Connecting Shore power Larvik Havn

This procedure describes the use of Plug's low-voltage shore power facilities in Larvik, including Kanalkaia and Containerkaia.

It serves as a guide for the ship's crew to ensure safe and correct connection and disconnection according to IEC 80005-3.

Content of the Procedure

1. General procedure for connecting and disconnecting ships (IEC 80005-3)
2. Overview of the Larvik LV shore power facility
3. How to operate the PowerCon HMI and start the supply
4. Contact information

1. General procedure for connecting and disconnecting ships in accordance with IEC 80005-3

Use of Plug's shore power systems is required to follow the IEC-standard IEC 80005-3 as shown in the picture below.

General operating procedures

A low voltage shore connection system operation, on shore and on board, shall include procedures shown in Figure F.1.

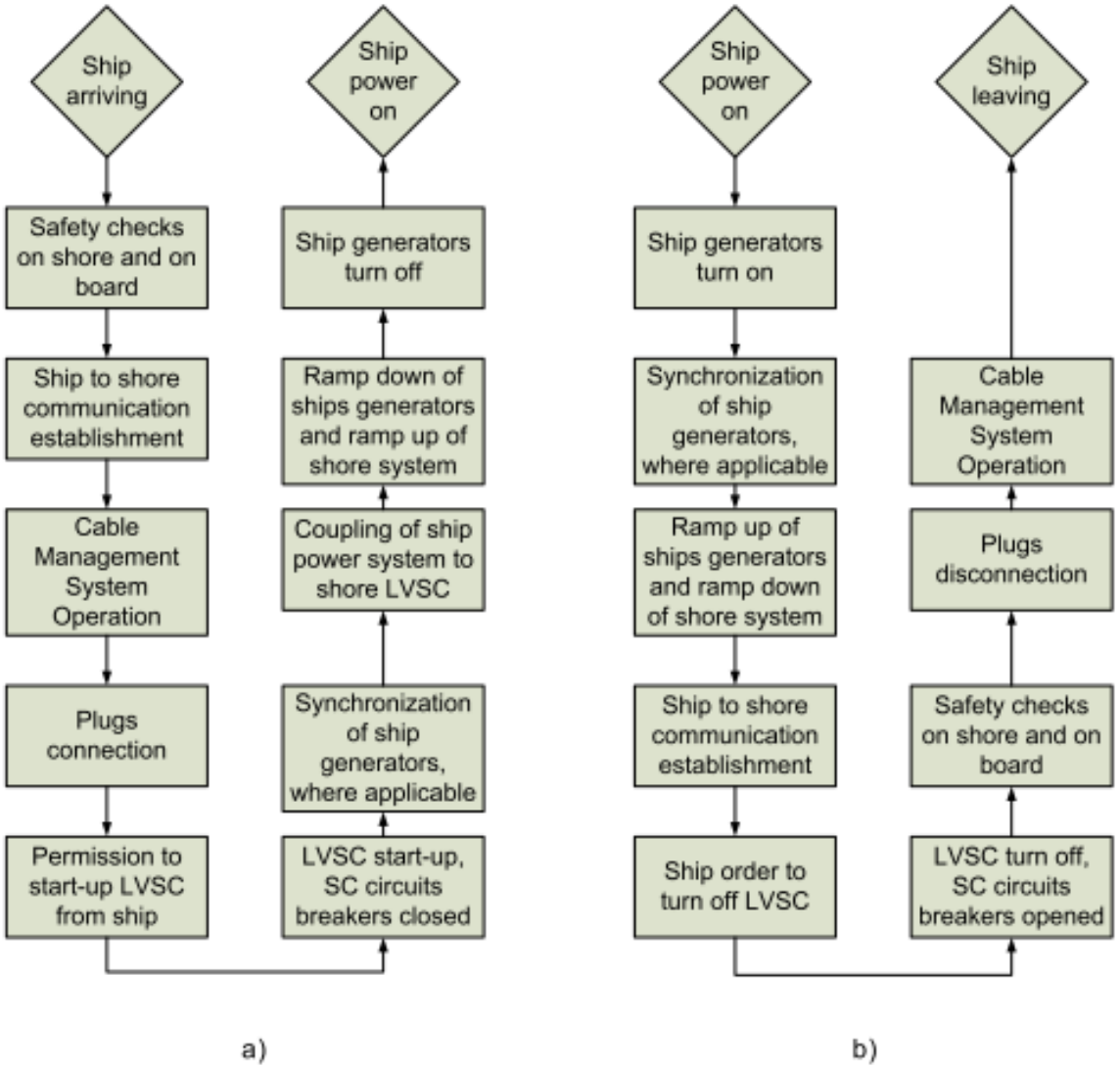


Figure F.1 – LVSC general operating procedures for connection a) and disconnection b)

2. Overview of Larvik LV Shore Power Facilities

In Larvik, there are two quays: Containerkaia and Kanalkaia. Both systems are designed and built in accordance with IEC 80005-3, with plugs in accordance with IEC 60309-5.

Containerkaia - CK1:

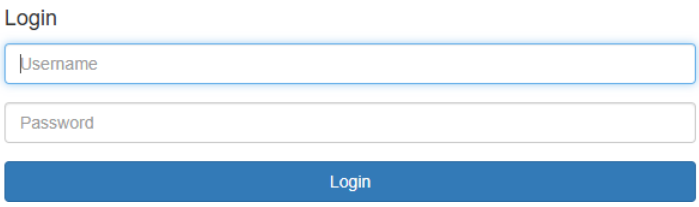
- The system can supply **400 V, 440 V,** and **690 V** at both **50 Hz** and **60 Hz**.
- One connection cabinet able to supply 2 x 350 A, 350 A per plug.

Kanalkaia - KK1, KK2 and KK3:

- The system can supply 400 V, 440 V, and 690 V at both 50 Hz and 60 Hz.
- The system can supply up to **three** vessels simultaneously, at different voltages and frequencies. There are 3 connection points, each capable of supplying up to 350A

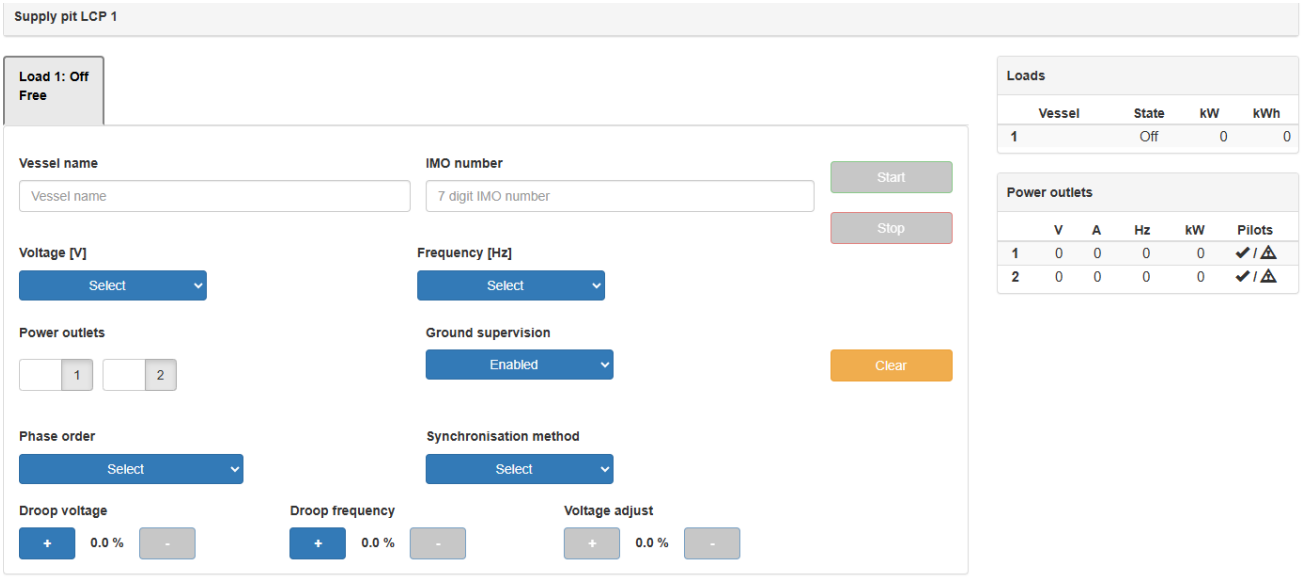
3. How to operate the PowerCon HMI and start the supply

Login Screen



The Shore-side cabinet is equipped with an HMI touch panel, used for operating the shore power system.

For username and password, contact the Harbor master's office or Plug operations.



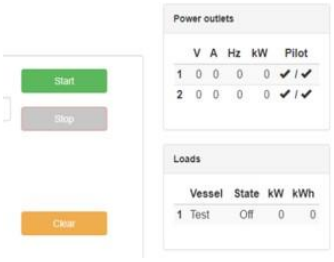
The interface allows the vessel to select Voltage Selection, Frequency, Ground Fault Monitoring, Number of Cables (Containerkaia), Phase Sequence, and Synchronization Method.

Normally, ground fault monitoring is set to **disabled** if the ship has its own ground fault monitoring. Failure to do so may result in blackouts.

The standard synchronization method is **A1**, where the ship synchronizes with the land-based system.

Adjust the voltage by pressing – or +. The voltage can be adjusted within ±5% of the selected voltage.

Starting Power Supply to the Ship

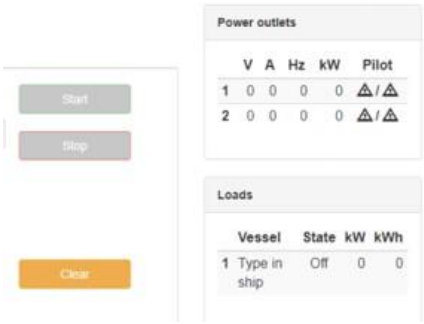


Once all selections have been entered and the start button lights green, the system is ready to start.

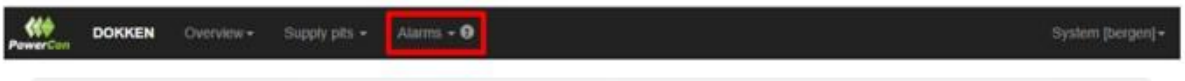
Note: Check for voltage on pilot circuits

If the start button does not light green, there are typically two reasons for this:

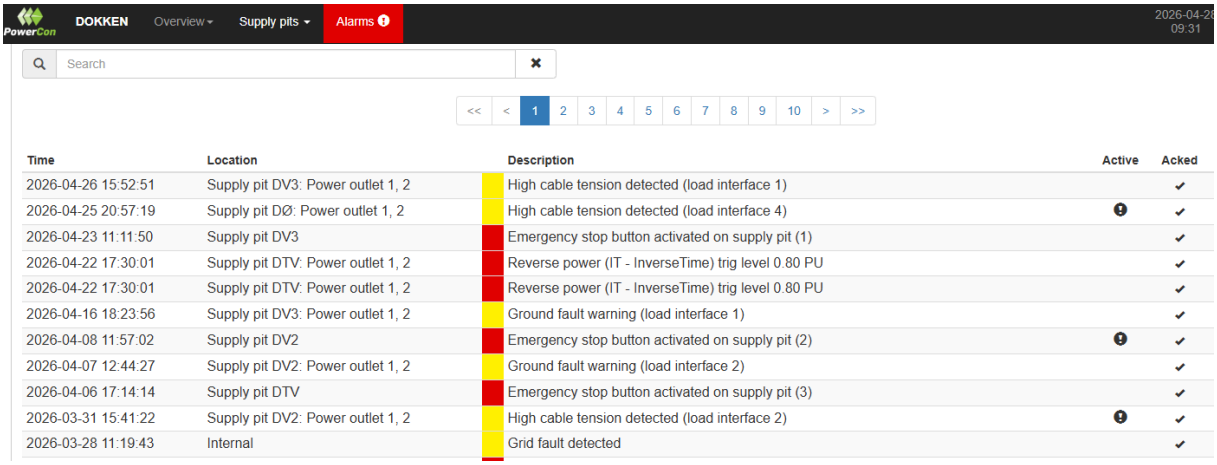
1. A fault in the pilot circuit, which will display a triangle on the screen. The first triangle indicates a fault on the land side, while the second triangle indicates a fault on the ship side. The illustration below shows faults on both sides for demonstration purposes.



2. Active alarms in the system. These must be deactivated before starting the system.



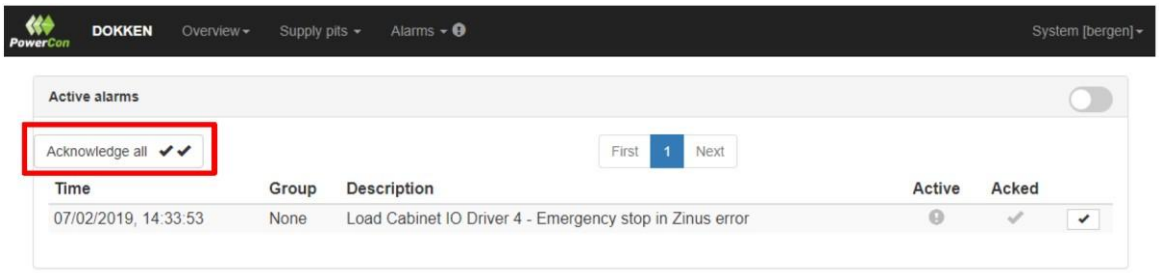
Displaying Active Alarms



Yellow warnings – The system operate

Red alarms – System trips or cannot start.

To clear warnings / alarms, press “Acknowledge all”



If the alarm remains active, contact Plug Operations to clear the alarm.

4. Contact information

For system issues, report to:

Harbor Masters Office Larvik: +47 33 16 57 50

Plug Operations: +47 475 14 999

Email: Operations@Plugport.no