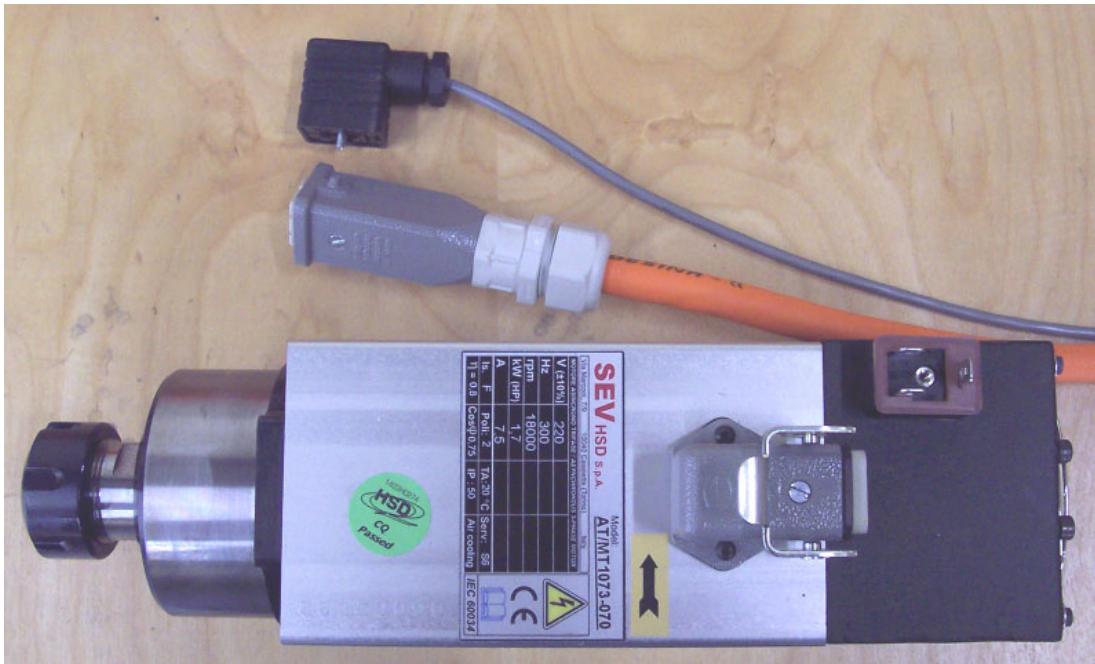




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# Installing an HSD Spindle:

## PRS Alpha Tools



This document applies to HSD Spindles with Yaskawa V1000 variable frequency drives.



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## Connecting HSD Spindle Variable Frequency Drive to Control Box

**RISK OF ELECTRIC SHOCK:** Use extreme caution when working near live electrical circuits. Dangerous voltages exist inside the power supply that can cause serious injury or death. These instructions are intended for use by a licensed electrician.

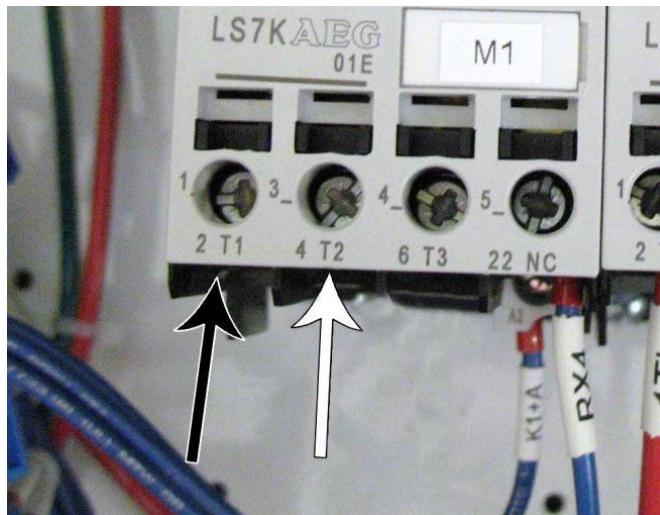
### Run Power from Control Box to Variable Frequency Drive (VFD)

In order for the emergency stop switch to work correctly, power to the VFD must be connected to the proper contactor in the control box, rather than directly to an outlet or panel box.

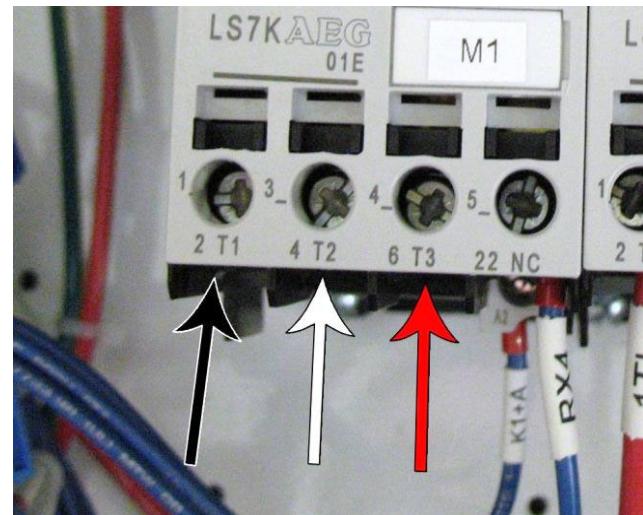
After the control box and VFD are mounted in place (see **Assembly Guide for PRSalpha and PRS-standard Tools** document), run the black power cable from the VFD to the unused cord grip on the back/left side of the control box.

Insert the cable from the VFD into the cord grip, pushing enough wire into the control box to reach the spindle contactor(s) and the ground bus bar.

Refer to the diagram on the next page to locate which contactor(s) to connect to. After locating the correct contactor(s), connect the outgoing power cable according to this diagram:



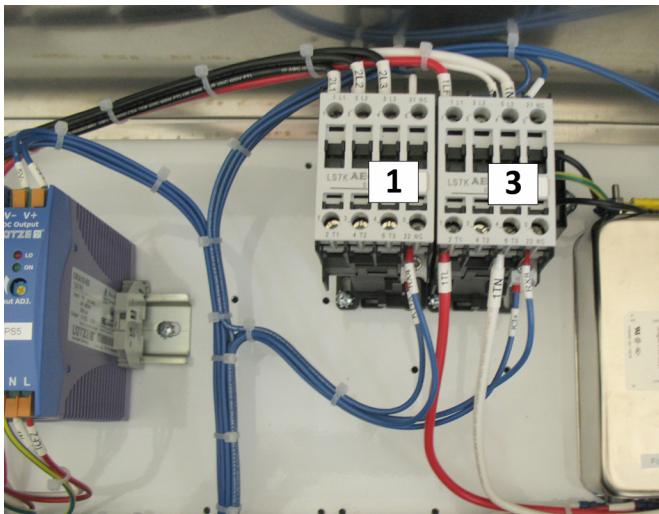
**Single Phase Spindles**  
2T1 - Black Wire  
4T2 - White Wire



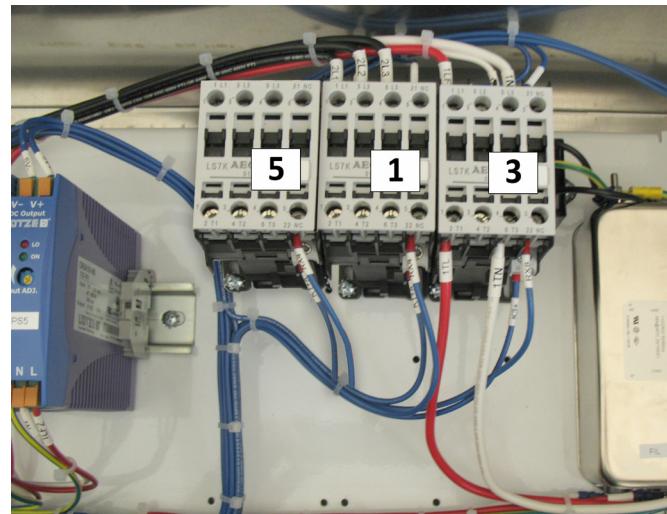
**3-Phase Spindles**  
2T1 - Black Wire  
4T2 - White Wire  
6T3 - Red Wire

## Contactor Configurations:

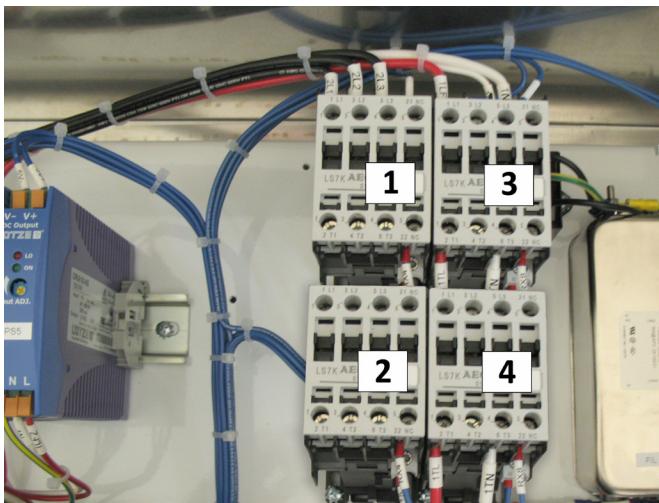
**Please note:** The “Domestic” configuration applies to the United States, Canada, and Mexico. All other countries will use the “International” configuration.



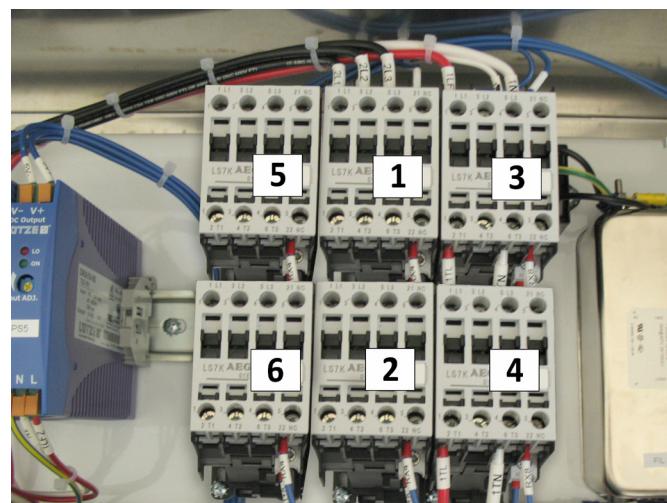
**Domestic - 1 Spindle**  
Connect to #1



**Domestic - 2 Spindles**  
Connect first spindle to #1, second spindle to #5

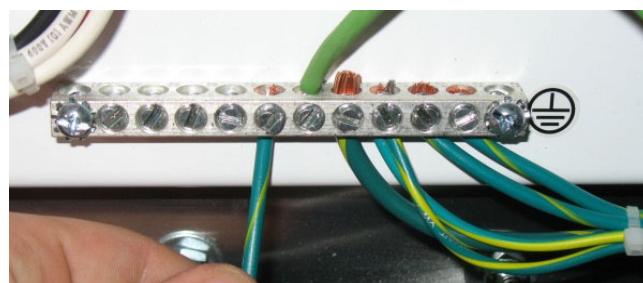


**International - 1 Spindle**  
Connect to #2



**International - 2 Spindles**  
Connect first spindle to #2, second spindle to #6

Connect the Green wire from the VFD power cable to the ground bus bar, located under the main disconnect in the control box. Tighten the cord grip where the power cord enters the box.

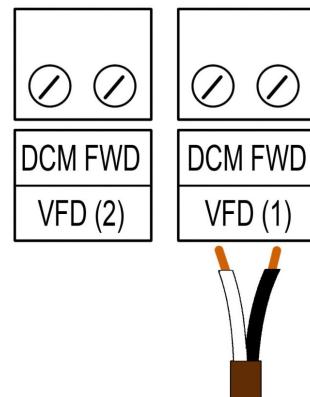


## Connect VFD to Control Box

Run the brown cable coming from the VFD through the cable management fixture on the right side of the control box.

Connect the black and white wires from this cable into the terminal blocks on the control board labeled VFD (1). For a second spindle, use the terminal labeled VFD (2). Terminal blocks are located near the lower left corner of the control board.

Connect the black wire to the FWD terminal and the white wire to the DCM terminal. The red wire is not used and should be clipped back.



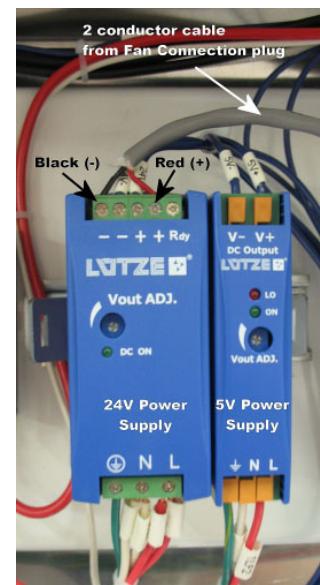
## Plug in Spindle Fan Connection Plug

Attach the Fan Connection plug (with attached 36ft. cable) to the front face of the HSD spindle and tighten the screw inside the plug.

## Attach Fan Connection Cable to 24V Power Supply

Route the gray fan cable through the cable fixture on the right side into the control box.

Strip back 1/4" of insulation on the red and black wires. Connect the red wire to a positive (+) terminal and the black wire to a negative (-) terminal on the top of power supply (see picture on right).



## Connect VFD Power Cable to Spindle

Plug the electrical connector into the HSD spindle power plug, then lock the plug into place using the metal clip.



## Testing the Spindle Fan

Before running the first test cut, verify that the spindle fan is running properly.

To test:

- Turn on control box
- Check that emergency stop switches are disengaged (twist counter-clockwise to release)
- Press the blue RESET button on the 3-button pendant
- The spindle fan should now be running. If not, please contact tech support for assistance.

## Running the Spindle

Please note that the spindle lockout switch is located on the front of the control box (All PRS models built after 2012). In order for the spindle to run this must be set to ENGAGED, using the key that came attached to the collet wrench. To change bits, turn the key to DISENGAGED and remove it. If the spindle is wired through the control box properly, this prevents any chance of the spindle powering on while changing the bit.

