

JET45 AAS / SYSTEMS MODULES



WARNING: FOR FLIGHT SIMULATION USE ONLY!

Welcome to Jet45 Advanced Avionics Suite v2.0! This document is a complete guide to help properly set up the hardware aspect of Jet45 AAS including the Jet45 Systems Interface Modules so that you can take full advantage of all the features in the new software. Every aspect of the Lear45's avionics suite has been modeled in detail thanks to Jason Hite at Flight Deck Soft!



The pins, plugs and hardware detailed in this document are designed to work exclusively with the Jet45 Interface Modules powered by the Meduino Mega and Arduino Nano cards for both the Jet45 Advanced Avionics Suite and the Jet45 Advanced Systems Software. All pinout assignments listed in this document are hard wired with the exception of the encoder directions which can be reversed in the Arduino configuration settings.

All physical hardware and part numbers are listed in this document. It is highly recommended to use the listed hardware in order to avoid unfavorable results. The Interface Module illustrations in this document are designed for quick pin and plug reference. Below each set of illustrations is a detailed list of pin and plug assignments associated with those modules. You **MUST** wire your simulator to match the information outlined in this document!

Additionally, there are several “Three Position Toggles” that have an active center position. The preferred toggle for most three position switches is the ON-OFF-ON single pole. Simply wire the toggle switch like the one illustrated below (ground in the center) and let the software do the rest by detecting active high or active low signals!



All Interface modules include a “RESET” plug which consist of a pin for a Reset Button and a pin for a Remote Status LED. If a module either comes off line or acts erratically, simply reset the module with the Reset Button to resolve the issue. The normal status indication of the LED is a repeating “heartbeat” flash. If the LED indicates solid or extinguished, reset is required. The Reset Button and Remote Status LEDs can be remotely mounted to a location of your choice.

Reset Button description: 12mm, Momentary Flat Top Push Button Switch with Red LED Lamp, Waterproof Oxidized Black Metal, 3Volts. (Quantity 20 needed)

Several of our interface modules use the **Meduino Mega2560 R3 Pro Mini** which functions exactly the same way as an Arduino Mega 2560 interface card. These cards are desirable because of their small footprint and female headers already soldered to the backside of the cards.

A few interface modules require either one or two 16 Channel 12-bit PWM Servo Motor Drivers for the LEDs and servos. There are several available options to choose from, however, make sure you select a PWM that is not assembled. The modules in this document require that the pin headers be mounted on the back side of the PWMs. Soldering is required!

NOTE: Within the following information, a blue “*” depicts switch and action changes from Lear45 Sim v1.0 to v2.0. Legends in a set of [SAMPLE] depicts guarded switches. Pin assignments are color coded to match wire color. Typical wiring colors:

- **BLACK** = GND / COMMON
- **RED** = POWER LINES
- **BLUE** = DIGITAL / DATA
- **GREEN** = LEDs / ANALOG

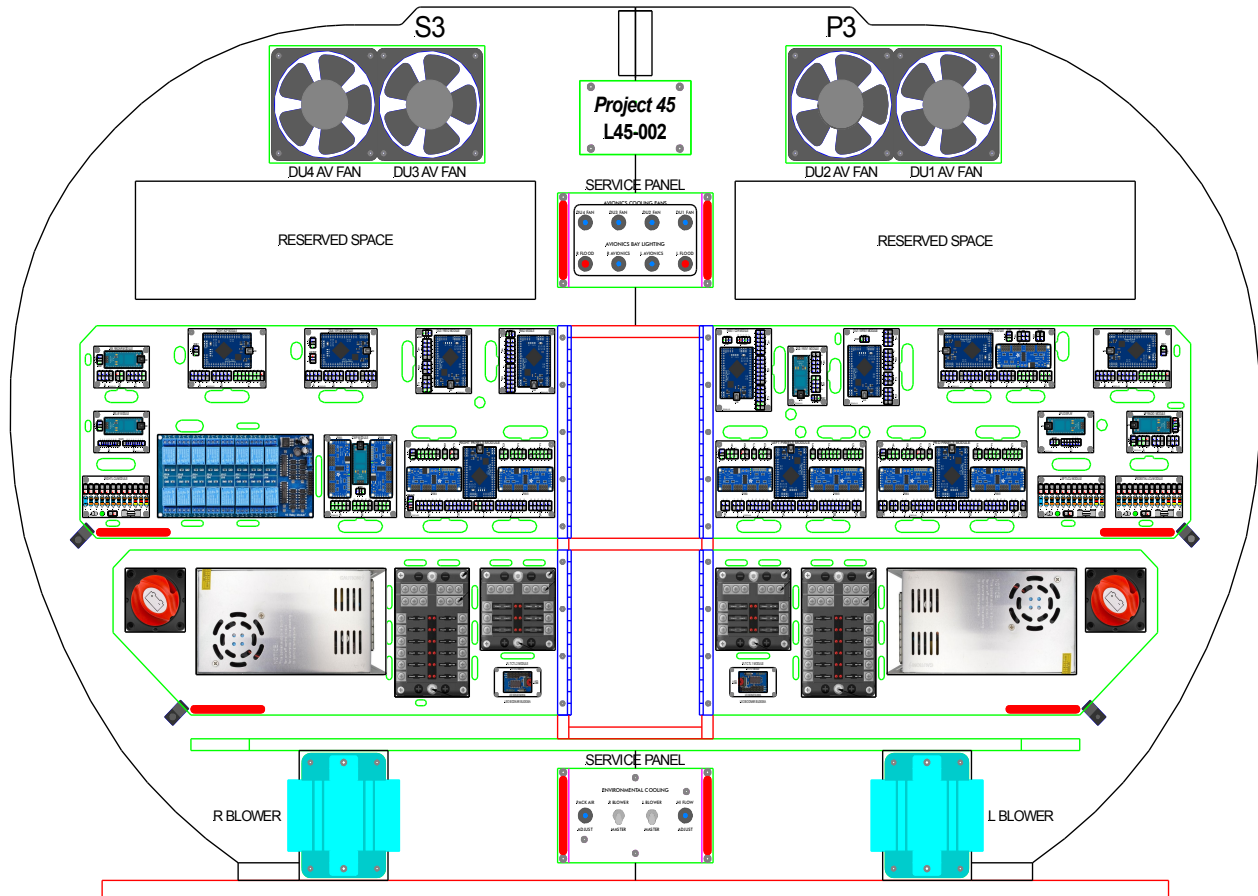
The PCB Modules are available in four packages:

- **PCB Only** (Includes only the PCB boards)
- **PCB Kit** (Includes PCB boards and components)
- **PCB Solder** (Includes components soldered to PCB boards)
- **PCB Plug&Play** (Includes PCB Solder pkg, Arduino and PWM Modules)

CAUTION: If starting from PCB Only or PCB Kit you must use headers for the Arduino Nano, Mega and PWM modules! It is critical to be able to remove these modules in case of repair or trouble shooting.

Additionally, if starting with the PCB Only or PCB Kit, you must solder the smallest components first, as an example the tiny 1206 SMD resistors. Take a few minutes to look over all the components and develop a solid soldering plan!

JET45 ADVANCED AVIONICS SUITE



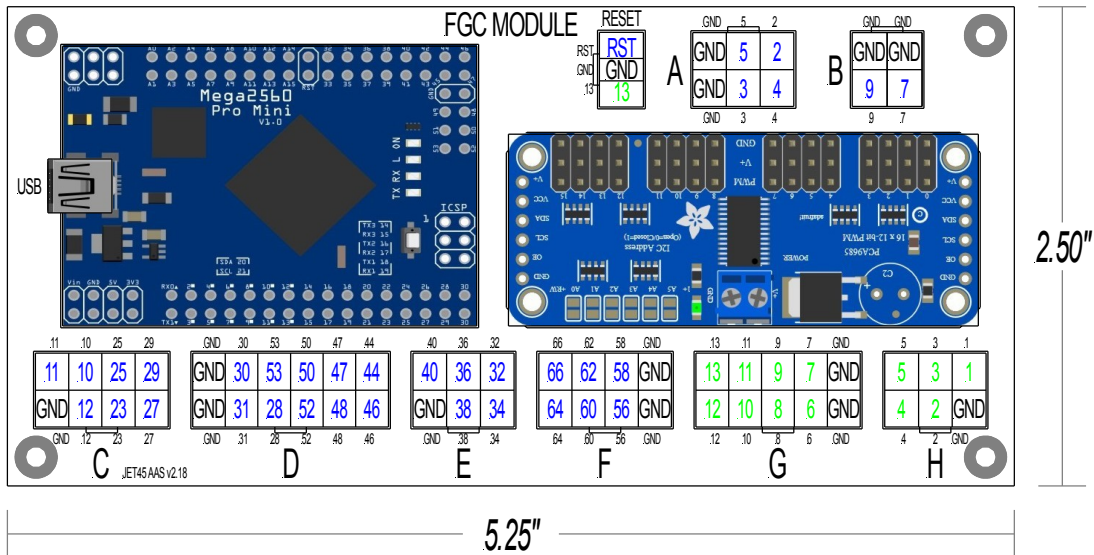
“Lear45 Avionics Bay at a glance”

The Lear45 Avionics Bay is found at the front end of the Project45 Cockpit Shell on the forward side of the simulated pressure bulkhead. Great effort has been taken to design an organized “wire management” system so that all Jet45 Interface modules can be easily located and accessed during maintenance or trouble shooting efforts.

The top two pullout panels include all the Jet45 AAS and Systems modules. The lower two pullout panels include the flight control modules, power supplies, essential buses, non essential buses and battery switches. The two lower pullout panels are optional based on your personal preferences and how much of the electrical bus system you want to model.

The following pages describe in detail all the plug and pin assignments on each individual module. You **MUST** wire your simulator to match the information outlined in this document!

FGC MODULE



PLUG "A" OVERHEAD COMPASS:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	TYPE
2	DIGITAL INPUT	N/A	N/A	N/A	N/A
3	DIGITAL INPUT	N/A	N/A	N/A	N/A
4	DIGITAL INPUT	N/A	N/A	N/A	N/A
5	DIGITAL INPUT	N/A	N/A	N/A	N/A

NOTE: Plug "A" is to be used with a Stepper Motor to control the Overhead Compass

PLUG "B" STANDBY ALTIMETER ENCODER: (OPTIONAL)

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	TYPE
7	INCREASE	318-ENC70120F-10P	Digital Inc	None	Encoder
9	DECREASE	"	Digital Dec	None	Encoder

NOTE: Altimeter encoder pins are not needed if mechanical gauges are used

PLUG "C" FGC PANEL (LEFT) SWITCHES:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	TYPE
10	FLT DIRECTOR 1	MTN 107-6612	Momentary	FD1	Push
11	COURSE 1 SYNC	PEC11R-4125F-S0018	Momentary	CRS1	Push
12	HEADING	MTN 107-6612	Momentary	HDG	Push
23	HEADING SYNC	PEC11R-4125F-S0018	Momentary	HDG	Push
25	NAVIGATION	MTN 107-6612	Momentary	NAV	Push
27	APPROACH	MTN 107-6612	Momentary	APP	Push
29	BANK ANGLE	MTN 107-6612	Momentary	BNK	Push

PLUG "D" FGC PANEL ENCODERS:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	TYPE
28	COURSE 1 INC	PEC11R-4125F-S0018	Digital Inc	CRS 1	Encoder
30	COURSE 1 DEC	"	Digital Dec	CRS 1	Encoder
31	HEADING INC	PEC11R-4125F-S0018	Digital Inc	HDG	Encoder
44	HEADING DEC	"	Digital Dec	HDG	Encoder
46	SPEED INC	PEC11R-4125F-S0018	Digital Inc	SPD	Encoder
47	SPEED DEC	"	Digital Dec	SPD	Encoder
48	ALT SEL INC	PEC11R-4125F-N0018	Digital Inc	ASEL	Encoder
50	ALT SEL DEC	"	Digital Dec	ASEL	Encoder
52	COURSE 2 INC	PEC11R-4125F-S0018	Digital Inc	CRS 2	Encoder
53	COURSE 2 DEC	"	Digital Dec	CRS 2	Encoder

PLUG "E" FGC PANEL (CENTER) SWITCHES:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	TYPE
32	AUTOPILOT	MTN 107-6612	Momentary	AP	Push
34	TRANSFER	MTN 107-6612	Momentary	XFR	Push
36	YAW DAMPER	MTN 107-6612	Momentary	YD	Push
38	SPEED	MTN 107-6612	Momentary	SPD	Push
40	PUSH IAS/M	PEC11R-4125F-S0018	Momentary	IAS/M	Push

PLUG “F” FGC PANEL (RIGHT) SWITCHES:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	TYPE
56	FLT LEVEL CHG	MTN 107-6612	Momentary	FLC	Push
58	VERTICAL SPD	MTN 107-6612	Momentary	VS	Push
60	VERTICAL NAV	MTN 107-6612	Momentary	VNV	Push
62	ALTITUDE	MTN 107-6612	Momentary	ALT	Push
64	FLT DIRECTOR 2	MTN 107-6612	Momentary	FD2	Push
66	COURSE 2 SYNC	PEC11R-4125F-S0018	Momentary	CRS2	Push

PLUG “G” FGC PANEL (LEFT/RIGHT) LEDs:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	COLOR
6	HDG INDICATOR	MTN 107-6612	Momentary	HDG	GREEN
7	NAV INDICATOR	MTN 107-6612	Momentary	NAV	GREEN
8	APP INDICATOR	MTN 107-6612	Momentary	APP	GREEN
9	BNK INDICATOR	MTN 107-6612	Momentary	BNK	GREEN
10	FLC INDICATOR	MTN 107-6612	Momentary	FLC	GREEN
11	VS INDICATOR	MTN 107-6612	Momentary	VS	GREEN
12	VNV INDICATOR	MTN 107-6612	Momentary	VNV	GREEN
13	ALT INDICATOR	MTN 107-6612	Momentary	ALT	GREEN

PLUG “H” FGC PANEL (CENTER) LEDs:

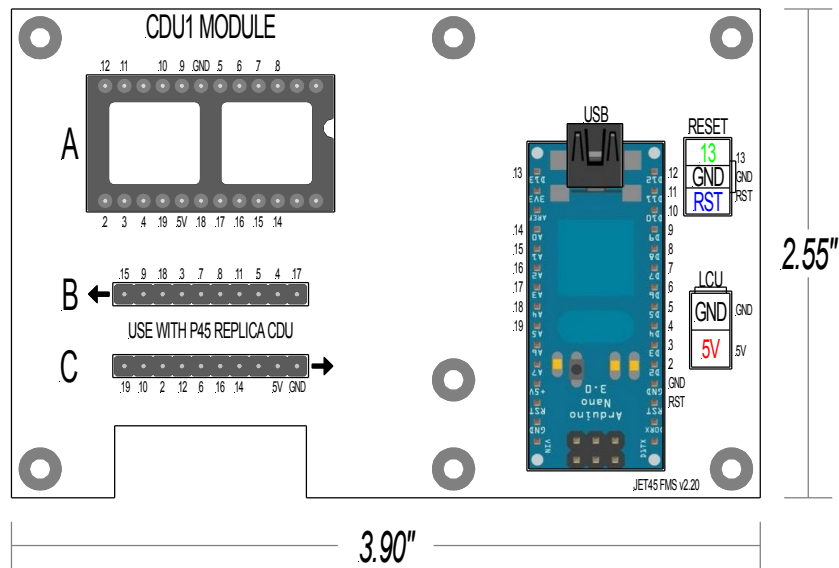
PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	COLOR
1	AP INDICATOR	MTN 107-6612	Momentary	AP	GREEN
2	YD INDICATOR	MTN 107-6612	Momentary	YD	GREEN
3	SPD INDICATOR	MTN 107-6612	Momentary	SPD	GREEN
4	L XFR INDICATOR	MTN 107-6612	Momentary	None	GREEN
5	R XFR INDICATOR	MTN 107-6612	Momentary	None	GREEN

FGC RESET PLUG:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	COLOR
RST	RESET BUTTON	BLK 12mm 4Pin	Momentary	FGC	N/A
13	REMOTE STATUS LED	“	“	“	RED

NOTE: All Interface modules include a “RESET” plug which consist of a pin for a Remote Reset Button and a pin for a Remote Status LED

CDU1 MODULE



PLUG “A” CDU1 (ALL 63 BUTTONS):

Used with early model authentic UNS-1 Key Panel with attached 24 pin plug. The Arduino Nano utilizes the “matrix row and column” system. Just plug the 24 pin plug into socket A!

PLUGS “B & C” CDU1 (ALL 63 BUTTONS):

Used with the Project45 Replica CDU Key Panel. The Arduino Nano utilizes the “matrix row and column” system. Just plug the two ten pin plugs into sockets B & C!

LCU PLUG CDU1 (5 VOLT) BACKLIGHTING:

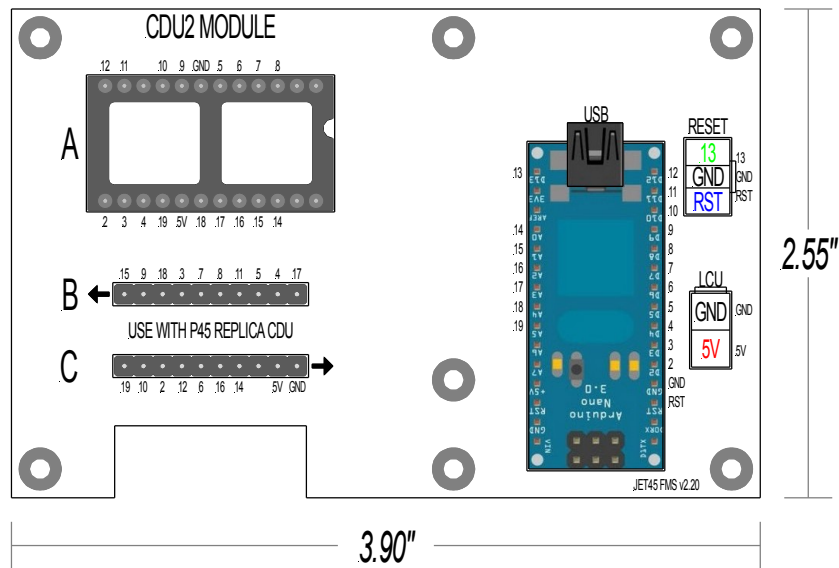
Use **5V** power source from the Center Pedestal LCU Channel via PWM

CDU1 RESET PLUG:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	COLOR
RST	RESET BUTTON	BLK 12mm 4Pin	Momentary	CDU1	N/A
13	REMOTE STATUS LED	“	“	“	RED

NOTE: All Interface modules include a “RESET” plug which consist of a pin for a Remote Reset Button and a pin for a Remote Status LED

CDU2 MODULE



PLUG “A” CDU2 (ALL 63 BUTTONS):

Used with early model authentic UNS-1 Key Panel with attached 24 pin plug. The Arduino Nano utilizes the “matrix row and column” system. Just plug the 24 pin plug into socket A!

PLUGS “B & C” CDU2 (ALL 63 BUTTONS):

Used with the Project45 Replica CDU Key Panel. The Arduino Nano utilizes the “matrix row and column” system. Just plug the two ten pin plugs into sockets B & C!

LCU PLUG CDU2 (5 VOLT) BACKLIGHTING:

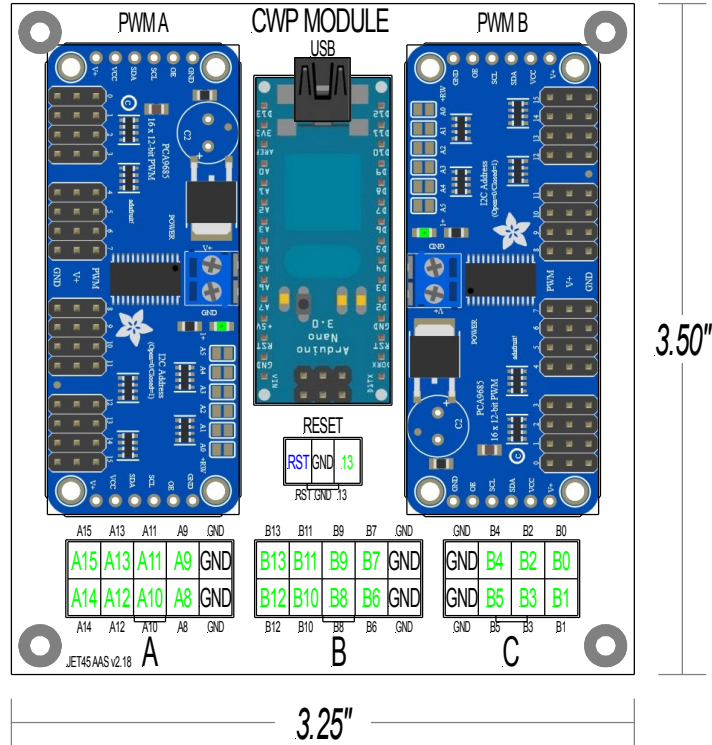
Use **5V** power source from the Center Pedestal LCU Channel via PWM

CDU2 RESET PLUG:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	COLOR
RST	RESET BUTTON	BLK 12mm 4Pin	Momentary	CDU2	N/A
13	REMOTE STATUS LED	“	“	“	RED

NOTE: All Interface modules include a “RESET” plug which consist of a pin for a Remote Reset Button and a pin for a Remote Status LED

CWP MODULE



PLUG "A" CWP (LEFT) LEDs:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	COLOR
A8	L REV UNSAFE	N/A	N/A	L REV UNSAFE	RED
A9	L ENG PYLON OVHT	N/A	N/A	L ENG PYLON OVHT	RED
A10	NORMAL BRAKES FAIL	N/A	N/A	NORMAL BRAKES FAIL	RED
A11	GEAR	N/A	N/A	GEAR	RED
A12	L OIL PRESS LOW	N/A	N/A	L OIL PRESS LOW	RED
A13	L FUEL PRESS LOW	N/A	N/A	L FUEL PRESS LOW	RED
A14	CABIN ALT	N/A	N/A	CABIN ALT	RED
A15	L BLEED AIR LEAK	N/A	N/A	L BLEED AIR LEAK	RED

PLUG “B” CWP (RIGHT) LEDs:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	COLOR
B6	GEN FAIL	N/A	N/A	GEN FAIL	RED
B7	ENTRY DOOR	N/A	N/A	ENTRY DOOR	RED
B8	R ENG PYLON OVHT	N/A	N/A	R ENG PYLON OVHT	RED
B9	R REV UNSAFE	N/A	N/A	R REV UNSAFE	RED
B10	R BLEED AIR LEAK	N/A	N/A	R BLEED AIR LEAK	RED
B11	R FUEL PRESS LOW	N/A	N/A	R FUEL PRESS LOW	RED
B12	R OIL PRESS LOW	N/A	N/A	R OIL PRESS LOW	RED
B13	SPARE	N/A	N/A	SPARE	RED

PLUG “C” CWP (CENTER) LEDs:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	COLOR
B0	L BATT OVHT	N/A	N/A	L BATT OVHT	RED
B1	EMER BATTERY	N/A	N/A	EMER BATTERY	WHITE
B2	R BATT OVHT	N/A	N/A	R BATT OVHT	RED
B3	WING OVHT	N/A	N/A	WING OVHT	RED
B4	WING/STAB LEAK	N/A	N/A	WING/STAB LEAK	RED
B5	STAB OVHT	N/A	N/A	STAB OVHT	RED

CWP RESET PLUG:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	COLOR
RST	RESET BUTTON	BLK 12mm 4Pin	Momentary	CWP	N/A
13	REMOTE STATUS LED	“	“	“ “	RED

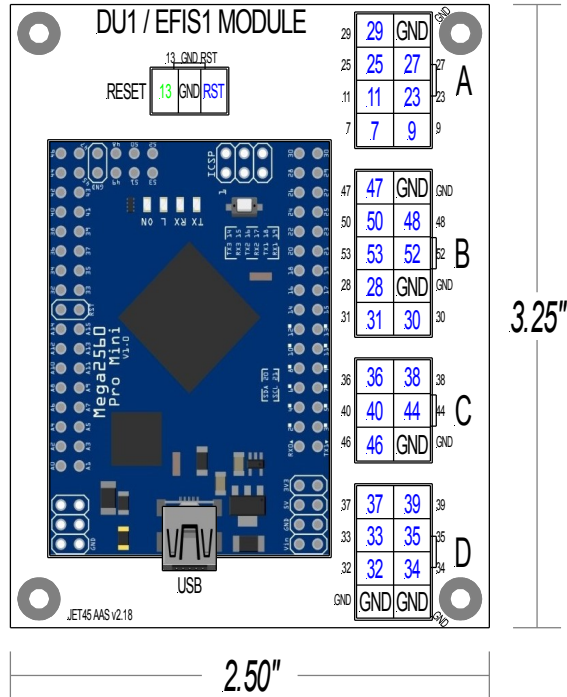
NOTE: All Interface modules include a “RESET” plug which consist of a pin for a Remote Reset Button and a pin for a Remote Status LED

Addressing PWM B: Each PWM board in a chain must be assigned a unique address. This is done with the address jumpers on the upper right edge of the PWM board. The default I2C base address for each board is 0x40. The binary address that you program with the address jumpers is added to the base I2C address. To program PWM B address offset, use a drop of solder to bridge the A0 pads on the PCA9685 PWM B.

(PWM A) Board 0: Address = 0x40 Offset = binary 00000 (no jumpers required)

(PWM B) Board 1: Address = 0x41 Offset = binary 00001 (bridge A0 pads)

DU1 / EFIS1 MODULE



PLUG "A" EFIS1 PANEL BUTTONS:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	TYPE
7	In / hPa	2PINDIP6X6X5MOM	Momentary	In / hPa	Push
9	CUE	2PINDIP6X6X5MOM	Momentary	CUE	Push
11	FPA	2PINDIP6X6X5MOM	Momentary	FPA	Push
23	WX	2PINDIP6X6X5MOM	Momentary	WX	Push
25	FMS	2PINDIP6X6X5MOM	Momentary	FMS	Push
27	HSI	2PINDIP6X6X5MOM	Momentary	HSI	Push
29	NAV	2PINDIP6X6X5MOM	Momentary	NAV	Push

PLUG “B” EFIS1 PANEL SELECTORS:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	TYPE
28	BRG O FMS	A11215RNZQ	Selector	FMS	Rotary
30	BRG O ADF	“ “	Selector	ADF	Rotary
31	BRG O NAV	“ “	Selector	NAV	Rotary
47	BRG O OFF	“ “	Selector	OFF	Rotary
48	BRG <> FMS	A11215RNZQ	Selector	FMS	Rotary
50	BRG <> ADF	“ “	Selector	ADF	Rotary
52	BRG <> NAV	“ “	Selector	NAV	Rotary
53	BRG <> OFF	“ “	Selector	OFF	Rotary

PLUG “C” EFIS1 PANEL ENCODERS:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	TYPE
36	OUTBD DU DIM INC	EC11EBB24C03	Digital Inc	DIM	Encoder
38	OUTBD DU DIM DEC	“ “	Digital Dec	DIM	Encoder
40	INBD DU DIM INC	“ “	Digital Inc	DIM	Encoder
44	INBD DU DIM DEC	“ “	Digital Dec	DIM	Encoder
46	PUSH TO TEST	“ “	Momentary	PUSH TO TEST	Push

PLUG “D” DU1 PANEL SWITCHES:

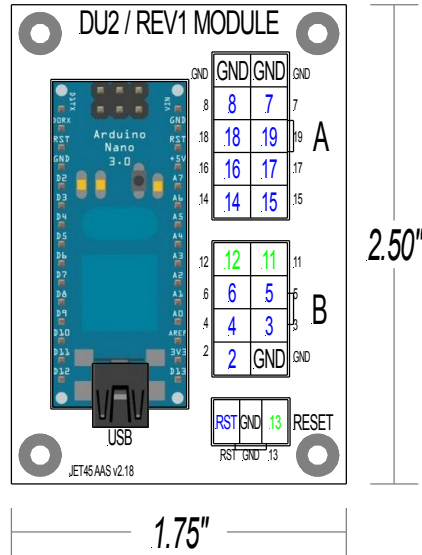
PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	TYPE
32	MINIMUMS INC	PEC11R-4315F-N0012	Digital Inc	MINIMUMS	Encoder
33	MINIMUMS DEC	“ “	Digital Dec	MINIMUMS	Encoder
34	RA/BARO	4PINDIP6X6X8MOM	Momentary	RA/BARO	Push
35	STD	4PINDIP6X6X8MOM	Momentary	STD	Push
37	BARO SET INC	PEC11R-4315F-N0012	Digital Inc	BARO SET	Encoder
39	BARO SET DEC	“ “	Digital Dec	BARO SET	Encoder

DU1/EFIS1 RESET PLUG:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	COLOR
RST	RESET BUTTON	BLK 12mm 4Pin	Momentary	DU1/EFIS1	N/A
13	REMOTE STATUS LED	“ “	“ “	“ “	RED

NOTE: All Interface modules include a “RESET” plug which consist of a pin for a Remote Reset Button and a pin for a Remote Status LED

DU2 / REV1 MODULE



PLUG "A" DU2 PANEL SWITCHES:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	TYPE
7	ROT SET INC	PEC11R-4315F-N0012	Digital Inc	None	Encoder
8	ROT SET DEC	"	Digital Dec	None	Encoder
14	SELECT 1	4PINDIP6X6X8MOM	Momentary	None	Push
15	SELECT 2	4PINDIP6X6X8MOM	Momentary	None	Push
16	SELECT 3	4PINDIP6X6X8MOM	Momentary	None	Push
17	SELECT 4	4PINDIP6X6X8MOM	Momentary	None	Push
18	SELECT 5	4PINDIP6X6X8MOM	Momentary	None	Push
19	SELECT 6	4PINDIP6X6X8MOM	Momentary	None	Push

PLUG “B” REV1 PANEL SWITCHES:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	TYPE
2	WARN/CAUT	AML21CBA2AC	Momentary	WARN/CAUT	Push
3	DU 2 SELECTOR	A12415RNZQ	Selector	PFD	Rotary
4	DU 2 SELECTOR	“ “	Selector	NORM	Rotary
5	DU 2 SELECTOR	“ “	Selector	OFF	Rotary
6	EICAS REV PUSH	MB2411S1W01-HB	Momentary	EICAS REV	Push
11	WARN INDICATOR	AML21CBA2AC	Momentary	WARN	RED
12	CAUT INDICATOR	“ “	Momentary	CAUT	AMBER

NOTE: Pins 11 and 12 are for “CAUT” and “WARN” LED Indicators

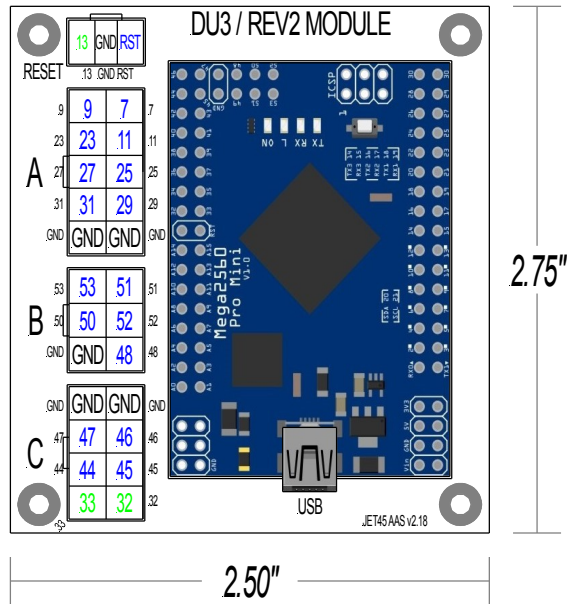
DU2 / REV1 RESET PLUG:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	COLOR
RST	RESET BUTTON	BLK 12mm 4Pin	Momentary	DU2/REV1	N/A
13	REMOTE STATUS LED	“ “	“ “	“ “	RED

NOTE: All Interface modules include a “RESET” plug which consist of a pin for a Remote Reset Button and a pin for a Remote Status LED

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DU3 / REV2 MODULE



PLUG “A” DU3 PANEL SWITCHES:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	TYPE
7	ROT SET INC	PEC11R-4315F-N0012	Digital Inc	None	Encoder
9	ROT SET DEC	“	Digital Dec	None	Encoder
11	SELECT 1	4PINDIP6X6X8MOM	Momentary	None	Push
23	SELECT 2	4PINDIP6X6X8MOM	Momentary	None	Push
25	SELECT 3	4PINDIP6X6X8MOM	Momentary	None	Push
27	SELECT 4	4PINDIP6X6X8MOM	Momentary	None	Push
29	SELECT 5	4PINDIP6X6X8MOM	Momentary	None	Push
31	SELECT 6	4PINDIP6X6X8MOM	Momentary	None	Push

PLUG “B” MFD JOYSTICK SWITCHES:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	TYPE
48	JOYSTICK PUSH	RKJXT1F42001	Momentary	MDF JOYSTICK	Push
50	JOYSTICK UP	“ “	Momentary	MDF JOYSTICK	Pos 360
51	JOYSTICK DN	“ “	Momentary	MDF JOYSTICK	Pos 180
52	JOYSTICK LEFT	“ “	Momentary	MDF JOYSTICK	Pos 270
53	JOYSTICK RIGHT	“ “	Momentary	MDF JOYSTICK	Pos 090

PLUG “C” REV2 PANEL SWITCHES:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	TYPE
32	WARN INDICATOR	AML21CBA2AC	Momentary	WARN	RED
33	CAUT INDICATOR	“ “	Momentary	CAUT	AMBER
44	WARN/CAUT	AML21CBA2AC	Momentary	WARN/CAUT	Push
45	DU 3 SELECTOR	A12415RNZQ	Selector	PFD	Rotary
46	DU 3 SELECTOR	“ “	Selector	NORM	Rotary
47	EICAS REV PUSH	MB2411S1W01-HB	Momentary	EICAS REV	Push

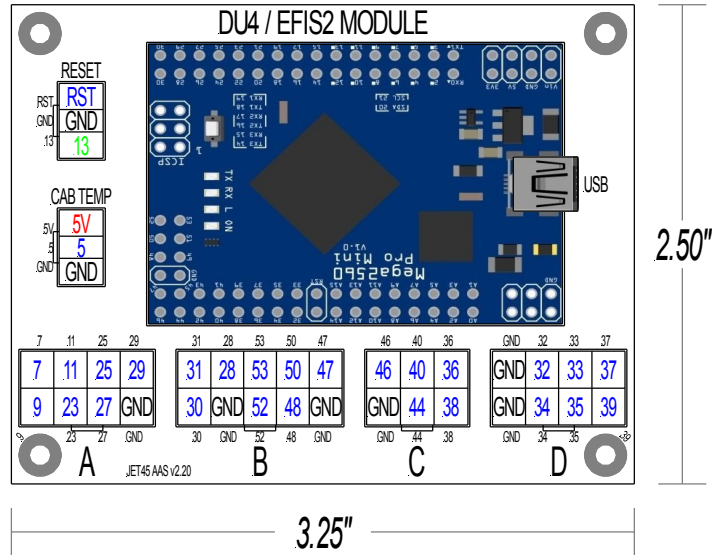
NOTE: Pins 32 and 33 are for “CAUT” and “WARN” LED Indicators

DU3 / REV2 RESET PLUG:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	COLOR
RST	RESET BUTTON	BLK 12mm 4Pin	Momentary	DU3/REV2	N/A
13	REMOTE STATUS LED	“ “	“ “	“ “	RED

NOTE: All Interface modules include a “RESET” plug which consist of a pin for a Remote Reset Button and a pin for a Remote Status LED

DU4 / EFIS2 MODULE



CABIN TEMPERATURE PLUG:

The CAB TEMP plug consist of three pins, GND, **V5** and digital pin **5**. The plug runs to a DS18B20 temperature sensor that preferably should be mounted under the glareshield cover or behind the windscreen center post.

PLUG "A" EFIS2 PANEL BUTTONS:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	TYPE
7	In / hPa	2PINDIP6X6X5MOM	Momentary	In / hPa	Push
9	CUE	2PINDIP6X6X5MOM	Momentary	CUE	Push
11	FPA	2PINDIP6X6X5MOM	Momentary	FPA	Push
23	WX	2PINDIP6X6X5MOM	Momentary	WX	Push
25	FMS	2PINDIP6X6X5MOM	Momentary	FMS	Push
27	HSI	2PINDIP6X6X5MOM	Momentary	HSI	Push
29	NAV	2PINDIP6X6X5MOM	Momentary	NAV	Push

PLUG “B” EFIS2 PANEL SELECTORS:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	TYPE
28	BRG O FMS	A11215RNZQ	Selector	FMS	Rotary
30	BRG O ADF	“ “	Selector	ADF	Rotary
31	BRG O NAV	“ “	Selector	NAV	Rotary
47	BRG O OFF	“ “	Selector	OFF	Rotary
48	BRG <> FMS	A11215RNZQ	Selector	FMS	Rotary
50	BRG <> ADF	“ “	Selector	ADF	Rotary
52	BRG <> NAV	“ “	Selector	NAV	Rotary
53	BRG <> OFF	“ “	Selector	OFF	Rotary

PLUG “C” EFIS2 PANEL ENCODERS:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	TYPE
36	OUTBD DU DIM INC	EC11EBB24C03	Digital Inc	DIM	Encoder
38	OUTBD DU DIM DEC	“ “	Digital Dec	DIM	Encoder
40	INBD DU DIM INC	“ “	Digital Inc	DIM	Encoder
44	INBD DU DIM DEC	“ “	Digital Dec	DIM	Encoder
46	PUSH TO TEST	“ “	Momentary	PUSH TO TEST	Push

PLUG “D” DU4 PANEL SWITCHES:

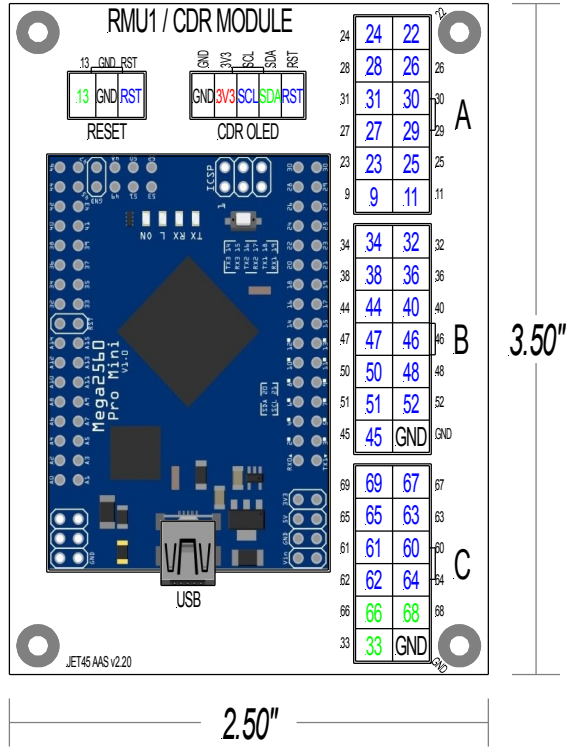
PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	TYPE
32	MINIMUMS INC	PEC11R-4315F-N0012	Digital Inc	MINIMUMS	Encoder
33	MINIMUMS DEC	“ “	Digital Dec	MINIMUMS	Encoder
34	RA/BARO	4PINDIP6X6X8MOM	Momentary	RA/BARO	Push
35	STD	4PINDIP6X6X8MOM	Momentary	STD	Push
37	BARO SET INC	PEC11R-4315F-N0012	Digital Inc	BARO SET	Encoder
39	BARO SET DEC	“ “	Digital Dec	BARO SET	Encoder

DU4 / EFIS2 RESET PLUG:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	COLOR
RST	RESET BUTTON	BLK 12mm 4Pin	Momentary	DU4/EFIS2	N/A
13	REMOTE STATUS LED	“ “	“ “	“ “	RED

NOTE: All Interface modules include a “RESET” plug which consist of a pin for a Remote Reset Button and a pin for a Remote Status LED

RMU1 / CDR MODULE



CDR OLED PLUG:

The CDR OLED plug consist of five pins, GND, 3V3, SCL, SDA and RST. These pins plug directly in the CDR OLED socket on the back side of the CDR Panel.

PLUG "A" RMU1 (LEFT) SWITCHES:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	TYPE
9	TRANSFER 1	2PINDIP6X6X7MOM	Momentary	v---^	Push
11	LINE SELECT 1	2PINDIP6X6X7MOM	Momentary	----	Push
23	LINE SELECT 2	2PINDIP6X6X7MOM	Momentary	----	Push
25	LINE SELECT 3	2PINDIP6X6X7MOM	Momentary	----	Push
26	LINE SELECT 4	2PINDIP6X6X7MOM	Momentary	----	Push
27	LINE SELECT 5	2PINDIP6X6X7MOM	Momentary	----	Push
22	1/2 (Cross-Side)	2PINDIP6X6X7MOM	Momentary	1/2	Push
24	TEST FUNCTION	2PINDIP6X6X7MOM	Momentary	TST	Push
28	ID FUNCTION	2PINDIP6X6X7MOM	Momentary	ID	Push
29	DIM FUNCTION	2PINDIP6X6X7MOM	Momentary	DIM	Push
30	PGE FUNCTION	2PINDIP6X6X7MOM	Momentary	PGE	Push
31	SQ FUNCTION	2PINDIP6X6X7MOM	Momentary	SQ	Push

PLUG “B” RMU1 (RIGHT) SWITCHES:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	TYPE
32	TRANSFER 2	2PINDIP6X6X7MOM	Momentary	v---^	Push
34	LINE SELECT 6	2PINDIP6X6X7MOM	Momentary	----	Push
36	LINE SELECT 7	2PINDIP6X6X7MOM	Momentary	----	Push
38	LINE SELECT 8	2PINDIP6X6X7MOM	Momentary	----	Push
40	LINE SELECT 9	2PINDIP6X6X7MOM	Momentary	----	Push
44	LINE SELECT 10	2PINDIP6X6X7MOM	Momentary	----	Push
46	OUTER INC	EC11EBB24C03	Digital Inc	TUNE	Encoder
47	OUTER DEC	“ “	Digital Dec	TUNE	Encoder
48	INNER INC	“ “	Digital Inc	TUNE	Encoder
50	INNER DEC	“ “	Digital Dec	TUNE	Encoder
51	DME FUNCTION	2PINDIP6X6X7MOM	Momentary	DME	Push
52	STORE FUNCTION	2PINDIP6X6X7MOM	Momentary	STO	Push
45	SPARE/TEST PIN	N/A	N/A	N/A	N/A

PLUG “C” CDR SWITCHES:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	TYPE
33	1 COM/NAV B/L	N/A	Display B/L	1 COM/NAV	White
60	OUTER INC	EC11EBB24C03	Digital Inc	TUNE	Encoder
61	OUTER DEC	“ “	Digital Dec	TUNE	Encoder
62	INNER INC	“ “	Digital Inc	TUNE	Encoder
63	INNER DEC	“ “	Digital Dec	TUNE	Encoder
64	TRANSFER	2PINDIP6X6X9MOM	Momentary	v---^	Push
65	EMRG/NORM	2PINDIP6X6X9MOM	Momentary	EMRG	Push
66	COM1 INDICATOR	N/A	Indicator	>	White
67	NAV AUDIO	2PINDIP6X6X9MOM	Momentary	NAV AUDIO	Push
68	NAV1 INDICATOR	N/A	Indicator	>	White
69	SQUELCH	2PINDIP6X6X9MOM	Momentary	SQ	Push

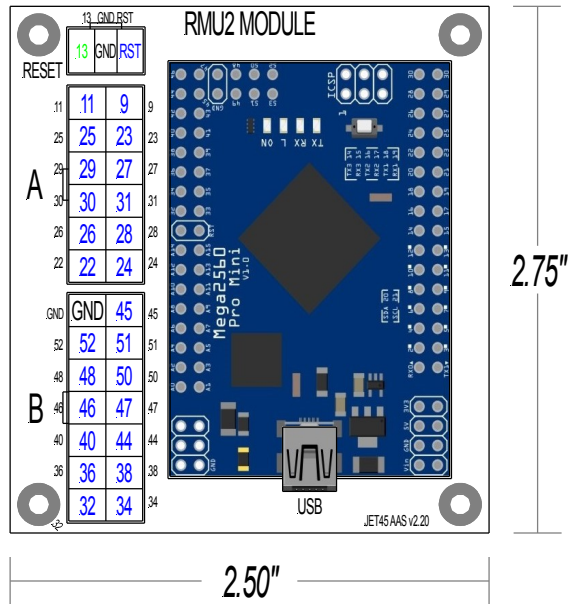
NOTE: Pin 33 is for 1 COM and NAV Display Back Lighting. Pins 66 & 68 are for COM & NAV Arrow Indicators

RMU1 / CDR RESET PLUG:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	COLOR
RST	RESET BUTTON	BLK 12mm 4Pin	Momentary	RMU1 / CDR	N/A
13	REMOTE STATUS LED	“ “	“ “	“ “	RED

NOTE: All Interface modules include a “RESET” plug which consist of a pin for a Remote Reset Button and a pin for a Remote Status LED

RMU2 MODULE



PLUG "A" RMU2 (LEFT) SWITCHES:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	TYPE
9	TRANSFER 1	2PINDIP6X6X7MOM	Momentary	v---^	Push
11	LINE SELECT 1	2PINDIP6X6X7MOM	Momentary	----	Push
23	LINE SELECT 2	2PINDIP6X6X7MOM	Momentary	----	Push
25	LINE SELECT 3	2PINDIP6X6X7MOM	Momentary	----	Push
26	LINE SELECT 4	2PINDIP6X6X7MOM	Momentary	----	Push
27	LINE SELECT 5	2PINDIP6X6X7MOM	Momentary	----	Push
22	1/2 (Cross-Side)	2PINDIP6X6X7MOM	Momentary	½	Push
24	TEST FUNCTION	2PINDIP6X6X7MOM	Momentary	TST	Push
28	ID FUNCTION	2PINDIP6X6X7MOM	Momentary	ID	Push
29	DIM FUNCTION	2PINDIP6X6X7MOM	Momentary	DIM	Push
30	PGE FUNCTION	2PINDIP6X6X7MOM	Momentary	PGE	Push
31	SQ FUNCTION	2PINDIP6X6X7MOM	Momentary	SQ	Push

PLUG “B” RMU2 (RIGHT) SWITCHES:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	TYPE
32	TRANSFER 2	2PINDIP6X6X7MOM	Momentary	v---^	Push
34	LINE SELECT 6	2PINDIP6X6X7MOM	Momentary	----	Push
36	LINE SELECT 7	2PINDIP6X6X7MOM	Momentary	----	Push
38	LINE SELECT 8	2PINDIP6X6X7MOM	Momentary	----	Push
40	LINE SELECT 9	2PINDIP6X6X7MOM	Momentary	----	Push
44	LINE SELECT 10	2PINDIP6X6X7MOM	Momentary	----	Push
46	OUTER INC	EC11EBB24C03	Digital Inc	TUNE	Encoder
47	OUTER DEC	“ “	Digital Dec	TUNE	Encoder
48	INNER INC	“ “	Digital Inc	TUNE	Encoder
50	INNER DEC	“ “	Digital Dec	TUNE	Encoder
51	DME FUNCTION	2PINDIP6X6X7MOM	Momentary	DME	Push
52	STORE FUNCTION	2PINDIP6X6X7MOM	Momentary	STO	Push
45	SPARE/TEST PIN	N/A	N/A	N/A	N/A

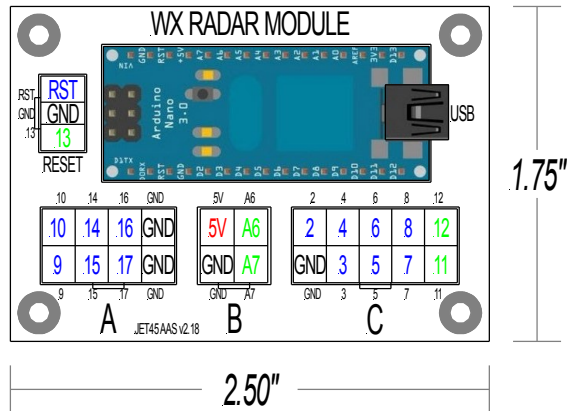
RMU2 RESET PLUG:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	COLOR
RST	RESET BUTTON	BLK 12mm 4Pin	Momentary	RMU2	N/A
13	REMOTE STATUS LED	“ “	“ “	“ “	RED

NOTE: All Interface modules include a “RESET” plug which consist of a pin for a Remote Reset Button and a pin for a Remote Status LED

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WX RADAR MODULE



PLUG “A” WX RADAR PANEL SELECTOR:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	TYPE
9	RADAR OFF	56SD36-01-1-AJN	Selector	OFF	Rotary
10	STANDBY MODE	“	Selector	SBY	Rotary
14	WEATHER MODE	“	Selector	WX	Rotary
15	GROUND MAP	“	Selector	GMAP	Rotary
16	FLIGHT PLAN	“	Selector	FP	Rotary
17	RADAR TEST	“	Selector	TST	Rotary

PLUG “B” WX RADAR PANEL ANALOG POTS:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	TYPE
A6	TILT ADJUST	P170N2-QC25BR1K	Variable POT	TILT	Analog
A7	GAIN ADJUST	P170N2-QC25BR1K	Variable POT	GAIN	Analog

NOTE: Pins A6 and A7 are analog pins which require 5V power

PLUG “C” WX RADAR PANEL BUTTONS:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	TYPE
2	“ARROW UP”	2PINDIP6X6X5MOM	Momentary	“ARROW UP”	Push
3	“ARROW DN”	2PINDIP6X6X5MOM	Momentary	“ARROW DN”	Push
4	REACT MODE	2PINDIP6X6X5MOM	Momentary	RCT	Push
5	STABILIZATION	2PINDIP6X6X5MOM	Momentary	STAB	Push
6	TARGET ALERT	2PINDIP6X6X5MOM	Momentary	TGT	Push
7	SELECT 60/120	2PINDIP6X6X5MOM	Momentary	SECT	Push
8	SPARE/TEST PIN	N/A	N/A	N/A	N/A
11	STAB OFF LED	N/A	Indicator	OFF	AMBER
12	SLAVE LED	N/A	Indicator	SLV	AMBER

NOTE: Pins 11 and 12 are for “OFF” and “SLV” LED Indicators

WX RADAR RESET PLUG:

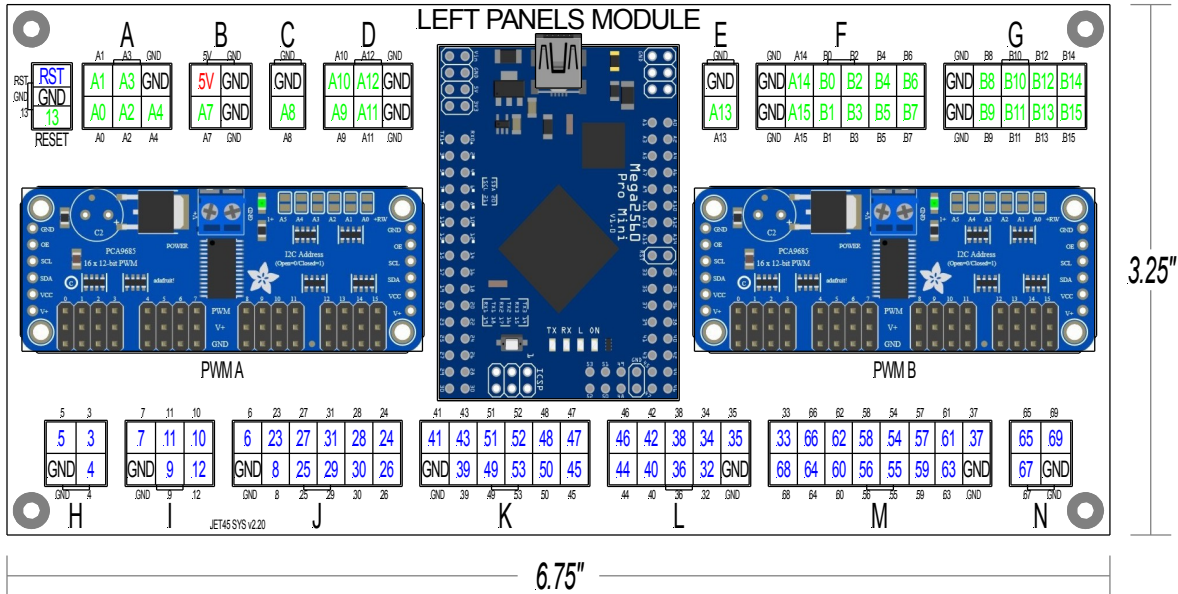
PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	COLOR
RST	RESET BUTTON	BLK 12mm 4Pin	Momentary	WX RADAR	N/A
13	REMOTE STATUS LED	“	“	“	RED

NOTE: All Interface modules include a “RESET” plug which consist of a pin for a Remote Reset Button and a pin for a Remote Status LED

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JET45 ADVANCED SYSTEMS SOFTWARE

LEFT PANELS MODULE



PLUG "A" SYS TEST PANEL LEDs:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	COLOR
A0	RADIO CTL HOT BUS	AML21CBA2AC	Momentary	ON	WARM
A1	RUD BOOST	AML21CBA2AD	Alternate	OFF	WARM
A2	GPWS G/S	AML21CBA2AC*	Momentary*	OFF	WARM
A3	GPWS FLAP	AML21CBA2AD	Alternate	OFF	WARM
A4	GPWS TERR	AML21CBA2AD	Alternate	OFF	WARM

PLUG "B" LEFT AOA GAUGE SERVO:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	COLOR
A7	AOA SERVO SIGNAL	DMS-MG90-A	Mechanical 270*	N/A	N/A

WARNING: Plug “B” is reserved for the Left AOA gauge with a 5V 270* micro servo
DO NOT USE FOR LEDs!

PLUG “C” GPWS INDICATOR LED:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	COLOR
A8	GPWS (L FAIL)	AML21CBA2AC	Indicator	GPWS	AMBER

PLUG “D” EGPWS LEDs:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	COLOR
A9	(RESERVED FOR EGPWS)				
A10	(RESERVED FOR EGPWS)				
A11	(RESERVED FOR EGPWS)				
A12	(RESERVED FOR EGPWS)				

PLUG “E” LEFT CREW PANEL LED:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	COLOR
A13	AHRS HEADING	AML21CBA2AD	Alternate	FREE	WARM

PLUG “F” ELECTRICAL PANEL (LOW) LEDs:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	COLOR
A14	L GEN	AML21CBA2AC	Momentary	OFF	WARM
A15	BUS-TIE (H)	AML21CBA2AC	Momentary	MAN	WARM
B0	BUS-TIE (L)	“ “	“ “	-----	WARM
B1	R GEN	AML21CBA2AC	Momentary	OFF	WARM
B2	EXT PWR (H)	AML21CBA2AC	Momentary	ON	WARM
B3	EXT PWR (L)	“ “	“ “	AVAIL	GREEN
B4	L BATT	AML21CBA2AC	Momentary	OFF	WARM
B5	R BATT	AML21CBA2AC	Momentary	OFF	WARM
B6	APU GEN (H)	AML21CBA2AC	Momentary	ON	WARM
B7	APU GEN (L)	“ “	“ “	AVAIL	GREEN

PLUG "G" ELECTRICAL PANEL (HIGH) LEDs:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	COLOR
B8	L AV MSTR	AML21CBA2AD	Alternate	OFF	WARM
B9	EMER BATT (H)	AML21CBA2AD	Alternate	EMER	WARM
B10	EMER BATT (L)	" "	" "	OFF	WARM
B11	R AV MSTR	AML21CBA2AD	Alternate	OFF	WARM
B12	L MAIN	AML21CBA2AC	Momentary	OFF	WARM
B13	L NON-ESS	AML21CBA2AC	Momentary	OFF	WARM
B14	R NON-ESS	AML21CBA2AC	Momentary	OFF	WARM
B15	R MAIN	AML21CBA2AC	Momentary	OFF	WARM

PLUG "H" CREW OXYGEN MASK: (OPTIONAL)

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	TYPE
3	CAPT PUSH TO TEST	R13-502	Momentary	PUSH TO TEST	Push
5	FO PUSH TO TEST	R13-502	Momentary	PUSH TO TEST	Push
4	SPARE/TEST PIN	N/A	N/A	N/A	N/A

PLUG "I" SYS TEST PANEL SWITCHES:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	TYPE
7	RADIO CTL HOT BUS	AML21CBA2AC	Momentary	ON	Push
9	RUD BOOST	AML21CBA2AD	Alternate	OFF	Push
10	GPWS G/S	AML21CBA2AC*	Momentary*	OFF	Push
11	GPWS FLAP	AML21CBA2AD	Alternate	OFF	Push
12	GPWS TERR	AML21CBA2AD	Alternate	OFF	Push
N/A	PIT TRIM BIAS	1TL1-7E	(ON)-OFF-(ON)	NDN/NUP	Toggle

NOTE: Pitch Trim Bias toggle is not modeled in software. Mechanical action toggle only!

PLUG “J” SYS TEST / RESET SWITCHES:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	TYPE
6	OFF	A11215RNZQ	Selector	OFF	Rotary
8	FIRE DET	“ “	“ “	FIRE DET	Rotary
23	LTS	“ “	“ “	LTS	Rotary
24	GEAR	“ “	“ “	GEAR	Rotary
25	FLAPS	“ “	“ “	FLAPS	Rotary
26	ADC	“ “	“ “	ADC	Rotary
27	STALL	“ “	“ “	STALL	Rotary
28	ANTI-ICE	“ “	“ “	ANTI-ICE	Rotary
29	GPWS	“ “	“ “	GPWS	Rotary
30	SPLRN RESET	“ “	“ “	SPLRN RESET	Rotary
31	FLAP RESET	“ “	“ “	FLAP RESET	Rotary
N/A	PRESS TEST	MB2411S1W01-HB	Momentary	PRESS TEST	Push

NOTE: PRESS TEST push button closes ground connection to A11215RNZQ rotary selector

PLUG “K” CAPT YOKE MISC. SWITCHES:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	TYPE
41	ROLL DISCONNECT	SS-01GL2	Momentary	N/A	Miniature
43	ATC IDENT	C2006 SAFRAN	Momentary	None	Push
45	MASTER SWITCH	26619P-18	Momentary	MSW	Push
47	CHKLST ADVANCE	C2006 SAFRAN	Momentary	CHKLST ADV	Push
48	TCH CTL STR	C2006 SAFRAN	Momentary	TCS	Push
49	PUSH TO TALK	C2006 SAFRAN	Momentary	None	Push
39	TRIM ARM BUTTON	OTTO T4-0111	Momentary	None	Push
50	TRIM NOSE DOWN	“ “	“ “	NOSE DOWN	SPCL
51	TRIM NOSE UP	“ “	“ “	NOSE UP	SPCL
52	TRIM LW DOWN	“ “	“ “	LWD	SPCL
53	TRIM RW DOWN	“ “	“ “	RWD	SPCL

PLUG “L” ELECTRICAL REVERSION SWITCHES:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	TYPE
32	IC/SG NORM 1	A12415RNZQ	Selector	1	Rotary
N/A	IC/SG NORMAL	“ “	“ “	IC/SG NORM	Rotary
34	IC/SG NORM 2	“ “	“ “	2	Rotary
36	ADC NORM 1	A12415RNZQ	Selector	1	Rotary
N/A	ADC NORMAL	“ “	“ “	ADC NORM	Rotary
38	ADC NORM 2	“ “	“ “	2	Rotary
40	AHRS NORM 1	A12415RNZQ	Selector	1	Rotary
N/A	AHRS NORMAL	“ “	“ “	AHRS NORM	Rotary
42	AHRS NORM 2	“ “	“ “	2	Rotary
44	DAU NORM A	A12415RNZQ	Selector	A	Rotary
N/A	DAU NORMAL	“ “	“ “	DAU NORM	Rotary
46	DAU NORM B	“ “	“ “	B	Rotary
35	SPARE/TEST PIN	N/A	N/A	N/A	N/A

PLUG “M” ELECTRICAL PANEL SWITCHES:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	TYPE
33	L AV MSTR	AML21CBA2AD	Alternate	OFF	Push
54	EMER BATT	AML21CBA2AD	Alternate	EMER/OFF	Push
55	R AV MSTR	AML21CBA2AD	Alternate	OFF	Push
56	L MAIN	AML21CBA2AC	Momentary	OFF	Push
57	L NON-ESS	AML21CBA2AC	Momentary	OFF	Push
58	R NON-ESS	AML21CBA2AC	Momentary	OFF	Push
59	R MAIN	AML21CBA2AC	Momentary	OFF	Push
60	L GEN	AML21CBA2AC	Momentary	OFF	Push
61	BUS-TIE	AML21CBA2AC	Momentary	MAN/-----	Push
62	R GEN	AML21CBA2AC	Momentary	OFF	Push
63	EXT PWR	AML21CBA2AC	Momentary	ON/AVAIL	Push
64	L BATT	AML21CBA2AC	Momentary	OFF	Push
66	R BATT	AML21CBA2AC	Momentary	OFF	Push
68	APU GEN	AML21CBA2AC	Momentary	ON/AVAIL	Push
37	SPARE/TEST PIN	N/A	N/A	N/A	N/A

PLUG “N” LEFT CREW PANEL SWITCHES:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	TYPE
65	AHRS HEADING	AML21CBA2AD	Alternate	FREE	Push
67	AHRS L SLAVE	1TL1-7	(ON)-OFF-(ON)	L	Toggle
69	AHRS R SLAVE	“ “	“ “	R	Toggle
N/A	RUDDER PEDAL	1TL1-7	(ON)-OFF-(ON)	FWD/AFT	Toggle

NOTE: Rudder Pedal Adjust toggle is not modeled in software. Mechanical action only!

LEFT PANELS RESET PLUG:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	COLOR
RST	RESET BUTTON	BLK 12mm 4Pin	Momentary	L PANELS	N/A
13	REMOTE STATUS LED	“ “	“ “	“ “	RED

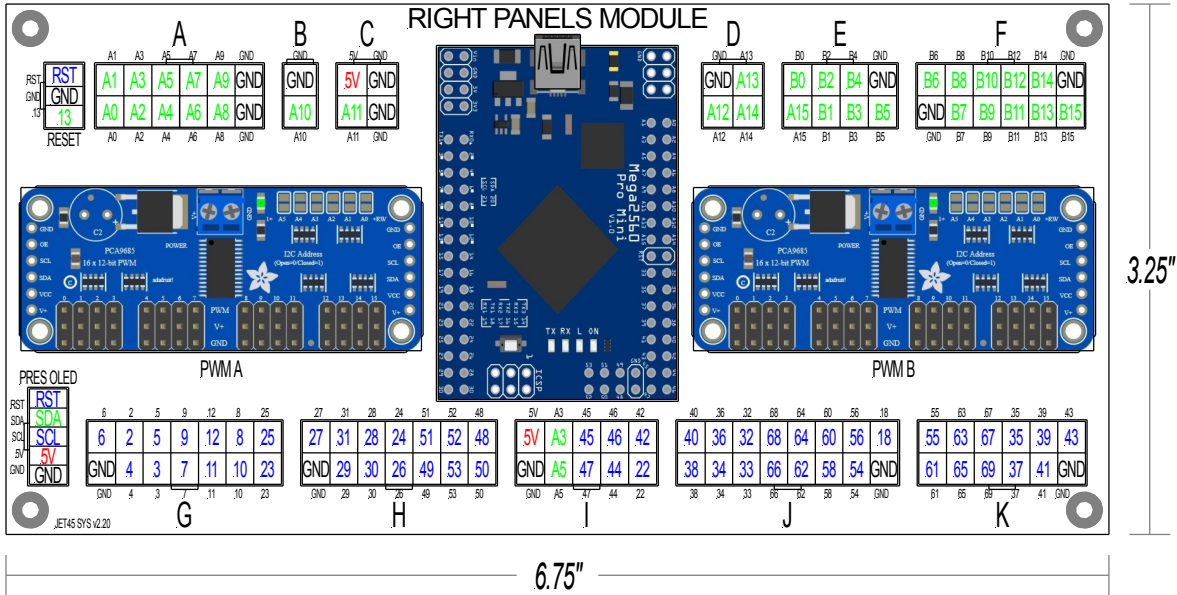
NOTE: All Interface modules include a “RESET” plug which consist of a pin for a Remote Reset Button and a pin for a Remote Status LED

Addressing PWM B: Each PWM board in a chain must be assigned a unique address. This is done with the address jumpers on the upper right edge of the PWM board. The default I2C base address for each board is 0x40. The binary address that you program with the address jumpers is added to the base I2C address. To program PWM B address offset, use a drop of solder to bridge the A0 pads on the PCA9685 PWM B.

(PWM A) Board 0: Address = 0x40 Offset = binary 00000 (no jumpers required)

(PWM B) Board 1: Address = 0x41 Offset = binary 00001 (bridge A0 pads)

RIGHT PANELS MODULE



PLUG "A" PRESSURE PANEL LEDs:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	COLOR
A0	PAX OXY/AUTO	AML21CBA2AC	Momentary	OFF	WARM
A1	DEPLOY	AML21CBA2AC*	Momentary*	[ON]	WARM
A2	EMER PRESS	AML21CBA2AC*	Momentary*	[ON]	WARM
A3	PACK	AML21CBA2AD*	Alternate*	OFF	WARM
A4	HI-FLOW	AML21CBA2AD*	Alternate*	ON	WARM
A5	L BLEED	AML21CBA2AD*	Alternate*	OFF	WARM
A6	R BLEED	AML21CBA2AD*	Alternate*	OFF	WARM
A7	APU BLEED	AML21CBA2AC	Momentary	ON	WARM
A8	EMER DEPRESS	AML21CBA2AD	Alternate	[ON]	WARM
A9	MANUAL PRESS	AML21CBA2AC	Momentary	ON	WARM

PLUG "B" GPWS INDICATOR LED:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	COLOR
A10	GPWS (R FAIL)	AML21CBA2AC	Indicator	GPWS	AMBER

PLUG “C” RIGHT AOA GAUGE SERVO:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	COLOR
A11	AOA SERVO SIGNAL	DMS-MG90-A	Mechanical 270*	N/A	N/A

WARNING: Plug “C” is reserved for the Right AOA gauge with a 5V 270* micro servo
DO NOT USE FOR LEDs!

PLUG “D” ENVIRONMENTAL PANEL LEDs:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	COLOR
A12	BAG HT	AML21CBA2AD	Alternate	OFF	WARM
A13	MANUAL TEMP	AML21CBA2AD	Alternate	ON	WARM
A14	AHRS HEADING	AML21CBA2AD	Alternate	FREE	WARM

PLUG “E” ANTI-ICE PANEL LEDs:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	COLOR
A15	L PROBES	AML21CBA2AD	Alternate	OFF	WARM
B0	R PROBES	AML21CBA2AD	Alternate	OFF	WARM
B1	L WSHLD	AML21CBA2AD	Alternate	OFF	WARM
B2	R WSHLD	AML21CBA2AD	Alternate	OFF	WARM
B3	WING/STAB	AML21CBA2AD	Alternate	ON	WARM
B4	L NAC	AML21CBA2AD	Alternate	ON	WARM
B5	R NAC	AML21CBA2AD	Alternate	ON	WARM

PLUG “F” GEAR/HYD PANEL LEDs:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	COLOR
B6	GEAR NOSE (H)	AML21CBA2AC	Indicator	////////	WHITE
B7	GEAR NOSE (L)	“ “	“ “	DOWN	GREEN
B8	GEAR LEFT (H)	AML21CBA2AC	Indicator	////////	WHITE
B9	GEAR LEFT (L)	“ “	“ “	DOWN	GREEN
B10	GEAR RIGHT (H)	AML21CBA2AC	Indicator	////////	WHITE
B11	GEAR RIGHT (L)	“ “	“ “	DOWN	GREEN
B12	NOSE STEER	AML21CBA2AC	Momentary	ON	WARM
B13	ANTI-SKID	AML21CBA2AD*	Alternate*	OFF	WARM
B14	AUX HYD	AML21CBA2AC	Momentary	ON	WARM
B15	HYD XFLOW	AML21CBA2AC	Momentary	ON	WARM

PLUG "G" GEAR/HYD PANEL (LEFT) SWITCHES:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	TYPE
2	L TAXI/LDG OFF	1TL1-1	ON-OFF-ON	OFF	Toggle
N/A	L TAXI (ONLY)	" "	" "	TAXI	Toggle
3	L TAXI/LDG	" "	" "	L LDG	Toggle
4	L PROBES	AML21CBA2AD	Alternate	OFF	Push
5	R PROBES	AML21CBA2AD	Alternate	OFF	Push
7	L WSHLD	AML21CBA2AD	Alternate	OFF	Push
8	R WSHLD	AML21CBA2AD	Alternate	OFF	Push
9	WING/STAB	AML21CBA2AD	Alternate	ON	Push
10	L NAC	AML21CBA2AD	Alternate	ON	Push
11	R NAC	AML21CBA2AD	Alternate	ON	Push
12	NAV/LOGO OFF	1TL1-1	ON-OFF-ON	OFF	Toggle
N/A	NAV (ONLY)	" "	" "	NAV	Toggle
N/A	NAV/LOGO	" "	" "	LOGO	Toggle
23	WING INSP (PAUSE)	SB4011NOHG-2B	OFF-(ON)	WING INSP	Push
25	EMER LIGHTS OFF	2TL1-1P*	ON-OFF-ON	OFF	Toggle
N/A	EMER LIGHTS ARM	" "	" "	ARM	Toggle
N/A	EMER LIGHTS ON	" "	" "	ON	Toggle
6	SPARE/TEST PIN	N/A	N/A	N/A	N/A

NOTE: The L and R TAXI/LDG toggles, BCN/STROBE toggle, PULSE/RECOG toggle and the NO SMOKING/BELTS toggle are all "Three Position Toggles" that have an active center position. Simply wire the toggles like the one illustrated below (ground in the center) and let the software do the rest by detecting active high/low signals!



NOTE: (Emergency Lights Toggle) Connect pin 25 (OFF position) to toggle terminal #3 and common line (ARM position) to toggle terminal #2. If emergency conditions are met, Relay 16 will close and the Emergency lights will activate. Use second pole for manual selection to the ON position. Connect 12 volt ground from the LEFT HOT BUS to toggle terminal #4. Connect the return ground to toggle terminal #5 for Emergency Lights in the cabin.

WARNING: Be sure to keep terminals #4 and #5 of the toggle isolated from terminals #2 and #3 due to 12 volt power on this side of the double pole switch!

Additionally, if you do not want to model the ON position of the Emergency Lights Toggle, there is the option to use a 1TL1-1M ON-OFF-ON single pole toggle for just the software simulation part of the Emergency lights functions. In this case, only connect pin 25 (OFF position) to toggle terminal #3 and common line (ARM position) to toggle terminal #2.

PLUG “H” GEAR/HYD PANEL (RIGHT) SWITCHES:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	TYPE
24	PULSE/RECOG OFF	1TL1-1	ON-OFF-ON	OFF	Toggle
N/A	PULSE	“ “	“ “	PULSE	Toggle
26	RECOG	“ “	“ “	RECOG	Toggle
27	BCN/STROBE OFF	1TL1-1	ON-OFF-ON	OFF	Toggle
N/A	BCN (ONLY)	“ “	“ “	BCN	Toggle
28	BCN/STROBE	“ “	“ “	BCN/STROBE	Toggle
29	R TAXI/LDG OFF	1TL1-1	ON-OFF-ON	OFF	Toggle
N/A	R TAXI (ONLY)	“ “	“ “	TAXI	Toggle
30	R TAXI/LDG	“ “	“ “	R LDG	Toggle
31	NO SMKNG/BELTS OFF	1TL1-1	ON-OFF-ON	OFF	Toggle
N/A	BELTS (ONLY)	“ “	“ “	BELTS	Toggle
48	NO SMKNG/BELTS	“ “	“ “	NO SMKNG/BELTS	Toggle
49	GEAR KNOB	1TL1-2D	OFF-ON	UP	Toggle
N/A	GEAR KNOB	“ “	“ “	DN	Toggle
50	NOSE STEER	AML21CBA2AC	Momentary	ON	Push
51	ANTI-SKID	AML21CBA2AD*	Alternate*	OFF	Push
52	AUX HYD	AML21CBA2AC	Momentary	ON	Push
53	HYD XFLOW	AML21CBA2AC	Momentary	ON	Push

NOTE: R LDG/TAXI toggle is not currently modeled in software. L LDG/TAXI toggle controls both left and right taxi and landing lights!

PLUG "I" ENVIRONMENTAL PANEL SWITCHES:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	TYPE
22	CVR ERASE	SB4011NOHG-2B	OFF-(ON)	ERASE	Push
42	BAG HEAT	AML21CBA2AD	Alternate	OFF	Push
44	MANUAL TEMP	AML21CBA2AD	Alternate	ON	Push
45	AHRS HEADING	AML21CBA2AD	Alternate	FREE	Push
46	AHRS SLAVE L	1TL1-7	(ON)-OFF-(ON)	L	Toggle
47	AHRS SLAVE R	" "	" "	R	Toggle
A3	COCKPIT TEMP	1K LINIAR POT	Variable POT	COLD/HOT	Analog
A5	CABIN TEMP	1K LINIAR POT	Variable POT	COLD/HOT	Analog
N/A	RUDDER PEDAL	1TL1-7	(ON)-OFF-(ON)	FWD/AFT	Toggle

NOTE: Pins A3 and A5 are analog pins which require 5V power

NOTE: Rudder Pedal Adjust toggle is not modeled in software. Mechanical action only!

PLUG "J" PRESSURE PANEL SWITCHES:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	TYPE
32	PAX OXY/AUTO	AML21CBA2AC	Momentary	OFF	Push
33	DEPLOY	AML21CBA2AC*	Momentary*	[ON]	Push
34	EMER PRESS	AML21CBA2AC*	Momentary*	[ON]	Push
36	PACK	AML21CBA2AD*	Alternate*	OFF	Push
38	HI FLOW	AML21CBA2AD*	Alternate*	ON	Push
40	L BLEED	AML21CBA2AD*	Alternate*	OFF	Push
54	R BLEED	AML21CBA2AD*	Alternate*	OFF	Push
56	APU BLEED	AML21CBA2AC	Momentary	ON	Push
58	EMER DEPRESS	AML21CBA2AD	Alternate	[ON]	Push
60	MANUAL PRESS	AML21CBA2AC	Momentary	ON	Push
62	LDG ALT UP	EC12E2420801	Digital Inc	UP	Encoder
64	LDG ALT DN	" "	Digital Dec	DN	Encoder
66	MANUAL UP	EC12E2420801	Digital Inc	UP	Encoder
68	MANUAL DN	" "	Digital Dec	DN	Encoder
18	SPARE/TEST PIN	N/A	N/A	N/A	N/A

PLUG “K” FO YOKE MISC. SWITCHES:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	TYPE
35	CHKLST ADVANCE	C2006 SAFRAN	Momentary	CHKLST ADV	Push
37	ATC IDENT	C2006 SAFRAN	Momentary	None	Push
43	TCH CTL STR	C2006 SAFRAN	Momentary	TCS	Push
55	MASTER SWITCH	26619P-18	Momentary	MSW	Push
61	PUSH TO TALK	C2006 SAFRAN	Momentary	None	Push
39	TRIM ARM BUTTON	OTTO T4-0111	Momentary	None	Push
63	TRIM NOSE DOWN	“ “	“ “	NOSE DOWN	SPCL
65	TRIM NOSE UP	“ “	“ “	NOSE UP	SPCL
67	TRIM LW DOWN	“ “	“ “	LWD	SPCL
69	TRIM RW DOWN	“ “	“ “	RWD	SPCL
41	SPARE/TEST PIN	N/A	N/A	N/A	N/A

PRESSURE DISPLAY OLED PLUG:

The Pressure Display OLED plug consist of five pins, GND, 5V, SCL, SDA and RST. These pins plug directly in the Pressure OLED socket on the back side of the Pressure Panel.

RIGHT PANELS RESET PLUG:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	COLOR
RST	RESET BUTTON	BLK 12mm 4Pin	Momentary	R PANELS	N/A
13	REMOTE STATUS LED	“ “	“ “	“ “	RED

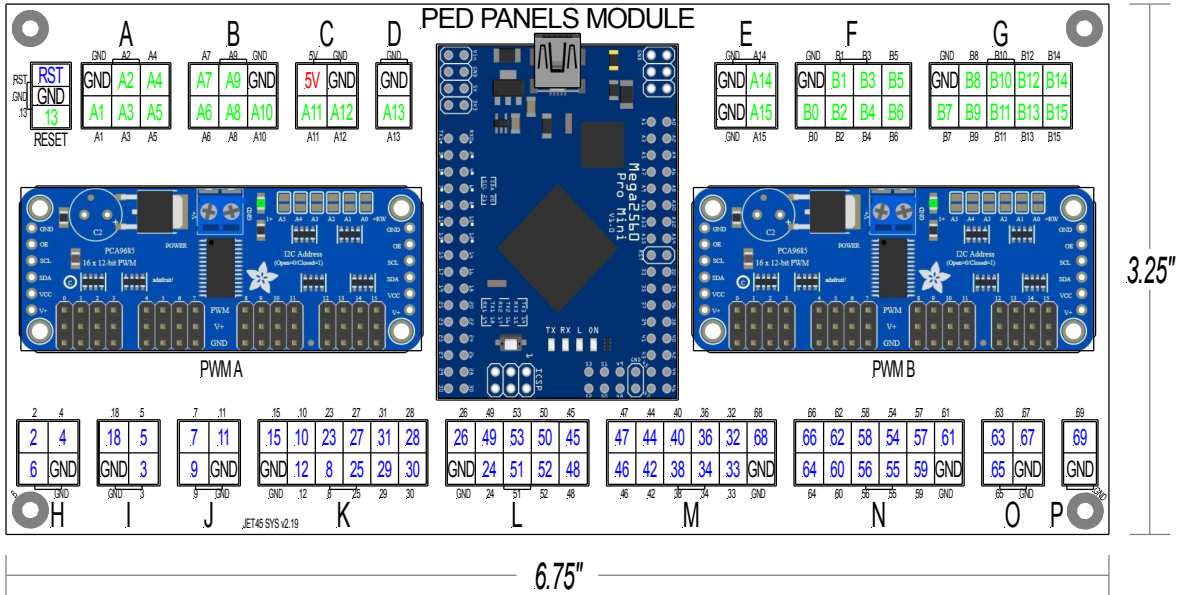
NOTE: All Interface modules include a “RESET” plug which consist of a pin for a Remote Reset Button and a pin for a Remote Status LED

Addressing PWM B: Each PWM board in a chain must be assigned a unique address. This is done with the address jumpers on the upper right edge of the PWM board. The default I2C base address for each board is 0x40. The binary address that you program with the address jumpers is added to the base I2C address. To program PWM B address offset, use a drop of solder to bridge the A0 pads on the PCA9685 PWM B.

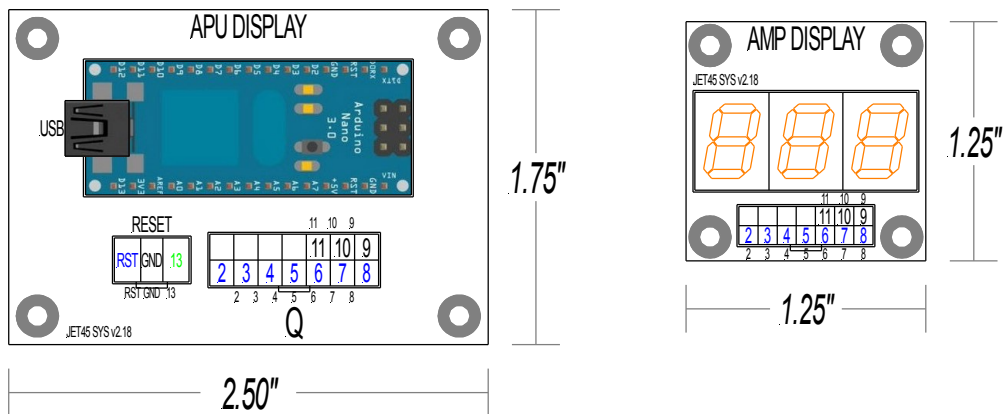
(PWM A) Board 0: Address = 0x40 Offset = binary 00000 (no jumpers required)

(PWM B) Board 1: Address = 0x41 Offset = binary 00001 (bridge A0 pads)

PEDESTAL PANELS MODULE



APU DISPLAY MODULE



NOTE: PLUG “Q” is connected to an isolated Arduino Nano to operate the APU AMP Window comprised of three Vishay seven segments displays via Multiplexing

PLUG “A” AIRSHOW PANEL LEDs:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	COLOR
A1	“FLTDECK”	N/A	N/A	FLTDECK	GREEN
A2	“FLTDECK”	N/A	N/A	FLTDECK	GREEN
A3	“FLTDECK”	N/A	N/A	FLTDECK	GREEN
A4	“FLTDECK”	N/A	N/A	FLTDECK	GREEN
A5	“ * ”	N/A	N/A	*	GREEN

PLUG “B” APU PANEL LEDs:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	COLOR
A6	APU MASTER	AML21CBA2AD	Alternate	ON	WARM
A7	APU FAIL	AML21CBA2AC	Indicator	APU FAIL	AMBER
A8	START/STOP START	AML21CBA2AC	Momentary	START	WARM
A9	START/STOP RUN	“ “	“ “	RUN	GREEN
A10	FIRE PUSH	AML21CBA2AC*	Momentary*	[FIRE PUSH]	RED

PLUG “C” SPARE LEDs / SERVO:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	COLOR
A11	RESERVED				
A12	RESERVED				

WARNING: Plug “C” can also be used with a 5 volt micro servo. Be aware of the 5V pin!

PLUG “D” ELT PANEL LED:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	COLOR
A13	ELT ON	N/A	N/A	N/A	RED

PLUG “E” SEL CAL PANEL LEDs:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	COLOR
A14	SELCAL HF	AML21CBA2AC	Momentary	HF	WARM
A15	SELCAL VHF	“ “	“ “	VHF	WARM

PLUG "F" ENGINE PANEL (LEFT) LEDs:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	COLOR
B0	L EXTINGUISHER #1	AML21CBA2AC	Momentary	[ARMED]	WARM
B1	L EXTINGUISHER #2	AML21CBA2AC	Momentary	[ARMED]	WARM
B2	L ENGINE FIRE (H)	AML21CBA2AD*	Alternate*	[CLOSED]	WARM
B3	L ENGINE FIRE (L)	" "	" "	[FIRE PUSH]	RED
B4	L ENG START	AML21CBA2AC	Momentary	[ON]	WARM
B5	L ENG IGNITION	AML21CBA2AD*	Alternate*	ON	WARM
B6	FUEL L STANDBY	AML21CBA2AD*	Alternate*	ON	WARM

PLUG "G" ENGINE PANEL (RIGHT) LEDs:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	COLOR
B7	FUEL XFLOW	AML21CBA2AD*	Alternate*	-----	WARM
B8	FUEL R STANDBY	AML21CBA2AD*	Alternate*	ON	WARM
B9	APR ARM	AML21CBA2AD	Alternate	ARM	WARM
B10	R ENGINE FIRE (H)	AML21CBA2AD*	Alternate*	[CLOSED]	WARM
B11	R ENGINE FIRE (L)	" "	" "	[FIRE PUSH]	RED
B12	R EXTINGUISHER #2	AML21CBA2AC	Momentary	[ARMED]	WARM
B13	R EXTINGUISHER #1	AML21CBA2AC	Momentary	[ARMED]	WARM
B14	R ENG IGNITION	AML21CBA2AD*	Alternate*	ON	WARM
B15	R ENG START	AML21CBA2AC	Momentary	[ON]	WARM

PLUG "H" TQ PEDESTAL SWITCHES:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	TYPE
2	PITCH DISCONNECT	SS-01GL2	Momentary	N/A	Miniature
4	GEAR FREEFALL	SS-01GL2	Momentary	N/A	Miniature
6	SPARE/TEST PIN	N/A	N/A	N/A	N/A

PLUG "I" ELT PANEL SWITCHES:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	TYPE
3	ELT ARM	7203K2ZQE	ON-OFF-ON	ARM	Toggle
N/A	ELT RESET	" "	" "	ELT	Toggle
5	ELT ON	" "	" "	ON	Toggle
18	SPARE/TEST PIN	N/A	N/A	N/A	N/A

PLUG "J" AIRSHOW PANEL SWITCHES:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	TYPE
7	SCROLL INCREASE	EC12E2420801	Digital Inc	SCROLL	Encoder
9	SCROLL DECREASE	" "	Digital Dec	SCROLL	Encoder
11	AIRSHOW SELECT	MML 21HA2AAW	OFF-(ON)	SELECT	Push

PLUG "K" TRIM PANEL SWITCHES:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	TYPE
8	LEFT SEC NDN	MASON 309-4301	Momentary	NDN	SPCL
10	LEFT SEC NUP	" "	" "	NUP	SPCL
12	RIGHT SEC NDN	" "	" "	NDN	SPCL
23	RIGHT SEC NUP	" "	" "	NUP	SPCL
25	PITCH TRIM PRI	4TL1-1A	ON-OFF-ON	PRI	Toggle
N/A	PITCH TRIM OFF	" "	" "	OFF	Toggle
27	PITCH TRIM SEC	" "	" "	SEC	Toggle
28	RUD NOSE LEFT	E3G0603N-2	Momentary	NOSE LEFT	Selector
N/A	RUD TRIM OFF	" "	" "	OFF	Selector
29	RUD NOSE RIGHT	" "	" "	NOSE RIGHT	Selector
30	PIT TRM BIAS LIMIT	SS-01GL2	Momentary	None	Miniature
31	PIT TRM BIAS LIMIT	SS-01GL2	Momentary	None	Miniature
15	SPARE/TEST PIN	N/A	N/A	N/A	N/A

PLUG "L" TQ MODULE SWITCHES:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	TYPE
24	LEFT REVERSER	SS-01GL2	Momentary	N/A	Miniature
26	RIGHT REVERSER	SS-01GL2	Momentary	N/A	Miniature
45	LEFT FUEL CUTOFF	SS-01GL2	Momentary	N/A	Miniature
48	RIGHT FUEL CUTOFF	SS-01GL2	Momentary	N/A	Miniature
49	L REVERSE LOCK	SS-01GL2	Momentary	N/A	Miniature
50	R REVERSE LOCK	SS-01GL2	Momentary	N/A	Miniature
51	PARKING BRAKE	SS-01GL2	Momentary	N/A	Miniature
52	GO AROUND	OTTO P7-566222	Momentary	GO AROUND	Push
53	MUTE	OTTO P7-566222	Momentary	MUTE	Push

PLUG “M” ENGINE PANEL (LEFT) SWITCHES:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	TYPE
32	L EXTINGUISHER #1	AML21CBA2AC	Momentary	[ARMED]	Push
33	L EXTINGUISHER #2	AML21CBA2AC	Momentary	[ARMED]	Push
34	L ENGINE FIRE	AML21CBA2AD*	Alternate*	[CLOSED / FP]	Push
36	L ENG START	AML21CBA2AC	Momentary	[ON]	Push
38	L ENG IGNITION	AML21CBA2AD*	Alternate*	ON	Push
40	L ENG CMPTR ON	1TL1-1A	ON-OFF-ON	ON	Toggle
N/A	L ENG CMPTR MAN	“ “	“ “	MAN	Toggle
42	L ENG CMPTR OFF	“ “	“ “	OFF	Toggle
44	FUEL L STANDBY	AML21CBA2AD*	Alternate*	ON	Push
46	FUEL XFLOW	AML21CBA2AD*	Alternate*	-----	Push
47	FUEL R STANDBY	AML21CBA2AD*	Alternate*	ON	Push
68	FUEL USED RESET	SB4011NOHG-2B	OFF-(ON)	None	Push

NOTE: The L and R ENG CMPTR toggles and the ENG SYNC N1/N2 toggle are “Three Position Toggles” that have an active center position. Simply wire the toggles like the one illustrated below (ground in the center) and let the software do the rest by detecting active high/low signals!



PLUG “N” ENGINE PANEL (RIGHT) SWITCHES:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	TYPE
54	ENTRY DOOR SW	SB4011NOHG-2B	OFF-(ON)	EDS RECORD	Push
55	ENG SYNC OFF	1TL1-1	ON-OFF-ON	OFF	Toggle
N/A	ENG SYNC N2	“ “	“ “	N2	Toggle
56	ENG SYNC N1	“ “	“ “	N1	Toggle
57	APR ARM	AML21CBA2AD	Alternate	ARM	Push
58	R ENGINE FIRE	AML21CBA2AD*	Alternate*	[CLOSED / FP]	Push
59	R EXTINGUISHER #2	AML21CBA2AC	Momentary	[ARMED]	Push
60	R EXTINGUISHER #1	AML21CBA2AC	Momentary	[ARMED]	Push
61	R ENG CMPTR ON	1TL1-1A	ON-OFF-ON	ON	Toggle
N/A	R ENG CMPTR MAN	“ “	“ “	MAN	Toggle
62	R ENG CMPTR OFF	“ “	“ “	OFF	Toggle
64	R ENG IGNITION	AML21CBA2AD*	Alternate*	ON	Push
66	R ENG START	AML21CBA2AC	Momentary	[ON]	Push

PLUG “O” APU PANEL SWITCHES:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	TYPE
63	APU MASTER	AML21CBA2AD	Alternate	ON	Push
65	START/STOP	AML21CBA2AC	Momentary	START/RUN	Push
67	FIRE PUSH	AML21CBA2AC*	Momentary*	[FIRE PUSH]	Push

PLUG “P” SEL CAL PANEL SWITCH:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	TYPE
69	SELCAL	AML21CBA2AC	Momentary	HF/VHF	Push

PEDESTAL PANELS RESET PLUG:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	COLOR
RST	RESET BUTTON	BLK 12mm 4Pin	Momentary	PED PANELS	N/A
13	REMOTE STATUS LED	“ “	“ “	“ “	RED

NOTE: All Interface modules include a “RESET” plug which consist of a pin for a Remote Reset Button and a pin for a Remote Status LED

PLUG “Q” APU AMP DISPLAY:

PIN	DESCRIPTION	7 SEGMENT	ACTION	LEGEND	COLOR
2	SEGMENT “A”	TDSL3160	LED SEG “A” X3	N/A	ORANGE
3	SEGMENT “B”	“ “	LED SEG “B” X3	N/A	ORANGE
4	SEGMENT “C”	“ “	LED SEG “C” X3	N/A	ORANGE
5	SEGMENT “D”	“ “	LED SEG “D” X3	N/A	ORANGE
6	SEGMENT “E”	“ “	LED SEG “E” X3	N/A	ORANGE
7	SEGMENT “F”	“ “	LED SEG “F” X3	N/A	ORANGE
8	SEGMENT “G”	“ “	LED SEG “G” X3	N/A	ORANGE
9	1 st SEGMENT COM	“ “	MULTIPLEXING	N/A	N/A
10	2 nd SEGMENT COM	“ “	MULTIPLEXING	N/A	N/A
11	3 rd SEGMENT COM	“ “	MULTIPLEXING	N/A	N/A

NOTE: PLUG “Q” is connected to an isolated Arduino Nano to operate the APU AMP Window comprised of three Vishay seven segments displays via Multiplexing.

APU DISPLAY RESET PLUG:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	COLOR
RST	RESET BUTTON	BLK 12mm 4Pin	Momentary	APU	N/A
13	REMOTE STATUS LED	“ “	“ “	“ “	RED

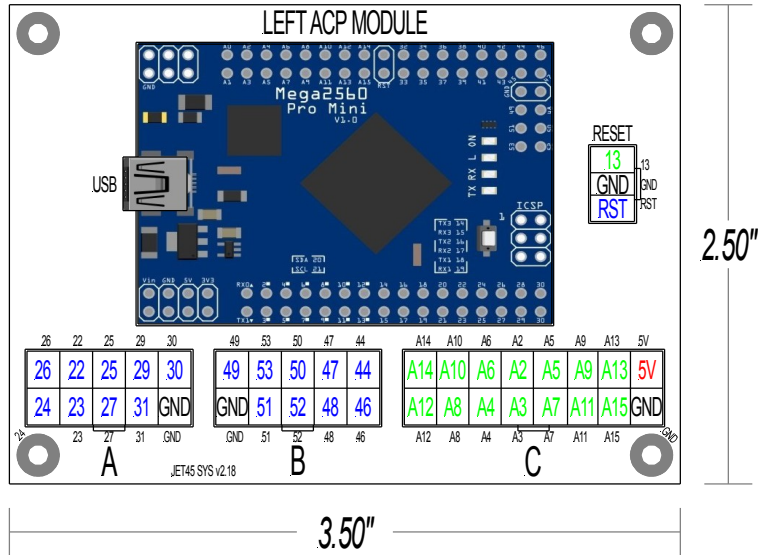
NOTE: All Interface modules include a “RESET” plug which consist of a pin for a Remote Reset Button and a pin for a Remote Status LED

Addressing PWM B: Each PWM board in a chain must be assigned a unique address. This is done with the address jumpers on the upper right edge of the PWM board. The default I2C base address for each board is 0x40. The binary address that you program with the address jumpers is added to the base I2C address. To program PWM B address offset, use a drop of solder to bridge the A0 pads on the PCA9685 PWM B.

(PWM A) Board 0: Address = 0x40 Offset = binary 00000 (no jumpers required)

(PWM B) Board 1: Address = 0x41 Offset = binary 00001 (bridge A0 pads)

LEFT ACP MODULE



PLUG "A" LEFT ACP (LEFT) BUTTONS:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	TYPE
22	VHF1 TRANSMIT	Honeywell OEM	Latching	VHF1	Push
23	VHF2 TRANSMIT	Honeywell OEM	Latching	VHF2	Push
24	HF1 TRANSMIT	Honeywell OEM	Latching	HF1	Push
25	VHF1 SELECT	Honeywell OEM	Latching	VHF1	Push
27	VHF2 SELECT	Honeywell OEM	Latching	VHF2	Push
28	HF1 SELECT	Honeywell OEM	Latching	HF1	Push
29	NAV1 SELECT	Honeywell OEM	Latching	NAV1	Push
30	NAV2 SELECT	Honeywell OEM	Latching	NAV2	Push
31	ADF1 SELECT	Honeywell OEM	Latching	ADF1	Push

PLUG “B” LEFT ACP (RIGHT) BUTTONS:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	TYPE
44	PA TRANSMIT	Honeywell OEM	Latching	PA	Push
46	EMER TRANSMIT	Honeywell OEM	Latching	EMER	Push
47	MIC/MASK SELECT	Honeywell OEM	Latching	MIC/MASK	Push
48	DME1/2 SELECT	Honeywell OEM	Latching	DME1/2	Push
49	ID/VOICE SELECT	Honeywell OEM	Latching	ID/VOICE	Push
50	SIDETONE SELECT	Honeywell OEM	Latching	SIDETONE	Push
51	MARKER SELECT	Honeywell OEM	Latching	MKR	Push
52	MUTE LO/HI SENS	Honeywell OEM	Momentary	MUTE	Push
53	INTERPHONE SELECT	Honeywell OEM	Latching	INPH	Push

PLUG “C” LEFT ACP ANALOG POTS:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	TYPE
A2	VHF1 ADJUST	Honeywell OEM	Variable POT	VHF1	Analog
A3	VHF2 ADJUST	Honeywell OEM	Variable POT	VHF2	Analog
A4	HF1 ADJUST	Honeywell OEM	Variable POT	HF1	Analog
A5	NAV1 ADJUST	Honeywell OEM	Variable POT	NAV1	Analog
A6	NAV2 ADJUST	Honeywell OEM	Variable POT	NAV2	Analog
A7	ADF1 ADJUST	Honeywell OEM	Variable POT	ADF1	Analog
A8	DME1/2 ADJUST	Honeywell OEM	Variable POT	DME1/2	Analog
A9	ID/VOICE ADJUST	Honeywell OEM	Variable POT	ID/VOICE	Analog
A10	SPEAKER ADJUST	Honeywell OEM	Variable POT	SPEAKER	Analog
A11	SIDETONE ADJUST	Honeywell OEM	Variable POT	SIDETONE	Analog
A12	MARKER ADJUST	Honeywell OEM	Variable POT	MKR	Analog
A13	MUTE ADJUST	Honeywell OEM	Variable POT	MUTE	Analog
A14	INTERPHONE ADJ	Honeywell OEM	Variable POT	INPH	Analog
A15	HEADPHONE ADJ	Honeywell OEM	Variable POT	HEADPHONE	Analog

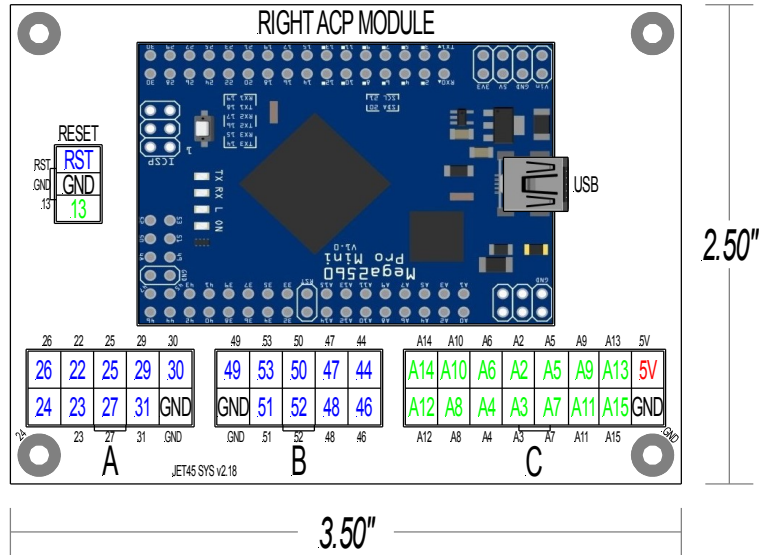
NOTE: Pins A2 through A15 are analog pins which require 5V power

LEFT ACP RESET PLUG:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	COLOR
RST	RESET BUTTON	BLK 12mm 4Pin	Momentary	L ACP	N/A
13	REMOTE STATUS LED	“ “	“ “	“ “	RED

NOTE: All Interface modules include a “RESET” plug which consist of a pin for a Remote Reset Button and a pin for a Remote Status LED

RIGHT ACP MODULE



PLUG "A" RIGHT ACP (LEFT) BUTTONS:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	TYPE
22	VHF1 TRANSMIT	Honeywell OEM	Latching	VHF1	Push
23	VHF2 TRANSMIT	Honeywell OEM	Latching	VHF2	Push
24	HF1 TRANSMIT	Honeywell OEM	Latching	HF1	Push
25	VHF1 SELECT	Honeywell OEM	Latching	VHF1	Push
27	VHF2 SELECT	Honeywell OEM	Latching	VHF2	Push
28	HF1 SELECT	Honeywell OEM	Latching	HF1	Push
29	NAV1 SELECT	Honeywell OEM	Latching	NAV1	Push
30	NAV2 SELECT	Honeywell OEM	Latching	NAV2	Push
31	ADF1 SELECT	Honeywell OEM	Latching	ADF1	Push

PLUG “B” RIGHT ACP (RIGHT) BUTTONS:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	TYPE
44	PA TRANSMIT	Honeywell OEM	Latching	PA	Push
46	EMER TRANSMIT	Honeywell OEM	Latching	EMER	Push
47	MIC/MASK SELECT	Honeywell OEM	Latching	MIC/MASK	Push
48	DME1/2 SELECT	Honeywell OEM	Latching	DME1/2	Push
49	ID/VOICE SELECT	Honeywell OEM	Latching	ID/VOICE	Push
50	SIDETONE SELECT	Honeywell OEM	Latching	SIDETONE	Push
51	MARKER SELECT	Honeywell OEM	Latching	MKR	Push
52	MUTE LO/HI SENS	Honeywell OEM	Momentary	MUTE	Push
53	INTERPHONE SELECT	Honeywell OEM	Latching	INPH	Push

PLUG “C” RIGHT ACP ANALOG POTS:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	TYPE
A2	VHF1 ADJUST	Honeywell OEM	Variable POT	VHF1	Analog
A3	VHF2 ADJUST	Honeywell OEM	Variable POT	VHF2	Analog
A4	HF1 ADJUST	Honeywell OEM	Variable POT	HF1	Analog
A5	NAV1 ADJUST	Honeywell OEM	Variable POT	NAV1	Analog
A6	NAV2 ADJUST	Honeywell OEM	Variable POT	NAV2	Analog
A7	ADF1 ADJUST	Honeywell OEM	Variable POT	ADF1	Analog
A8	DME1/2 ADJUST	Honeywell OEM	Variable POT	DME1/2	Analog
A9	ID/VOICE ADJUST	Honeywell OEM	Variable POT	ID/VOICE	Analog
A10	SPEAKER ADJUST	Honeywell OEM	Variable POT	SPEAKER	Analog
A11	SIDETONE ADJUST	Honeywell OEM	Variable POT	SIDETONE	Analog
A12	MARKER ADJUST	Honeywell OEM	Variable POT	MKR	Analog
A13	MUTE ADJUST	Honeywell OEM	Variable POT	MUTE	Analog
A14	INTERPHONE ADJ	Honeywell OEM	Variable POT	INPH	Analog
A15	HEADPHONE ADJ	Honeywell OEM	Variable POT	HEADPHONE	Analog

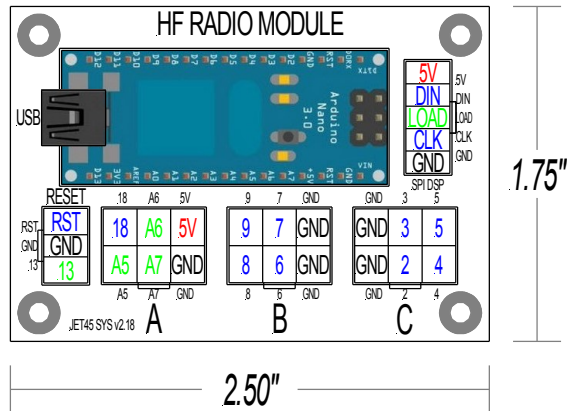
NOTE: Pins A2 through A15 are analog pins which require 5V power

RIGHT ACP RESET PLUG:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	COLOR
RST	RESET BUTTON	BLK 12mm 4Pin	Momentary	R ACP	N/A
13	REMOTE STATUS LED	“	“	“	RED

NOTE: All Interface modules include a “RESET” plug which consist of a pin for a Remote Reset Button and a pin for a Remote Status LED

HF RADIO MODULE



PLUG “A” HF RADIO ANALOG POTS:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	TYPE
A5	CLARIFIER	531-PC16SC-1K	Variable POT	VHF1	Analog
A6	SQUELCH	531-PC16SC-1K	Variable POT	VHF1	Analog
A7	VOLUME	<i>T.B.D.</i>	Variable POT	VOLUME	Analog
18	VOLUME / OFF	“ “	On/OFF	OFF	On/Off

PLUG “B” HF RADIO ENCODERS:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	TYPE
6	OUTER INC	EC11EBB24C03	Digital Inc	None	Encoder
7	OUTER DEC	“ “	Digital Dec	None	Encoder
8	INNER INC	“ “	Digital Inc	None	Encoder
9	INNER DEC	“ “	Digital Dec	None	Encoder

PLUG “C” HF RADIO BUTTONS:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	TYPE
2	MODE	T.B.D.	Momentary	MODE	Push
3	FREQ/CHAN	T.B.D.	Latching	FREQ/CHAN	Push
4	STORE	T.B.D.	Momentary	STO	Push
5	PROGRAM	T.B.D.	Latching	PGM	Push

HF RADIO RESET PLUG:

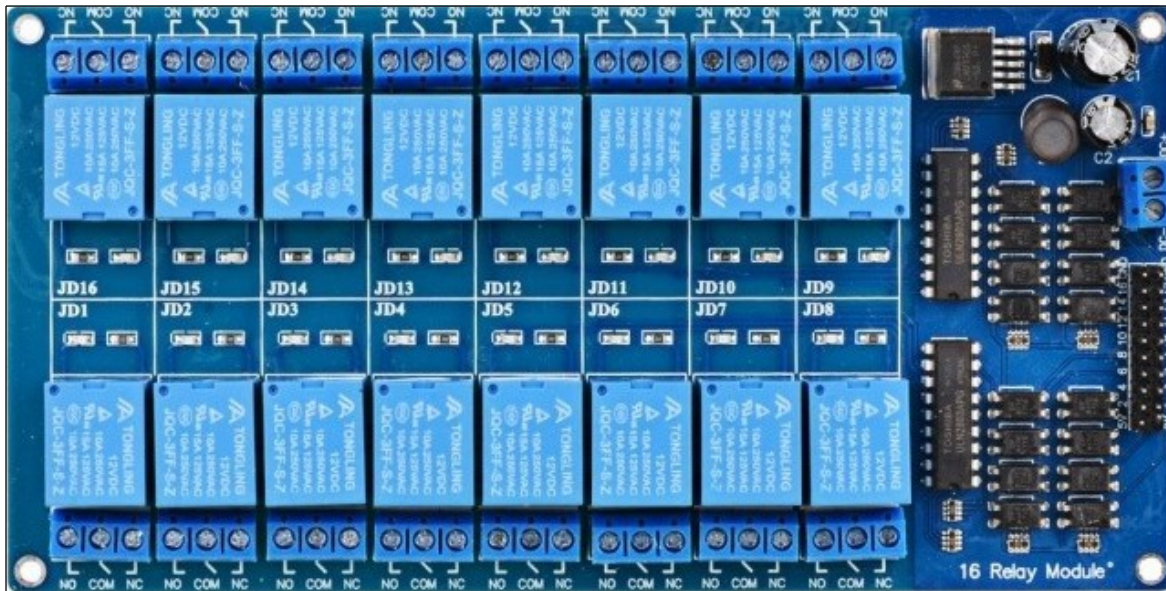
PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	COLOR
RST	RESET BUTTON	BLK 12mm 4Pin	Momentary	HF RADIO	N/A
13	REMOTE STATUS LED	“	“	“	RED

NOTE: All Interface modules include a “RESET” plug which consist of a pin for a Remote Reset Button and a pin for a Remote Status LED

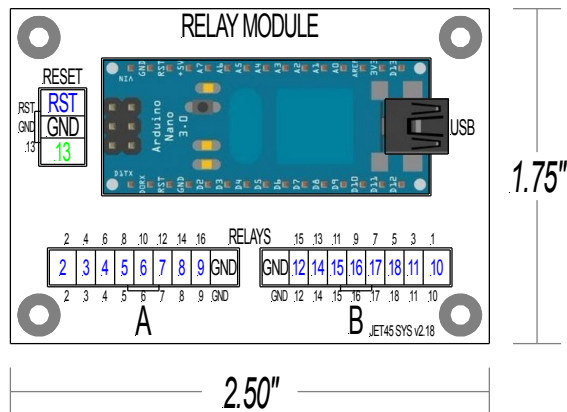
NOTE: The SPI Display is designed for a custom made eight digit, seven segment display using a MAX2719CNG chip. This display will also handle the LSB, AM, USB, TX and PGM indications.

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16 RELAY MODULE



16 RELAY MODULE



NOTE: The 16 Relay Module enables software simulation to physically control hardware components within the cockpit, in most cases, hardware requiring 5v or 12v power.

PLUG “A” RELAY MODULE EVEN ROW:

PIN	DESCRIPTION	RELAY	TRIGGER	NOTES
2	LEFT ESS BUS	2	281C	Monitor BATT, GEN, APU, EXT, TIE
3	RIGHT ESS BUS	4	281C	Monitor BATT, GEN, APU, EXT, TIE
4	L NON ESS BUS	6	L NON ESS	Monitor L NON ESS Switch
5	R NON ESS BUS	8	R NON ESS	Monitor R NON ESS Switch
6	PACK AIR BLOWERS	10	PACK SWITCH	Monitor L/R & APU BLEED AIR
7	RESERVED/SPARE	12	N/A	N/A
8	RESERVED/SPARE	14	N/A	N/A
9	EMER LIGHTING ARM	16	GEN FAIL	Monitor for dual generator failure

PLUG “B” RELAY MODULE ODD ROW:

PIN	DESCRIPTION	RELAY	TRIGGER	NOTES
10	L STALL WARNING	1	036C	Monitor Stall Warning status
11	R STALL WARNING	3	036C	Monitor Stall Warning status
12	L REVRSE SOLENOID	15	SWITCH	Monitor pin 49 on Pedestal Module
14	R REVRSE SOLENOID	13	SWITCH	Monitor pin 50 on Pedestal Module
15	L CLOCK FLIGHT TIME	11	0366	Monitor Weight on Wheels status
16	R CLOCK FLIGHT TIME	9	0366	Monitor Weight on Wheels status
17	HOBBS FLIGHT TIME	7	0366	Monitor Weight on Wheels status
18	MANUAL TEMP (HEAT)	5	MAN TEMP	Monitor L/R & APU BLEED AIR

16 RELAY RESET PLUG:

PIN	DESCRIPTION	SWITCH	ACTION	LEGEND	COLOR
RST	RESET BUTTON	BLK 12mm 4Pin	Momentary	16 RELAY	N/A
13	REMOTE STATUS LED	“	“	“	RED

NOTE: All Interface modules include a “RESET” plug which consist of a pin for a Remote Reset Button and a pin for a Remote Status LED

ADDITIONAL INFORMATION

The information and hardware found in the following pages is NOT part of the Jet45 Advanced Avionics Software or the Jet45 Systems Software, however, these hardware elements have been specifically designed to work in conjunction with the Jet45 software via a single 16 channel relay card which greatly enhances the simulation experience. This single 16 channel relay card acts as a “physical gateway” to all the powered hardware elements in your flight simulator.

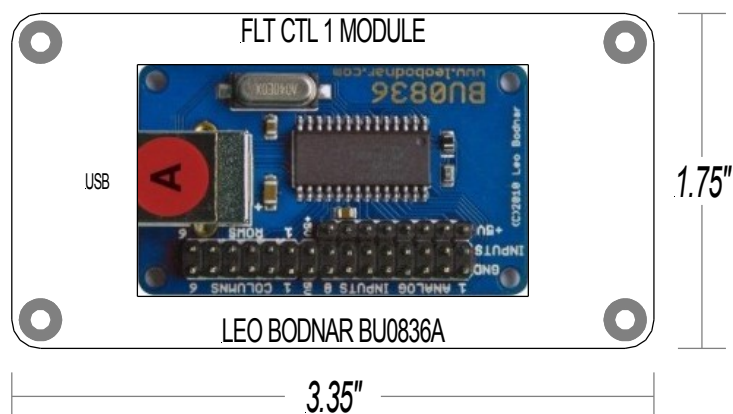
Additionally, 30 individual Wiring Diagrams are included to help illustrate exactly how to connect physical hardware to the dual 12 volt power supply system. All diagrams include either the left side power supply flow or the right side power supply flow. All diagrams include the one and only 16 channel Relay card! Not all buses are being utilized in every diagram but are included to help provide the best illustration possible to show where the power is coming from for each component.

Use the following information as a guide to help set up your Lear45 Simulator to your desired level of physical hardware functionality!

WARNING: FOR FLIGHT SIMULATION USE ONLY!

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FLIGHT CONTROLS 1 MODULE



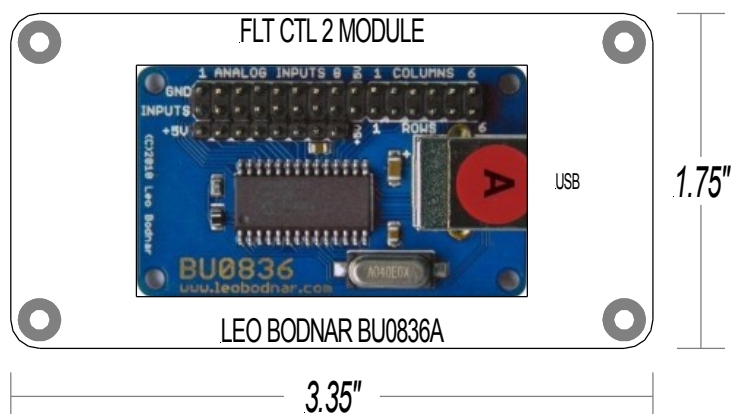
FLT CTRL 1 BU0836A:

ANALOG INPUT	CHANNEL	ACTION	NOTES
ROLL AXI	1	POT	Use FSUIPC to tune axis
PITCH AXIS	2	POT	Use FSUIPC to tune axis
YAW AXIS	3	POT	Use FSUIPC to tune axis
CAPT L BRAKE	4	POT	Use FSUIPC to tune axis
CAPT R BRAKE	5	POT	Use FSUIPC to tune axis

NOTE: The BU0836A by Leo Bodnar is one of the easiest, most reliable and affordable interface module that has the ability to provide an interface to the analog signal from potentiometers. The Lear45 simulator has eleven axis that require pots, therefore, two interface cards are required.

NOTE: Flight Controls require customized setup and calibrations via FSUIPC

FLIGHT CONTROLS 2 MODULE



FLT CTRL 2 BU0836A:

ANALOG INPUT	CHANNEL	ACTION	NOTES
THROTTLE 1	1	POT	Use FSUIPC to tune axis
THROTTLE 2	2	POT	Use FSUIPC to tune axis
SPOILERS	3	POT	Use FSUIPC to tune axis
FLAPS	4	POT	Use FSUIPC to tune axis
FO L BRAKE	5	POT	Use FSUIPC to tune axis
FO R BRAKE	6	POT	Use FSUIPC to tune axis

NOTE: The BU0836A by Leo Bodnar is one of the easiest, most reliable and affordable interface module that has the ability to provide an interface to the analog signal from potentiometers. The Lear45 simulator has eleven axis that require pots, therefore, two interface cards are required.

NOTE: Flight Controls require customized setup and calibrations via FSUIPC

PHYSICAL HARDWARE

POWER SUPPLIES:

POWER SUPPLY	V	A	POWERS	NOTES
L PWR SUPPLY	12V	30A	L ESS/NON ESS	Replicates L MAIN BUSES
R PWR SUPPLY	12V	30A	R ESS/NON ESS	Replicates R MAIN BUSES

NOTE: Use Power supplies that have at least three power terminal and three ground terminals to better manage your wiring. Power supplies should be rated at a minimum of 30 amps each.

LEFT HOT BUS & EMER BATT BUS: (12V)

MECHANICAL / ELECTRICAL	TRIGGER	NOTES
EMERGENCY LIGHTING	RELAY 16	Emergency Lighting in Cabin
L AVIONICS BAYLIGHTS	L AVIONICS PWMS	White Bay / Red Flood Lights
RESERVED/SPARE	N/A	N/A

NOTE: (Always Powered) Use third set of terminals on the Left 12V Power Supply to replicate LEFT HOT BUS and EMER BATT BUS. Most mid level 12 volt power supplies (30 amp or greater) have three 12 volt terminals and three ground terminals. (First set of terminals for L ESS BUS, second set for L NON ESS BUS and third set for the L HOT BUS)

RIGHT HOT BUS: (12V)

MECHANICAL / ELECTRICAL	TRIGGER	NOTES
CKPT OVHD LIGHTS	SEE DIAGRAM	Includes cabin door switch
R AVIONICS BAYLIGHTS	R AVIONICS PWMS	White Bay / Red Flood Lights
RESERVED/SPARE	N/A	N/A

NOTE: (Always Powered) Use third set of terminals on the Right 12V Power Supply to replicate the RIGHT HOT BUS. Most mid level 12 volt power supplies (30 amp or greater) have three 12 volt terminals and three ground terminals. (First set of terminals for R ESS BUS, second set for R NON ESS BUS and third set for the R HOT BUS)

LEFT ESSENTIALS BUS: (RELAY 2)

<u>MECHANICAL / ELECTRICAL</u>	<u>TRIGGER</u>	<u>NOTES</u>
DU 1 AVIONICS FAN	L AV MSTR	Wire to L AV MSTR DP AML
DU 2 AVIONICS FAN	L ESS PWR	ON with Batteries or L ESS
L STALL WARNING	RELAY 1	036C Activates L Stick Shaker
L REV SOLENOID	RELAY 15	Monitor pin 49 on Ped Module
PACK AIR BLOWERS	PACK SWITCH	Additional Condition RELAY 10
L PEDAL AJUSTMENT	L RUD PED	MOM Toggle FWD and AFT
L DAVTRON CLOCK	L ESS PWR	CKPT INSTRS, (FT=RELAY 11)
HOBBS METER PANEL	RELAY 7	CKPT INSTRS, Starts FT
LEFT LCU PANELS	L INSTR PWM	Via 12v to 5v Converter & L LCU
L CB PANEL LIGHTING	L CB PANEL PWM	Via 12v DC to 5v DC Converter
L CDU LCD SCREEN	L CDU ON/OFF	Via 12v DC (Dark startup screen)
SPARE	N/A	N/A

RIGHT ESSENTIALS BUS: (RELAY 4)

<u>MECHANICAL / ELECTRICAL</u>	<u>TRIGGER</u>	<u>NOTES</u>
DU 3 AVIONICS FAN	R AV MSTR	Wire to R AV MSTR DP AML
DU 4 AVIONICS FAN	R AV MSTR	Wire to R AV MSTR DP AML
R STALL WARNING	RELAY 3	036C Activates R Stick Shaker
R REV SOLENOID	RELAY 13	Monitor pin 50 on PED Module
HEAT GENERATOR	MAN TEMP	Additional Condition RELAY 5
R PEDAL AJUSTMENT	R RUD PED	MOM Toggle FWD and AFT
R DAVTRON CLOCK	R ESS PWR	CKPT INSTRS, (FT=RELAY 9)
PITCH TRIM BIAS	PITCH TRIM BIAS	Adjust Pitch Trim with BIAS Toggle
RIGHT LCU PANELS	R INSTR PWM	Via 12v to 5v Converter & R LCU
R CB PANEL LIGHTING	R CB PANEL PWM	Via 12v DC to 5v DC Converter
R CDU LCD SCREEN	R CDU ON/OFF	Via 12v DC (Dark startup screen)
PED LCU PANELS	PEDESTAL PWM	Via 12 to 5v Converter & PED LCU

LEFT NON ESSENTIALS BUS: (RELAY 6)

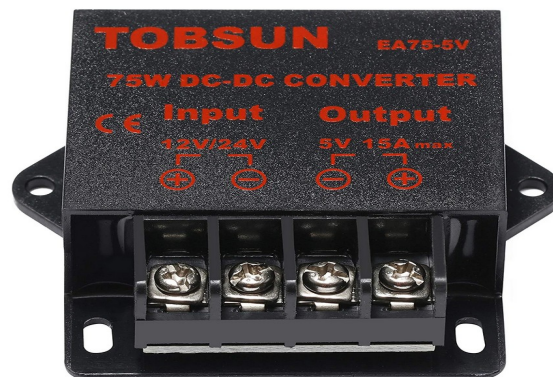
<u>MECHANICAL / ELECTRICAL</u>	<u>TRIGGER</u>	<u>NOTES</u>
CKPT MIP FLOOD LIGHT	FLOOD PWM	LED Tube Light above MIP
L/R SIDE MAP LIGHTS	L/R MAP POTS	Mounted on L/R Trim Panels
L CHART LIGHTS	L CHART POT	Mounted on L Yoke Chart Holder
L MIP USB SOCKETS	N/A	Via 12v DC to 5v DC Converter
L YOKE USB SOCKETS	N/A	Via 12v DC to 5v DC Converter
RESERVED/SPARE	N/A	N/A

RIGHT NON ESSENTIALS BUS: (RELAY 8)

MECHANICAL / ELECTRICAL	TRIGGER	NOTES
R CHART LIGHTS	R CHART POT	Mounted on R Yoke Chart Holder
R MIP USB SOCKETS	N/A	Via 12v DC to 5v DC Converter
PED USB SOCKETS	N/A	Via 12v DC to 5v DC Converter
R YOKE USB SOCKETS	N/A	Via 12v DC to 5v DC Converter
RESERVED/SPARE	N/A	N/A
RESERVED/SPARE	N/A	N/A

12v DC to 5v DC CONVERTERS:

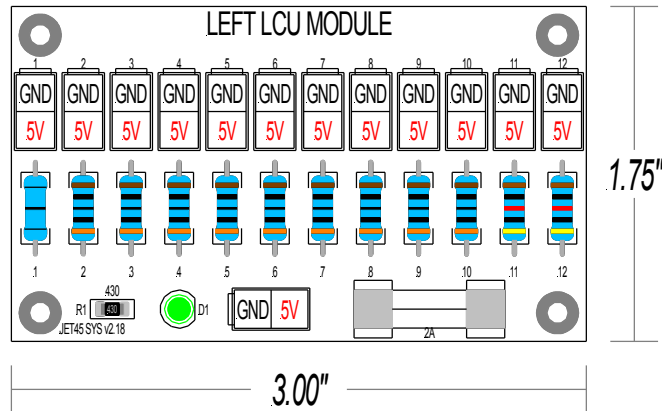
Three LCUs (Light Control Unit Modules), two Circuit Break Panel Light Channels and any USB socket within the cockpit all require 5v power. This is achieved by using a 12v DC to 5v DC converter which is connected to the respective ESS BUS. Five individual converters are required to properly convert the power down to 5 volts while maintaining the individual light channels. Refer to the Wiring Diagrams for more information as to how the converters are wired into the power supply system. Below is an example of a DC power converter.



Additionally, 12v DC to 5v DC converters may be required for the 5" CDU LCD screens. Some 5" LCD screens use 12v DC while others only need 5v and in those cases, these converters are required. See CDU LCD Screen wiring diagrams for more information.

NOTE: All the PHYSICAL HARDWARE in the section is “optional” and is not required to set up or operate the Jet45 AAS or Jet45 Systems Software. However, if your goal is to build a high fidelity Lear45 home flight simulator, the hardware listed in this section will help get you there.

LEFT LCU MODULE



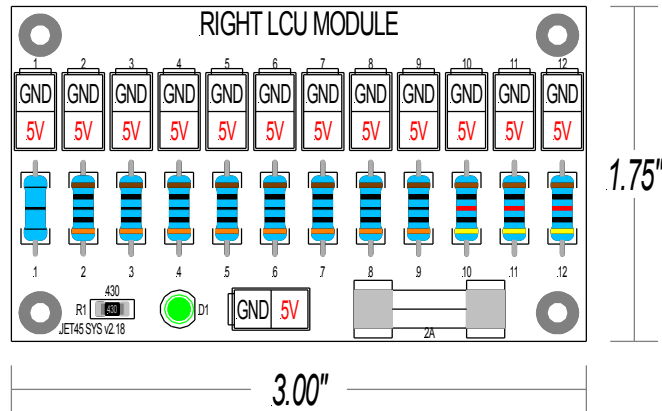
LEFT LIGHT CONTROL UNIT:

PLUG	PANEL/GAUGE	Ohm	BULB TYPE	NOTES
1	L DAVTRON CLOCK	0	Incandescent	300 ohm res if LED mode
2	L SLIP/SKID INDICATOR	300	LED w/ 430ohm	Warm White Back lighting
3	L EFIS PANEL	300	LED w/ 430ohm	Warm White Back lighting
4	FGC PANEL	300	LED w/ 430ohm	Warm White Back lighting
5	DISPLAY UNIT 1	300	LED w/ 430ohm	Warm White Back lighting
6	DISPLAY UNIT 2	300	LED w/ 430ohm	Warm White Back lighting
7	LEFT CREW PANEL	300	LED w/ 430ohm	Warm White Back lighting
8	ELECTRICAL PANEL	300	LED w/ 430ohm	Warm White Back lighting
9	RMU 1 PANEL	300	LED w/ 430ohm	Warm White Back lighting
10	LEFT ACP PANEL	300	LED w/ 430ohm	Warm White Back lighting
11	LEFT REVERSION	402	LED w/ 430ohm	Warm White Back lighting
12	LEFT AOA GAUGE	402	LED w/ 430ohm	Warm White Back lighting

NOTE: The LEFT LCU (Light Control Unit Module) receives power from the LEFT CREW LIGHTS INSTR PWM switch via a 12v DC to 5v DC converter which is connected to the LEFT ESS BUS.

NOTE: Use in line resistor values from 0 to 430 ohms to adjust your back lighting intensity as needed. The information list above serves as a good starting point.

RIGHT LCU MODULE



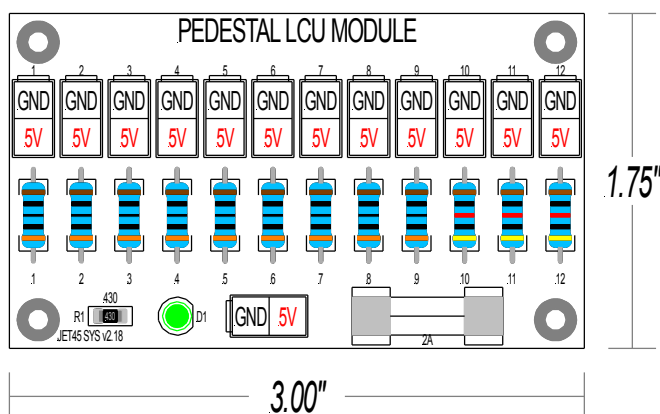
RIGHT LIGHT CONTROL UNIT:

PLUG	PANEL/GAUGE	Ohm	BULB TYPE	NOTES
1	R DAVTRON CLOCK	0	Incandescent	300 ohm res if LED mode
2	R SLIP/SKID INDICATOR	300	LED w/ 430ohm	Warm White Back lighting
3	R EFIS PANEL	300	LED w/ 430ohm	Warm White Back lighting
4	DISPLAY UNIT 3	300	LED w/ 430ohm	Warm White Back lighting
5	DISPLAY UNIT 4	300	LED w/ 430ohm	Warm White Back lighting
6	PRESSURE PANEL	300	LED w/ 430ohm	Warm White Back lighting
7	ENVIRO PANEL	300	LED w/ 430ohm	Warm White Back lighting
8	RMU 2 PANEL	300	LED w/ 430ohm	Warm White Back lighting
9	RIGHT ACP PANEL	300	LED w/ 430ohm	Warm White Back lighting
10	HSI GUAGE	402	LED w/ 430ohm	Warm White Back lighting
11	RIGHT REVERSION	402	LED w/ 430ohm	Warm White Back lighting
12	RIGHT AOA GUAGE	402	LED w/ 430ohm	Warm White Back lighting

NOTE: The RIGHT LCU (Light Control Unit Module) receives power from the RIGHT CREW LIGHTS INSTR PWM switch via a 12v DC to 5v DC converter which is connected to the RIGHT ESS BUS.

NOTE: Use in line resistor values from 0 to 430 ohms to adjust your back lighting intensity as needed. The information list above serves as a good starting point.

PEDESTAL LCU MODULE



PEDESTAL LIGHT CONTROL UNIT:

PLUG	PANEL/GAUGE	Ohm	BULB TYPE	NOTES
1	LEFT CDU / FMS	300	LED w/ 430ohm	Warm White Back lighting
2	RIGHT CDU / FMS	300	LED w/ 430ohm	Warm White Back lighting
3	TQ LIGHT PLATE	300	LED w/ 430ohm	Warm White Back lighting
4	SYSTEM TEST PANEL	300	LED w/ 430ohm	Warm White Back lighting
5	ENGINE PANEL	300	LED w/ 430ohm	Warm White Back lighting
6	PITCH TRIM PANEL	300	LED w/ 430ohm	Warm White Back lighting
7	APU PANEL	300	LED w/ 430ohm	Warm White Back lighting
8	WX RADAR PANEL	300	LED w/ 430ohm	Warm White Back lighting
9	HF RADIO PANEL	300	LED w/ 430ohm	Warm White Back lighting
10	ELT PANEL	402	LED w/ 430ohm	Warm White Back lighting
11	SELCAL PANEL	402	LED w/ 430ohm	Warm White Back lighting
12	AIRSHOW PANEL	402	LED w/ 430ohm	Warm White Back lighting

NOTE: The Pedestal LCU (Light Control Unit Module) receives power from the PEDESTAL CREW LIGHTS INSTR PWM switch via a 12v DC to 5v DC converter which is connected to the RIGHT ESS BUS.

NOTE: Authentic CDUs (UNS-1) may require the incandescent bulbs in the front panels to be replaced with warm white SMD LEDs and 430ohm SMD resistors to prevent ghost signals! Use in line resistor values from 0 to 430 ohms to adjust your back lighting intensity as needed.

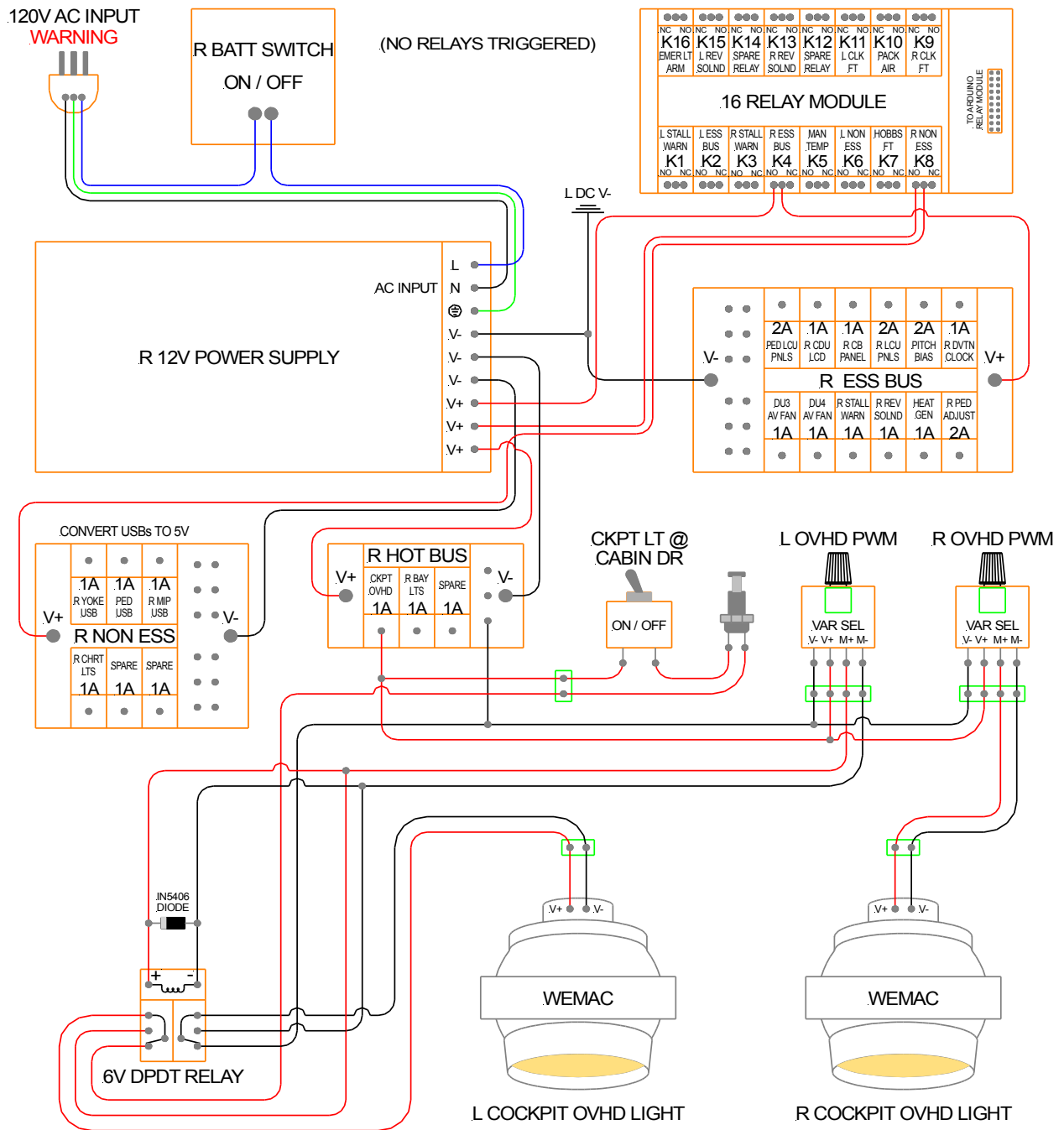
WIRING DIAGRAMS

There are 30 diagrams covering all aspects of the dual 12 volt power system and it's components. The LEFT or RIGHT power components at the top of each drawing are repeated in all drawings. There is only one 16 channel relay module repeated in all 30 diagrams. Not all power components are utilized in each diagram but are included.

WIRING DIAGRAM LIST:

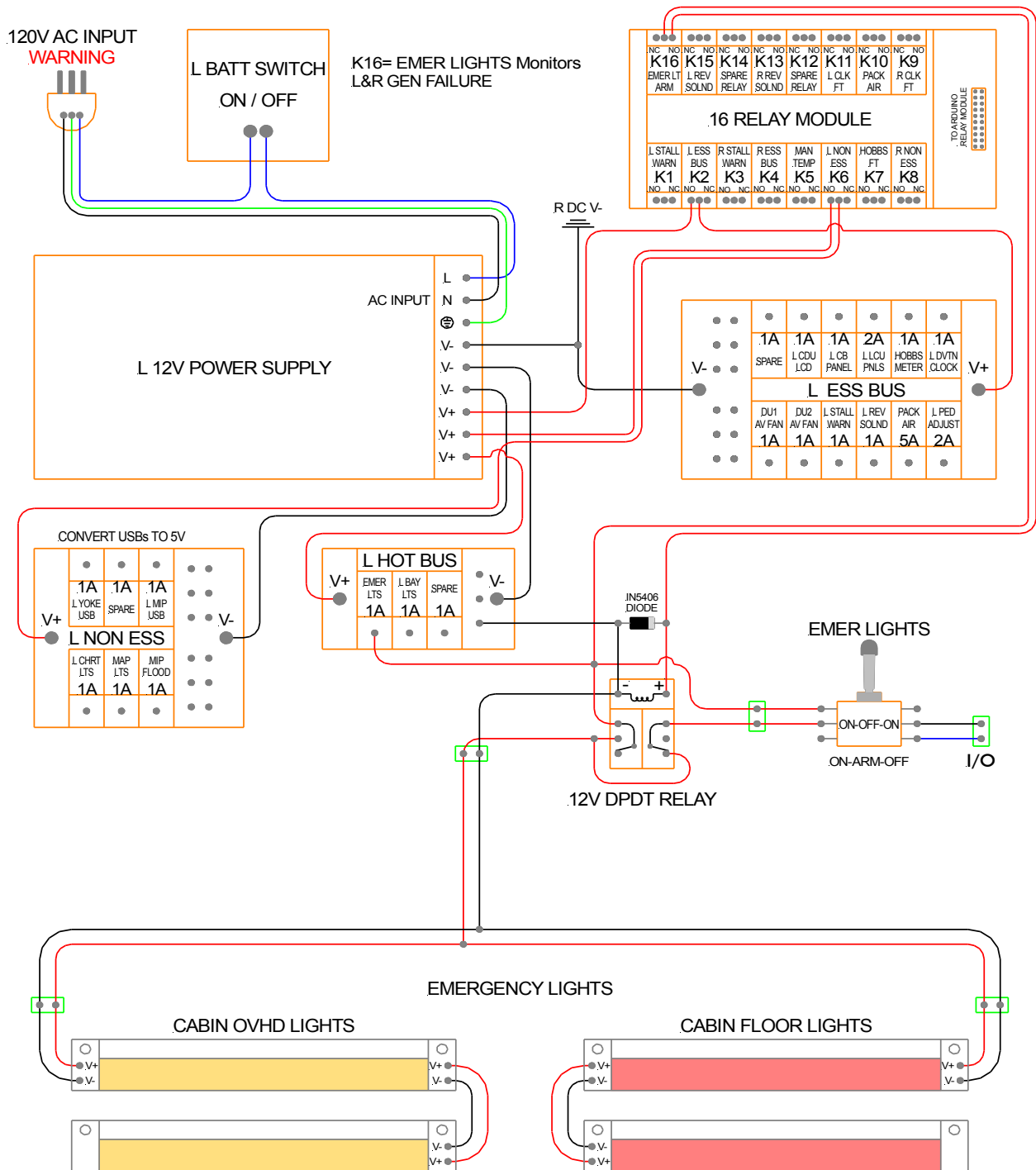
• COCKPIT OVRD LTS	Page 62
• EMERGENCY LIGHTS	Page 63
• MIP FLOOD LIGHT	Page 64
• L/R MAP LIGHTS	Page 65
• L AVIONICS BAY LTS	Page 66
• R AVIONICS BAY LTS	Page 67
• L CHART LIGHTS	Page 68
• R CHART LIGHTS	Page 69
• L CHRONOMETER	Page 70
• R CHRONOMETER	Page 71
• L CDU LCD SCREEN	Page 72
• R CDU LCD SCREEN	Page 73
• L LCU MODULE	Page 74
• R LCU MODULE	Page 75
• PED LCU MODULE	Page 76
• L C.B. PANEL BL	Page 77
• R C.B. PANEL BL	Page 78
• HOBBS METER	Page 79
• DU1/2 AVIONICS FANS	Page 80
• DU3/4 AVIONICS FANS	Page 81
• PACK AIR BLOWERS	Page 82
• MANUAL TEMP (HEAT)	Page 83
• L STALL WARNING	Page 84
• R STALL WARNING	Page 85
• L REVERSE SOLENOID	Page 86
• R REVERSE SOLENOID	Page 87
• L PEDAL ADJUSTMENT	Page 88
• R PEDAL ADJUSTMENT	Page 89
• PITCH TRIM BIAS	Page 90
• PRI/SEC PITCH TRIM	Page 91

COCKPIT OVHD LTS DIAGRAM



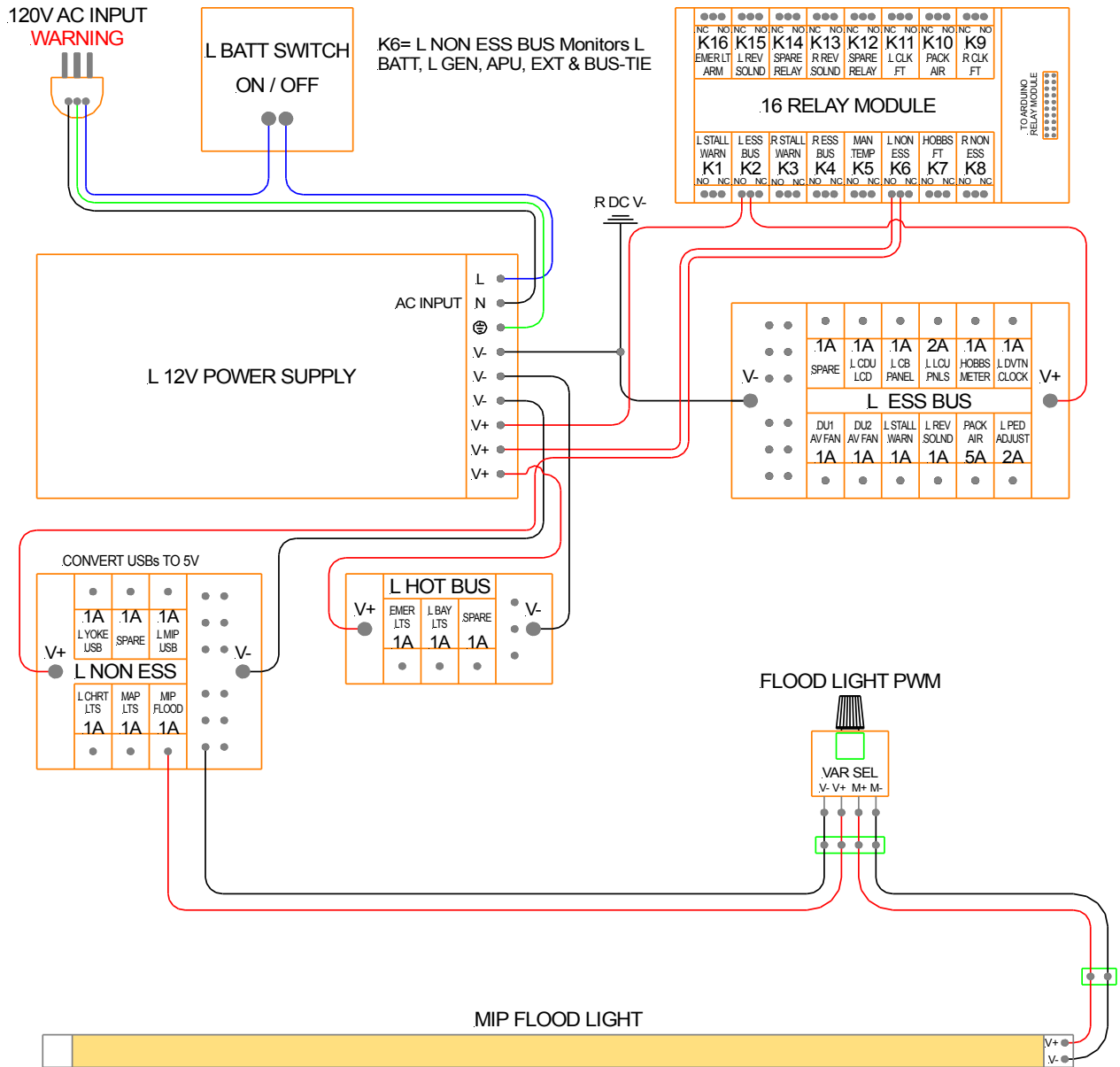
NOT TO SCALE!

EMERGENCY LIGHTS DIAGRAM



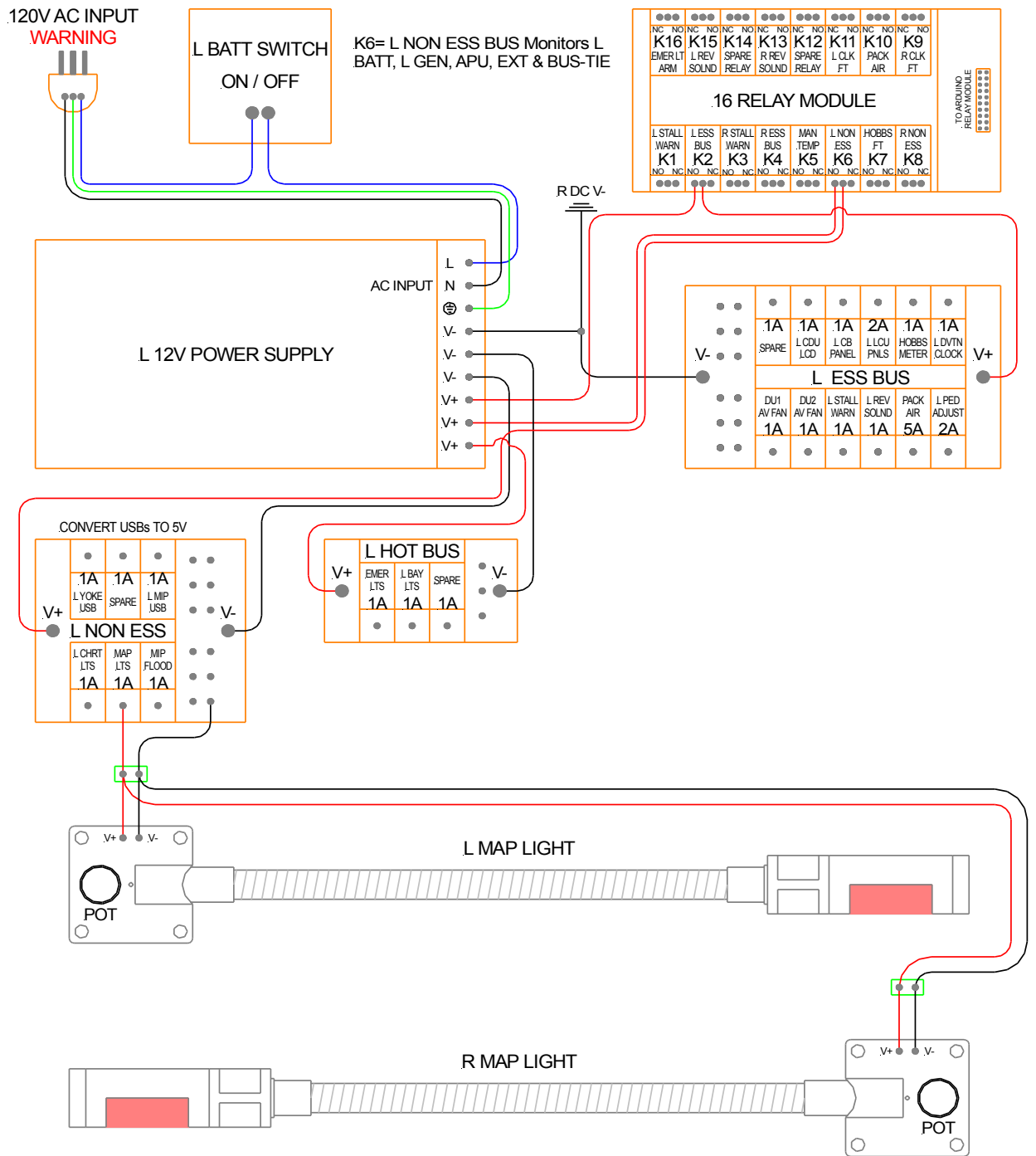
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MIP FLOOD LIGHT DIAGRAM



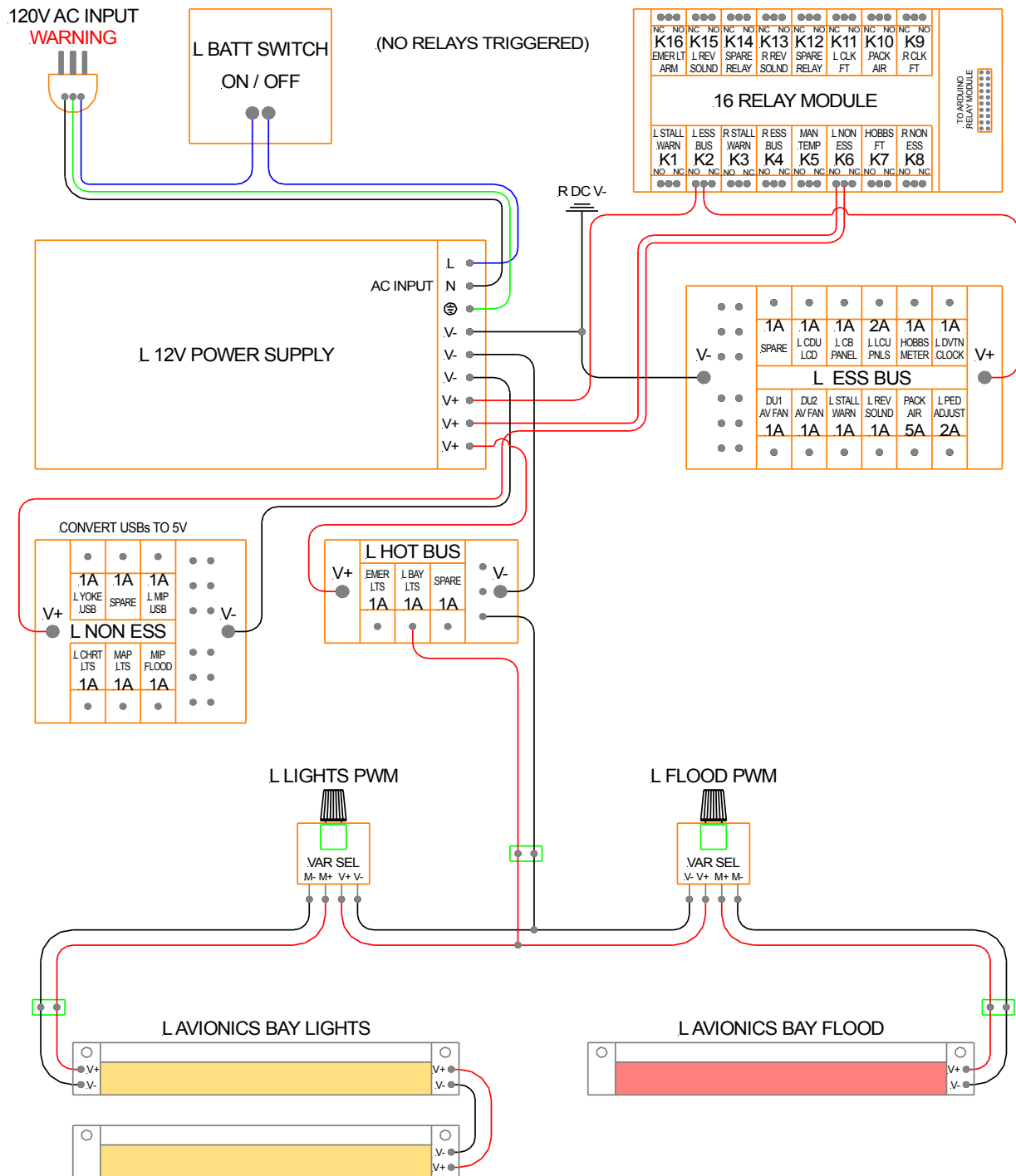
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L/R MAP LIGHTS DIAGRAM



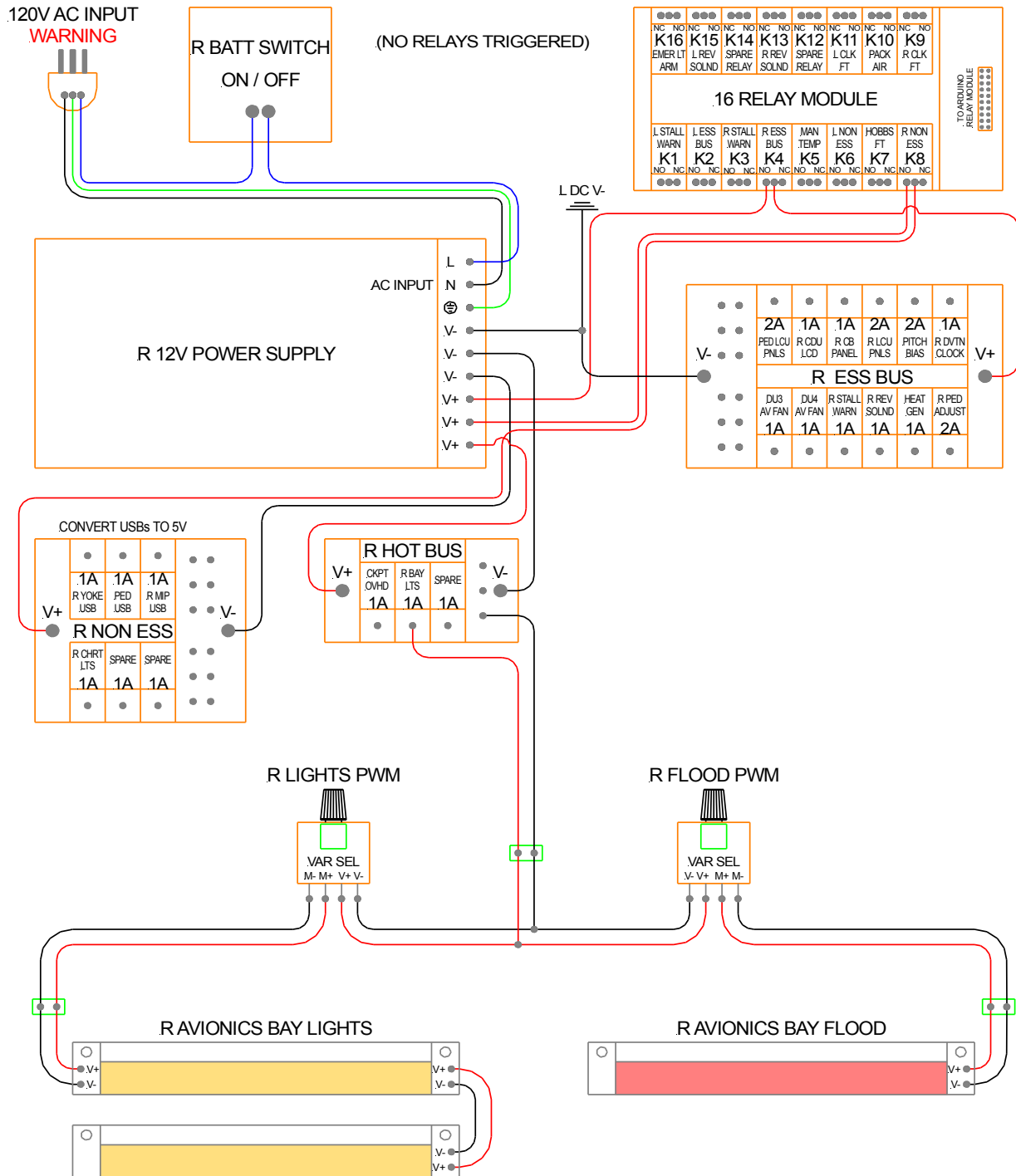
NOT TO SCALE!

L AVIONICS BAY LTS DIAGRAM



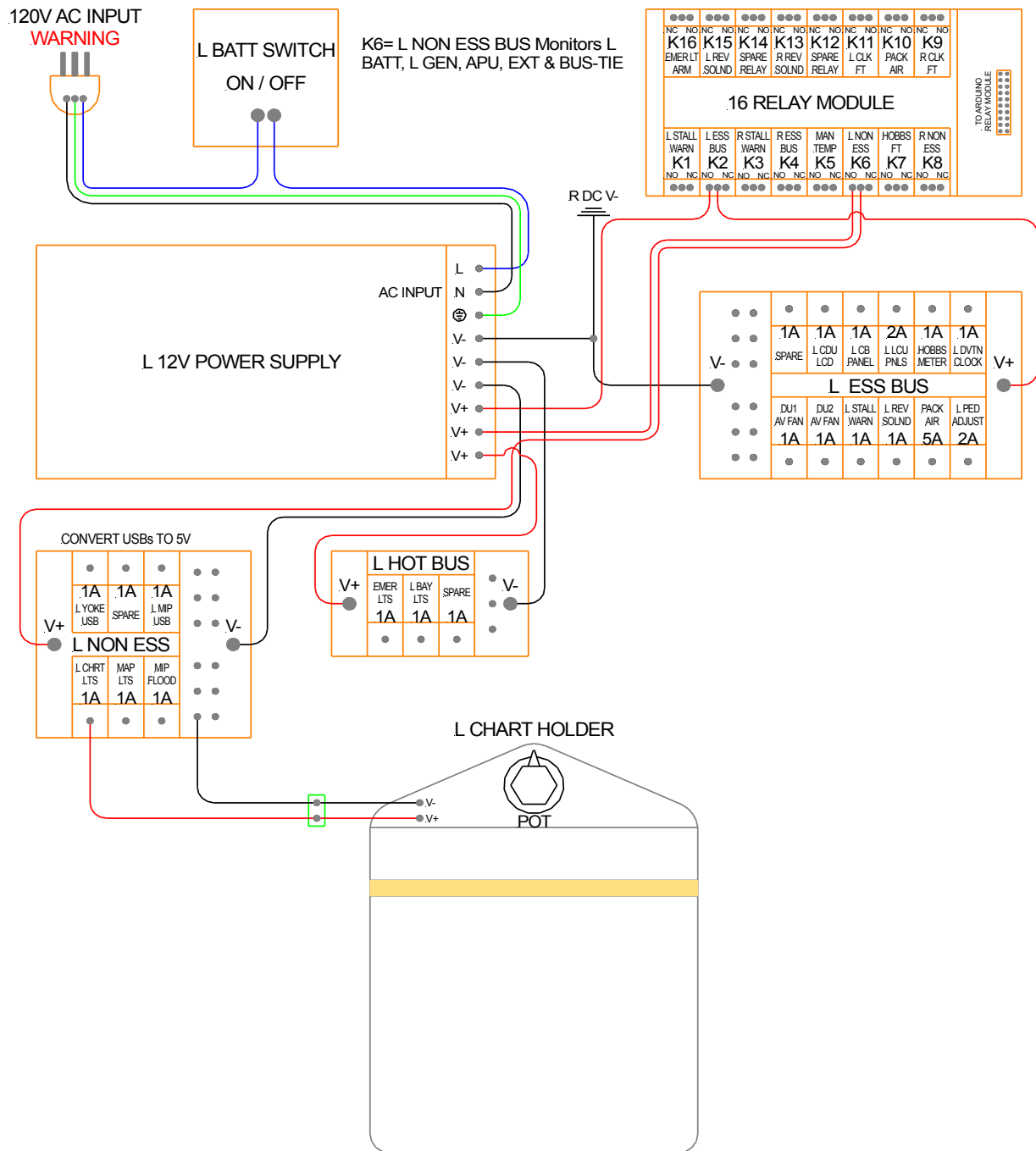
NOT TO SCALE!

R AVIONICS BAY LTS DIAGRAM



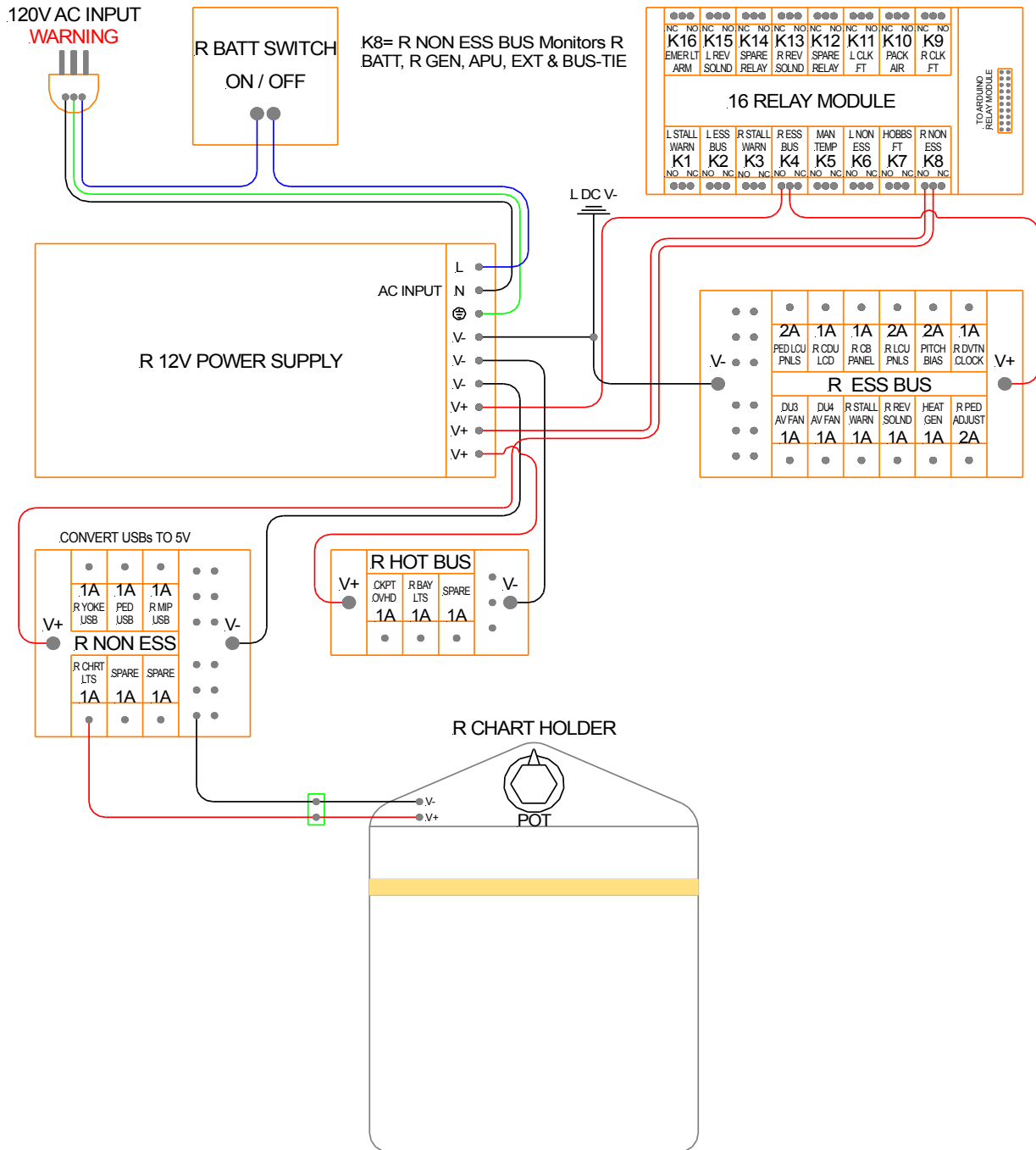
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L CHART LIGHTS DIAGRAM



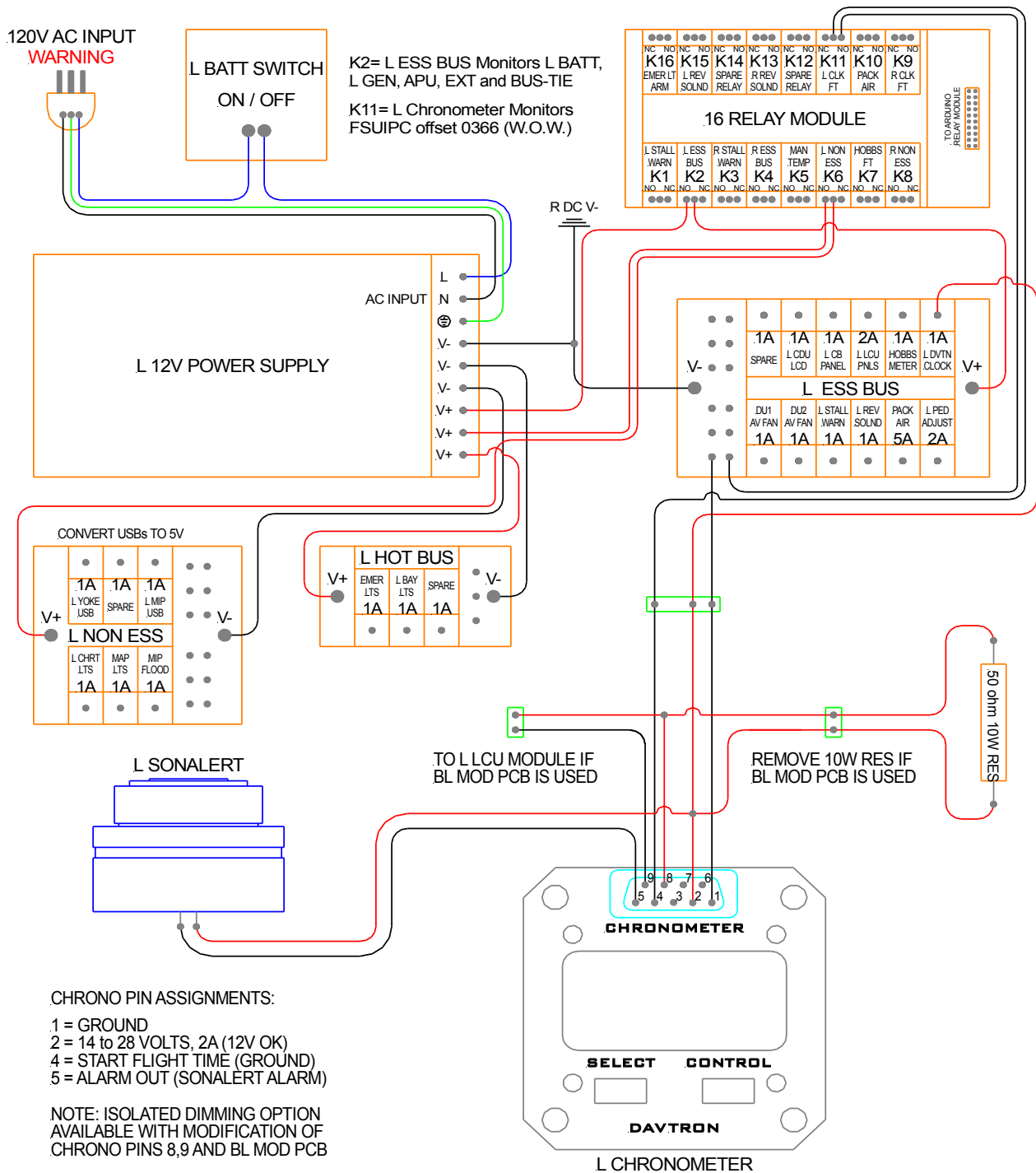
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R CHART LIGHTS DIAGRAM



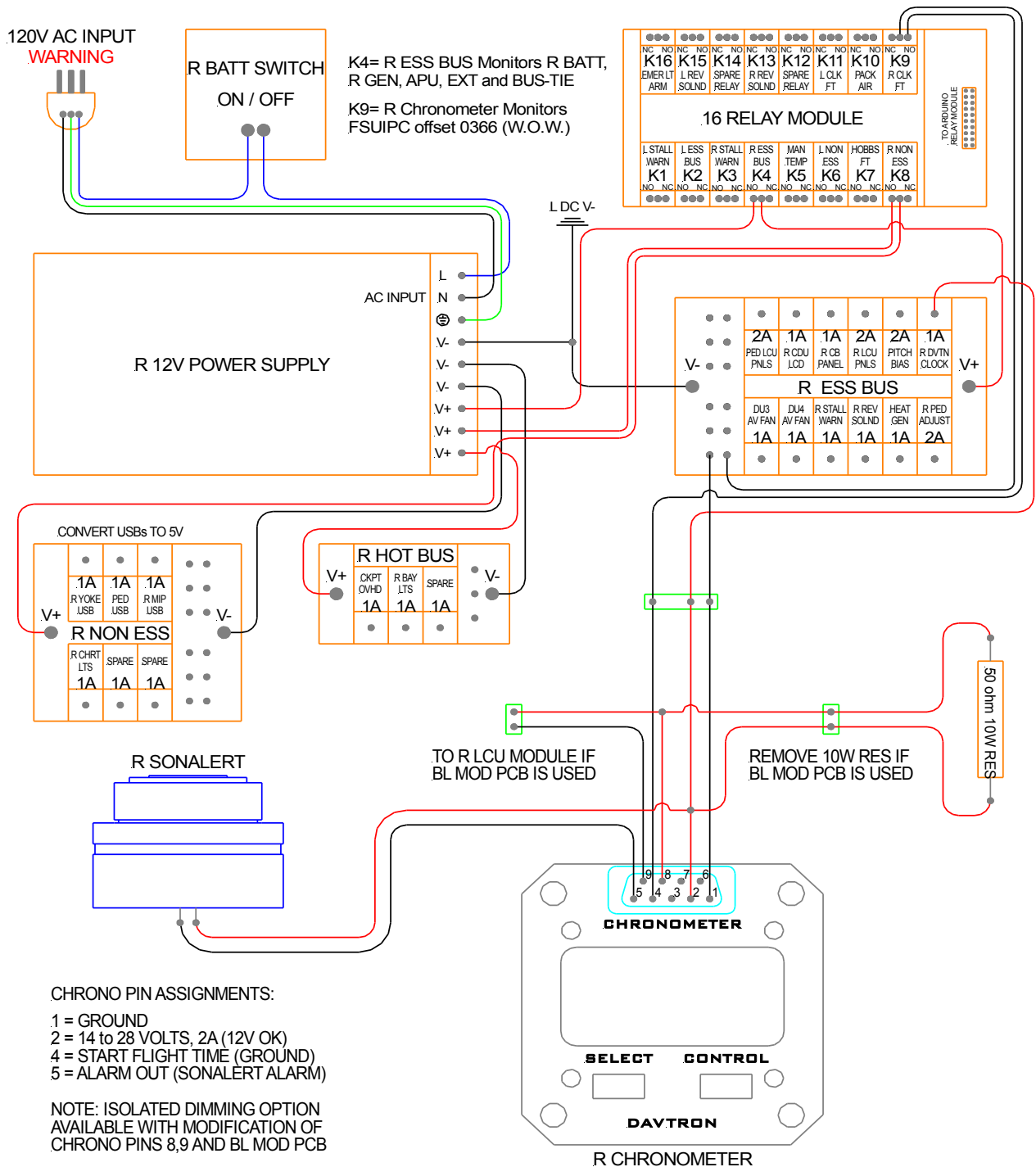
NOT TO SCALE!

L CHRONOMETER DIAGRAM



NOT TO SCALE!

R CHRONOMETER DIAGRAM



CHRONO PIN ASSIGNMENTS:

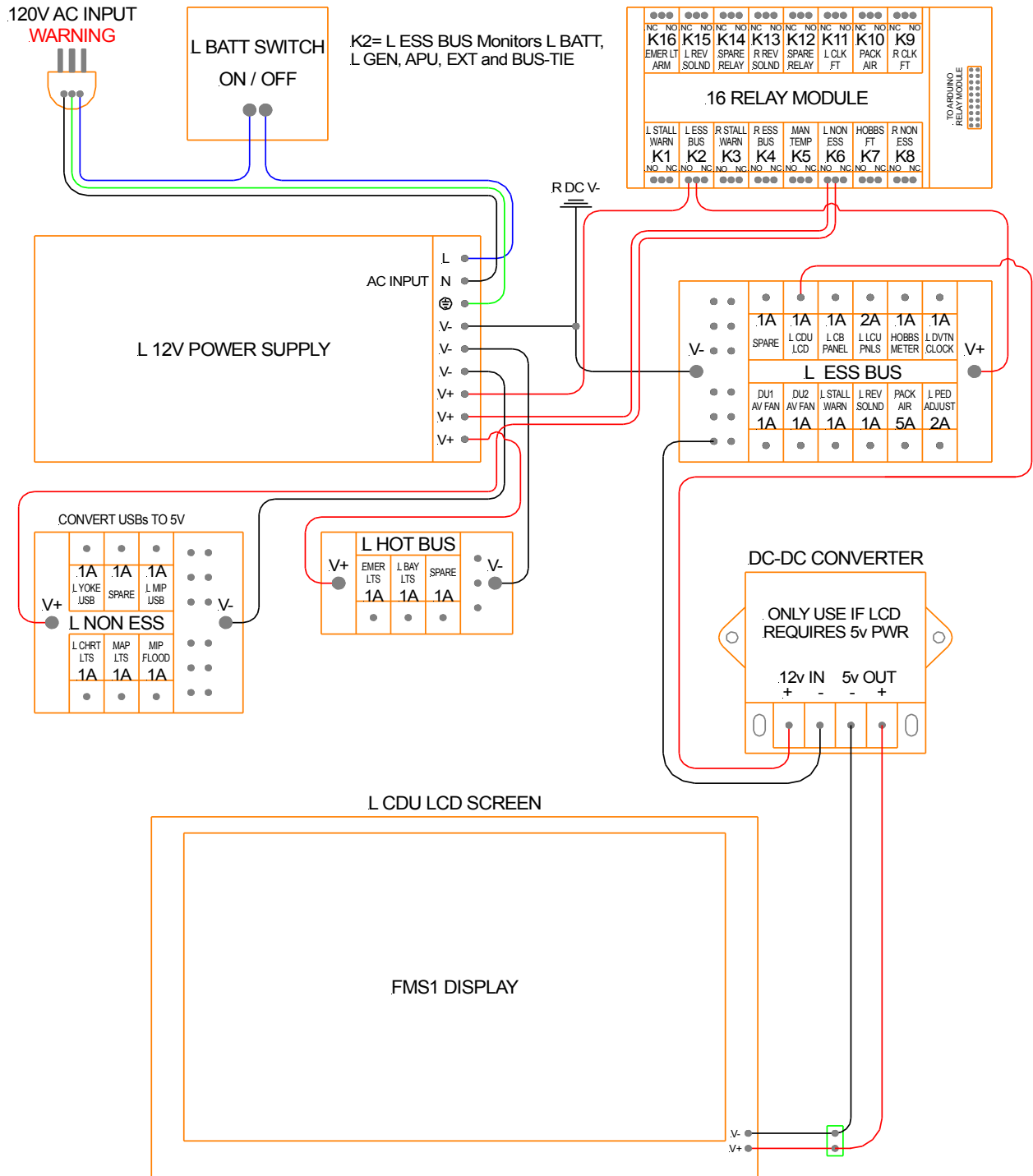
- 1 = GROUND
- 2 = 14 to 28 VOLTS, 2A (12V OK)
- 4 = START FLIGHT TIME (GROUND)
- 5 = ALARM OUT (SONALERT ALARM)

NOTE: ISOLATED DIMMING OPTION AVAILABLE WITH MODIFICATION OF CHRONO PINS 8,9 AND BL MOD PCB

- 8 = ISOLATED BL DIMMING (5V)
- 9 = ISOLATED BL GROUND (ADDED)

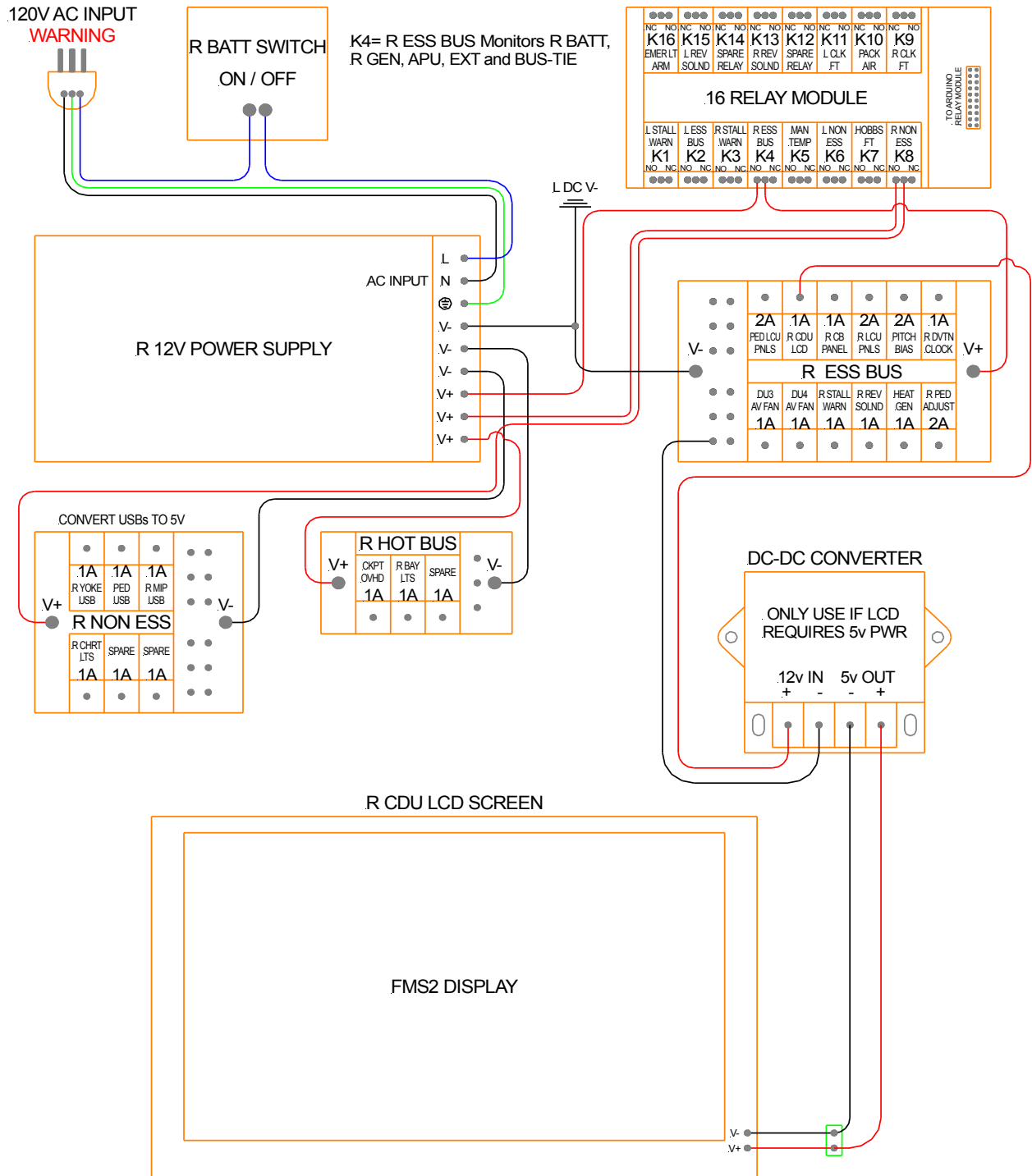
NOT TO SCALE!

L CDU LCD SCREEN DIAGRAM



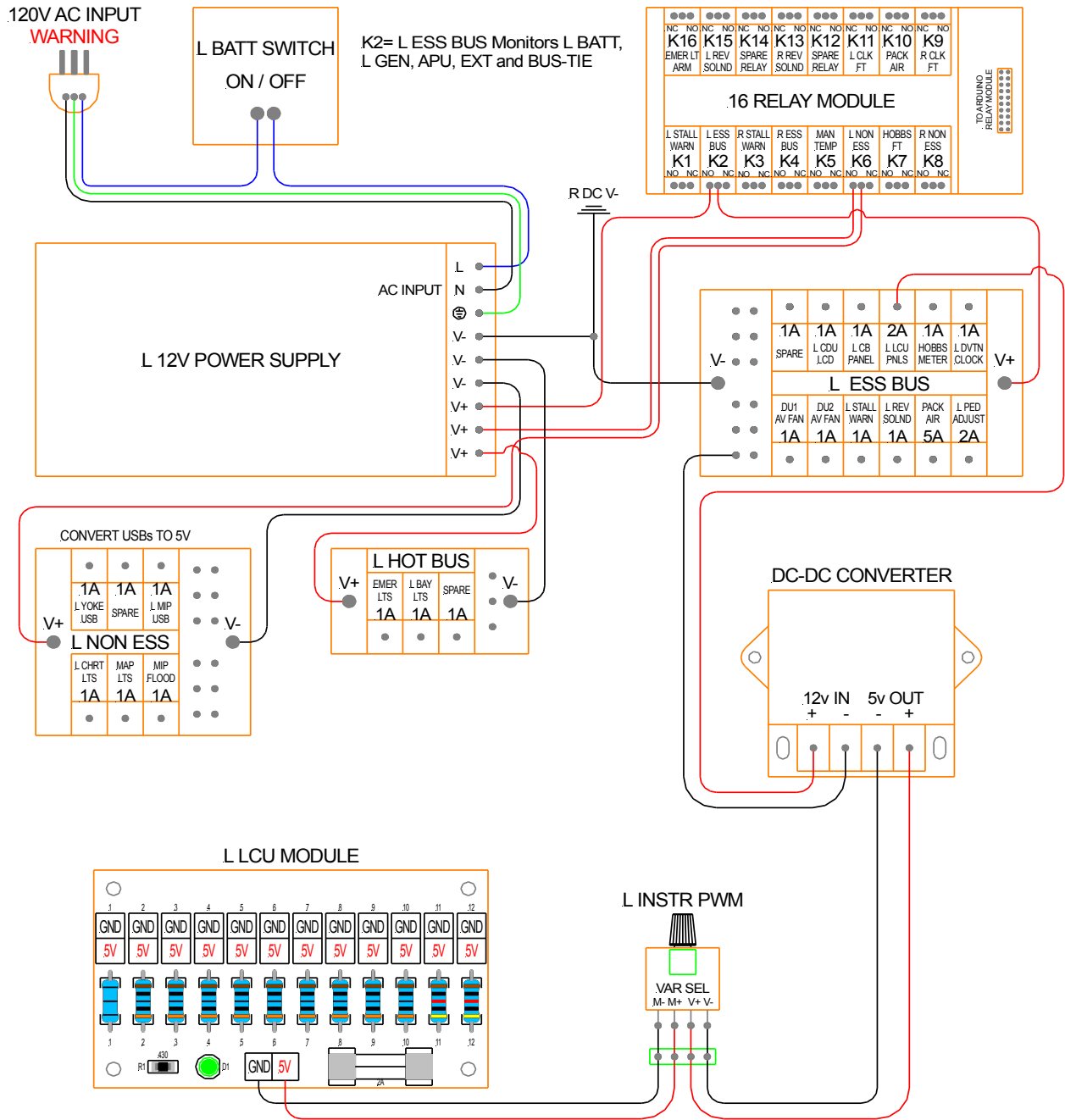
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R CDU LCD SCREEN DIAGRAM



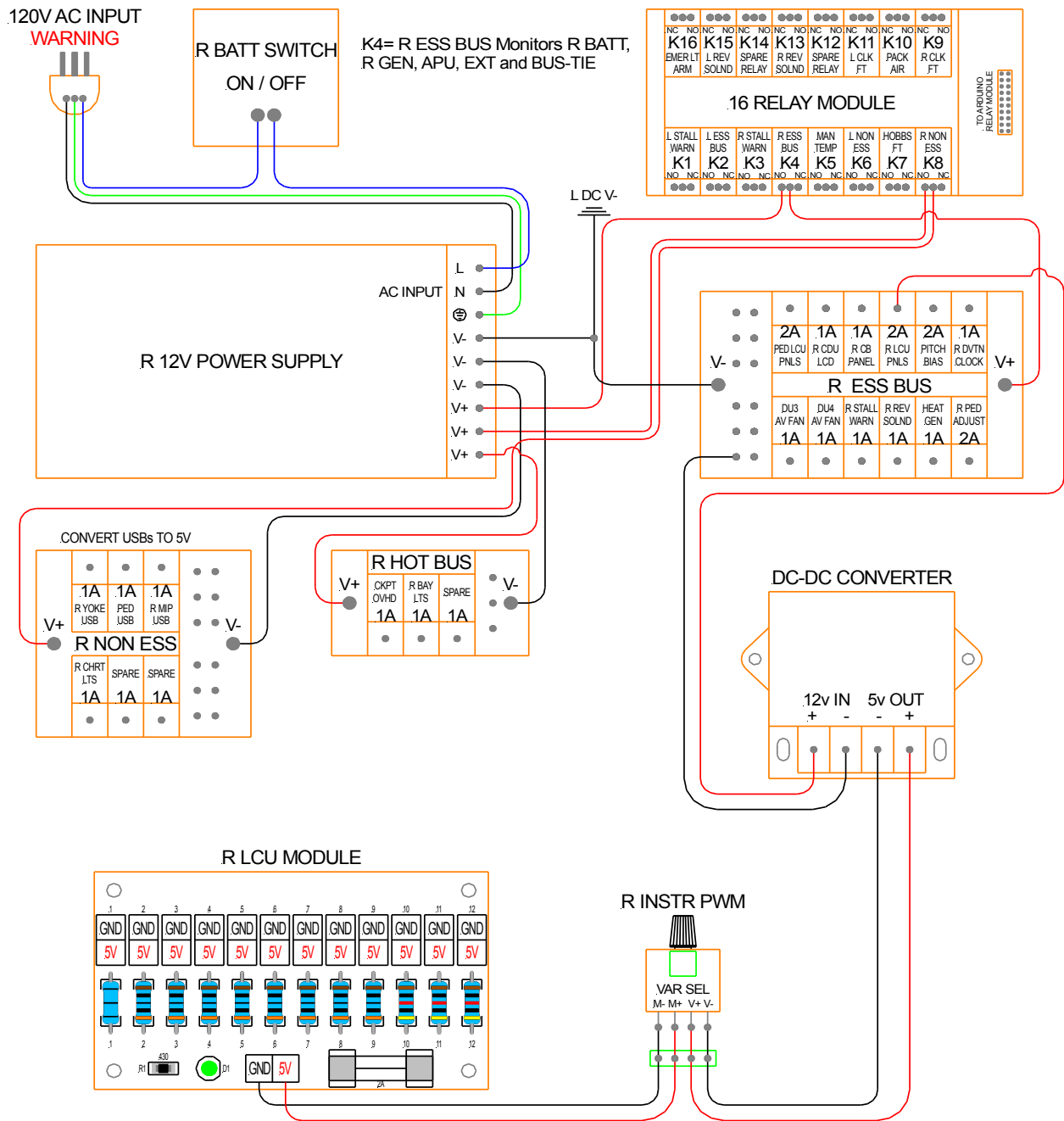
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L LCU MODULE DIAGRAM



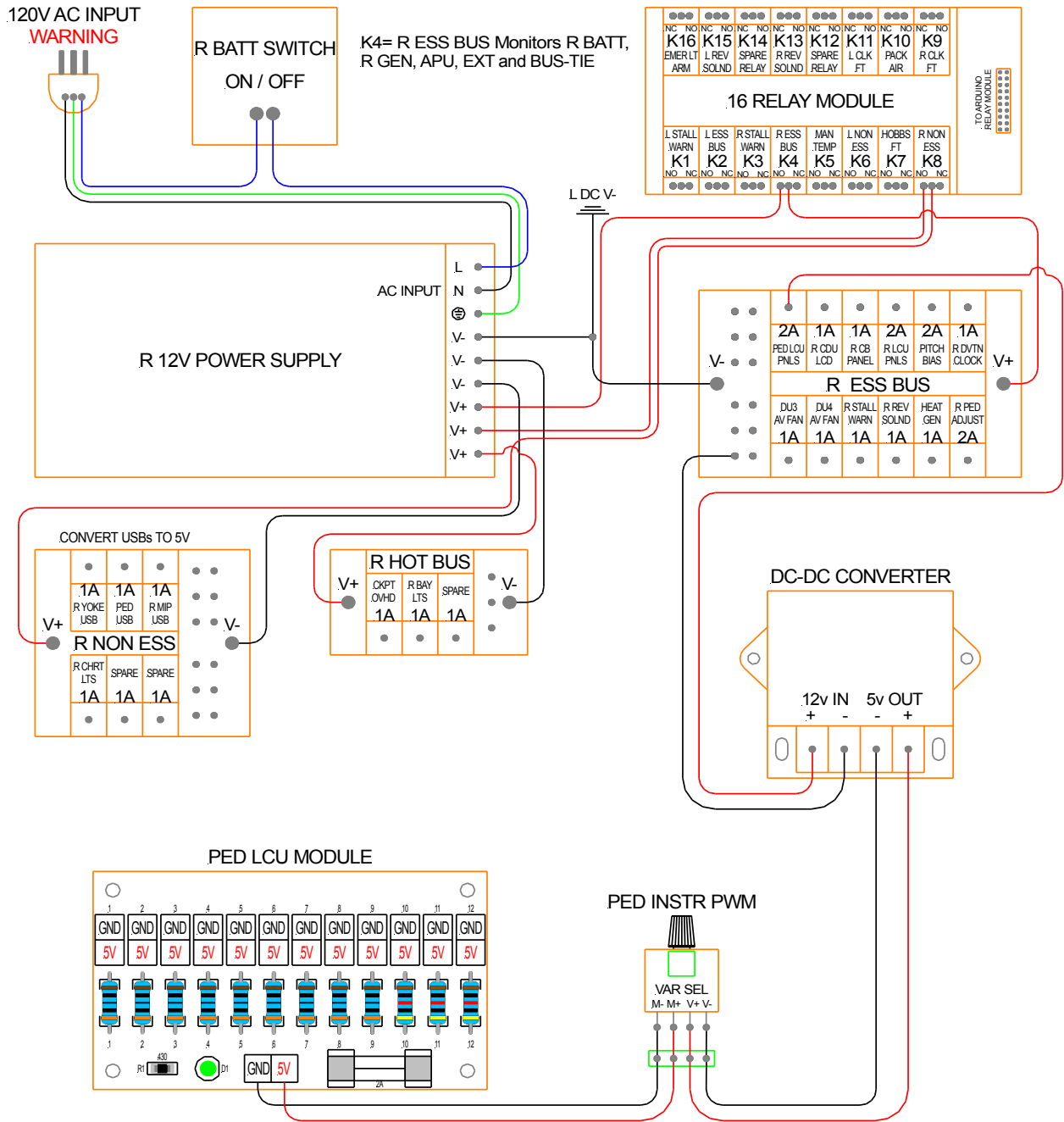
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R LCU MODULE DIAGRAM



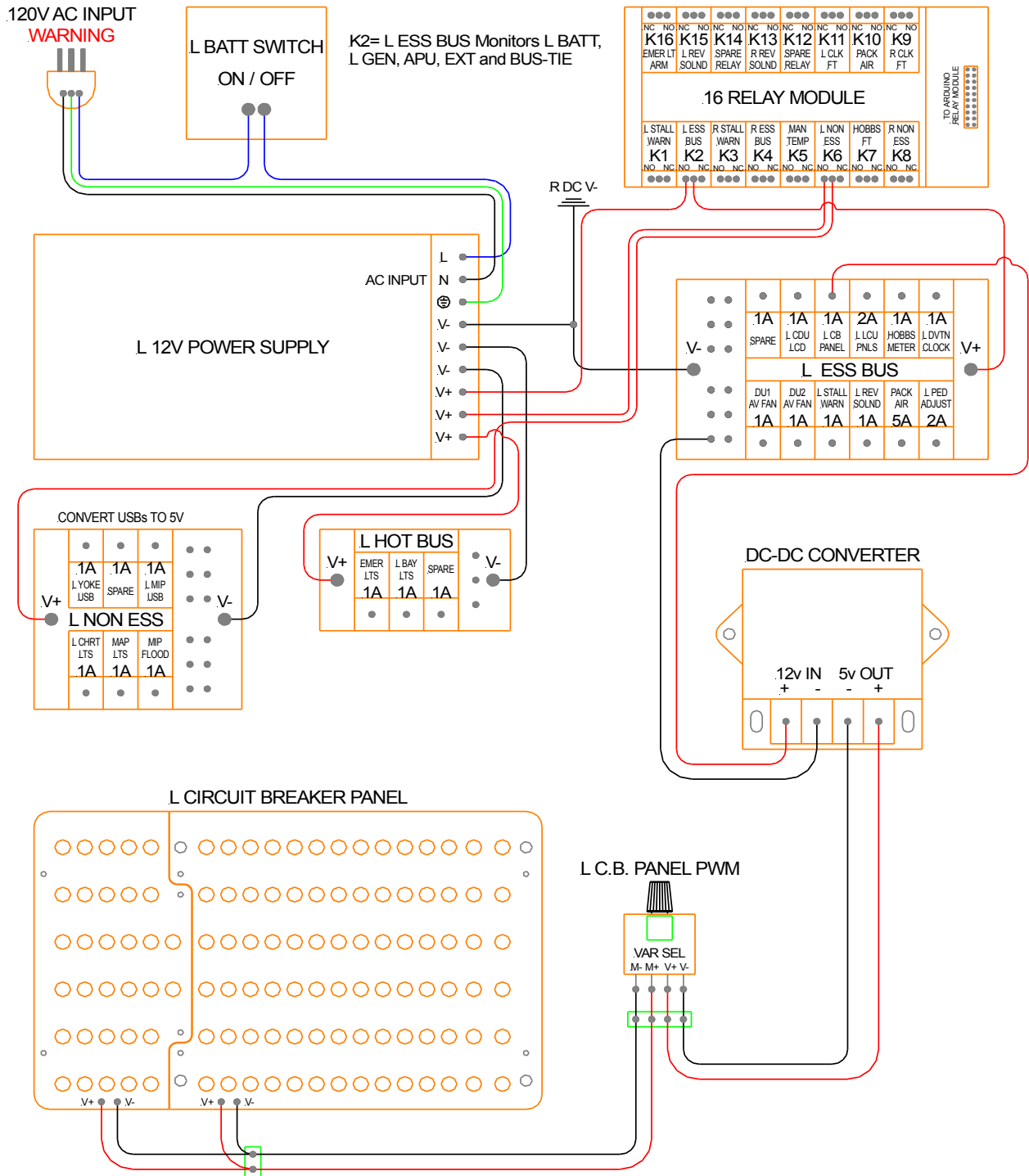
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PED LCU MODULE DIAGRAM



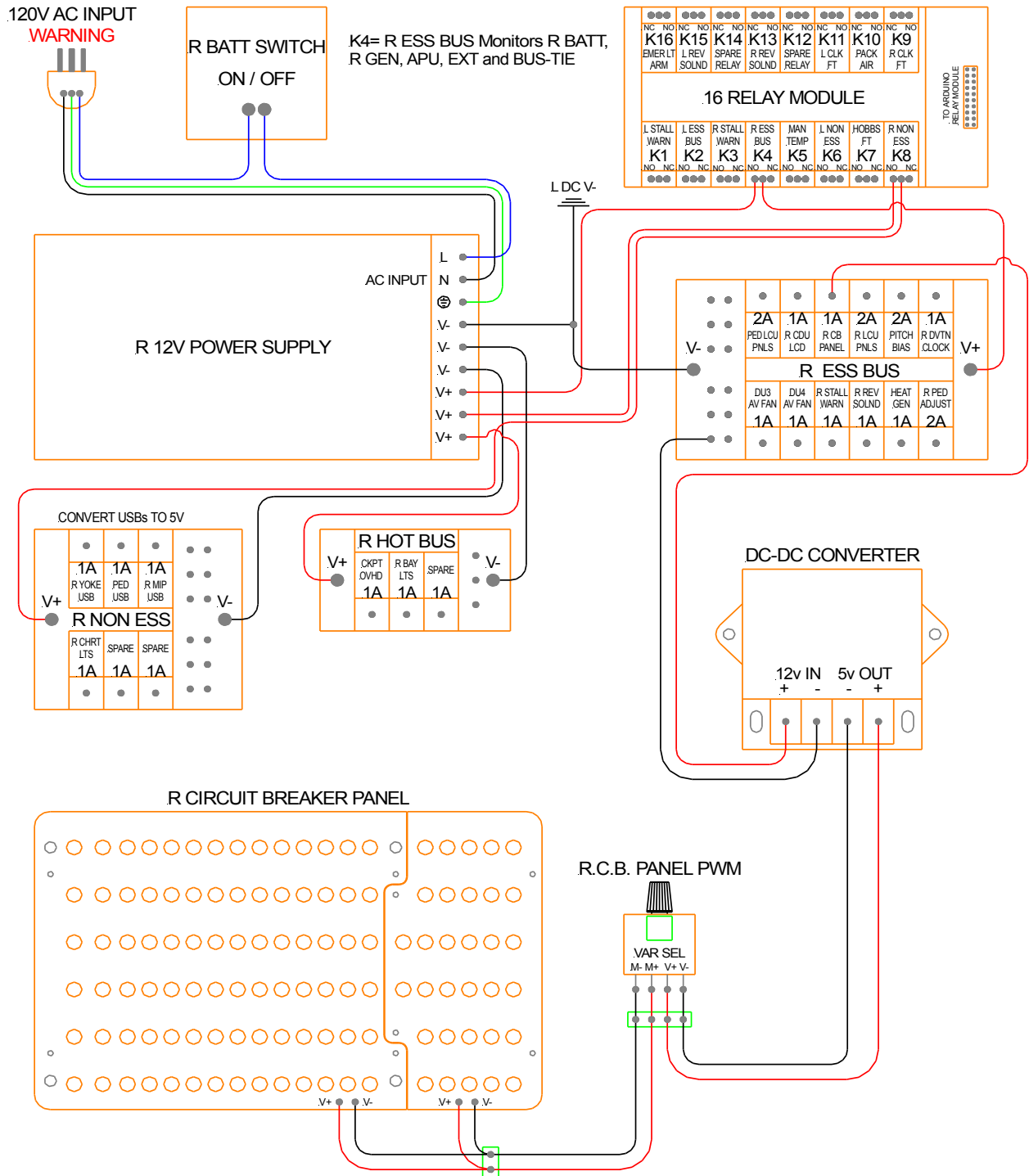
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L C.B. PANEL BL DIAGRAM



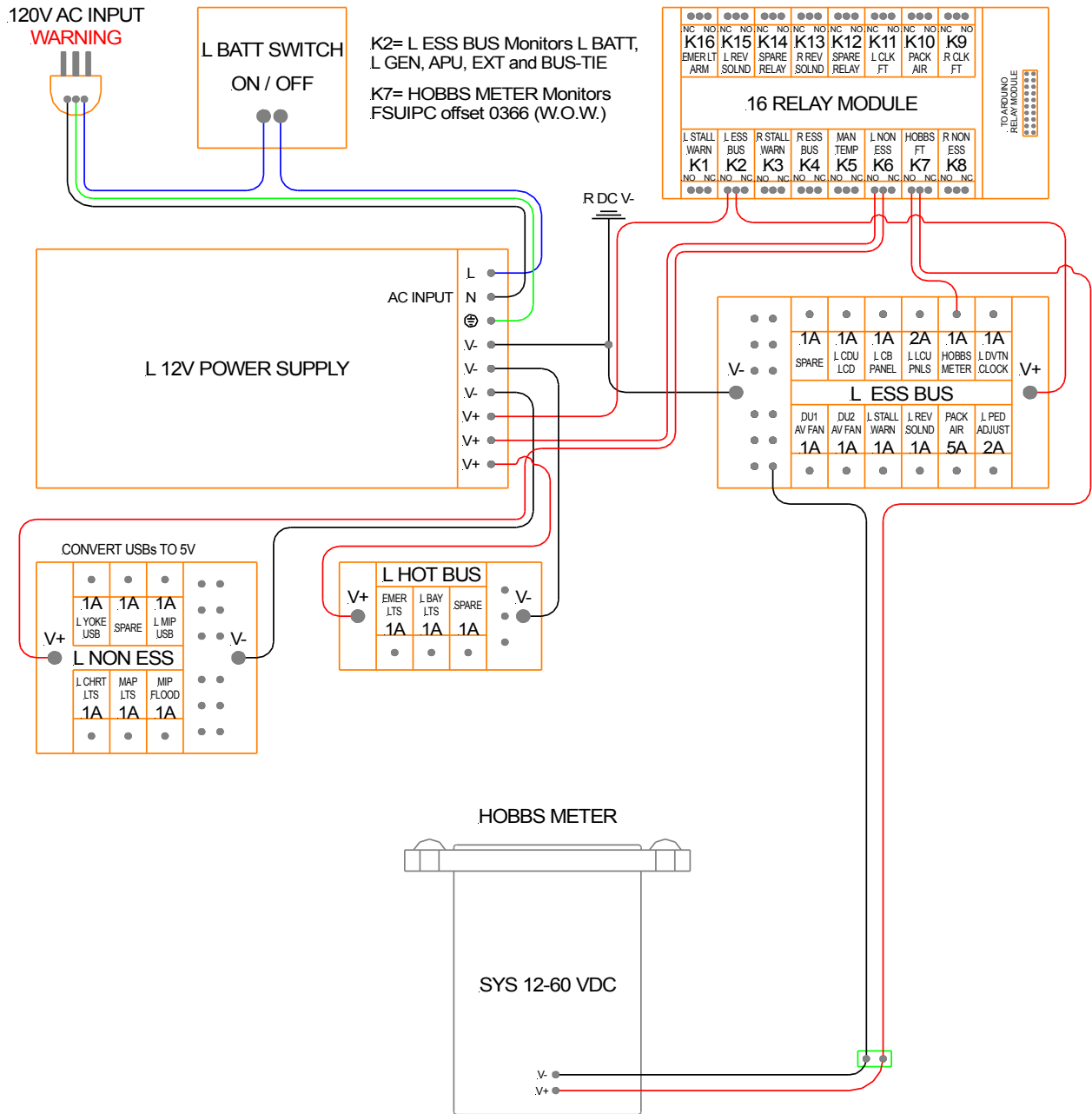
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R C.B. PANEL BL DIAGRAM



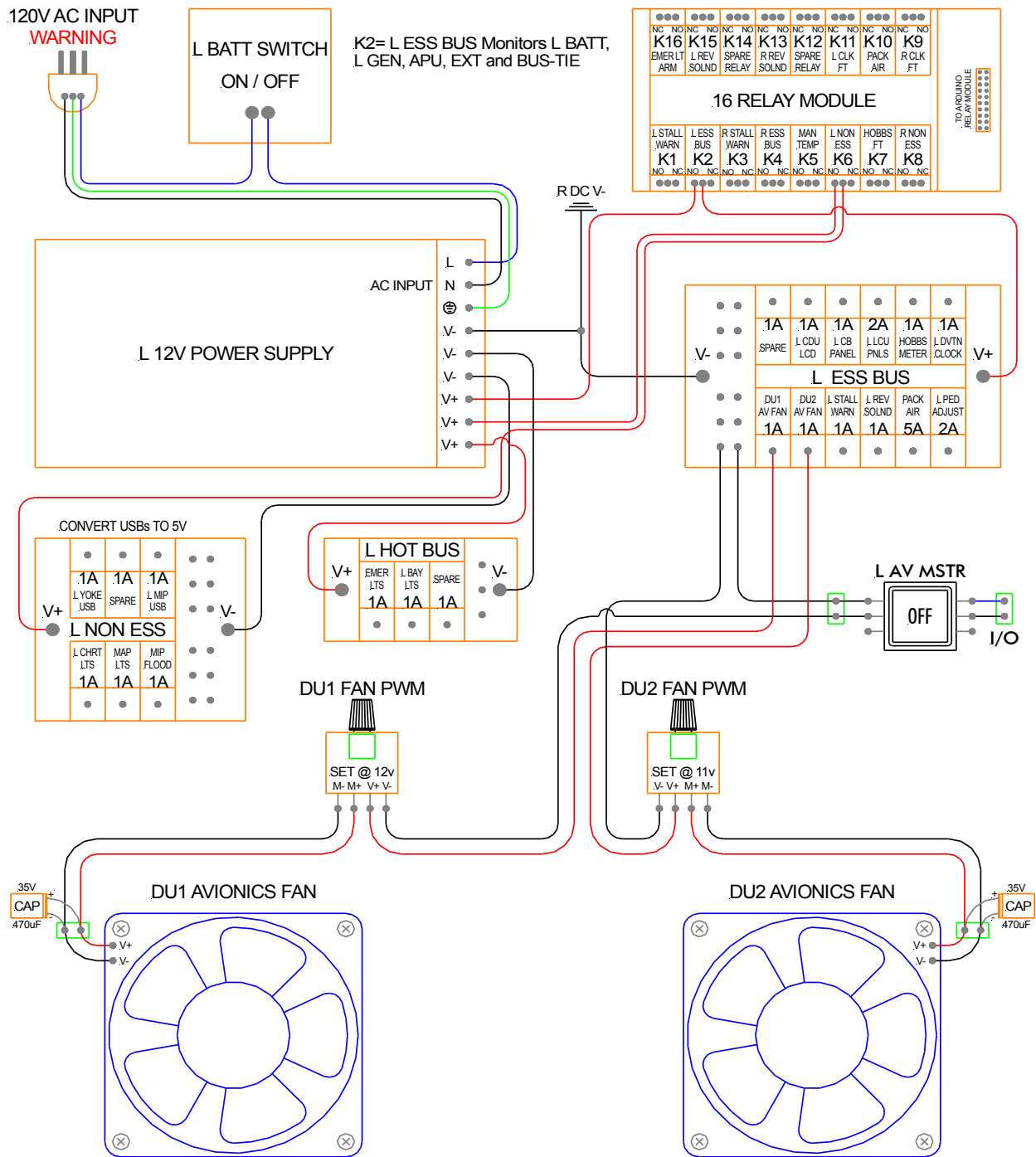
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HOBBS METER DIAGRAM



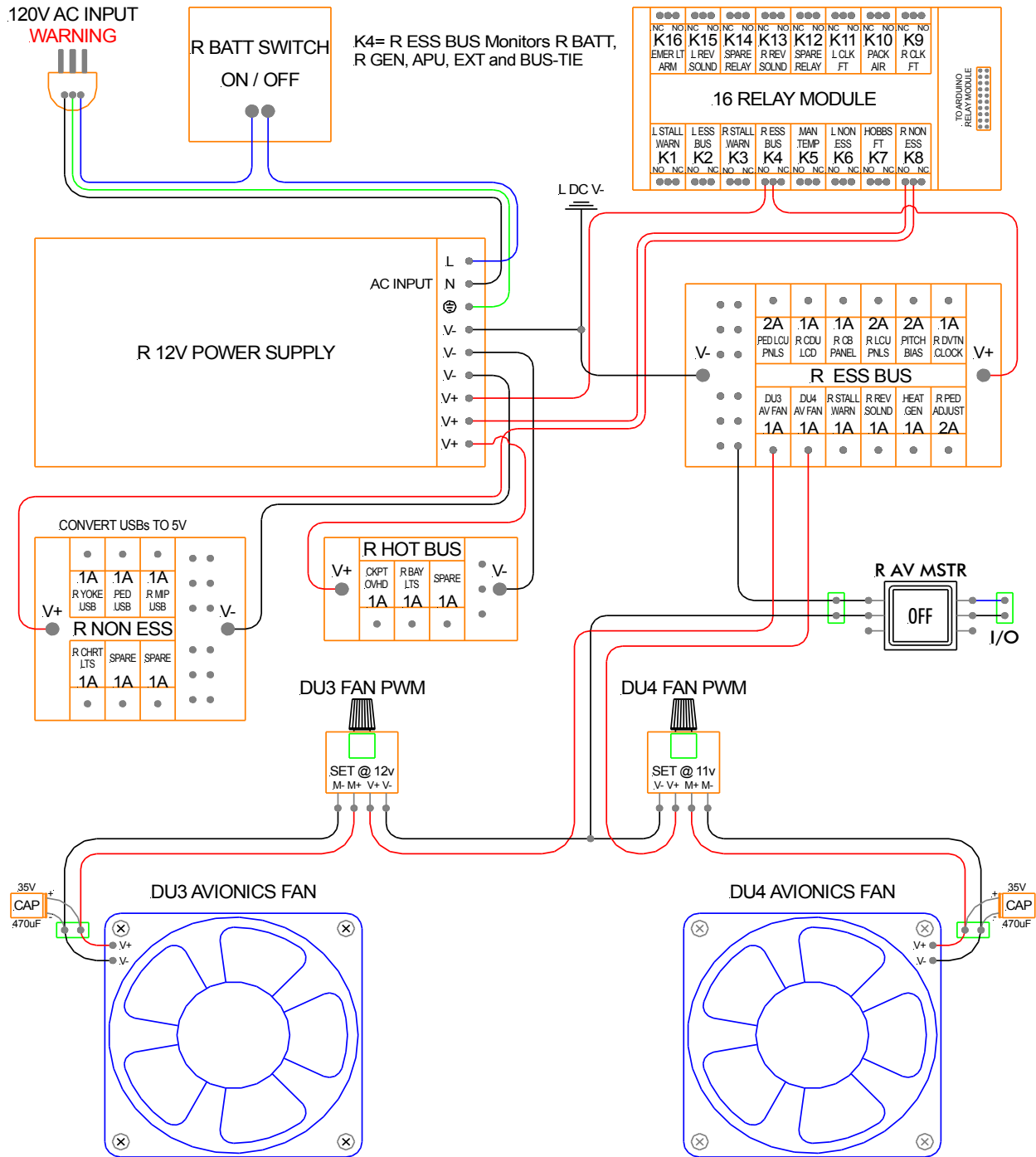
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DU1/2 AVIONICS FANS DIAGRAM



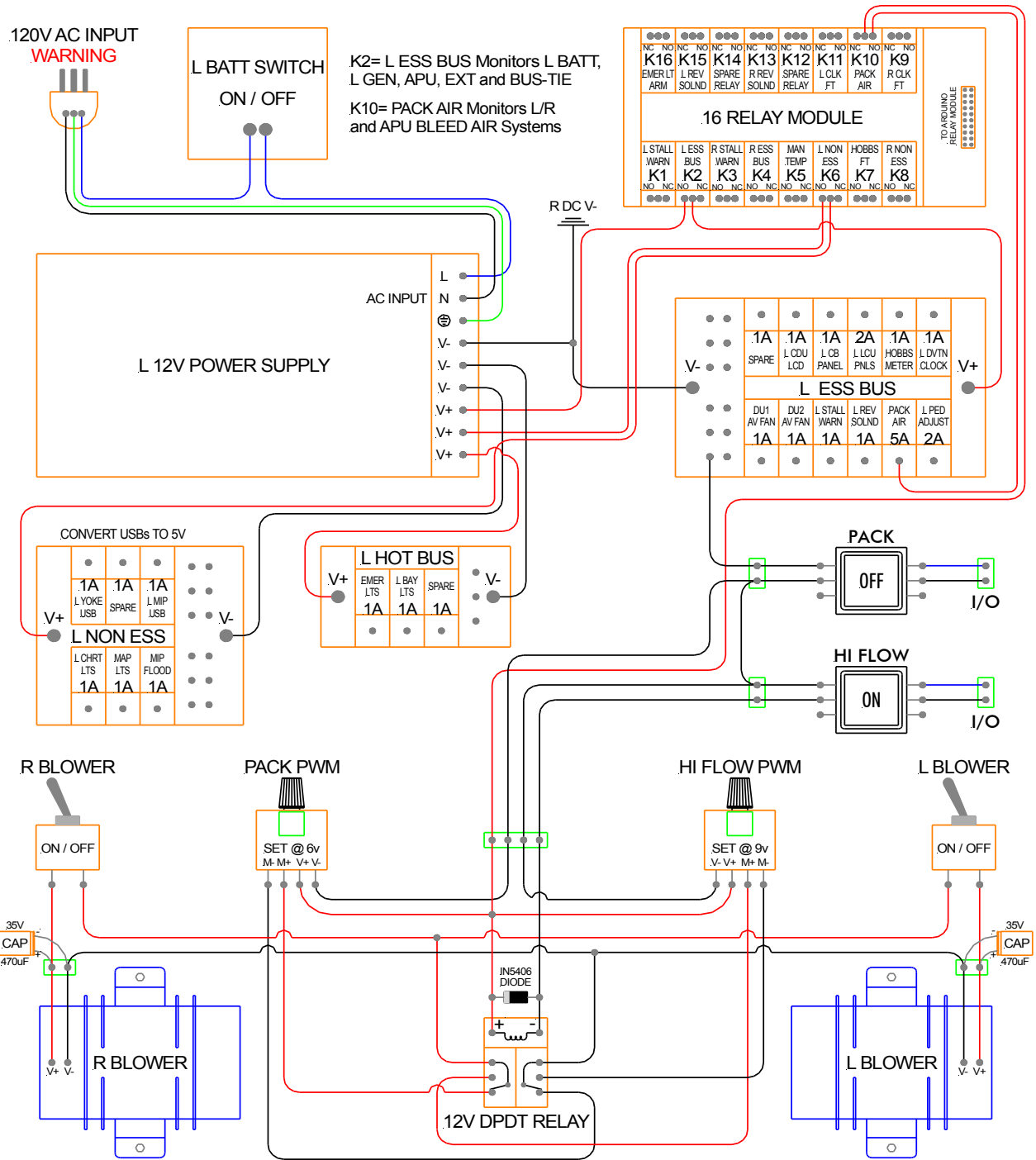
NOT TO SCALE!

DU3/4 AVIONICS FANS DIAGRAM



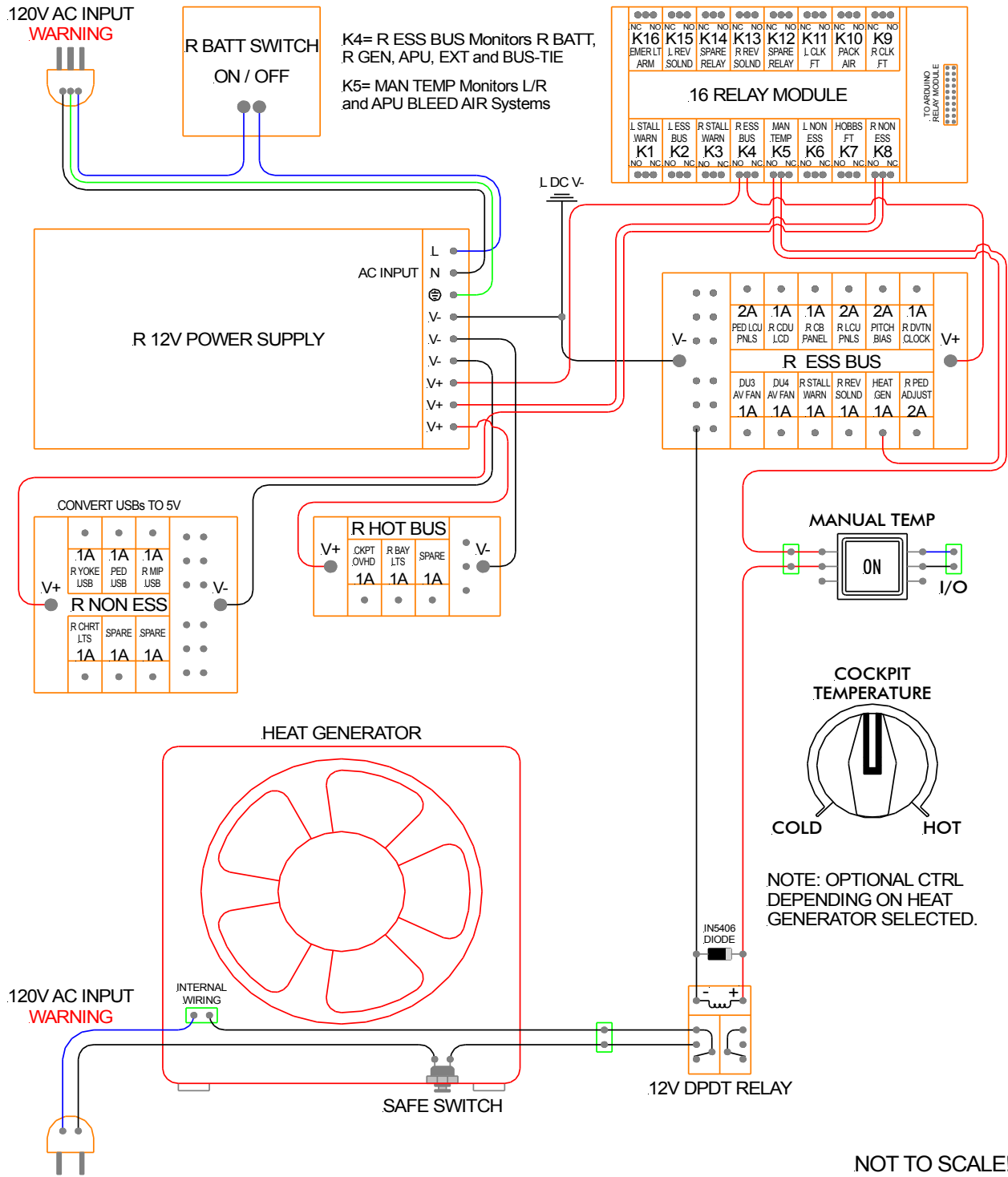
NOT TO SCALE!

PACK AIR BLOWERS DIAGRAM

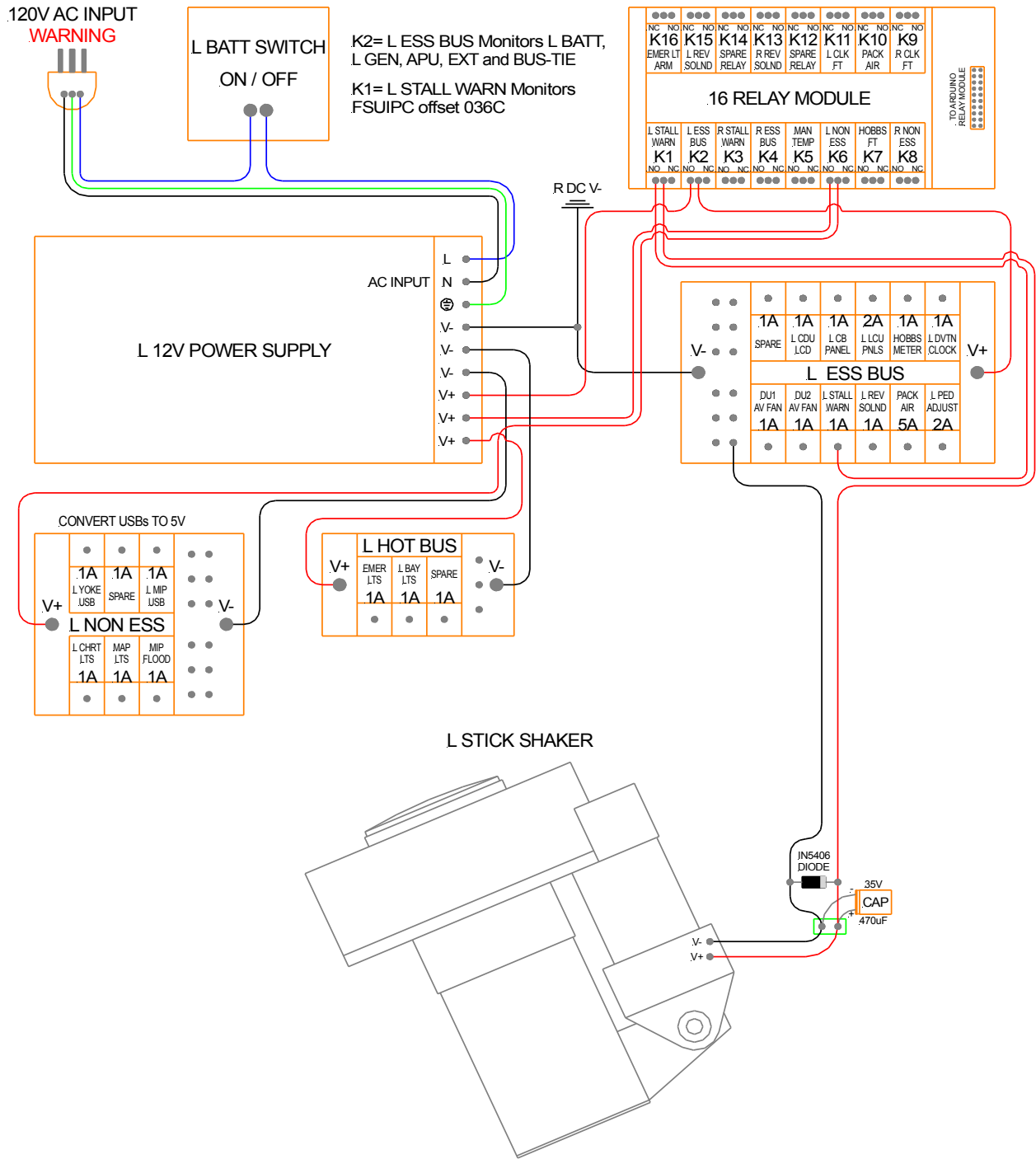


NOT TO SCALE!

MANUAL TEMP (HEAT) DIAGRAM

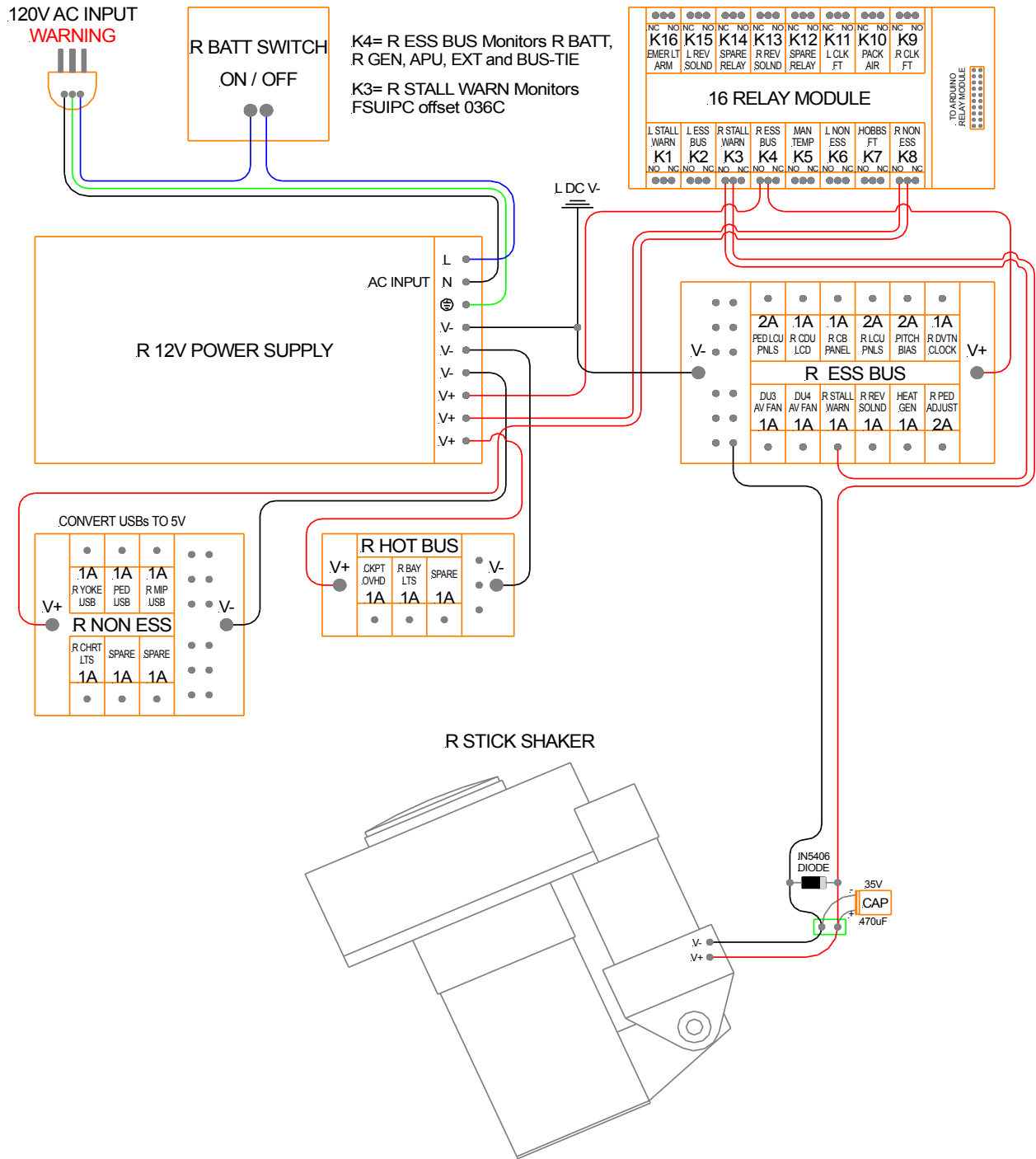


L STALL WARNING DIAGRAM



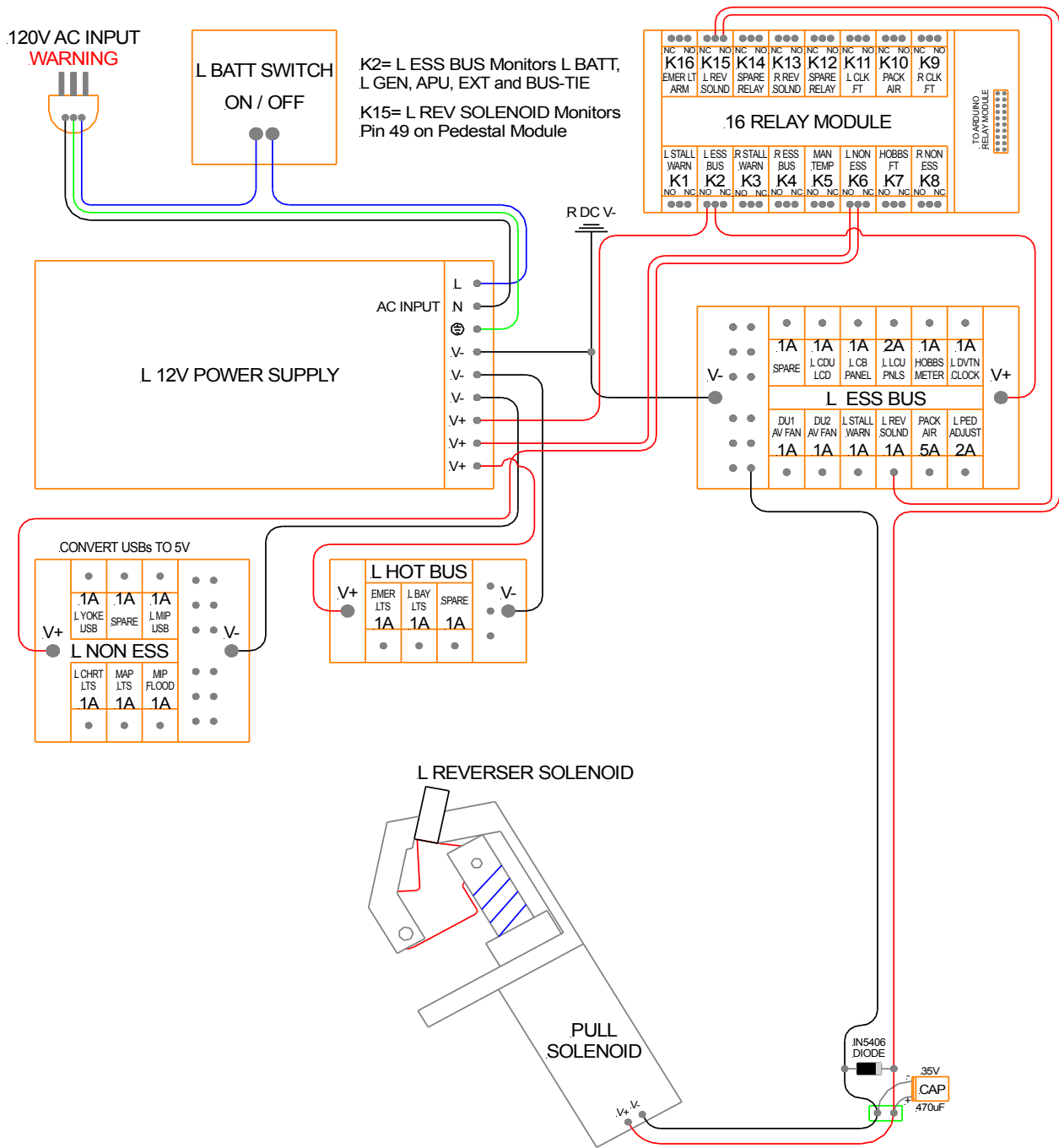
NOT TO SCALE!

R STALL WARNING DIAGRAM



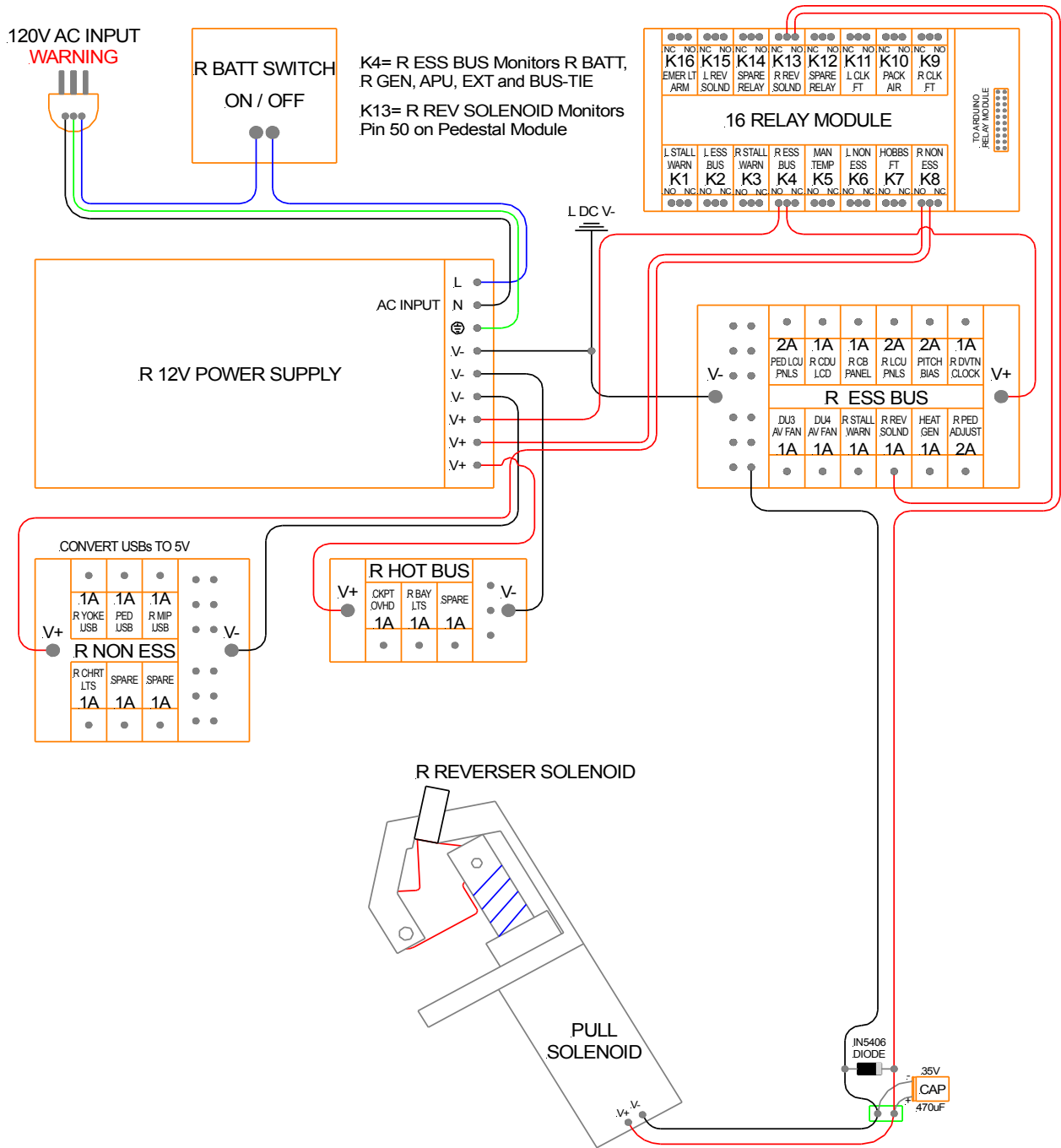
NOT TO SCALE!

L REVERSE SOLENOID DIAGRAM



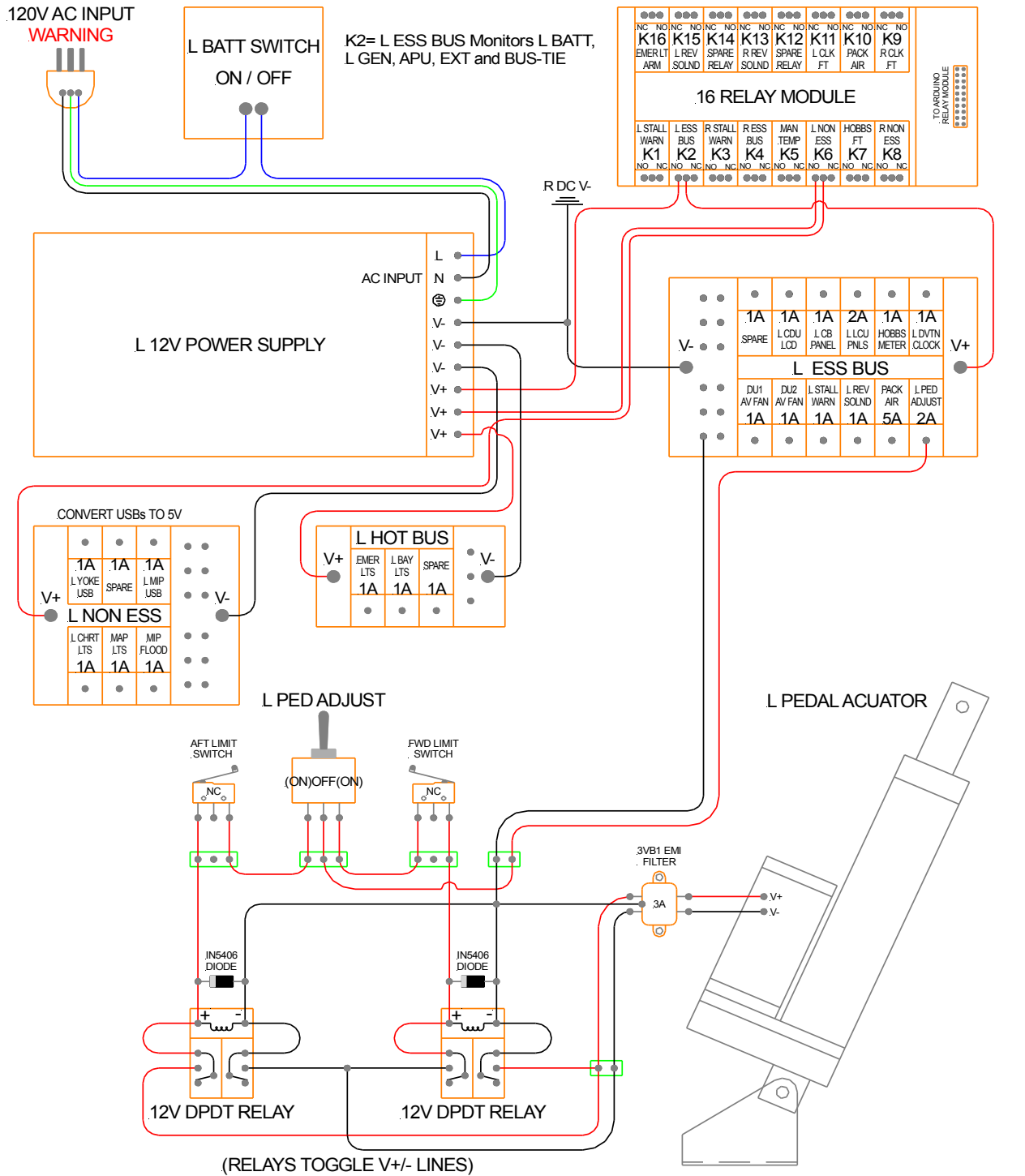
NOT TO SCALE!

R REVERSE SOLENOID DIAGRAM



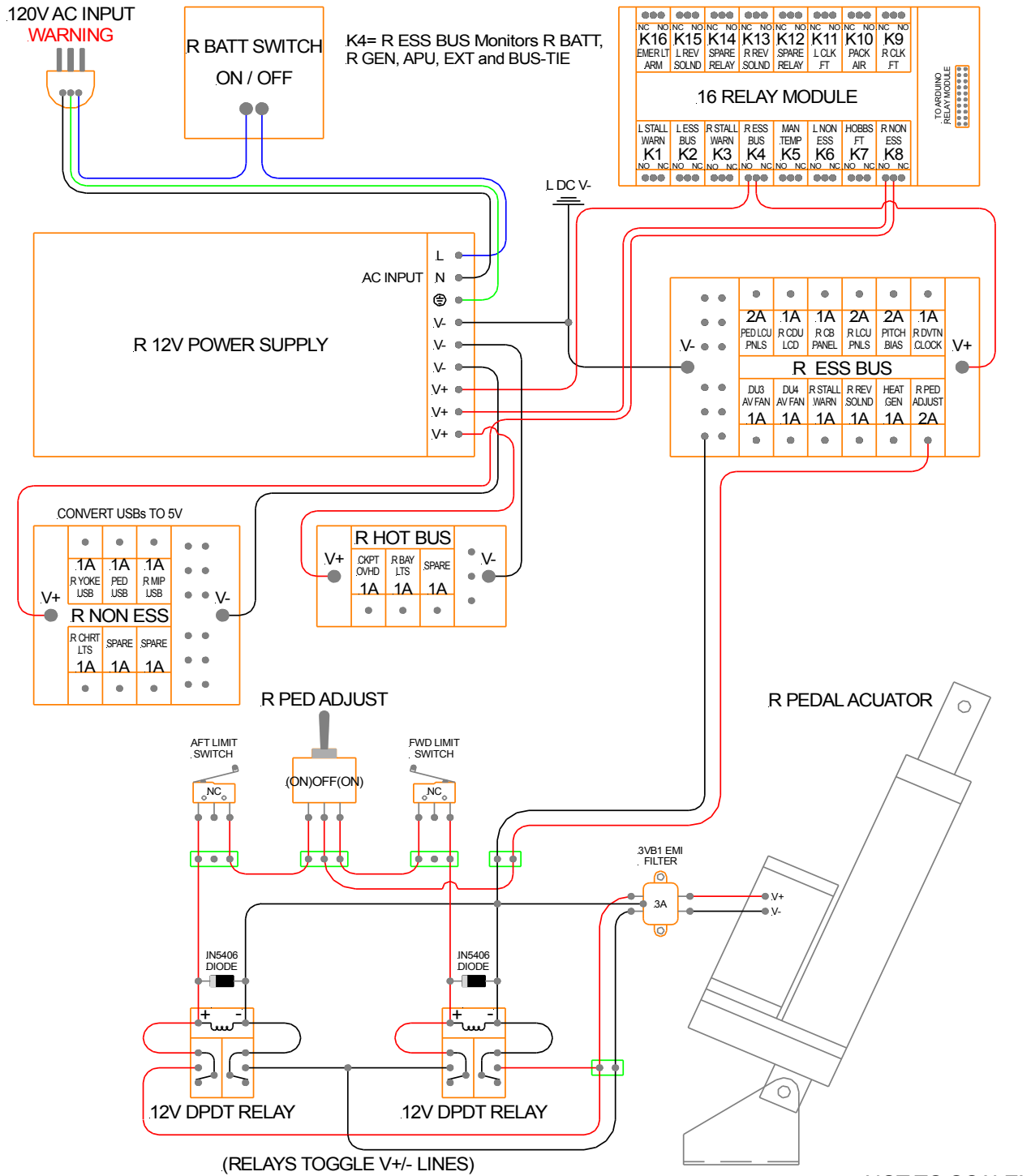
NOT TO SCALE!

L PEDAL ADJUSTMENT DIAGRAM



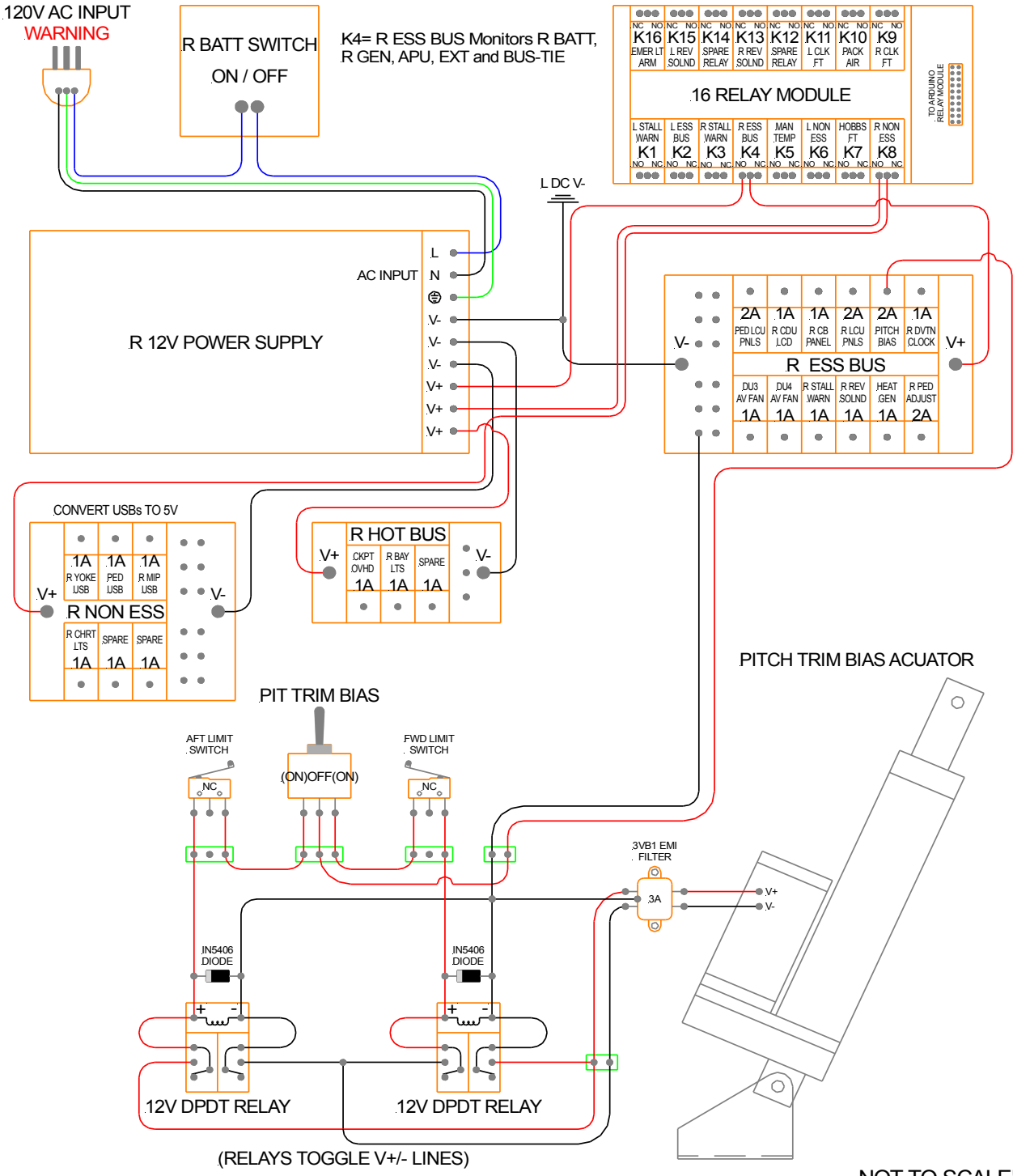
NOT TO SCALE!

R PEDAL ADJUSTMENT DIAGRAM



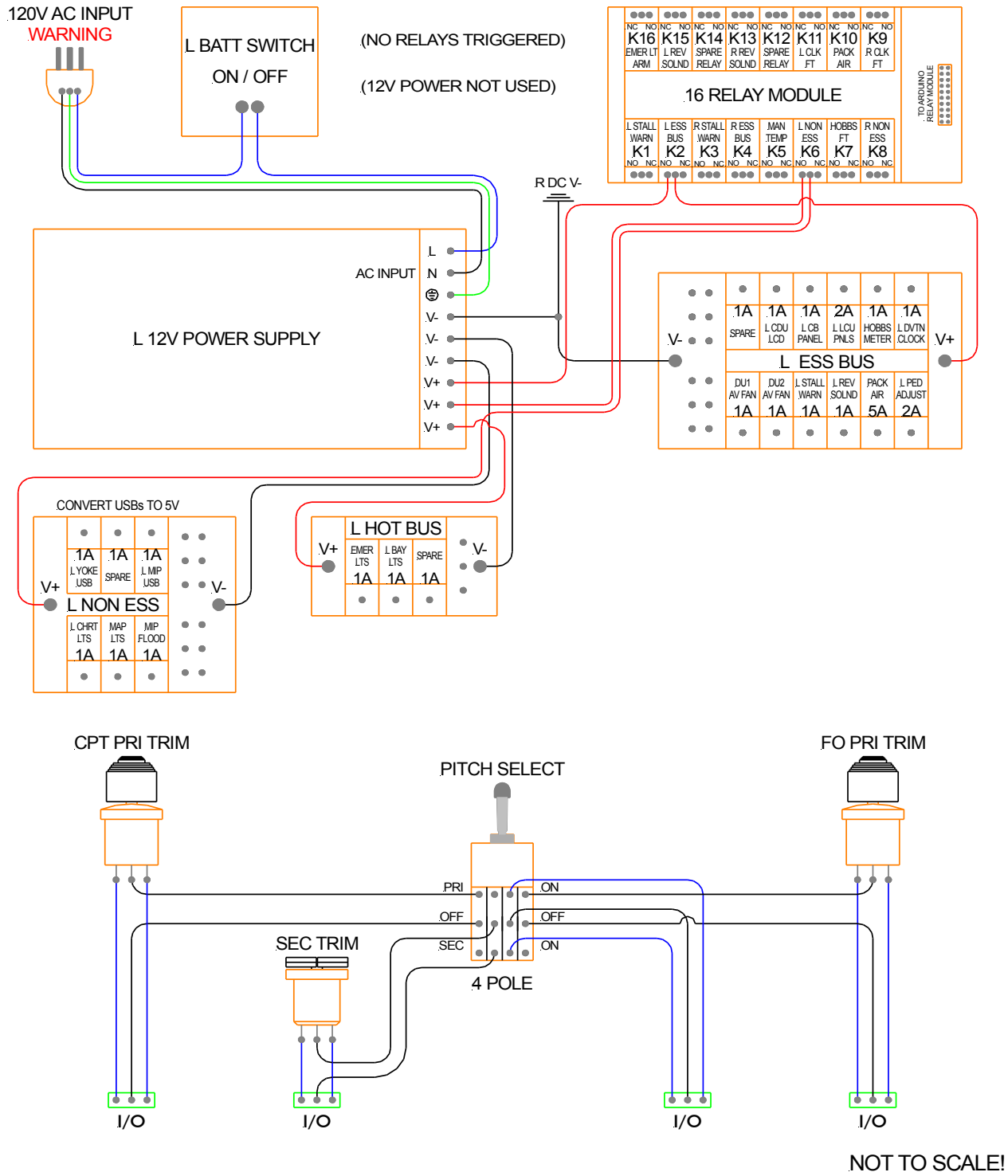
NOT TO SCALE!

PITCH TRIM BIAS DIAGRAM



NOT TO SCALE!

PRI/SEC PITCH TRIM DIAGRAM



TE CONNECTIVITY PINS & SOCKETS

Vertical Headers solder to the clad boards:

2 PIN VERTICAL HEADER	MFG P/N: 1586037-2
4 PIN VERTICAL HEADER	MFG P/N: 1586037-4
6 PIN VERTICAL HEADER	MFG P/N: 1586037-6
8 PIN VERTICAL HEADER	MFG P/N: 1586037-8
10 PIN VERTICAL HEADER	MFG P/N: 1-1586037-0
12 PIN VERTICAL HEADER	MFG P/N: 1-1586037-2
14 PIN VERTICAL HEADER	MFG P/N: 1-1586037-4
16 PIN VERTICAL HEADER	MFG P/N: 1-1586037-6

Receptacle Housings plug into the Vertical Headers:

2 PIN RECEPTACLE HOUSING	MFG P/N: 794954-2
4 PIN RECEPTACLE HOUSING	MFG P/N: 794954-4
6 PIN RECEPTACLE HOUSING	MFG P/N: 794954-6
8 PIN RECEPTACLE HOUSING	MFG P/N: 794954-8
10 PIN RECEPTACLE HOUSING	MFG P/N: 1-794954-0
12 PIN RECEPTACLE HOUSING	MFG P/N: 1-794954-2
14 PIN RECEPTACLE HOUSING	MFG P/N: 1-794954-4
16 PIN RECEPTACLE HOUSING	MFG P/N: 1-794954-6

Free Hanging Plugs used in wiring harnesses:

2 PIN FREE HANGING PLUG	MFG P/N: 1586000-2
4 PIN FREE HANGING PLUG	MFG P/N: 1586000-4
6 PIN FREE HANGING PLUG	MFG P/N: 1586000-6
8 PIN FREE HANGING PLUG	MFG P/N: 1586000-8
10 PIN FREE HANGING PLUG	MFG P/N: 1-1586000-0
12 PIN FREE HANGING PLUG	MFG P/N: 1-1586000-2
14 PIN FREE HANGING PLUG	MFG P/N: 1-1586000-4
16 PIN FREE HANGING PLUG	MFG P/N: 1-1586000-6

4.2mm Female Pins snap into Receptacle Housings:

Female 4.2mm Pin 22-18AWG	MFG P/N: 1586315-1
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4.2mm Male Pins snap into Free Hanging Plugs:

Male 4.2mm Pin 22-18AWG	MFG P/N: 1586314-1
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NOTE: All other single and double row pin headers are .1" or 2.54mm pitch

CHANGE LOG:

V2.20 12-12-23:

- **(PIN CHANGE!)** RMUs1&2 pin 31 (STO) changed to pin 52
- **(ADDED PINS!)** Added RMU 1&2 functions SQ, ½, TST and DME
- **(ADDED PINS!)** Added TRIM switch Arming buttons on both yokes
- **(PIN CHANGE!)** TCS & CHK LST ADV changed to pins 35 and 43
- **(ADDED PINS!)** Added Enviro Temp CTL Analog pins on R Panels
- **(ADDED PINS!)** Added CVR ERASE pin 22 on R Panels Module
- **(PIN CHANGE!)** Moved ROLL DISC to plug K on L Panels Module
- **(PIN CHANGE!)** Switched Plugs A and B pins on the WX Radar
- Corrected WX RADAR RCT and GMAP buttons (Model 660)
- Updated hardware part numbers for EFIS and WX Radar Panels
- Added Project45 Replica CDU plugs B&C to CDU1/2 Modules
- Added copper pour to all PCB modules and panel PCBs
- Changed color of DIGITAL and DATA wires to the color BLUE
- Corrected several issues with all wiring schematic illustrations
- Removed VAR resistor pads from RMU1/CDR & R Panels Modules
- Added SPARE/TEST pin on the Right Panels Module plug K
- Changed pin 6 on PED Panels Module plug H to SPARE/TEST pin

V2.19 01-01-23:

- **(ADDED PINS!)** See below
- Added ROLL DISCONNECT pin 6 to Plug H on Pedestal Module
- Added System Test "OFF" pin 6 to Plug J on Left Panels Module
- Added three SPARE/TEST pins on the Left Panels Module
- Added two SPARE/TEST pins on the Right Panels Module
- Added two SPARE/TEST pins on the Pedestal Panels Module
- Added IC/SG NORMAL N/A position on Left Panels Module Plug L
- Added ADC NORMAL N/A position on Left Panels Module Plug L
- Added AHRS NORMAL N/A position on Left Panels Module Plug L
- Added DAU NORMAL N/A position on Left Panels Module Plug L
- Emergency Lights Toggle new terminal assignment update page 34
- Added [] to Left and Right START switches on Pedestal Panel Plugs
- Added 12v to 5v converter for L,R & PED LCUs Relays not needed
- Reassigned Relay 10 as a condition for two PACK AIR BLOWERS
- Several MISC changes to L & R ESS, NON ESS and HOT BUSES
- Added several wiring diagram schematic illustration examples

V2.18 11-30-21:

- (PIN CHANGE!) Reset Pins on Large Panel modules now use pin13
- Replaced TFT Pressure display with OLED display page 31
- Reassigned Plugs G thru K on Right Panels Module page 31
- Added variable resistor pads R2/R3 to SCL and SDA Pressure display
- Added variable resistor pads R2/R3 to SCL and SDA CDR display
- Added 2A fuses & indicator LEDs to all LCU Modules pages 58-60
- Changed EMRG/NORM button description for CDR page 21
- Added SPARE indicator legend to CWP and pin B13 to Plug B
- Corrected CDU/FMS Back Lighting GND and 5V trace lines
- Pedestal LCU Module resistors updated for LED mod in the CDUs

V2.17 03-08-21:

- (NO NEW PIN ASSIGNMENTS)
- Updated Plug "D" pin locations in Illustrations DU1/EFIS1 & DU4/EFIS2
- Updated Change Log for 10-05-20 documenting pin changes!
- Changed NAV/LOGO Toggle back to ON-OFF-ON 1TL1-1 Toggle
- Added "Typical Wiring Colors" Illustration to page 3

V2.16 02-19-21:

- (NO NEW PIN ASSIGNMENTS)
- Added "Change Log" to last pages of this document!
- Added pin N/A to NAV/LOGO Lights Toggle, See NOTE page 33
- Emergency Lights Toggle explanation, See NOTE on page 34
- Added Emergency Lights pin N/A to represent "ON" toggle position
- Changed Emergency Lights Toggle to 2TL1-1P ON-OFF-ON double pole
- Changed several three position toggle legends to OFF to match switch POS
- Changed several three position toggles back to ON-OFF-ON single pole
- Added APU AMP Illustration to APU DISPLAY Illustration page 37
- Fix APU DISPLAY plug to match APU AMP pins!

V2.15 02-10-21:

- (NO NEW PIN ASSIGNMENTS)
- Completed Relay Module hardware logic and relay pin assignments
- Made adjustments to PWM pads to accept both authentic and knockoffs
- Added Physical Hardware Section documenting all possible options
- Added LCU (Light Control Units) documenting resistor values to panels
- Introducing the Avionics Bay DXF drawing and detailed Illustration!
- Added Flight Control Modules powered by two Leo Bodnar BU0836A cards
- Added “Additional Information” for items not related to pin assignments

V2.14 02-01-21:

- (NO NEW PIN ASSIGNMENTS)
- Changed name of Document to “Jet45 AAS/Systems Modules”
- Miscellaneous word and spelling corrections
- All modules now have a PCB version and are DipTrace ready
- All PCB modules also have a PCB Illustrations

V2.13 01-07-21:

- (NO NEW PIN ASSIGNMENTS)
- All DXF drawings are now drawn in layers in preparation for DipTrace.
- All Modules now have two basic dimensions for quick reference
- 16 Relay Arduino Module is complete and rough draft of pin assignments

V2.12 12-12-20:

- (NO NEW PIN ASSIGNMENTS)
- Resistor value for all Reset/Status LEDs changed to 430 ohms
- Resistor value for all other back lighting LEDs changed to 220 ohms

V2.11 10-26-20:

- **(ADD PIN!)** Add pin 33 to RMU1 for CDR back lighting
- Updated RMU1/CDR Module to accept new CDR v2.0 design
- CDR designed to use a 1.5" OLED display with five pin plug
- CDR designed with additional digit in COM freq line to replicate CD-850
- CDR designed to have working EMEG button
- CDR designed to have a working NAV AUDIO button
- CDR designed to be back lightable, TUNE and buttons
- CDR designed to have working SQUELCH button
- CDR designed to have AUDIO annunciation in display window
- CDR designed to have "TX" annunciation in display window
- CDR designed to have "SQ" annunciation in display window
- CDR designed to have EMEG annunciation in display window
- CDR designed for COM annunciation independent of COM arrow
- CDR designed for NAV annunciation independent of NAV arrow
- CDR designed for "1" in upper left corner indicates COM1/NAV1 only

V2.10 10-16-20:

- **(PIN CHANGE!)** WX Radar Module (Only two analog pins rather than four)
- Added first draft of the L and R Audio Control Panel Modules.
- Added first draft of the HF Radio module
- HF Radio 8 Digit 7 Segment Display made possible via MAX7219 chip

V2.09 10-05-20:

- **(PIN CHANGE!)** Reversed DU1/EFIS1 Pins 33 and 35 on Plug D
- **(PIN CHANGE!)** Reversed DU1/EFIS1 Pins 37 and 39 on Plug D
- **(PIN CHANGE!)** Reversed DU4/EFIS2 Pins 33 and 35 on Plug D
- **(PIN CHANGE!)** Reversed DU4/EFIS2 Pins 37 and 39 on Plug D
- All modules now have their own Reset Button/Status Indicator LEDs
- Pin 13 on smaller modules and pin 35 on larger modules are "Reset Pins"
- All unused pins within plugs are now common or ground pins
- Several modules have been reduced in size by as much as 25%

V2.08 09-14-20:

- (PIN CHANGE!) DU3 module pin assignments changed significantly
- Fixed DU3 Module no longer using D0 and D1
- DU3 moved from Nano to Mega due to additional MFD joystick pins
- Added illustration of Nano Module next to 16 Relay Module
- Added Reset/Status plug and resistor to DU3 module
- Added WX Radar Module first draft with isolated analog plug and pins

V2.07 09-11-20:

- (PIN CHANGE!) Changes to DU2 and DU3 modules
- No longer using analog pins A6 and A7 for digital pins with Nano
- Added CDR to RMU1 Module, now called RMU1/CDR Module
- New CDR only requires two plugs (PLUG C and I2C OLED PLUG)

V2.06 08-31-20:

- (PIN CHANGE!) Added R Landing and R Taxi Light pins 2 and 3 on R Module
- (PIN CHANGE!) Left Probes now pin 4 (was pin 3) on R Module
- Now pins 29 and 30 are exclusively L Landing and L Taxi Lights on R Module
- Removed RX1 pin to Pressure Window Plug G on R Module
- Added Isolated Nano Module for APU Display within PED Module

V2.05 08-14-20:

- (NO NEW PIN ASSIGNMENTS)
- Updated AOA DXF with new DMS-MG90-A 270 degree 4.8V micro servo
- Corrected minor spelling and grammar issues

V2.04 08-08-20:

- (NO NEW PIN ASSIGNMENTS)
- Changed all analog pin numbers to digital pin numbers (i.e A3 to D17)
- Removed the "D" designation from digital pins (i.e D17 to 17)

V2.03 07-20-20:

- (PIN CHANGE!) DU2 Module reworked including two new pins
- (PIN CHANGE!) DU3 Module added MFD Joystick pins and plug
- (PIN CHANGE!) WX Radar Module reworked, smaller footprint
- DU2, DU3 and WX Radar all use pins 11 and 12 for LED indications
- Changed name of Document to “Jet45 Hardware Pinout”
- Changed name of DXF drawing to “Jet45 Interface Modules”
- Moved Jet45 AAS Modules up and Jet45 Systems Modules down in doc
- Added additional information on the Meduino Mega2560 Mini Pro
- Added additional information on larger 16 Channel 12-bit PWM LED Drivers

V2.02 07-14-20:

- (PIN CHANGE!) Mute & Go AROUND pins moved from FGC to PED Module
- (PIN CHANGE!) Added Overhead Compass Servo pins to the FGC Module
- (PIN CHANGE!) Minor adjustments in pin assignments in three Mega Modules
- All three Mega Modules are 3 square inches smaller in size
- All three Mega Modules can now be cut on a 6x8 piece of clad
- All Plug assignments are from left to right, top to bottom, (i.e A,B,C, etc...)

V2.01 06-05-20:

- Refining the Master Interface Plan
- Selecting and confirming all flight deck hardware
- Confirming several hardware part numbers
- Developing single sided trace lines for clad prototyping

V2.00 04-04-20:

- Master Interface Concept 1: Highly detailed and feature rich Lear45 simulation!
- Master Interface Concept 2: Simple “Plug and Play” solution! No code writing!
- Master Interface Concept 3 Exclusive use of Arduino interface modules!
- Master Interface Concept 4: Low cost, easy to find interface, parts & hardware!
- Master Interface Concept 5: DXF Drawings and G Code for all panels available!

JET45 AAS / SYSTEMS MODULES concept by Jason Hite
Document content, Hardware Logic and Illustrations by Ron Rollo