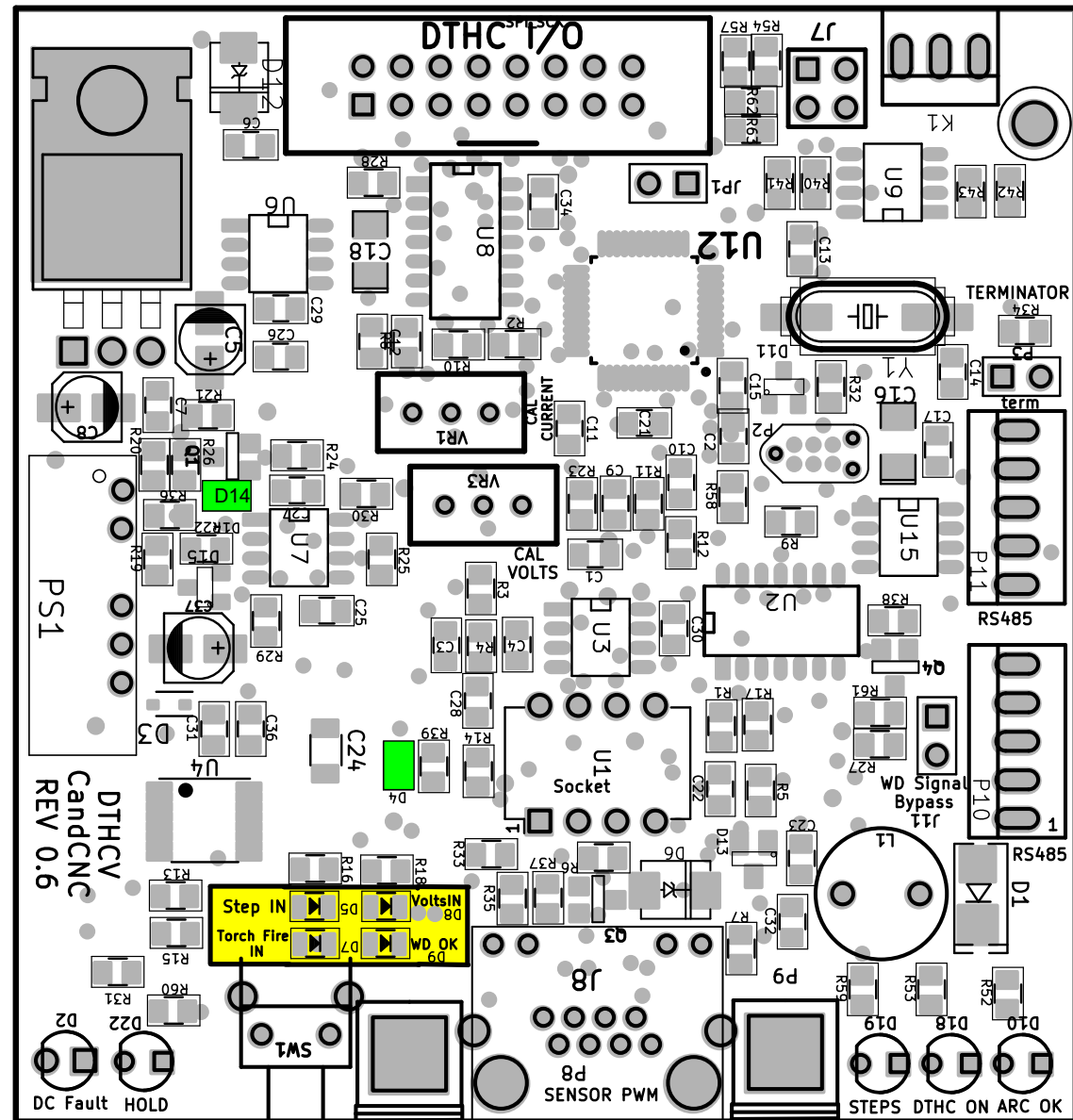
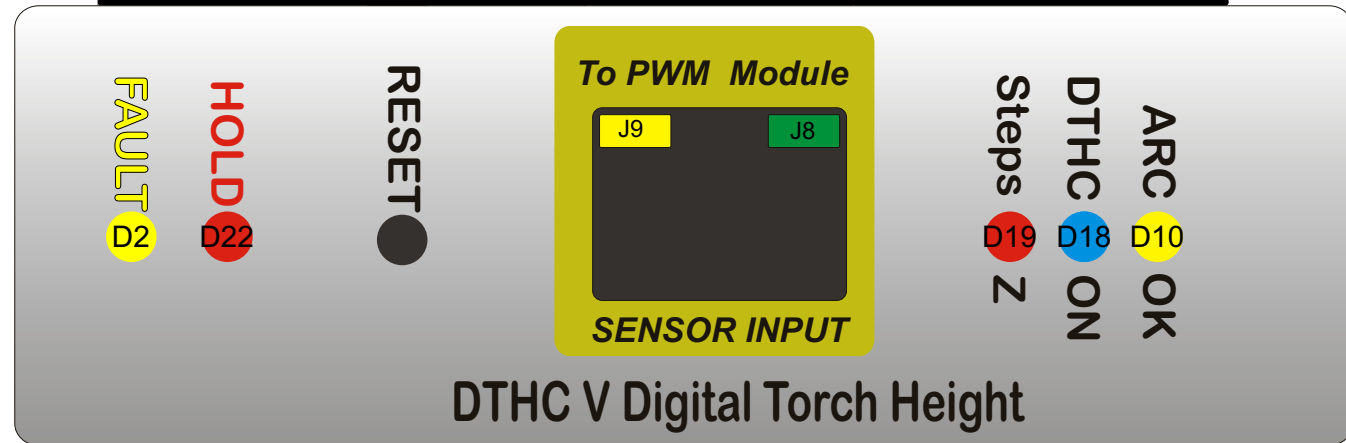


INDICATORS on DTHC 5

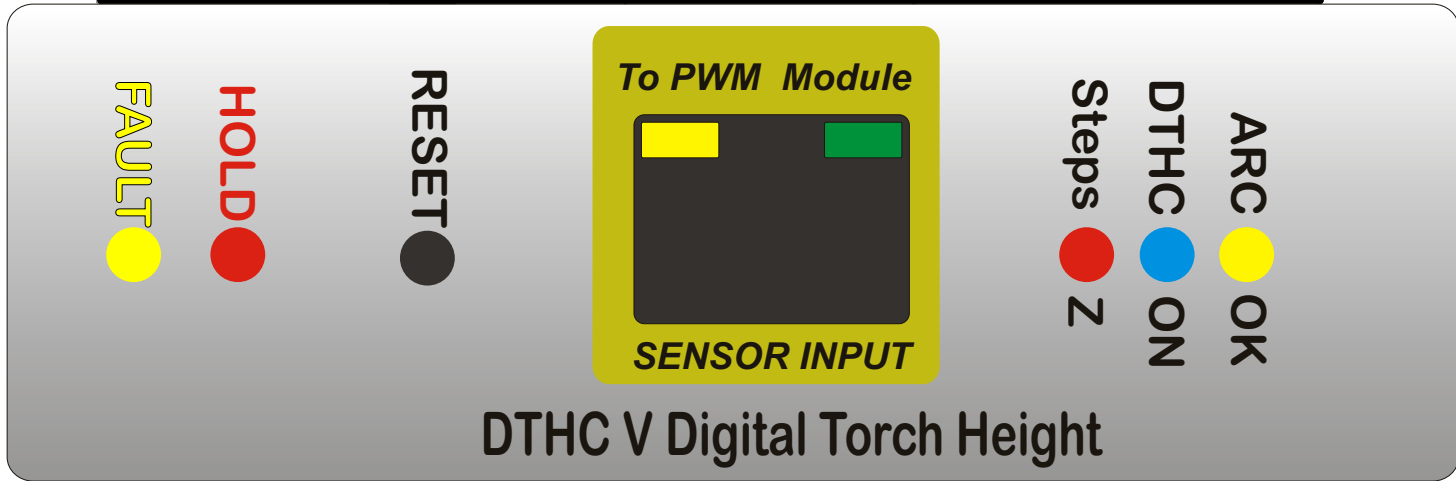
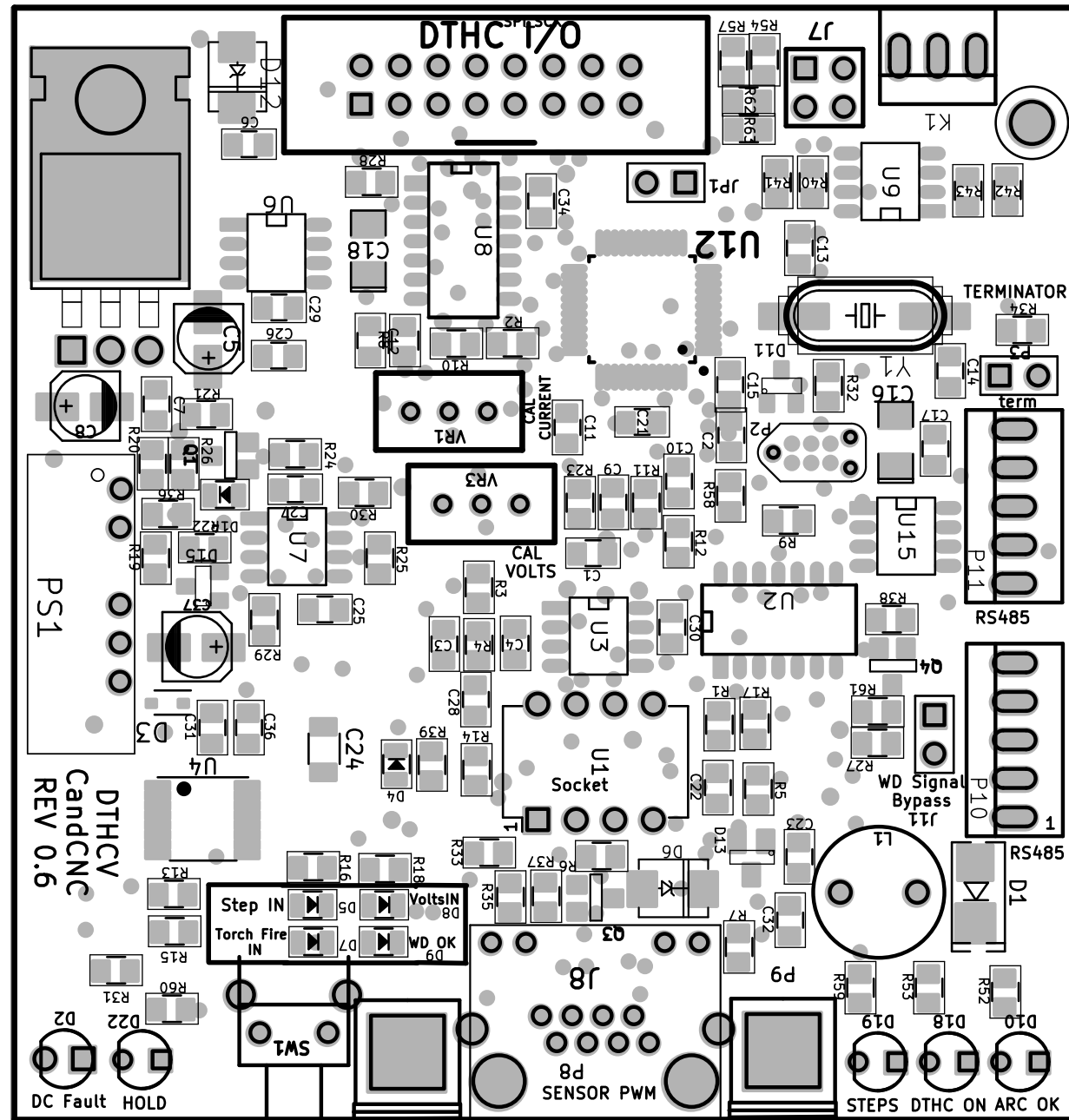


Indicator Name/ #	Color	Function	NOTES Normal operation
D5 Step IN	BLU	Shows Step pulses (flashes) coming FROM UBOB /EBOB. Divided by U4	Flashing When UBOB/EBOB is sending STEPS during Jog and Z G-code moves
D7 Torch Fire	Red	Torch Fire signal FROM UBOB/EBOB	ON when the torch fire signal is on FROM the UBOB/EBOB
D8 Volts in	Blu	Shows analog volts from PWM to Chip Brighter with more volts	Shows presence of analog volts coming from PWM
D9 WD Okay	Grn	Shows if WD signal is coming FROM hub	
J8 RJ45 LED	Yel	Turns on when torch fire signal is ON to the PWM. From the DTHCIV	Shows the torch fire signal is active in the DTHC. Shows status of that output in the cable to the PWM.
J8 RJ45 LED	Grn	Shows +12 line to PWM (PC volts not Floating)	This 12V is used to fire the Relay in the PWM that turns on the TORCH
D4 DC- DC volts	Grn or Wht	+12 Floating volts (to PWM) Good	This is a separate 12V is used to power the PWM circuits

Indicator Name/ #	Color	Function	
D2 DC Fault	Yel	Shows if DC-DC circuit is in fault (shutdown)	If on indicates the DC-DC power supply on the DTHC card has shut down (error)
D22 Hold	Red	Motion HOLD from DTHC back to UBOB/EBOB	Comes on when the torch fire signal has reached the DTHC AND there is no ARC OK back from the Plasma
D19 Steps	Red	Shows Steps from DTHC BACK to UBOB/EBOB Z steps	Steps generated by DTHC have to return to UBOB/EBOB. Steps OUT
D18 DTHC ON	Blu	DTHC Enable FROM UBOB/EBOB.	The DTHC has been enabled (when on) from the UBOB/EBOB. This can turn on and off during a cut if VAD is used.
D10 ARC OK	Yel	Arc OK IN detected by DTHC	Shows presence of the ARC OK signal from the PWM is reaching DTHC



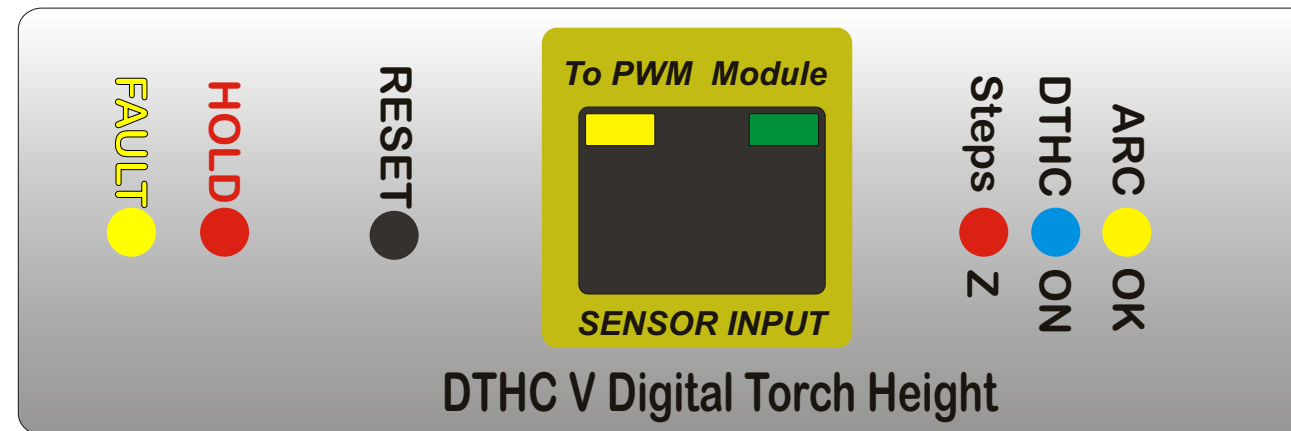
DTHC V Digital Torch Height



Shows that the

Jumper ID	Default	NOTES
JP1	OFF	SPI-SCLK input (future)
J7 (dual)	OFF - OFF	Option Jumpers Not used
J11	OFF	WD Bypass jumper Bypasses WD signal from Hub
P3	?	ON if no connection to P11 (RS485 Out) OFF if P10 and P11 have connections
J8 RJ45 LED	Yel	Turns on when torch fire signal is ON to the PWM. From the DTHCIV
J8 RJ45 LED	Grn	Shows +12 line to PWM (PC volts not Floating)
D4 DC- DC volts	Grn or Wht	+12 Floating volts (to PWM) Good

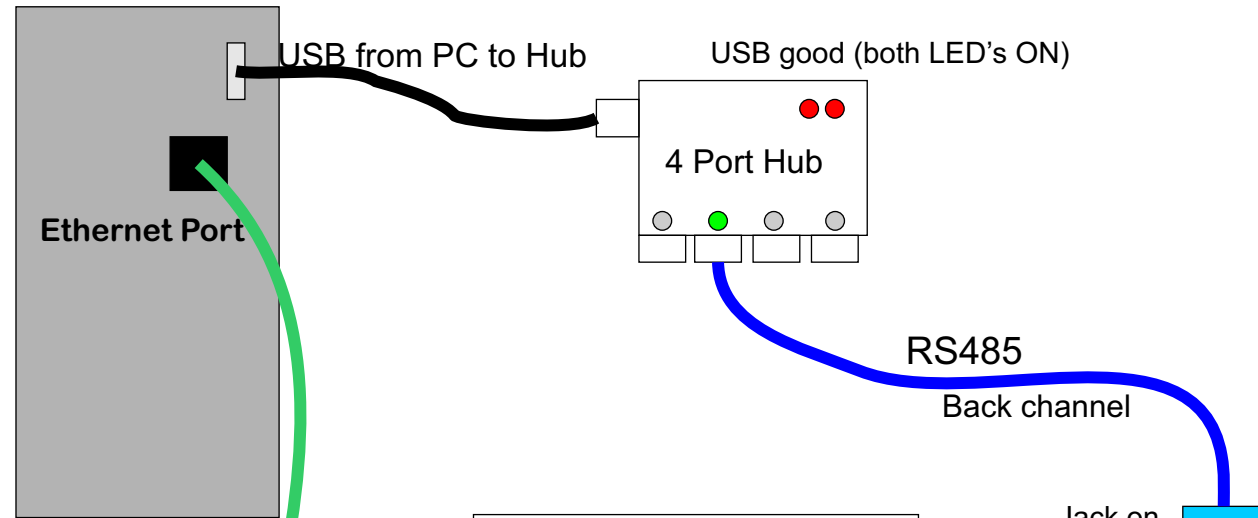
Front Panel Indicator Identification



SIGNAL NAME	COLOR	FUNCTION (What it means)
ARC OK	YEL	Shows the torch is on and that there is a valid arc so automated Cutting can begin. Signal comes from Plasma (PWM Module) or from DCP-01 current reading
DTHC ON	BLU	The DTHC can be enabled and disabled from G-Code and from the screen it shows when the DTHC is active
STEPS Z	RED	Shows Z motion activity from both DTHC and MACH control
RESET	Button	RESET button resets the DTHC V processor and does an initialization Pattern for self check
HOLD	RED	Indicates the DTHC V has issued a HOLD command back to Commandcnc to prevent motion
RJ45 RT	GRN	DTHCIV POWER INDICATOR On all of the time
RJ45 LFT	YEL	TORCH ON. Shows torch FIRE signal from DTHC out to PWM

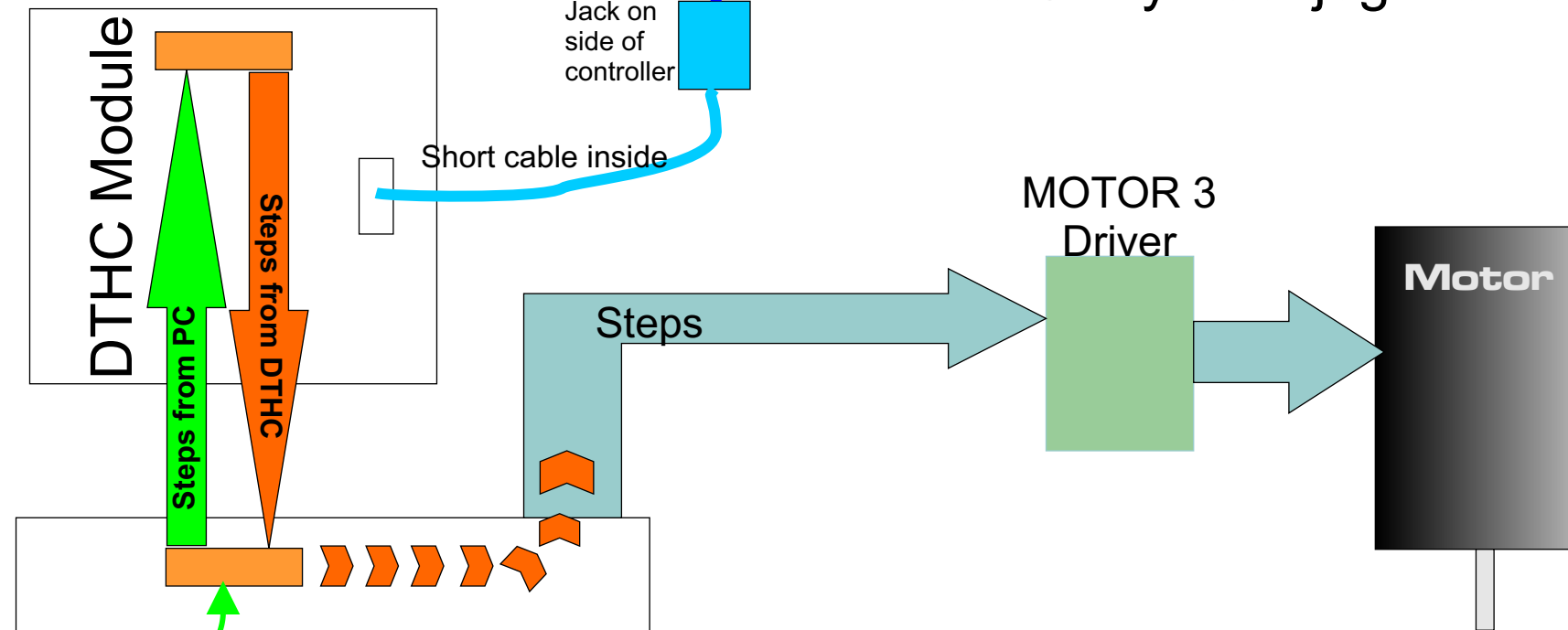
Block Diagram of Z Axis Motion Path

PC running CommandCNC



Jogging or G-Code from CommandCNC uses Green Route to DTHC and orange route back to the motor drive and Z motor. DTHC direct motion during cutting uses Orange route ONLY. Test orange route with Hub Utility "fast jog" buttons.

DTHC connects to the BoB (UBOB or EBOB) via a 16 pin header. On DTHC 4 that is always a 16 pin ribbon cable on DTHC 5 it can be ribbon cable (to UBOB) or plugged direct (on EBOB card)



NOTE Hub Utility is a separate test and setup application that can be run from the desktop and uses the 4 port hub to see any connected device (like the DTHC module. It talks via the RS485 back channel and lets a user see the settings in the DTHC memory. There are settings for velocity and acceleration for the Z motor while is in DTHC motion mode. **You CANNOT run the hub utility and CommandCNC at the same time.** The DTHC moves the Z motor (motor 3) at all times and uses signals from the software for jogging and from Z moves in G-code. When the torch is on and the DTHC is active the the Z