



The 208 Hub

The Hub makes it possible to plug 3 cards side-by-side to a 208 or Easel, or even up to 6 thanks the rear edge connector of the ToolBox series cards.

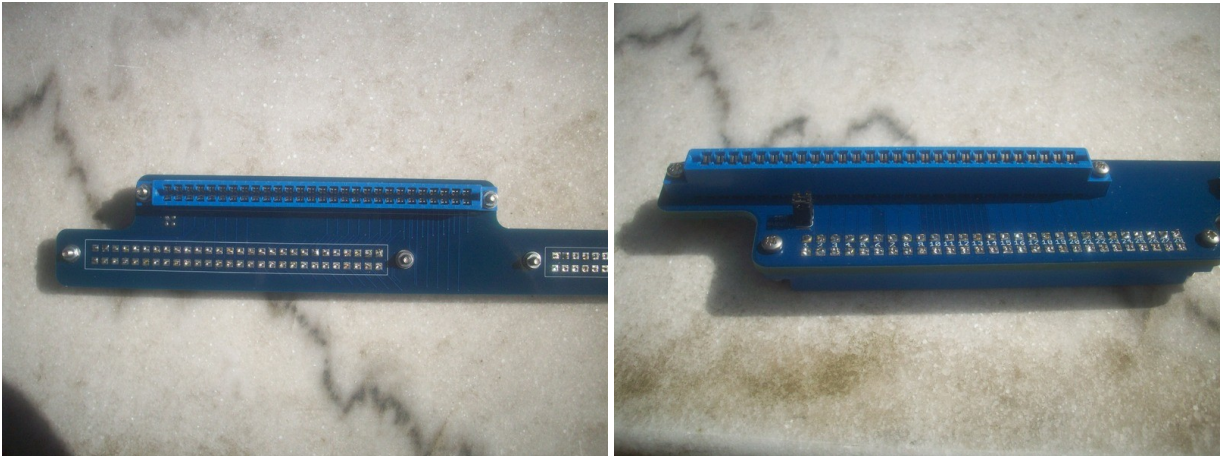
- 3mm thick 4-layer PCB for best stability and rigidity
- M/F stackable gold plated banana plugs to access the panel banana sockets used for mounting
- Gold plated transfer card
- Easy plug and play design
- Jumpers to use the 208/Easel's +/- 15V rails or the optional +/-15V PSU powered from 9 to 36V DC (the common 12V Cincon external block works fine) to relieve the 208/Easel's own PSU if more than 3 cards are used together
- Works with any card or expander compatible with the 208's program card slot.

BOM

Edge connectors	4	56 (2x28) way 3,96mm pitch thin solder lugs	LW-N28A2G on ebay
Stackable banana plugs	7		"4mm Musical Audio Speaker Cable Wire Banana Plug Connector Plated Plug" on ebay Dimension: 38.2 x 9.2 mm/1.50in x 0.36in Other types should work but the barrel might need to be shorted. Length (from tip to cut) below the Hub should be about 34mm.
M3 16mm screw + nut and washer	8		Any supplier
Optional standalone +/-15V PSU	1	Artesyn AEE00CC18-LS	Mouser 826-AEE00CC18-LS
Optional DC socket	1 or 2	 select a PC mount socket that fits the DC supply you will use (for the 12V Cincon block 2.5mm center hole 5.5mm barrel)	Any supplier
Optional DC plug	2	select a plug that fits the DC supply you will use (for the 12V Cincon block 2.5mm center hole 5.5mm barrel)	Any supplier
Optional 2 x 2 way 0.1" - 2.54mm header	2	for 208 +/-15V supply	Any supplier
Optional 2 x 2 way 0.1" - 2.54mm jumper	2	for 208 +/-15V supply	Any supplier

Build notes

1. Screw and solder each edge connector, the one below aligned with the banana plugs hole should be soldered to the bottom of the PCB because it will plug into the 208's connector via the black transfer card. The other ones to the top of the PCB.



2. **To use more than 3 cards at the same time, you may need the optional +/-15V PSU**, depending on the extra power available from your Easel or 208 PSU and on the total consumption of the cards. Solder the Artesyn AEE00CC18-LS block to the spot on the right of the PCB on the **top side** and the DC jack socket(s) to the **bottom side**.

If the Easel is powered with a Cincon 12V external block, this block can power both the Hub and Easel together with a cable between them, hence the 2 DC jack socket emplacements. Connect the 12V block output plug to a Hub socket and run a male-male cable from the second one to the Easel, which one is used is not important, they are in parallel. The 2 caps emplacements to the center right of the first PCB were meant for filter caps if needed but could be ignored and left empty.

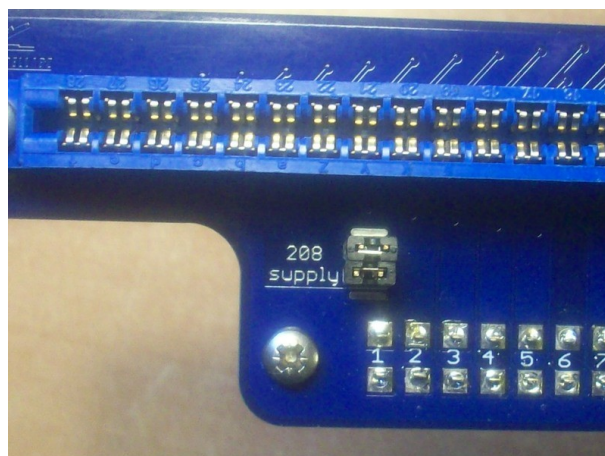
The DC jack polarity is tip (center barrel) + and ring (outer barrel) -.

The AEE00CC18-LS accepts +9V to +36V DC input and outputs +/-15V DC, 500mA on each rail.



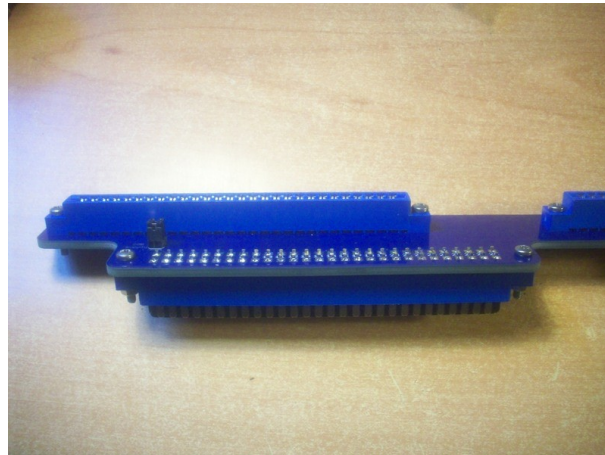
If the optional PSU is not used, bridge the "208 supply" pads to the right to power the Hub's +/-15V rails with the 208's ones, with headers + jumpers or solder components legs.

Connect the pads horizontally in parallel with the 2 stripes on the PCB. Do NOT connect them vertically, this would short your Easel's or 208's +/-15V rails.



It is still possible to use the 208 supply with the Artesyn AEE00CC18-LS block installed to the Hub as long as it's not powered with an external DC supply. **NEVER** connect the "208 supply" pads neither leave jumpers in place if the Hub's optional PSU is powered, your Easel or 208 and Artesyn AEE00CC18-LS block might not appreciate it.

3. Insert the black transfer card into the bottom connector and plug your Hub to your Easel or 208.



4. If the envelope bleeds into the LPG1 when the Hub is inserted, add a 33nF capacitor to the back of the left edge connector between contacts 2 and 22 of the bottom row.
5. Not all edge connectors have the same depth. Depending on your 208's one, bad contacts may occur because the transfer card between the Hub and 208 is not pushed deep enough into the 208's connector. To fix this, insert a piece of wire into the Hub's connector so that the transfer card protrudes a little more. You can solder the transfer card's contacts 1 and 28 to the Hub's edge connector to prevent it from staying in the 208's edge connector when the Hub is unplugged.

Disclaimer
I assume no liability for personal injury or damage to equipment or loss of use
caused directly or indirectly by the use of the Hub.