

Adagio AC System Requirements

1. General

- 1.1. The AC power system installation is to comply with both ABYC and NZ standards. Every precaution shall be undertaken to prevent the possibility of electrical fire or personal injury.
- 1.2. All AC outlets are to be protected by RCD/GFI.
- 1.3. The ship's AC system is completely isolated from shore power, except for optional direct aircond buss connection, which in that event will use shorepower ground.
- 1.4. All management of the AC system shall be centralized on the stbd workshop bulkhead.

2. AC Sources

- 2.1. Genset, Panda 10kW, 230VAC/50Hz
- 2.2. Inverter, MasterVolt 3.5kW, 230VAC/50Hz
- 2.3. Shorepower, via 9kW isolation transformer, with two 115VAC primaries for 115 or 230VAC operation at 50 or 60Hz, and -5, -10, -20% undervoltage taps
 - 2.3.1. Two x 32A shore inlets, normally A & B inlets paralleled, while B inlet can be dedicated to aircond buss

3. Ship busses

- 3.1. Non-stop buss
 - 3.1.1. Microwave
 - 3.1.2. Hob
 - 3.1.3. Disposal
 - 3.1.4. Lighting/all flourescents
 - 3.1.5. Outlets
- 3.2. Main buss
 - 3.2.1. Two MasterVolt 75A chargers
 - 3.2.2. Two A/C 16kBTU
 - 3.2.3. Dishwasher
 - 3.2.4. Washer
 - 3.2.5. Dryer

Adagio AC System Requirements

3.3. Air conditioning buss

- 3.3.1. Two 16kBTU 230VAC/50Hz units

4. Buss selection and isolation

4.1. 4 position selector switches phase and neutral, mutually exclusive

- 4.1.1. Inverter -> non-stop
- 4.1.2. Genset -> non-stop, main, aircond
- 4.1.3. Shore -> non-stop, main, aircond
- 4.1.4. OFF

4.2. Air conditioning vs. shore inlets

- 4.2.1. Provide for switching the aircond buss onto shore inlet "B" bypassing isolation transformer - for use on 230VAC/50Hz power when available. The purpose for this provision is to allow aircond useage without overloading the isolation transformer.
- 4.2.2. This could be accomplished either by a multipole switch, or by arranging the aircond buss connection to allow manually switching ring terminals from normal A/B inlet parallel to dedicated B inlet.
- 4.2.3. Switching the aircond buss to the B inlet must also switch the aircond ground to the B inlet.

5. Grounding

- 5.1. The isolation transformer screen is connected to shore power ground.
- 5.2. The isolation transformer secondary neutral is connected to transformer case, and to ship's green-wire ground.
- 5.3. All ship's AC busses, and the ship's DC ground are connected to a single common ground terminal.
- 5.4. Refer to drawing SCD47 "Ground Scheme" for the complete ship's grounding design.

6. Materials

- 6.1. All cable and cable terminations to be Ancor Marine Grade
- 6.2. All buss-bars, breakers to be Blue Sea
- 6.3. All electrical panels to be Heart/Enertec EVI Panels
- 6.4. Shore power inlets, connectors to be PDL Series 56, IP rating 66

7. Other issues

- 7.1. Operator errors

Adagio AC System Requirements

- 7.1.1. By selecting incorrect transformer taps it is possible to apply overvoltage to the ship's AC busses. Provide an automatic over-voltage disconnect.
- 7.1.2. Operator error does allow powering 50Hz aircond units from 60Hz shore power. The consequence is replacement of compressor motors. We don't require a 60Hz lockout.
- 7.1.3. Are there other 50Hz motors that can be a problem?
 - Washer, dryer, dishwasher, waterblaster?