

Best of CGS

The following documentation provides additional build information for the BOCGS panels and assumes the user is using the relevant ELBY Designs Component and Hardware Kits for each panel.

Builders should refer to the CGS website for detailed build information for each board. Where applicable, we have added additional notes for clarification for each board as it pertains to the BOCGS build.

The panel pictures show the location of the various coloured banana sockets using the colour scheme discussed at the end of this document.

Mounting Hardware Kits are also available and these assume that the boards are being mounted in the base of a BUD AC-423 enclosure. To assist with this we offer pre-punched BUD boxes that have a matrix of holes placed to allow mixes of both single- and double-width pcbs.

Power Supply

There is insufficient room in the BUD enclosures to accommodate a power supply so we strongly recommend a separate enclosure be made for a power unit and your BOCGS units powered from it. To this end our BOCGS Mounting Kits include a 4-pin connector suitable for connection back to the main power unit via a suitably sized power lead.

Typical consumption figures for the Best of CGS are:-

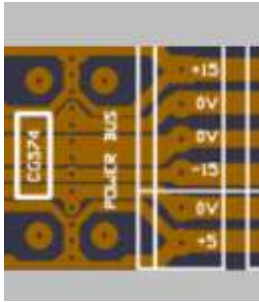
BOG:	+12V @ 250mA	-12V @ 200mA
MARSH:	+12V @ 200mA	-12V @ 170mA
SWAMP:	+12V @ 700mA	-12V @ 50mA

A suitable power supply would deliver, as a minimum, +12V @ 750mA and -12V @ 400mA

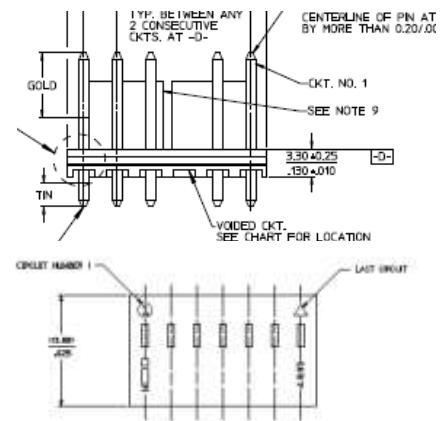
Our PSU-10b (12V version) or PSU-10d (15V version) are ideal external supplies for powering up to 3 boats. The PSU-10 requires an external laptop style supply (15VDC for PSU-10b and 18V for PSU-10d) rated to a minimum of 2.4A. The PSU-10 is equipped with 3x 4-pin DC connectors.

For a single boat power solution we would suggest our PSU-8a. This requires a well-regulated 12VDC power supply and will comfortably handle up to 2 boats.

When terminating the power connectors we recommend the following pinout to maintain compatibility throughout all units and with other BOCGS builds:-



- Pin 1 = -15V
- Pin 2 = 0V
- Pin 3 = 0V
- Pin 4 = +15V



General Construction Notes for BUD Enclosure builds

Before starting to dress your pcbs we recommend that you install all the mounting hardware and then check the fit of all the pcbs. Drilling the pcb mounting holes out to 3.5mm will make it easier to insert and remove the pcbs and provide a little movement to joggle the boards in to place. You may find it helpful to carefully file down the longer edges of the boards to allow the boards to sit squarely side-by-side.

Many pcbs have provision for wire anchors which can help improve the longevity of direct-to-pcb wiring. The following notes detail how to use these:-.

- 1) Trim off the end of a suitable gauge of hookup wire
- 2) Pass it through the larger (pad-less) hole from below and pull a couple of inches through.
- 3) Strip the insulation from the end of the wire, twist and tin it.
- 4) Bend the wire over and pass the tinned part through the associated pad hole. Trim as needed.
- 5) Flip the board and solder the tinned wire to the pad.
- 6) Pull the excess wire back through the first hole so only a short length remains between the hole and the second pad. Make sure this is the LAST step, or the insulation will peel back from the wire as it is soldered.

CGS74 – MOTM Distribution Board

Where fitted, mount the CGS74 using the extended bolts and spacers to allow the pcb to clear the DC power connector.

CGS91 – Power Rail Board



A pair of CGS91 boards mounted in our 4U Boat mounted and loaded with bolts and spacers for (in this instance) the BOG PCB Set.

The CGS91 Power Rail boards are an alternate solution to getting power distributed to the boards in a boat. Initially designed to be mounted on the back of the front panel and to allow the module boards to be mounted close to the panel

components to ease wiring, they can also be mounted in the base of the boat providing a short route for power wires to the nearest set of terminals on the CGS91 rather than having to run long power cables around the boat to a CGS74 or similar power breakout board.

Minimal installation involves the power connections be hardwired direct from the power points on the CGS91 to the relevant power points on the module board. If this wiring is implemented sensibly along with the wiring to the panel components, it should be possible to tilt the module board over to get access to both the underside of the module board and to the panel component wiring for servicing etc.



BOG PCB Set mounted on CGS91 PCBs

It is possible to fit MTA connectors to both the CGS91 and the module boards but there would appear to be little benefit doing this when the CGS91 are mounted on to the front panel. If the CGS91 are mounted inside the boat itself then having at least one end (most likely the CGS91 end) fitted with an MTA will allow the module board to be disconnected from the power rail and the board taken out of the boat to gain better access to the board for servicing. The CGS91 uses the smaller 0.1" MTA compared to the 0.156" MTA used at the module board end.

Make 7x power cable sub-assemblies:-

Cut 7cm of red, black and blue 7/0.2

Strip 3mm and crimp one end of each

Install in to 7x 0.156" MTA

Strip 5mm and solder in to the respective positions on the CGS91

Make 1x power cable sub-assemblies:-

Cut 12cm of red, black and blue 7/0.2

Strip 3mm and crimp one end of each

Install in to 1x 0.156" MTA

Strip 5mm and solder in to the CGS09 position on the CGS91

Colour Scheme







The Panther BOCGS Hardware Kits use an enhanced colour scheme for the 4mm sockets. The new scheme provides for differentiation between Inputs and outputs as well as AC and DC signals. Although there is no hard and fast definition, one of the generally adopted SERGE Modular schemas uses:-

- BLACK = AC,
- BLUE = DC,
- RED = LOGIC, and
- PURPLE = SYNC.

This scheme doesn't differentiate between INPUT and OUTPUT so the above colours have been assigned to INPUTs while WHITE, GREEN and YELLOW have, respectively, been added as OUTPUTs to give:-

- BLACK = AC In,
- BLUE = DC In,
- RED = LOGIC In,
- WHITE = AC out,
- GREEN = DC Out, and
- YELLOW = LOGIC Out
- PURPLE = SYNC In and SYNC Out.

All knobs are a Davies clone and are BLACK.

	IN	OUT
AC		
DC		
LOGIC		

The following pages show pictures of the SWAMP unit built in to one of our BUD enclosures and gives you an example of how the build may go.

NB: In this installation the original CGS74 Distribution board has been used.



This is the completed SWAMP unit

You can see the SWAMP here opened for servicing.

You can see here that we opted to mount the CGS59 main board in the base to maximise clearance around the boards and the BUD enclosure.



Another view on the SWAMP internals

The rear of the SWAMP showing the suggested 4-pin power connector.

You can also see here the standard hole matrix allowing both 1" and 2" wide boards to be installed side-by-side.

