



Connecting Shore Power Montrose

Side 1 av 8

Godkjent av		Ansvarlig	Lars Tore Sjøstad
Dato		Versjon	1

*This procedure describes the use of Plug's low-voltage shore power facility at **Montrose**. It serves as a guide for the ship's crew to ensure safe and correct connection and disconnection according to IEC 80005-3*

Content:

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

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1. General Procedure According to IEC 80005-3

Use of Plug's shore power systems must comply with IEC 80005-3, the international standard for low-voltage shore connection (LVSC). The ship is responsible for verifying compatibility and ensuring correct settings for voltage, frequency, and phase sequence before connection.

General operating procedures

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

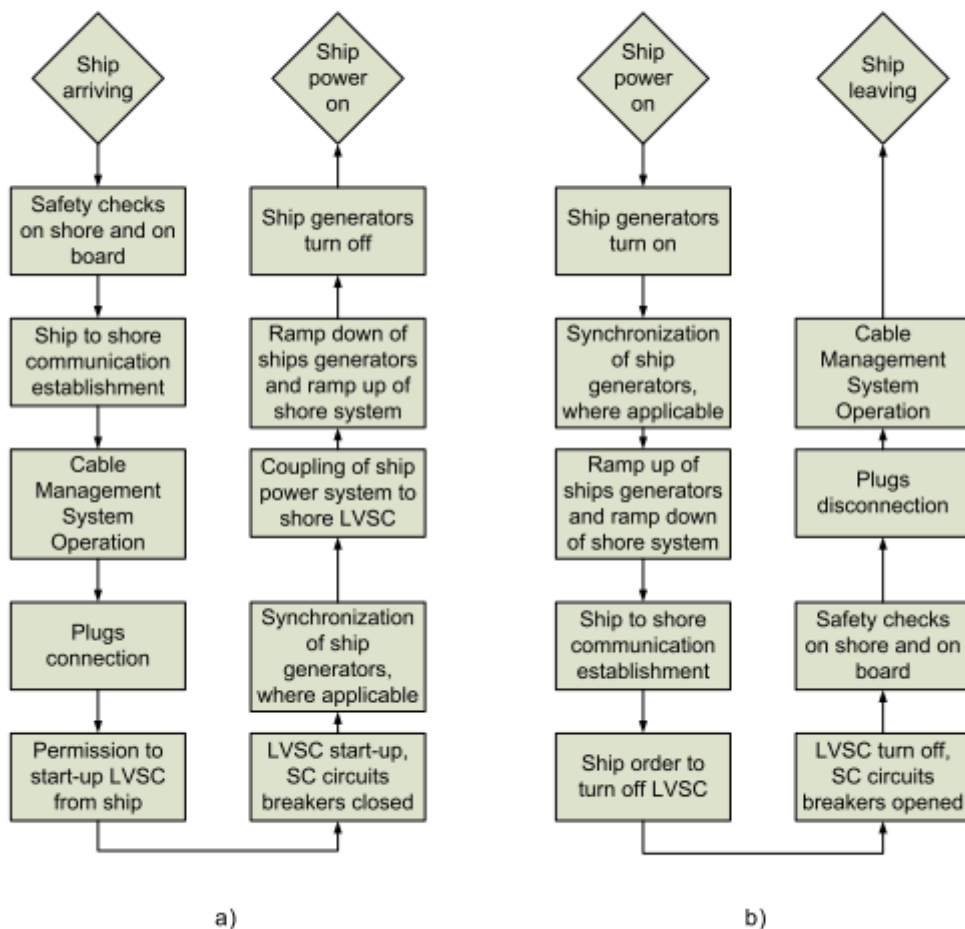


Figure F.1 – LVSC general operating procedures for connection a) and disconnection b)

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2. Montrose LV Shore Power Facility

The Montrose shore-power installation consists of three independent shore cabinets, each equipped with two outlets:

- Berth 1 → 2 Outlets**
- Berth 2 → 2 Outlets**
- Berth 3 → 2 Outlets**

Power Capacity

- Each plug can deliver **350A**
- Supported voltage range: **400V, 440V & 690V,**
- CCW/CW**
- 50/60hz**

Connection

Open the lid on the selected outlet and insert the ProConnect plug.

A **yellow stop button** next to each outlet pair disconnects power immediately for that cabinet's two outlets.

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3. Starting the PowerCon OPS System

3.1 Login Screen

The HMI touch panel is located on each shore cabinet.
Use login information supplied by the Port Authority.



Login

3.2 HMI Configuration

Before starting the OPS system, the vessel must configure the following parameters on the HMI:

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Supply pit Supply Pit 1

Load 1: Off Free

Vessel name: IMO number: Start

Stop

Voltage: Frequency:

Power outlets: Ground supervision: Clear

Phase order: Synchronisation method:

Droop voltage: 0.0% Droop frequency: 0.0% Voltage adjust: 0.0%

- Voltage selection**
- Frequency selection**
- Phase sequence**
- Number of outlets used**
- Synchronization method (A1 recommended)**
- Load selection corresponding to the cabinet in use**

Ground Fault Monitoring (GFM)

Set **Disabled** if the ship has its own GFM.

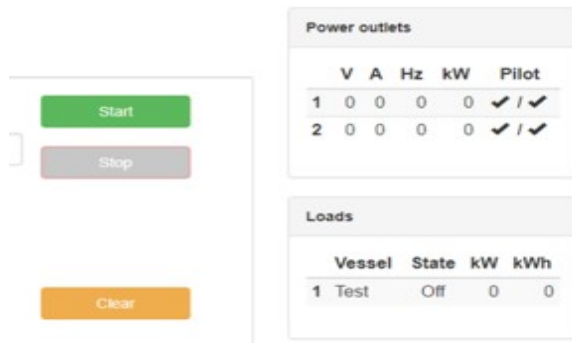
Running GFM on both sides may cause unnecessary trips or blackouts.

Synchronization Method

- A1** = Vessel synchronizes with shore (default and recommended)

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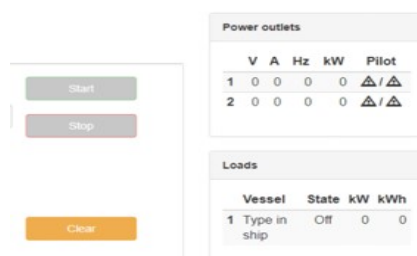
3.3 Starting the Supply



1. Confirm pilot circuits show **OK (If only one cable is used, only one pilot needs to be OK).**
2. Ensure the *Start* button turns green
3. Press **Start**
4. Shore Power Sequence will start and deliver power after a short delay.
5. Monitor cable currents and status on the HMI

If the *Start* button does not turn green:

- A **triangle** indicates a pilot circuit issue (shore or vessel side)



- All active alarms must be acknowledged before starting.

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Time	Location	Description	Active	Acked
2026-04-26 15:52:51	Supply pit DV3: Power outlet 1, 2	High cable tension detected (load interface 1)		✓
2026-04-25 20:57:19	Supply pit DØ: Power outlet 1, 2	High cable tension detected (load interface 4)	ⓘ	✓
2026-04-23 11:11:50	Supply pit DV3	Emergency stop button activated on supply pit (1)		✓
2026-04-22 17:30:01	Supply pit DTV: Power outlet 1, 2	Reverse power (IT - InverseTime) trig level 0.80 PU		✓
2026-04-22 17:30:01	Supply pit DTV: Power outlet 1, 2	Reverse power (IT - InverseTime) trig level 0.80 PU		✓
2026-04-16 18:23:56	Supply pit DV3: Power outlet 1, 2	Ground fault warning (load interface 1)		✓
2026-04-08 11:57:02	Supply pit DV2	Emergency stop button activated on supply pit (2)	ⓘ	✓
2026-04-07 12:44:27	Supply pit DV2: Power outlet 1, 2	Ground fault warning (load interface 2)		✓
2026-04-06 17:14:14	Supply pit DTV	Emergency stop button activated on supply pit (3)		✓
2026-03-31 15:41:22	Supply pit DV2: Power outlet 1, 2	High cable tension detected (load interface 2)	ⓘ	✓
2026-03-28 11:19:43	Internal	Grid fault detected		✓

Yellow warnings – The system operate

Red alarms – System trips or cannot start.

To clear warnings / alarms, press “Acknowledge all”

Time	Group	Description	Active	Acked
07/02/2019, 14:33:53	None	Load Cabinet IO Driver 4 - Emergency stop in Zinus error	ⓘ	✓

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

4. Disconnecting

1. Press **Stop** on the HMI
2. Remove the plug(s)
3. Ensure the outlet lids close



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5. Contact Information

Montrose Port Authority

Phone: +44 01674 672 302

Plug Operations

Phone: +47 475 14 999

Email: Operations@plugport.no