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		161308319631 or 161308317511 on ebay Probably also available from other suppliers. Other stackable banana plugs should work as well but I didn't test another type.
M3 16mm screw + nut and washer	8		Any supplier
Optional standalone +/-15V PSU	1	Artesyn AEE00CC18-LS	Mouser 826-AEE00CC18-LS
Optional female DC socket	1 or 2	select a female socket that fits the DC supply you will use for the 12V Cincon block, Mouser ref 992-CON-SOCJ-2155 works	Mouser 992-CON-SOCJ-2155 (for Cincon 12V block)
Optional male DC plug	2	between the Hub and Easel	Mouser 490-PP3-002A
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.
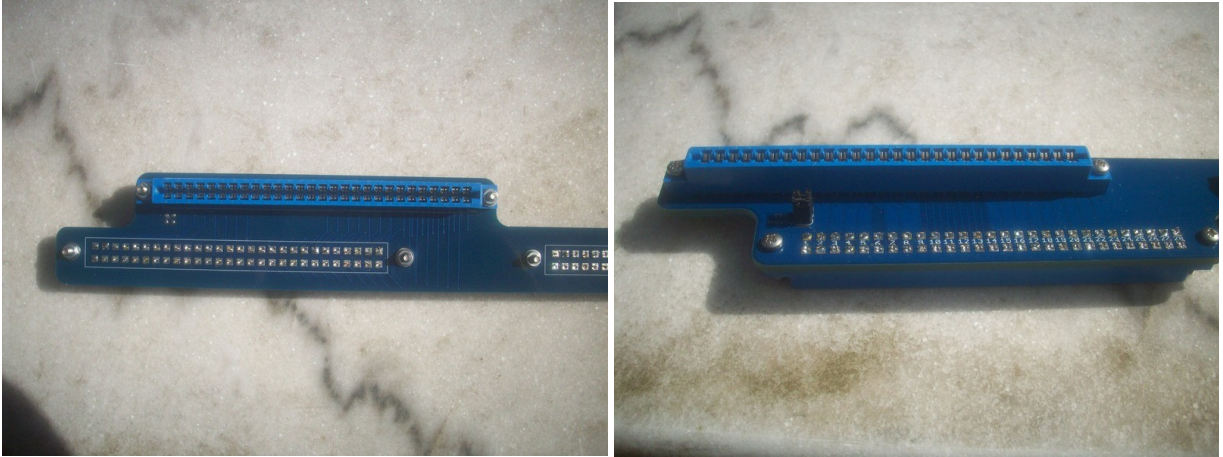
2. **To use more than 3 cards, you may need the optional +/-15V PSU**, depending on the extra power available from your Easel or 208 PSU and on the total consumption of the cards.
Solder the Artesyn AEE00CC18-LS block to the spot on the right of the PCB on the **top side** and the DC jack socket(s) to 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 sockets 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.

Bridge the 2 tip pads together and the 4 other ones too. This will strenghten the sockets mounting, improve the connection between both sockets and do a proper -Vin connection (the PCB trace connects the -Vin to the socket's switched pad only, this will be fixed on the next batch).

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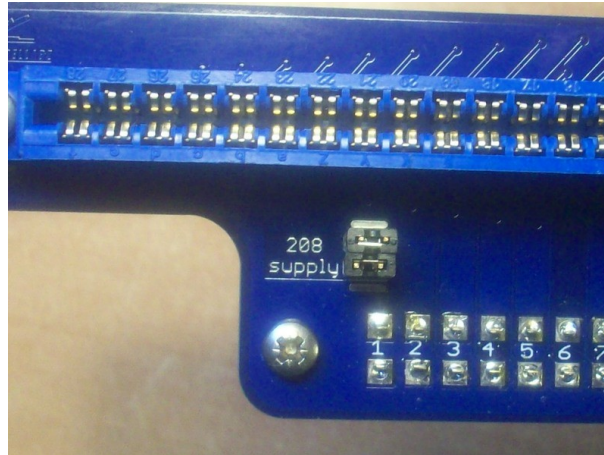
It is still possible to use the 208 supply with the Artesyn AEE00CC18-LS block installed to the Hub as long as it's not powered with an external DC supply.
NEVER connect the "208 supply" pads neither leave jumpers in place if the Hub's optional PSU is powered, your Easel or 208 and Artesyn AEE00CC18-LS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

3. Unscrew the bottom socket of the banana plugs, remove the first red or black plastic ring and shorten the plugh with a metal saw following the ring groove. Sand the cut. Screw them to the 7 holes.

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