Settings with no voltage connected**				
1	Make sure that the disconnector of the supply transformer is locked to the open position (i.e., voltage is not connected to the drive, and cannot be connected to the drive accidentally)	☑	☐	☐	
2	Make sure that the main switch-disconnector [Q1.1] is open, or the main breaker [Q1] is racked out.	☑	☐	☐	
3	Disconnect any unfinished or uninspected auxiliary voltage (115/230 V AC) cables that lead from the terminal blocks to the outside of the equipment	☑	☐	☐	
4	Check that both channels of the Safe torque off circuit connected to the STO inputs of both the supply control unit [A51] and the inverter control unit [A41] are closed. Refer to the wiring diagrams delivered with the drive.	☑	☐	☐	
•	**Powering up the auxiliary circuit of the drive**				
1	Make sure that it is safe to connect voltage. Make sure that: a) nobody is working on the drive or circuits that have been wired from outside into the drive cabinet. b) the cover of the motor terminal box is in place	☑	☐	☐	
2	Close the circuit breakers and/or fuse disconnectors supplying the auxiliary voltage circuits	☑	☐	☐	
3	Close the cabinet doors.	☑	☐	☐	
4	Close the main breaker of the supply transformer.	☑	☐	☐	
•	**Setting up the supply unit parameters**				
1	Check the voltage range setting in parameter 195.01 Supply voltage.	☑	☐	☐	
2	Set up the inverter control program.	☑	☐	☐	
•	**Setting up the supply unit parameters**				
1	Close the main switch-disconnector [Q1.1] or main breaker [Q1]. Note: Do not use excessive force. The main switch-disconnector (or main breaker) can only be closed when: • the main input terminals [L1, L2, L3] are powered. • auxiliary voltage is switched on [Q21].	☑	☐	☐	
2	Turn the operating switch (S21) to the ON (1) position to activate the run enable signal. Depending on control source settings, this may also close the main contactor(if present). If a main contactor is present and does not close, refer to the circuit diagrams delivered by the drive as well as the appropriate firmware manuals.	☑	☐	☐	
•	**On-load checks**				
1	Check that the cooling fans rotate freely in the right direction, and the air flows upwards.	☑	☐	☐	
2	Check that the motor starts, stops and follows the speed reference in the correct direction when controlled with the control panel.	☑	☐	☐	
3	Check that the motor starts, stops and follows the speed reference in the correct direction when controlled through the customer-specific I/O or fieldbus.	☑	☐	☐	
•	**Switching off the drive**				
1	Stop the motor.	☑	☐	☐	
2	Turn the Run enable switch (S21) to the off (0) position to deactivate the Run	☑	☐	☐	

All tests and results mentioned were performed by:

OMEGA QC Engineer: M. El-Hajj
Name:
Signature:

Client representative: HAE Engineer Mohammad Shamm

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Client Testimonial

The commissioning team demonstrated excellent professionalism and technical expertise.

Conclusion

This successful completion reflects OMEGA’s commitment to delivering high-quality power solutions.