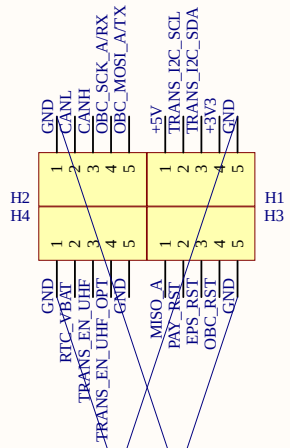
Satellite +Y Face

Satellite +X Face

OBC PCB

View looking from the BOTTOM of the satellite UP
Stacked on top of EPS PCB

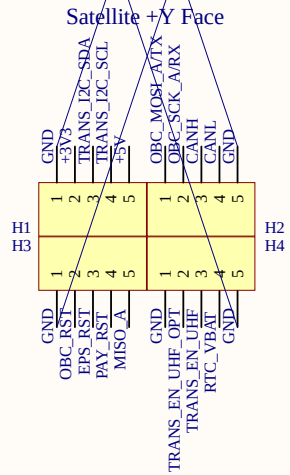


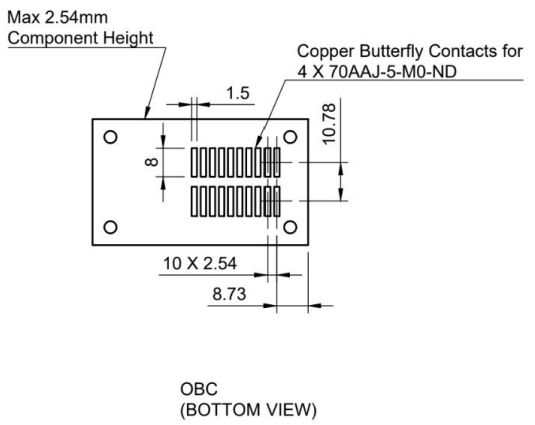
Satellite +Y Face

Satellite +X Face

EPS PCB

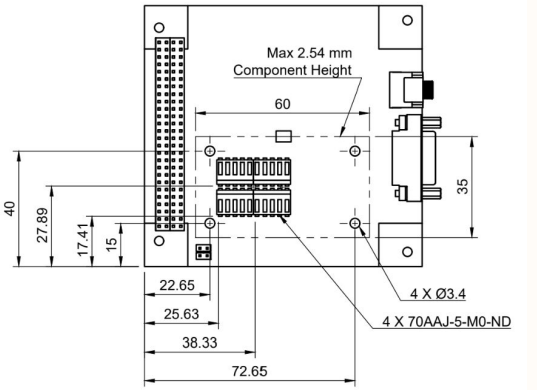
View looking from the TOP of the satellite DOWN





OBC
(BOTTOM VIEW)

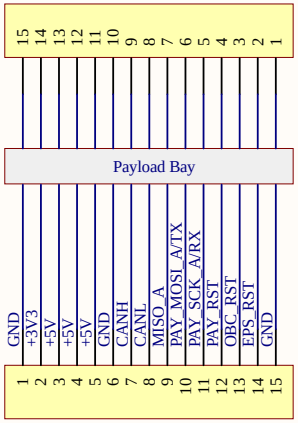
Butterfly Connector (70AAJ-5-M0-ND)
5x1 pins per connector, 2x2 connectors, 10x2 pins total
Note use of the 5-pin variant (4-pin is shown in datasheet)



OBC Interfacing
(TOP VIEW)

Title		
EPS-OBC Interface		
Size: A4	Number: 1	Revision: v0.10.1
Date: 1/1/2019		Sheet 1 of 8
File: C:\Users\..\eps-obc.SchDoc		Drawn By: Bruno Almeida

PAY-SSM PCB



EPS PCB

Hermetic connector (15 pins, Glenair 177-705H or 177-706H)
https://www.datasheets360.com/pdf/2123725778547446062

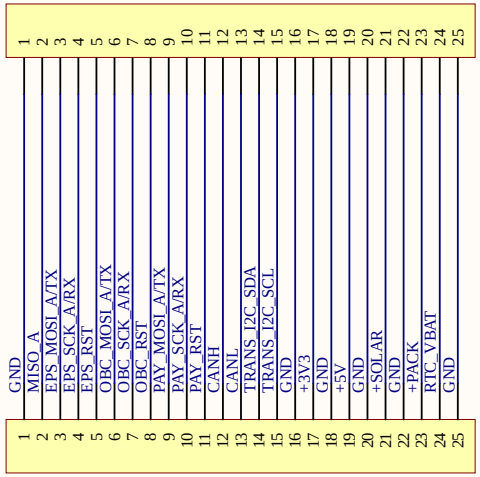
Premade wires (15 pins, 28 AWG)
Similar to https://www.digikey.ca/short/j037h5
Connections not flipped within cable's wires
Needs to be hand-crimped on the payload bay side for the hermic connector

PicoBlade 53261 (15-pin header) from Molex
https://www.digikey.ca/short/j037h7

Title	EPS-PAY Interface	
Size: A4	Number: 2	Revision: v0.10.1
Date: 1/1/2019		Sheet 2 of 8
File: C:\Users\..\eps-pay.SchDoc		Drawn By: Bruno Almeida

Systems PCB

Outside of satellite
Only for testing/debugging



EPS PCB

DSUB-25 Connector

Spliced Cable
Connections are flipped within the cable's wires, so the pin numbers match on both ends

Mini DSUB-25 Connector

Title: EPS-SYS Interface		
Size: A4	Number: 3	Revision: v0.10.1
Date: 1/1/2019		Sheet 3 of 8
File: C:\Users\..\eps-sys.SchDoc		Drawn By: Bruno Almeida

Transceiver stacked on top of
EPS PCB using header pins

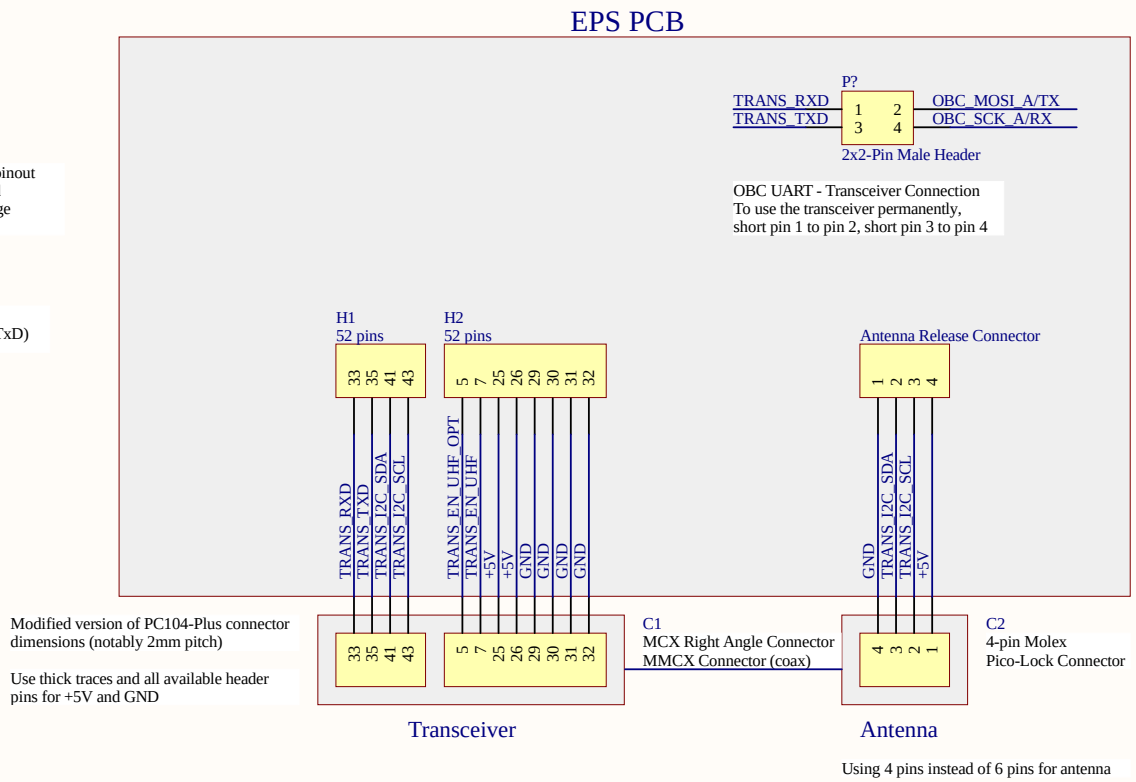
Transceiver customized to use +5V supply,
not +3.3V

Comms signals routed from OBC
through EPS board

WARNING: In UHF Manual and Protocol Rev. 2, the connector pinout
diagram on p. 11, for each of H1 and H2, rows 1 and 2 are flipped
i.e. H1 and H2 are placed correctly, but the bottom left in the image
should be H1, pin 1, and the top left should be H2, pin 2

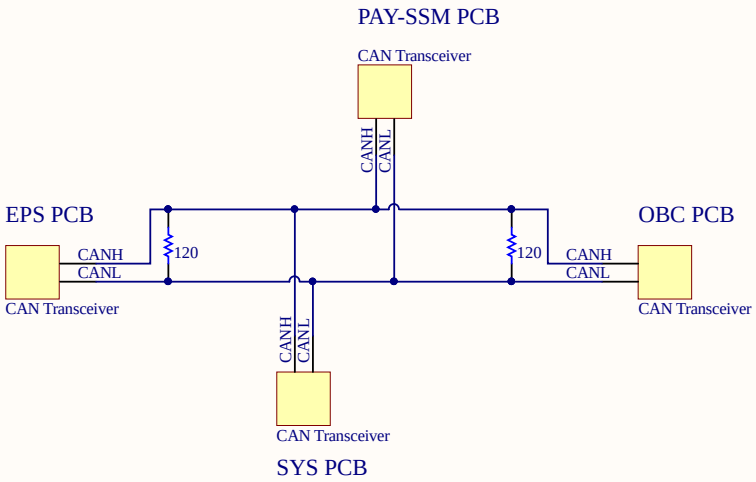
Header layout based on UHF_UTAT_Conn_Pinout.pdf
(add En UHF Opt. and En UHF just in case)

RxD and TxD are the UART lines with respect to the transceiver
(i.e. transceiver receives UART on RxD and transmits UART on TxD)

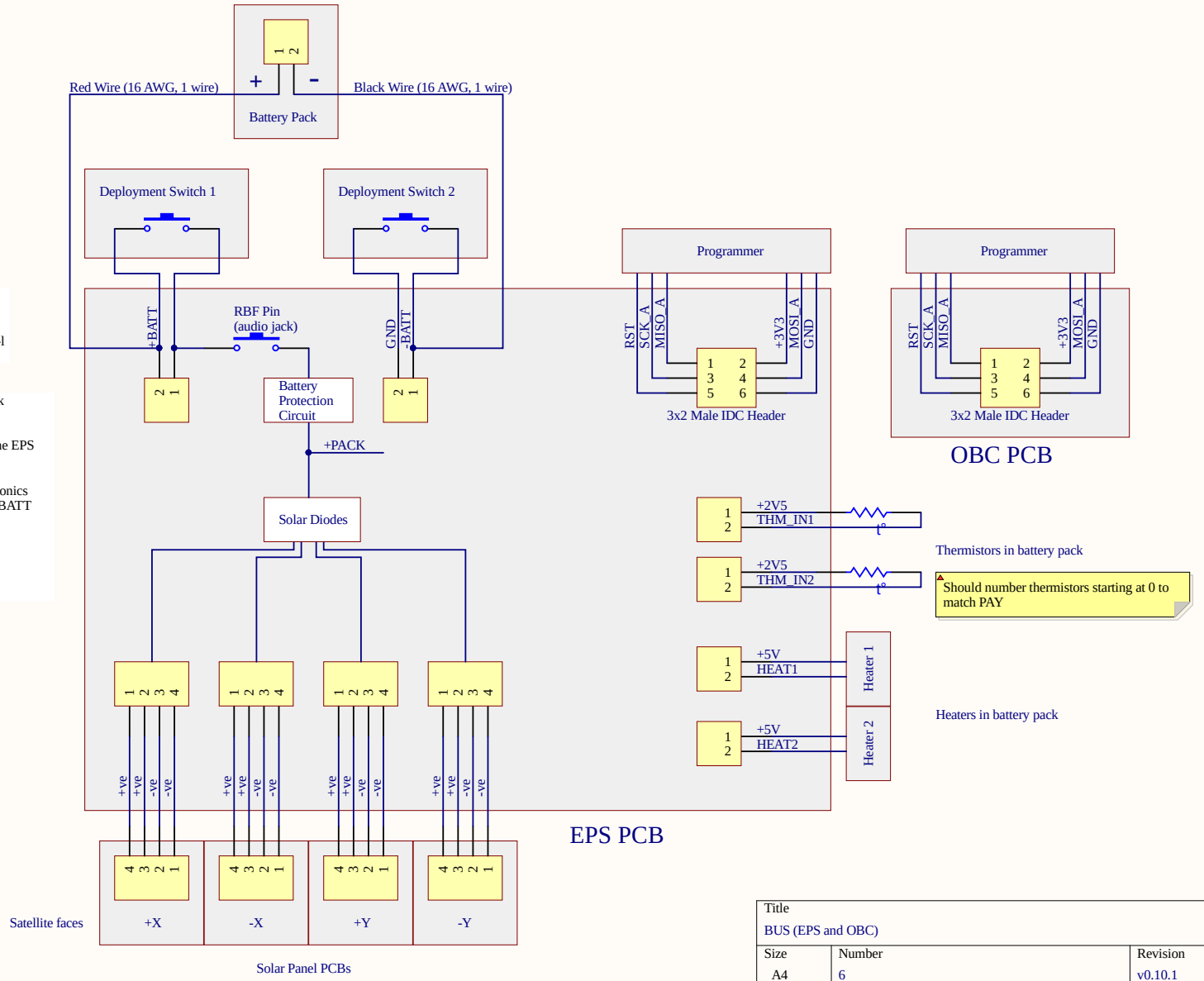


Title: Communications		
Size: A4	Number: 4	Revision: v0.10.1
Date: 1/1/2019		Sheet 4 of 8
File: C:\Users\..\com.SchDoc		Drawn By: Bruno Almeida

OBC and EPS are on the "ends" of the bus, so they have the 120 ohm terminations
PAY and SYS are in the "middle" of the bus, so no resistor terminations



Title: CAN Bus		
Size: A4	Number: 5	Revision: v0.10.1
Date: 1/1/2019		Sheet 5 of 8
File: C:\Users\..\can.SchDoc		Drawn By: Bruno Almeida



2-pos battery connector
Molex 39-30-1020
Right-angled header
https://www.digikey.ca/product-detail/en/molex-llc/0039301020/WM1351-ND/561078

+BATT is the raw voltage across the battery pack (ignoring connection to EPS)

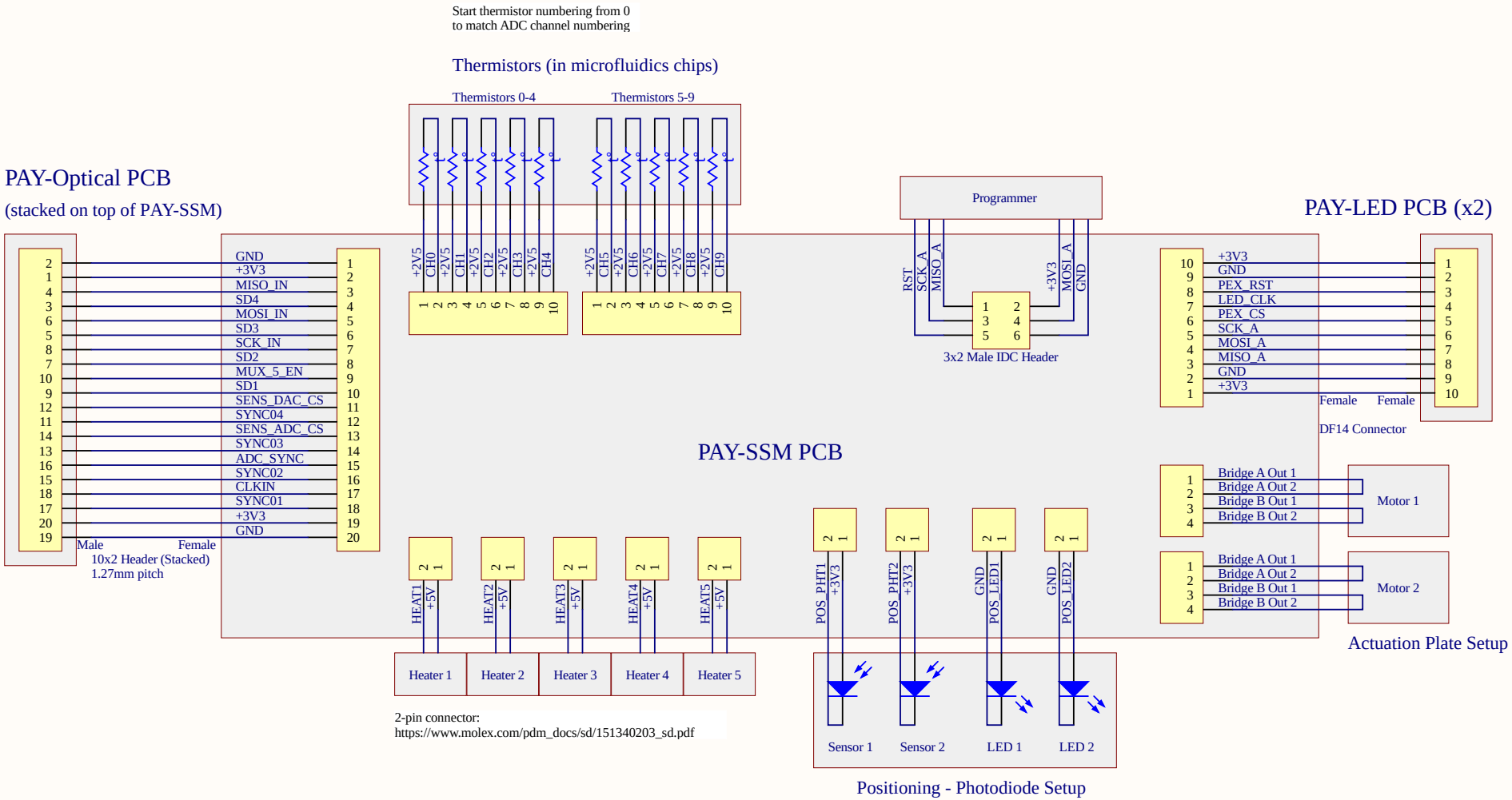
+PACK is the voltage from the battery pack to the EPS board (after deployment switches and RBF pin)

If the battery pack is connected to the EPS electronics (i.e. DS1, DS2, RBF all connected), +PACK = +BATT

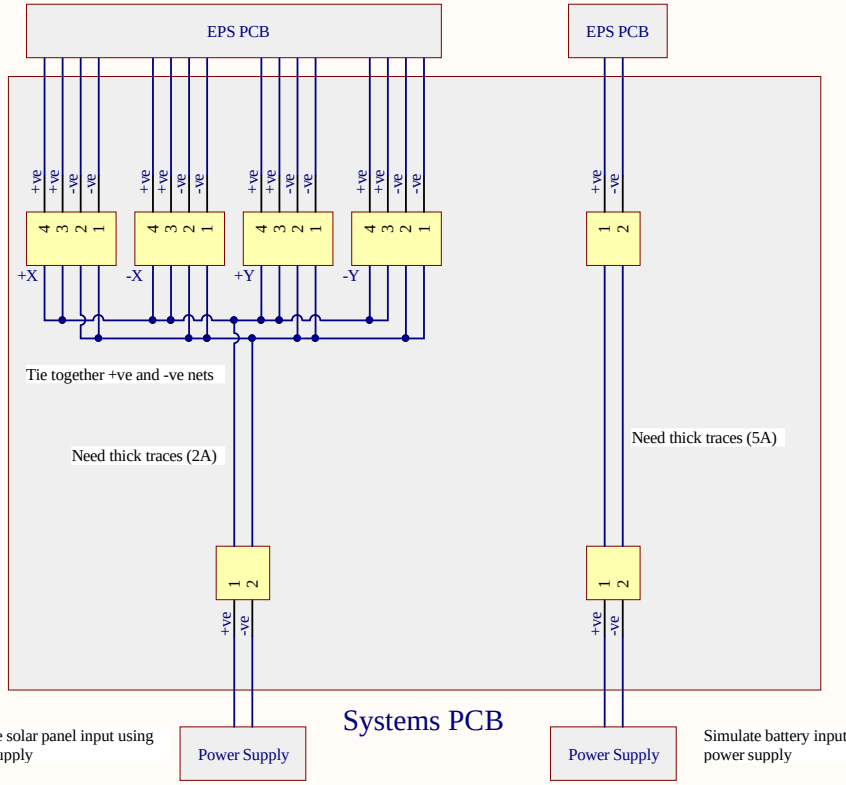
If the battery pack is disconnected from the EPS electronics (i.e. one or more of DS1, DS2, RBF disconnected), +PACK = 0

+BATT = 4.2V

Title: BUS (EPS and OBC)		
Size: A4	Number: 6	Revision: v0.10.1
Date: 1/1/2019		Sheet 6 of 8
File: C:\Users\..\bus.SchDoc		Drawn By: Bruno Almeida



Title		
Payload		
Size	Number	Revision
A4	7	v0.10.1
Date:	1/1/2019	Sheet 7 of 8
File:	C:\Users\..\pay.SchDoc	Drawn By: Bruno Almeida



Molex PicoBlade connector: WM7622CT-ND
https://www.digikey.com/product-detail/en/molex-llc/0532610471/WM7622CT-ND/699109

Molex battery connector: WM1351-ND
https://www.digikey.ca/product-detail/en/molex-llc/0039301020/WM1351-ND/561078

Screw terminal connector: 732-2028-ND
https://www.digikey.ca/product-detail/en/wurth-electronics-inc/691102710002/732-2028-ND/2060524

Screw terminal connector: 732-2028-ND
https://www.digikey.ca/product-detail/en/wurth-electronics-inc/691102710002/732-2028-ND/2060524

Simulate solar panel input using power supply

Simulate battery input using power supply

Title: Systems (Debugging)		
Size: A4	Number: 8	Revision: v0.10.1
Date: 1/1/2019		Sheet 8 of 8
File: C:\Users\..\sys.SchDoc		Drawn By: Bruno Almeida