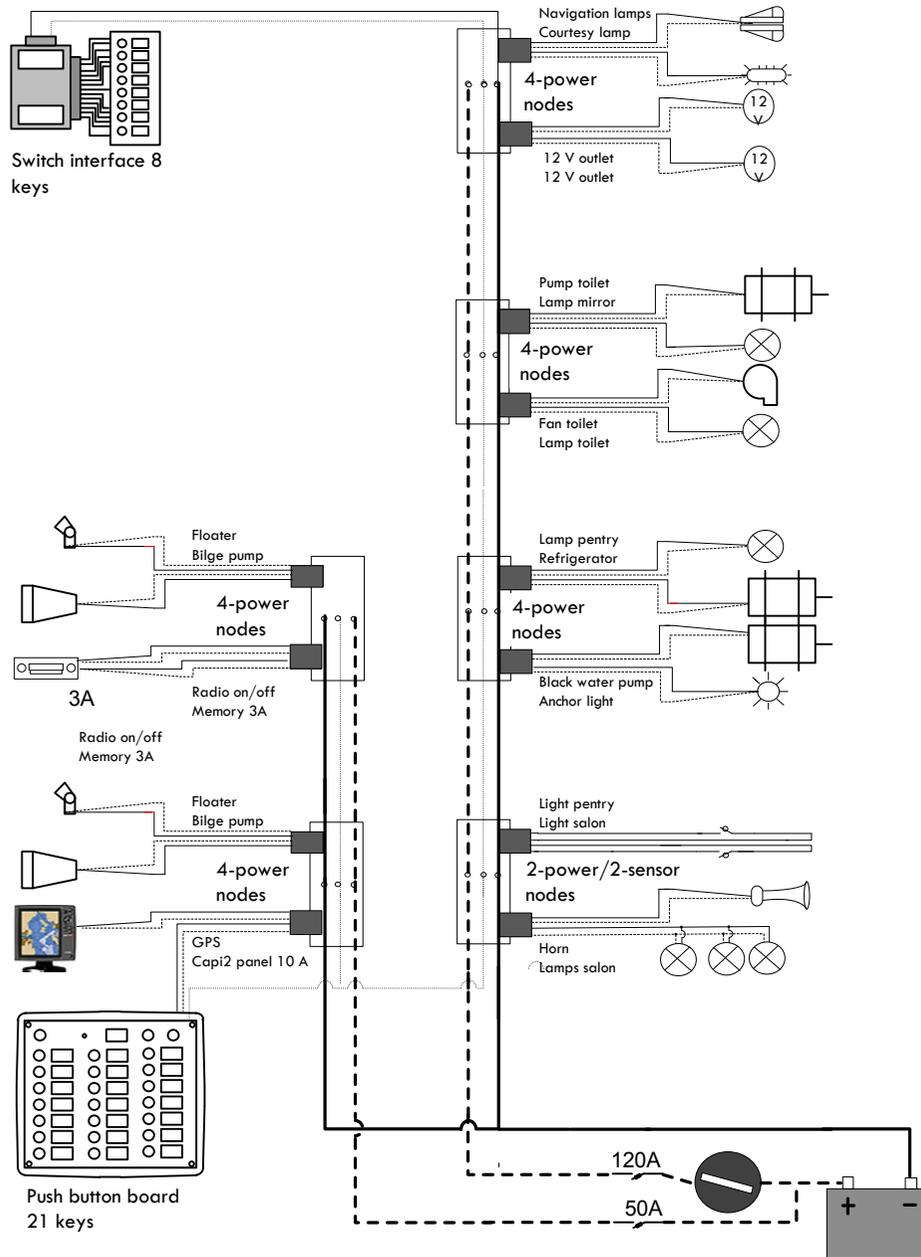


Example of a Capi2 installation



Installation manual

Main feeders and information cable

Manufacturer: **Capi2 BV**
Spegelt 29 ; 5674 CE Nuenen ; The Netherlands
www.capi2.com

General

The Capi2

Congratulations on purchasing a Capi2 bus power distribution system. The system can be assembled according to CE, ABYC and NMEA standards. It is essential therefore to follow the installation instructions carefully.

Capi2 is a modern electronically controlled bus system. Special built in features reduce the risk of a cable fire or a low-voltage situation.

Features

Built in features in a complete Capi2 system include:

- An electronic circuit breaker for each load. The circuit breaker can be reset with the push button panel.
- Visual and audible warnings.
- A warning for overloads. The appliance turns off automatically.
- A warning for low voltage. The appliance turns off automatically after a warning.
- A warning for wrong connected + and - power cable.
- Override fuse for each load
- Programmable:
 - Overload protection 3/6/10 /13/16 Amp.
 - As a dimmer
 - For momentary switch.
 - For toggle switch
 - To be controlled by multiple switches.
 - To detect broken cable/lamp.
 - Recovery of essential equipment.
 - Timers.

About this manual

This user manual describes In general the installation **The cabeling of Capi2 digital power system**. The cabeling is not included as a product of Capi2 but it is nesseray to follow some rules to get a well working installation. Read this manual carefully before installation or operation of the product. In case you have any doubt about a procedure contact your dealer.

Saftey instructions

Observe all safety instructions. Use this product only for the purpose it is intended for. Please contact your dealer immediately if a potential danger arises during the use of this product.

As used in this manual, the following signal words apply:

DANGER - indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury.

WARNING - indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury.

CAUTION - indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury or property damage. It may also be used to alert against unsafe practices.

Recommended - indicates that a system will be easier to install and use and that the system anyhow will work properly and safe.

Obligated - indicates that it is necessary to follow the instruction to get a well working system.

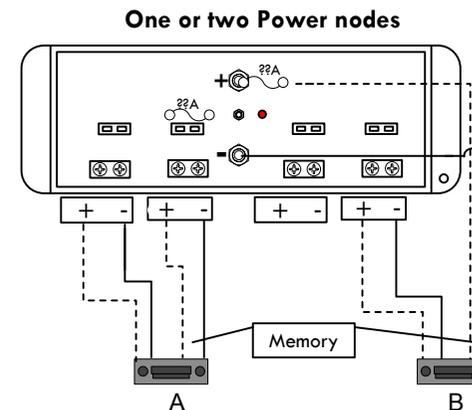
Service and technical support

For information concerning specific settings, maintenance or repair work, contact your local dealer.

Radio

There are two options to connect a radio. Both options include consant power for the memory. The 4 power node has to be placed on a main feeder which is not shut down when the main battery breaker is in off position..

- Connect the on/off connections of the radio to a power node. Place a blade fuse (Maximum is 20 Amp) in the over ride position of a second node And connctet the memory side to the this fuseD node.
- Connect the on/off connections of the radio to a power node. Place as close as possible to the screw connector of the Positive main feeder a fuse and connect the memory side of the radio the fuse.



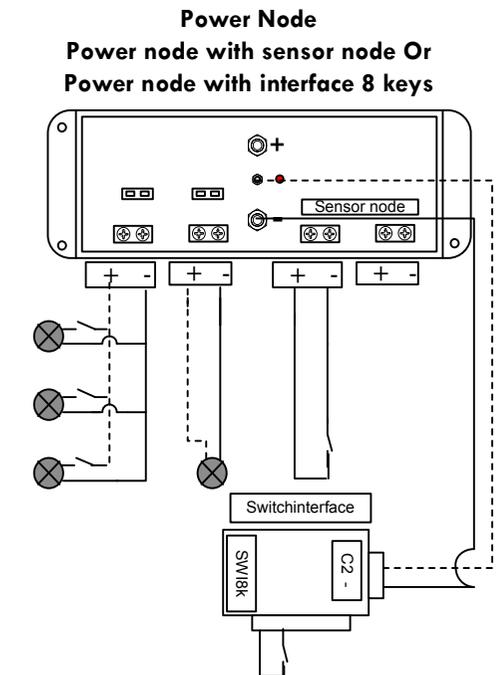
Lamps

Lamps can be switched in a conventional way with a switch in series with the power cable or through the Capi2 system with a sensor node or a switch interface 8 keys

- Lamp with external switch in series.
- Lamp or group of lamps controlled through a sensor node/switch interface 8 keys.

Note that the sensor/switch node can be placed anywhere on the Capi2 bus and does not have to be on the same node unite.

With Example B can the lamps be dimmed and controlled from switches located on several places.



Bilge pump

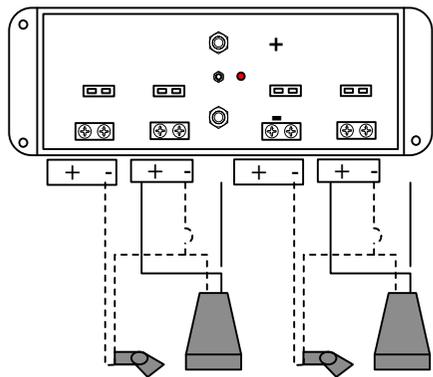
The bilge pump should be connected to main feeders which are connected directly to the battery without a main circuit breaker.

Connect the bilge pump in series, with the float switch to **one** power node and direct to a **second** power node.

After configuration will the bilge pump have the following features:

- Automatic bilge pump activation through float switch.
- Audible and visual bilge alarm.
- 5 second delayed start.
- 20 second delayed stop.
- Manual bilge pump activation.
- Over ride possibility with a blade fuse.
- Working when push button panel is set in off position.
- Automatic activation during a digital communication failure.

Two or four Power nodes



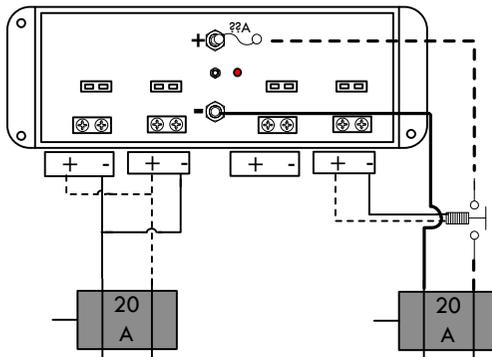
Heavy loads motor/inverter/autopilot

There are two ways to connect a heavy load. Some equipment such as smaller inverters and autopilots use a lot of power when they are started up, it can be up to 130 A for some milliseconds. They therefore have to handle as a heavy load and preferably connect as example A.

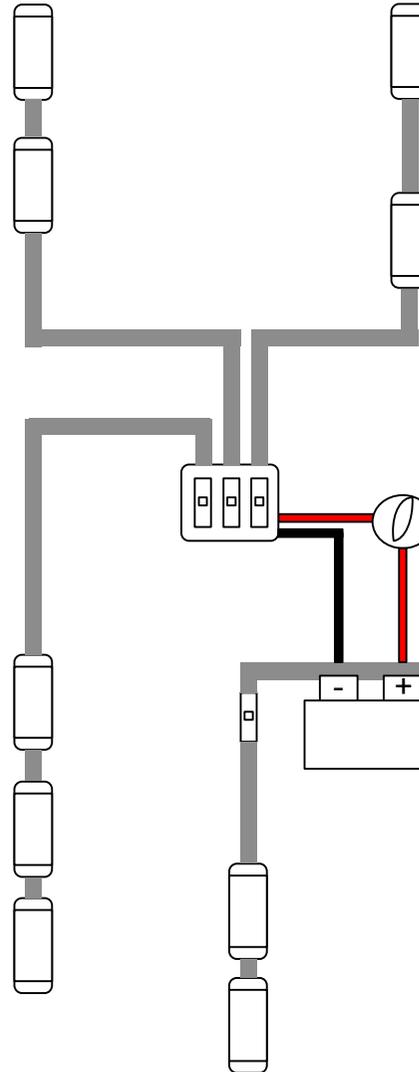
A heavy motor can be connected as example A but can in many cases also be connected as example B.

- A Connect the load/inverter to the main connectors with a fused relay in between. Activate the relay with power from the power node.
- B Connected the load to two parallel connected power nodes.

One or two Power node



Main harness



The main harness consist of.

Main feeder:

- Specification: Marine graded and tinned.
- Size: AWG 6/16 mm², AWG 4/25 mm² or AWG 2/35mm²
- Color: Positive: red according CE and ABYC. Neutral/negative: black according to CE and yellow according to ABYC.

Information cable:

- Specification: Marine graded and tinned.
- Size: AWG 16/1,5 mm².
- Color: recommended purple.

Additional cable size.

Heavy loads:

Consumes more than 10 A. Such as Refrigerator, pump for autopilot, bilge pumps, VHF.

- Specification: Marine graded and tinned according to ABYC.
- Size: AWG 14/ 2,5 mm²
- Color: Positive: red according CE and ABYC. Neutral/negative: black according to CE and yellow according to ABYC.

Light loads:

Consumes less than 10A.

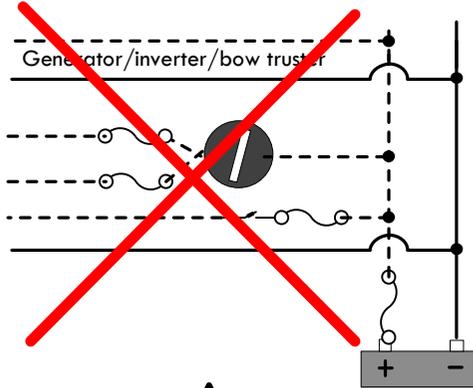
Such as lamps, navigation lamps smaller pumps.

- Specification: Marine graded and tinned according to ABYC.
- Size: AWG 14/ 2,5 mm²
- Color: Positive: red according CE and ABYC. Neutral/negative: black according to CE and yellow according to ABYC.

Connection of mainfeeder to the battery

A digital power system is more sensitive to electrical disturbance than a conventional system. All nodes are therefore equipped with condensators but on a boat with bow thruster generator, inverters, chargers this is often not enough.

You are therefore **obligated** to connect the + main feeders directly to the battery. The battery will then work as a voltage deposit.



OBLIGATED 

You are **obligated** to connect the Capi2 + main feeder directly to the battery. The battery will then work as a voltage deposit.

Do not connect the Capi2 + main feeder to the same main feeder as for the generator and inverter.

Main battery circuit breaker

The main battery switch in a conventional system is used to turn off all DC power: when the boat is left, for work on the DC system and as an emergency switch.

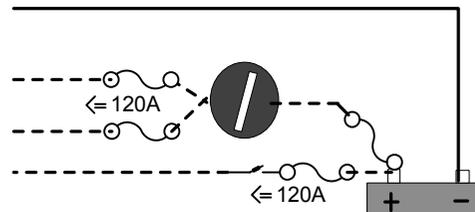
With the Capi2 system you can with one switch on the push button panel set the system in standby mode which means that all loads will be turned off.

With ACT (the Capi2 configuration tool) can loads be set to work although the system is set in standby mode (for instance: bilge pumps, refrigerator).

The function for a main battery switch within a Capi2 system would then be to turn off all DC power: for work on the DC system, when leaving the boat for a longer period and for emergency.

Recommended 

It is recommended that one main feeder is hot wired directly to the battery and the rest of the main feeders to the main circuit breaker. Essential loads connected to this main feeder can then work in standby although the main circuit breaker is in off position.



Warning 

Determine according to the ABYC and the CE regulations the location of the fuse between the main feeders and the battery.

Connection of information cable

The information cable starts at the main switch panel/bus generator and runs between the different node modules. This cable carries the digital information.

A normal fine stranded power cable of minimum 1,5 mm² /AWG 14 can be used.

Choose a color which follows the ABYC and the CE regulations.

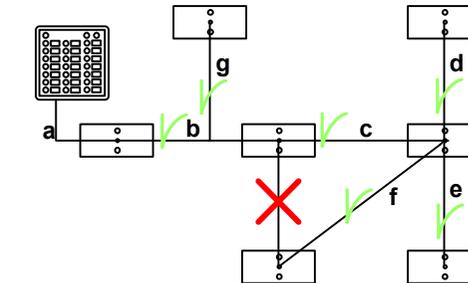
Warning 

Use the right size and color of the cabling according to the ABYC and the CE regulations.

When you plan the typography for the information cable should you consider the following.

- Maximum total length 100 m.
- The cable should not be placed in a complete loop.
- The cable can be connected to each other; in series, as a T, as a star or all combined.
- The cable can be cut /repaired and fastened as a normal power cable.
- Ring connectors can be used.

Calculation maximum length of the information cable



$$a + b + c + d + e + f + g = < 100 \text{ m} / 110 \text{ yards}$$

Combination of 24V and 12 V

It is no problem to combine 24V for lights/pumps etc with 12 V for instruments. All these appliances can be controlled from the same main switch panel.

The only thing you can not achieve in a system like this is a power management which works for both voltages at the same time.

When you program the system you can choose for which voltage the power management shall work.

Connect the 24 V main feeder cables to the node units which shall handle appliances for 24 V and the 12 V main feeder cables to the node units for 12 V appliances.

Connect the main switch panel/bus generator to the 24V system and the information cable to all node units 24V and 12 V.

