

PM1340GT VFD Wiring Diagram for Hitachi WJ200 with an External Power Supply, Proximity Limit SW, Lighted E-Stop safety, 2-stage Braking, Joystick For/Rev JOG and Lighted 3 Way Coolant

**Diode 1N400X type: 1N4004**

**LED, 24VDC (use terminals on switch if lighted SW used. Note + and - polarity wiring)**

**Normally Open SW**

**Normally Closed SW**

**Control box**

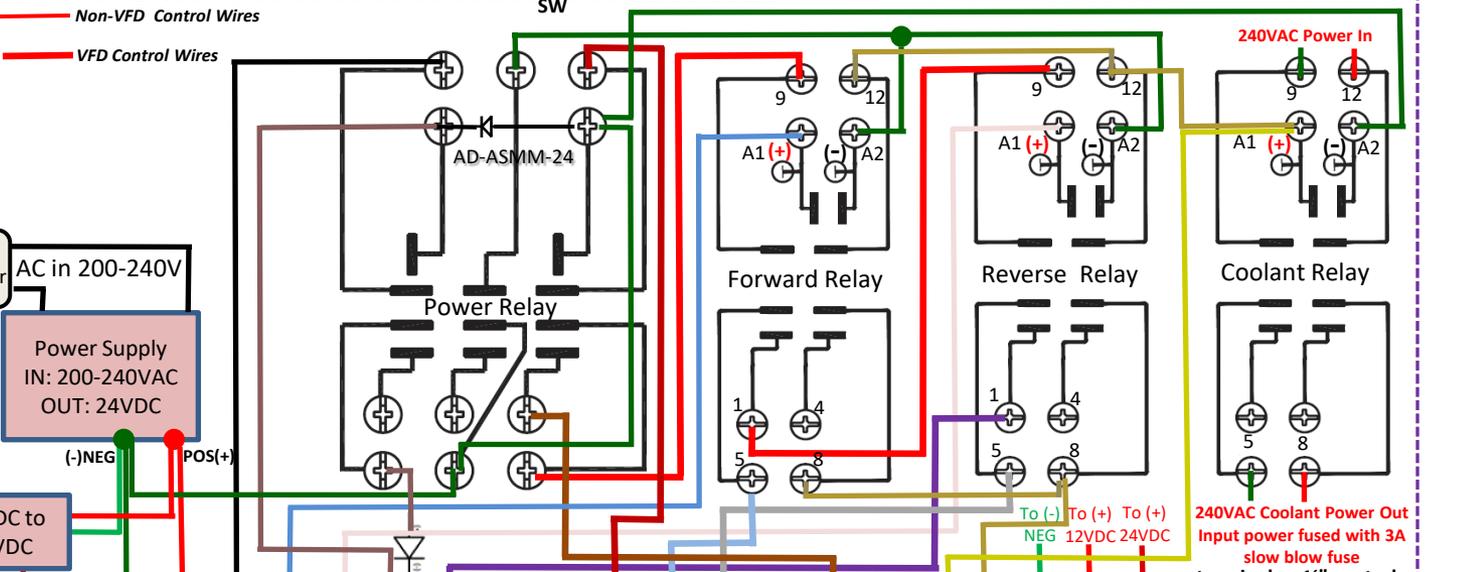
**VFD Connections**

**Front Panel Connections**

**FOR/STOP/REV Connections**

**Wires connected**

**White Wires**



**Speed Control**  
Use 4 conductor shielded cable (green wire is not used). ground cable shield on this VFD end only

**Input Terminal 5:**  
SW Closed 2 stage braking (3 sec)  
SW Open 1 stage braking (1 sec.) E-Stop & Prox. Stop is 1 stage only

**Input 4 = STOP and prevents restart**

**Input 3 = JOG**  
Input 2 = Reverse  
Input 1 = Forward

**VFD Shorting bar, connect stock black wire with blue ferrule jumper between L & PLC as shown make sure this is correct**

H

O

L

5

4

3

2

1

L

PLC

P24

15

14

13

12

11

10

**24v For Rev Stop**  
Use Existing Direction For, Rev, Stop Control Cable

**1 Brown, power in +24VDC** **2 White NC to LOAD**

NC mechanical safety stop SW (momentary)

**4 Black wire (NO contact) is not used**  
Black cable wire can be cut and used for safety stop SW

**3 Blue power supply ground 0 VDC (-)**

**NO (momentary) Prox. Bypass SW**

**Braking SW**  
Open = 1 stage  
Closed = 2 stage

Jog Joystick ON-OFF-ON For-Off-Rev

**PWR LED Light**

**E-STOP Twist SW**

**JOG For SWB1 Momentary** **JOG Rev SWB2 Momentary**

**Coolant Twist SW ON-OFF-ON Latching**

**5K Pot speed**

Belden Shielded VFD cable 8 conductor (18-22 AWG).  
Note: cable shield (drain wire) ground at VFD end only

Control Cable 12 conductor (18-22 AWG), no shielding is needed.

PM1340GT VFD Wiring Diagram for Hitachi WJ20 with an External Power Supply, Lighted E-Stop safety, 2-stage Braking, Joystick For/Rev JOG and 3 Way Lighted Coolant SW

**Diode 1N400X type: 1N4004**

**LED, 24VDC (use terminals on switch if lighted SW used. Note + and - polarity wiring)**

**Normally Open SW**

**Normally Closed SW**

**Control box**

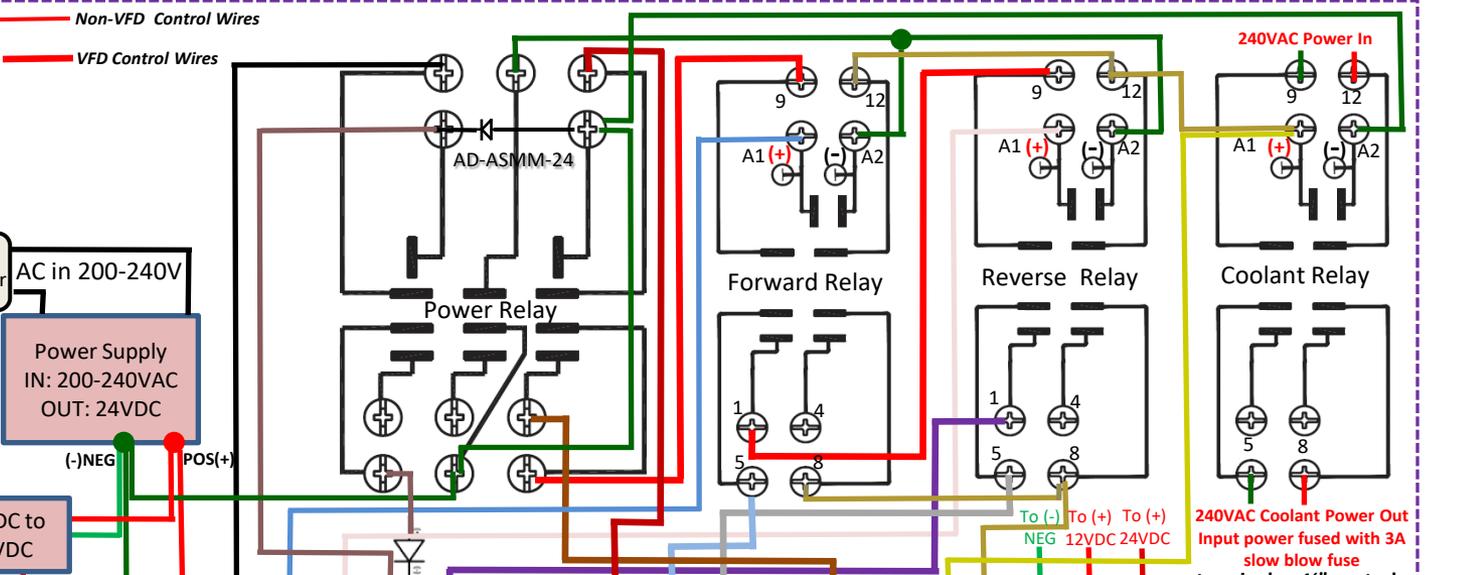
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**Front Panel Connections**

**FOR/STOP/REV Connections**

**Wires connected**

**White Wires**



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**19 12V**

**1 24V**

**20 24V**

**18 NEG 12VDC 24VDC**

**17 To (-) NEG 12VDC 24VDC**

**16 To (+) 12VDC 24VDC**

**15 To (+) 12VDC 24VDC**

**12VDC Tach. LED light**

**POS (+)**

**NEG (-)**

**24v For Rev Stop**  
Use Existing Direction For, Rev, Stop Control Cable

**19 12V**

**1 24V**

**20 24V**

**18 NEG 12VDC 24VDC**

**17 To (-) NEG 12VDC 24VDC**

**16 To (+) 12VDC 24VDC**

**15 To (+) 12VDC 24VDC**

**12VDC Tach. LED light**

**POS (+)**

**NEG (-)**

**Braking SW**  
Open = 1 stage  
Closed = 2 stage

**Jog Joystick**  
ON-OFF-ON  
For-Off-Rev

**PWR LED Light**

**E-STOP Twist SW**  
NC

**Coolant Twist SW**  
ON-OFF-ON Latching

**JOG For SWB1 Momentary**

**JOG Rev SWB2 Momentary**

**5K Pot speed**

**Control Cable 12 conductor (18-22 AWG), no shielding is needed.**

**Belden Shielded VFD cable 8 conductor (18-22 AWG).**  
Note: cable shield (drain wire) ground at VFD end only

PM1340GT VFD Wiring Diagram for Hitachi WJ200 with an External Power Supply, Proximity Limit SW, Lighted E-Stop safety, 2-stage Braking, Joystick For/Rev/JOG and Lighted 2 Way Coolant

**Diode 1N400X type: 1N4004**

**LED, 24VDC (use terminals on switch if lighted SW used. Note + and - polarity wiring)**

**Normally Open SW**

**Normally Closed SW**

**Control box**

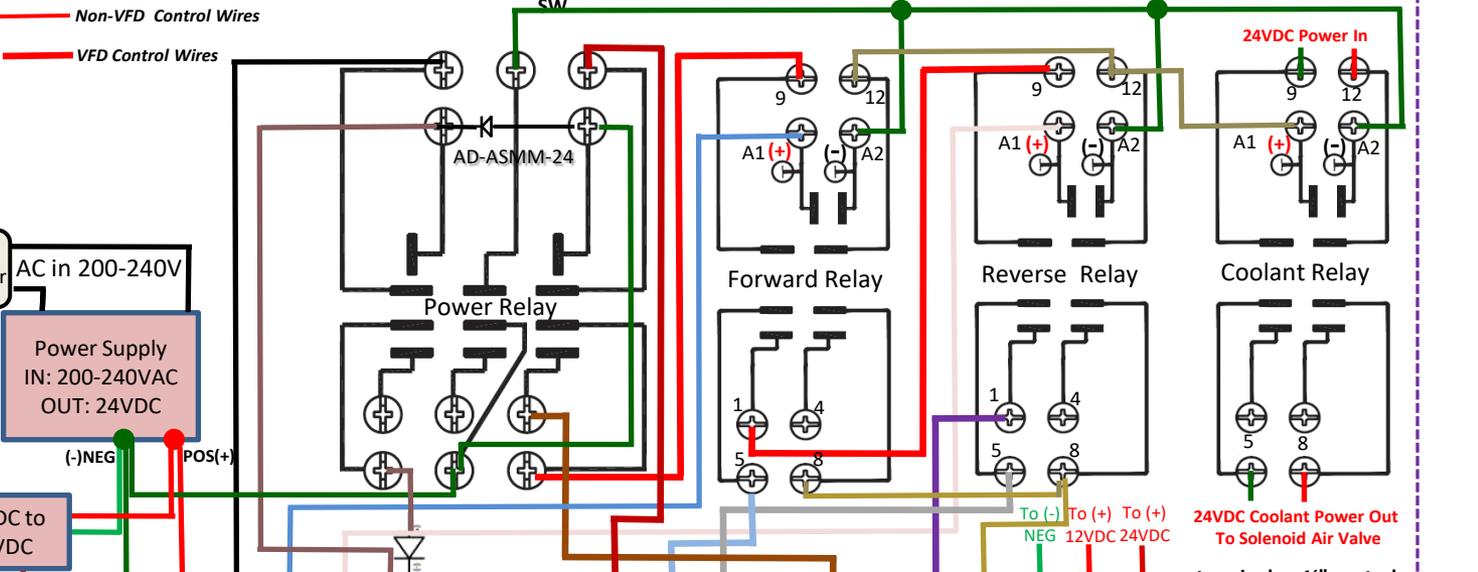
**VFD Connections**

**Front Panel Connections**

**FOR/STOP/REV Connections**

**Wires connected**

**White Wires**



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Use 4 conductor shielded cable (green wire is not used). ground cable shield on this VFD end only

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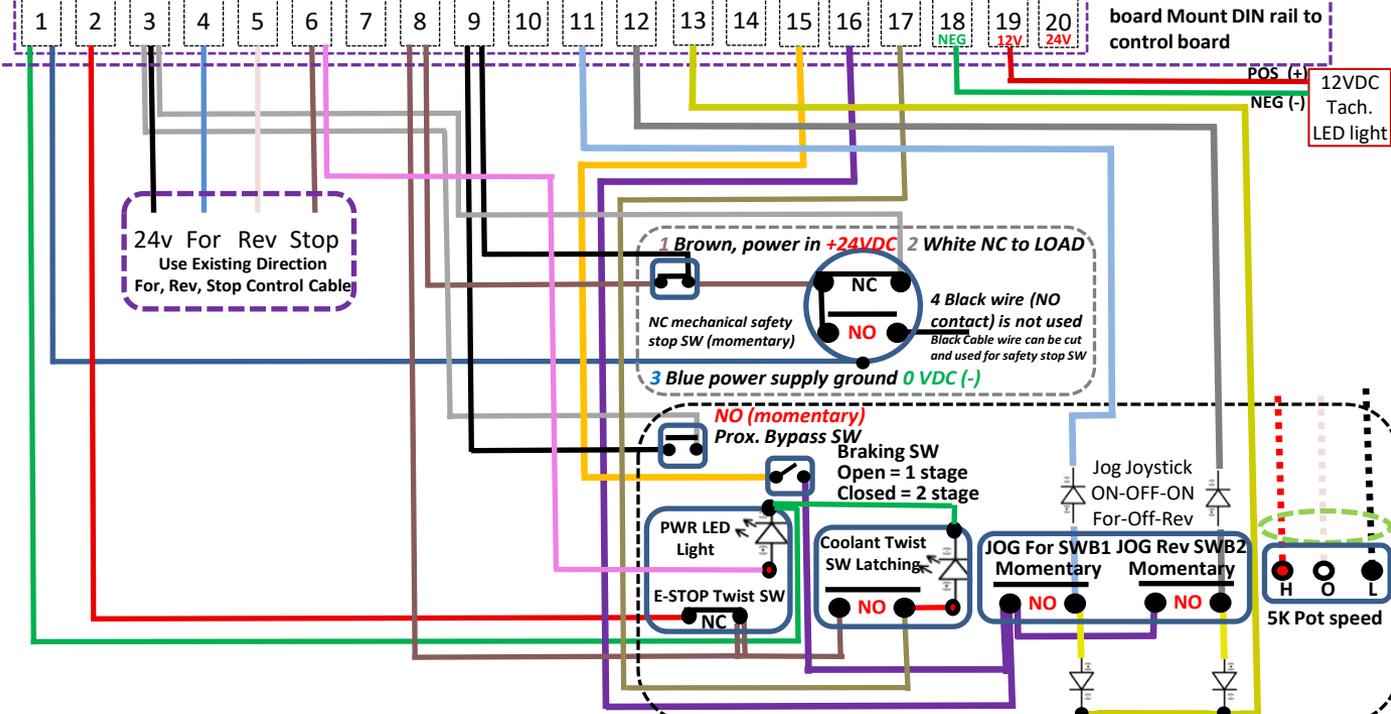
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H  
O  
L

5 4 3 2 1 L PLC P24

19 12V

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15



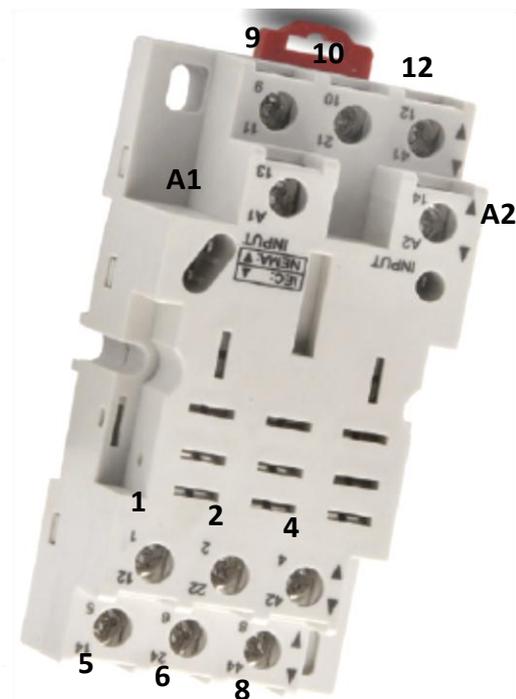
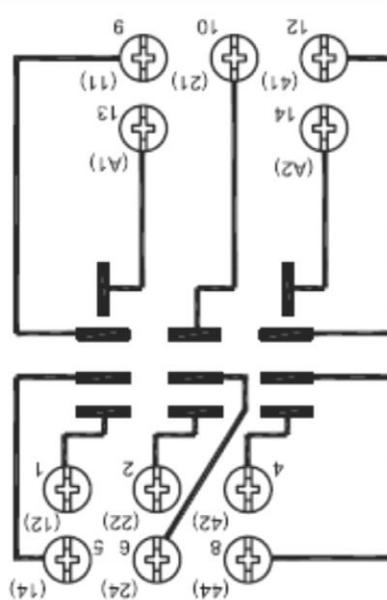
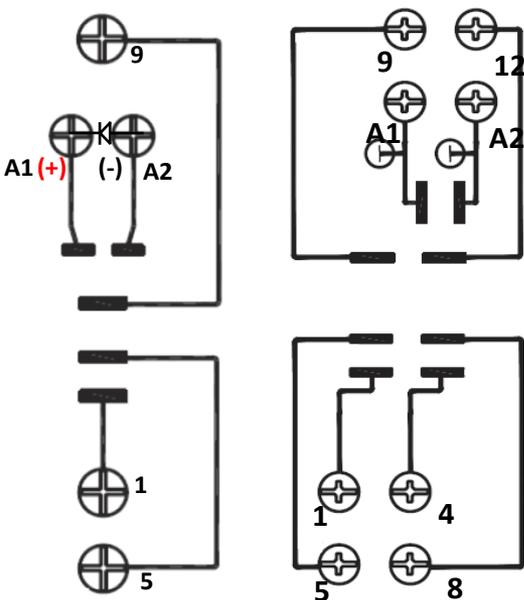
Belden Shielded VFD cable 8 conductor (18-24 AWG). Note: cable shield (drain wire) ground at VFD end only

Control Cable 12 conductor (18-24 AWG), no shielding is needed.

Relay sockets base view – wiring terminal numbers and connections looking down as shown

Note: Red Release is mounted UP as shown, **A1 is POS Coil**, **A2 is NEG Coil**

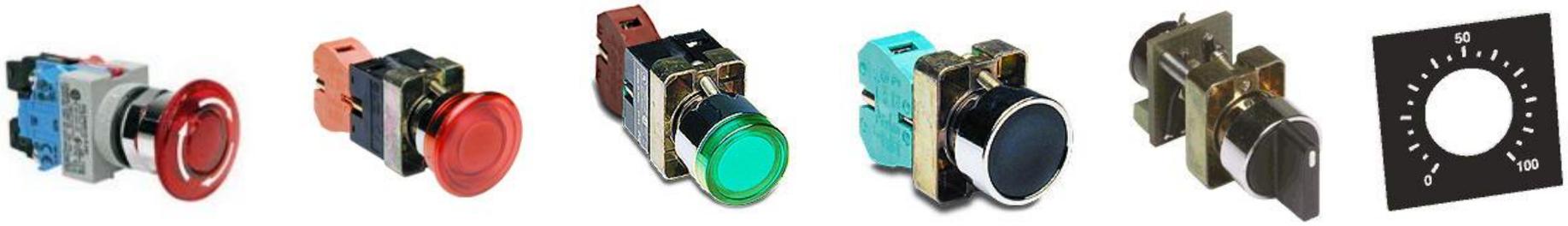
Top



Note that relay connections on socket bases are different than the relay spades, connect via the labeled numbers on the relay socket base screw terminals. Note proper polarity and orientation of diodes and LEDs, the banded side is the (-) cathode which is the T in the diode diagrams.

RELAY PROTECTION DIODE for 3 and 4 pole relays (Plug in diode AD-ASMM-24 or use 1A 200V or greater leaded diode) is recommended between A1 and A2 for Power Relay. If leaded diode, banded end is connected to A1.

Relay socket connections on the bottom of the relay are different (use terminals corresponding numbers above)



## AUTOMATION DIRECT

### E-Stop control #1

If unlit, use stock E-Stop or GCX1131 Pushbutton, 22mm metal, twist-to-release, red 40mm mushroom operator, 1 N.C. contact block  
 GCX1226-24L Pushbutton, 22mm metal, latch with twist-to-release, LED illuminated, red, 24 VAC/DC, 40mm mushroom operator, 1 N.C. contact block.  
 Or IDEC AVLW49902D-R-24V (use NC contact side), <http://www.onlinecomponents.com/idec-avlw49902dr24v.html?p=11547924>

Jog Button, momentary unlit guarded #1 or use stock unlit jog button, either requires separate LED 24V power light (GCX1232-24L)

GCX1100 Unlit Pushbutton, 22mm metal, momentary, black flush operator.

OR

Jog Button, momentary with green LED pilot light guarded #1

GCX1202-24L Pushbutton, 22mm metal, momentary, LED illuminated, green, 24 VAC/DC, flush operator with colored plastic ring,

Speed potentiometer #1 (or use provided potentiometer and mount in control plate)

ECX2300-5K 22mm potentiometer with 5 Kohm resistance, black handle. Legend plate ECX2640 sold separately

ECX2640 22mm legend plate for potentiometer with 0% to 100% marking

Relays and socket mount #3: (4 with coolant circuit), #1 diode pack AD-BSMD-250

783-3C-24D Ice cube control relay, 24 VDC coil voltage, 3PDT, 15A contact rating, with LED indicator and push-to-test button. Purchase 783-2C-SKT mounting socket separately.

783-3C-SKT RELAY SOCKET FOR 783 SERIES 3C relay

783-2C-24D Ice cube control relay, 24 VDC coil voltage, 2PDT, 15A contact rating, with LED indicator and push-to-test button. Purchase 783-2C-SKT mounting socket separately.

783-2C-SKT RELAY SOCKET FOR 783 SERIES 2C relay

AD-ASMM-24 DIODE FOR 783 and 784 SERIES PLUG-IN (Plug in diode between terminals A1 and A2 on relay base for 3P relay, 1 pack)

**Wiring:** Control cable 18-22G 4 wire shielded cable to connect the speed pot (use 3 wires, Red High, White wiper, Black low, green not used) to the VFD, and control box to VFD Control Cable (8 lead): 18-22 Gauge 8 conductor stranded Belden unshielded 9421 or shielded tinned cable wire Belden 9944 or similar 18-22G multi-conductor (Note: shielding only needed for VFD control wiring). 18-22 Gauge 10-12 conductor unshielded between control bog and front panel. Motor Cable Helukabel 600-C #63063 or equiv. 14G 4 conductor (3 wire + ground wire) between VFD and motor, double shielded, 1000V rating. Main power to enclosure: SEOOW 12/3 Flexible portable cord, 3 conductors, 12AWG, 600V maximum, -50 to 105 degrees C (runs longer than 25' require 10G wire). Standard Diodes 1N4004-1N4007 type or similar (1A minimum 400V) Mouser Electronics or eBay.

**DIN rail power supply for light:** Delta (60W) DRC-24V60W1AZ sold by Mouser Electronics or REIGNPOWER (100W) NL1100D-24 24VDC 4.2A (only 100W that will fit in control box, sold on eBay), otherwise use stock 24VAC transformer with fuse. Tachometers are usually 9-12VDC and require a small step-down buck converter.

**Breaker/Power Disconnect:** 2 Pole supplementary - DIN rail, Breaker C trip curve or fuse cartridges/holder, optional power disconnect switch

**Proximity Switch:** Automation Direct PFK1-BP-3H, requires M12 2 meter (6.5') cable for proximity switch: EVC178

**Mini Switches:** Toggle ON-ON for 1 or 2 stage braking and jog direction; Proximity mechanical safety stop/bypass switches (2 required), Momentary pushbutton, NC and NO ON-(ON) (come with custom holder)

NOTE: Please verify all components and part numbers before placing any orders.