

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

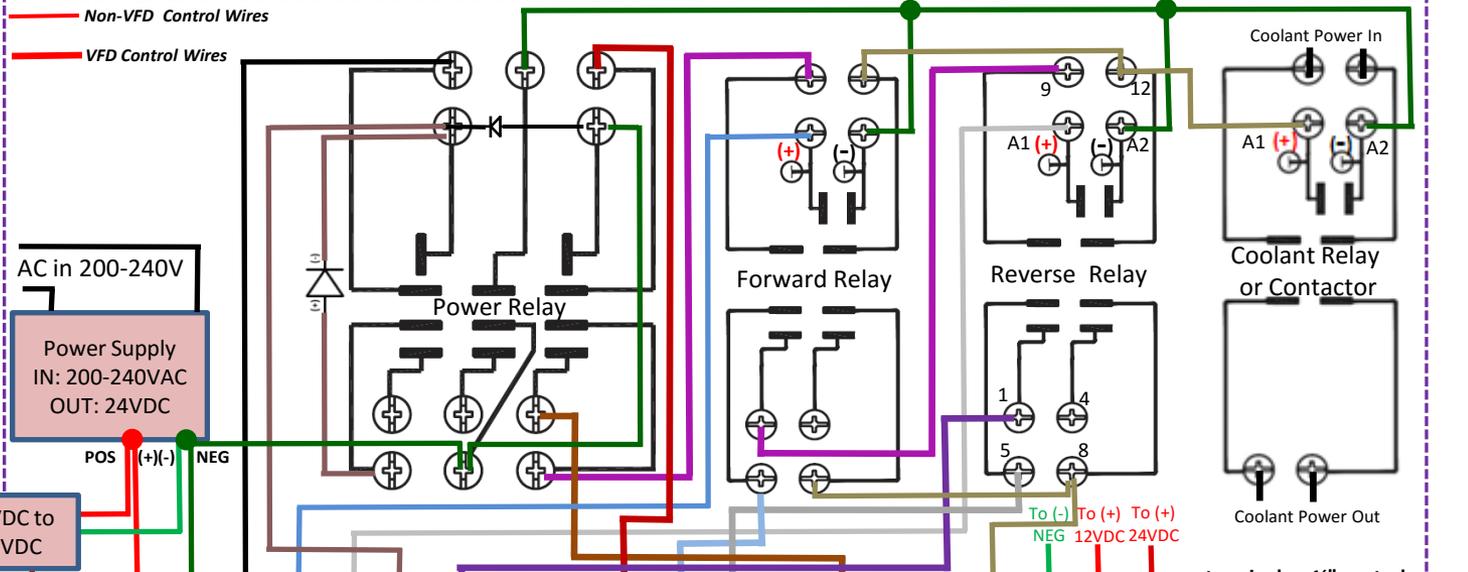
VFD Connections

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 6: ON = Free Run Command

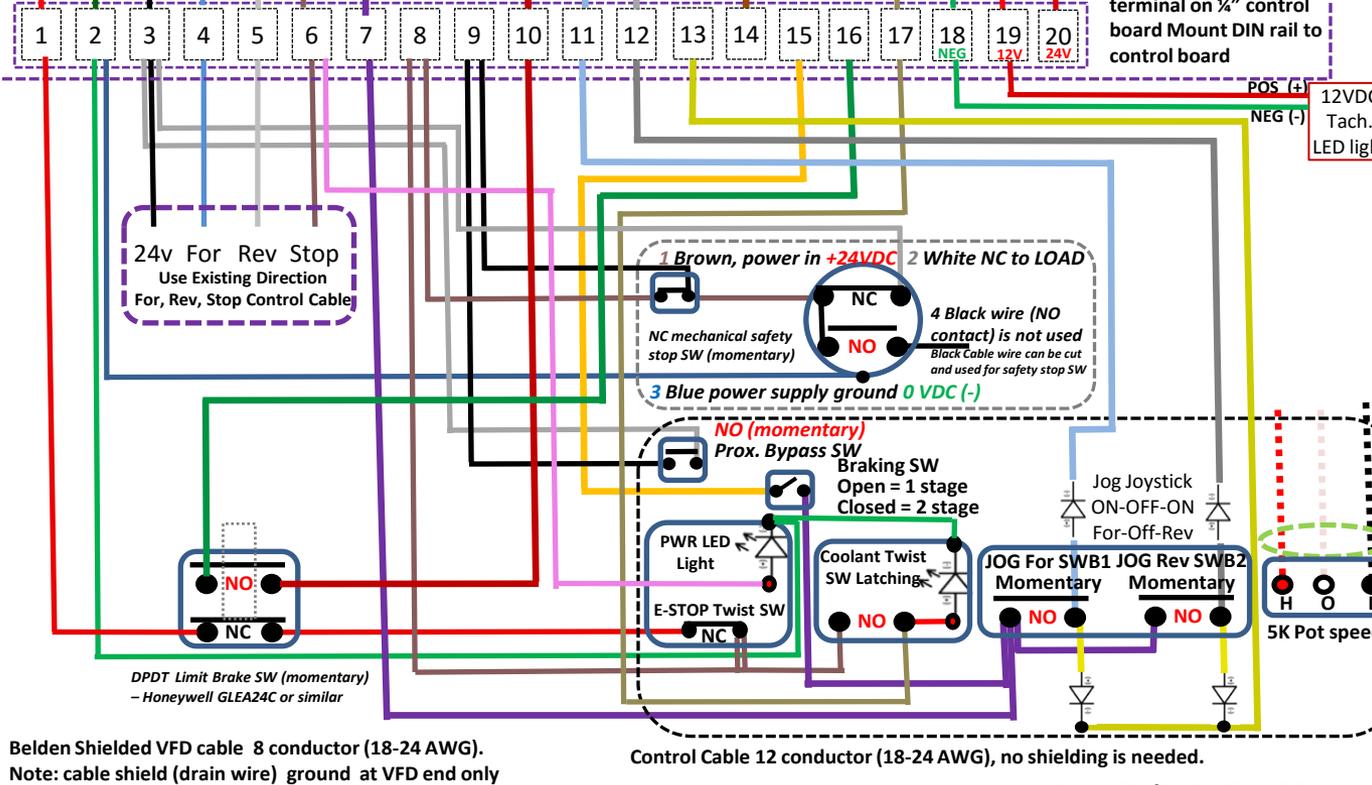
Input 5: SW Closed 2 stage braking (3 sec); SW Open 1 stage braking (1 sec.) E-Stop & Prox. Stop is 1 stage only

Input 4 = STOP, no restart command

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

P24



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.

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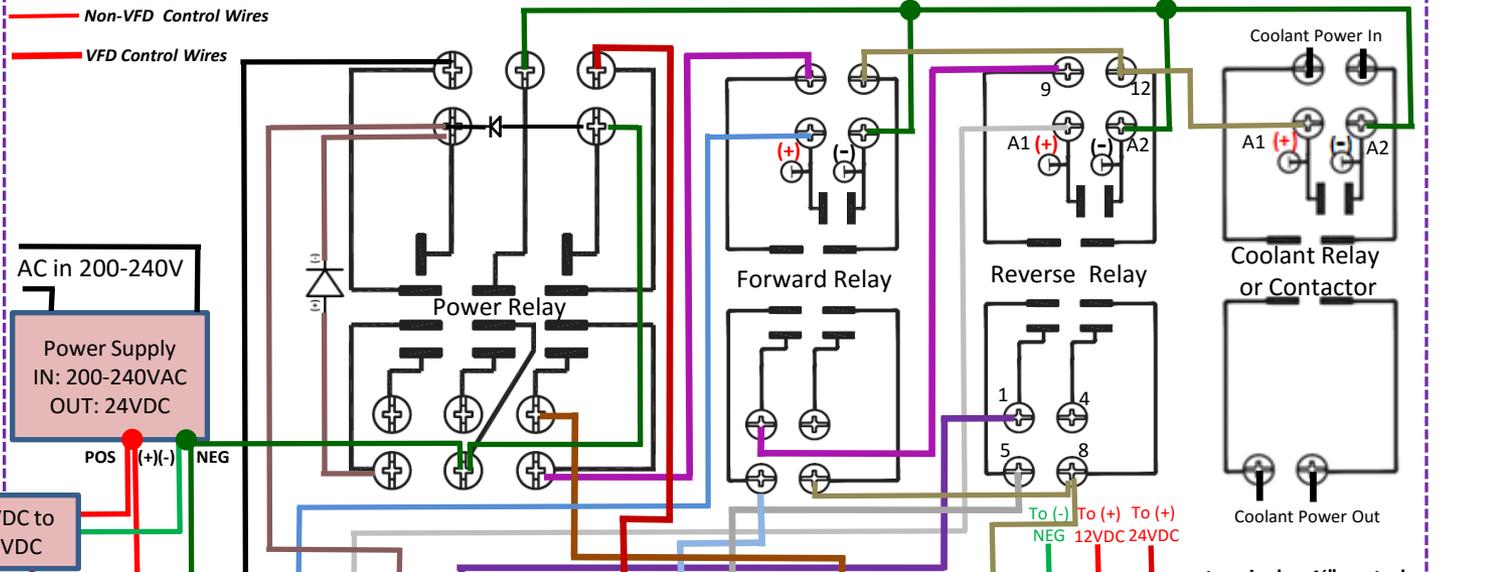
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P24

H O L

6 16

5 15

4 14

3 13

2 12

1 11

L

PLC

10

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

Braking SW
Open = 1 stage
Closed = 2 stage

PWR LED Light

E-STOP Twist SW

Coolant Twist SW Latching

JOG For SWB1 Momentary

JOG Rev SWB2 Momentary

5K Pot speed

DPDT Limit Brake SW (momentary) - Honeywell GLEA24C or similar

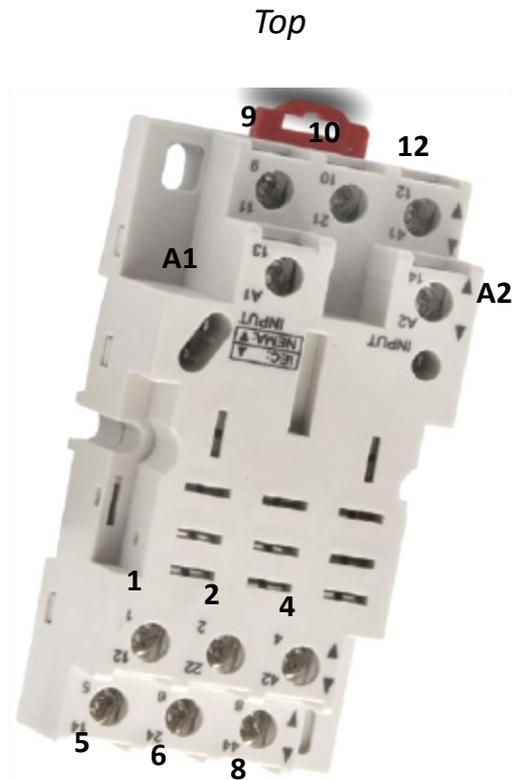
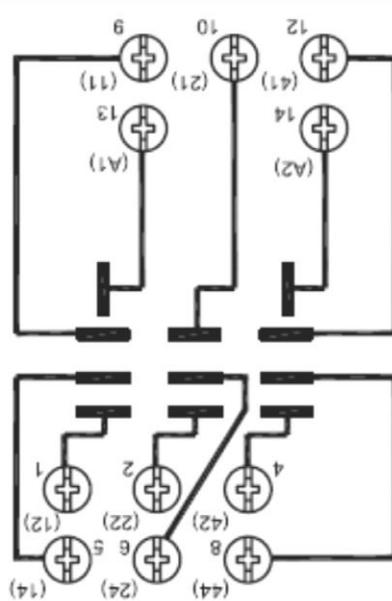
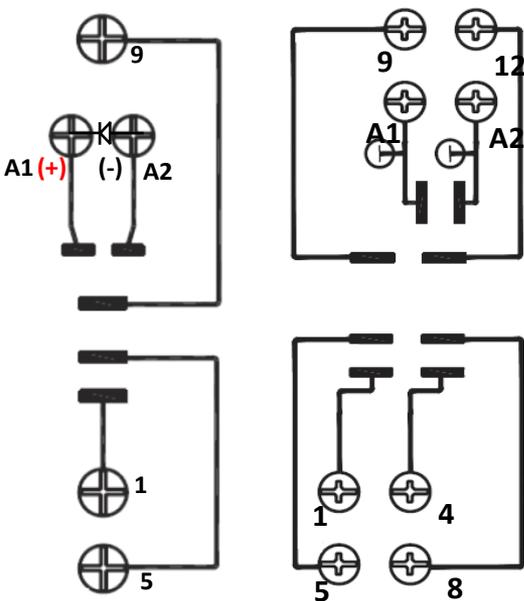
Jog Joystick ON-OFF-ON For-Off-Rev

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

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

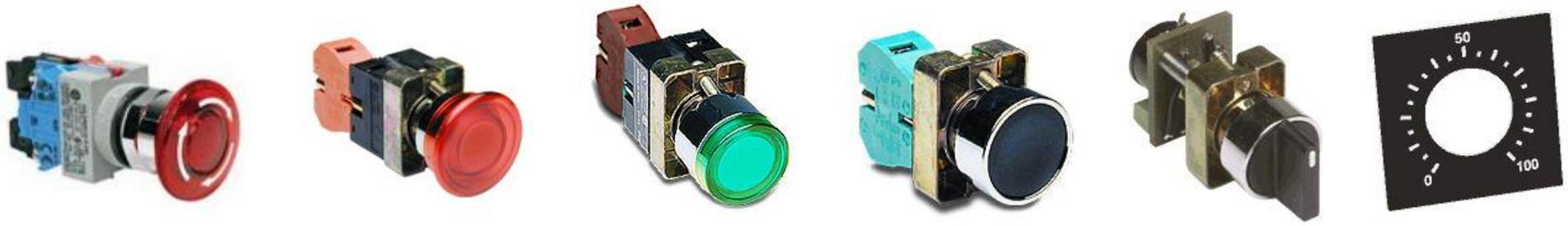
Note: Red Release is mounted UP as shown, **A1 is POS Coil**, **A2 is NEG Coil**



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. **\$20.50**

Or IDEC AVLW49902D-R-24V (use NC contact side), <http://www.onlinecomponents.com/idec-avlw49902dr24v.html?p=11547924>

Jog Button FORWARD ONLY, 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, 1 N.O. contact block. **\$19.50**

OR Jog Button FORWARD-OFF-REVERSE Joystick, momentary

ECX1510 SEL SW 22mm METAL 2 N.O. MOM 2-POS JOYSTICK METAL BEZEL must be used with Diodes on schematic. **\$26.50**

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

ECX2300-5K 22mm potentiometer with 5 Kohm resistance, black handle. **\$36.50. Legend plate ECX2640 sold separately**

ECX2640 22mm legend plate for potentiometer with 0% to 100% marking **\$3.50**

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 783-3C-SKT mounting socket separately. **\$8.25**

783-3C-SKT RELAY SOCKET FOR 783 SERIES 3C relay **\$4.50**

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. **\$8.25**

783-2C-SKT RELAY SOCKET FOR 782 SERIES 2C relay **\$4.50**

AD-ASMM-24 DIODE FOR 783 and 784 SERIES PLUG-IN (Plug in diode between terminals A1 and A2 on relay base for main power relay, comes in a 5 pack, so order 1 pack) **\$8.00**

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 shielded 14G 4 conductor (3 wire + ground wire) between VFD and motor, shielded, 600V rating. Main power to enclosure: SE00W 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 (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: FAZ-D30-2-NA2 Pole supplementary - DIN rail, Breaker D trip curve (\$35.00 Automation Direct) or fuse cartridges/holder, optional power disconnect switch

Proximity Switch: Automation Direct PFK1-BP-3H (\$49.50), requires M12 2 meter (6.5') cable for proximity switch: EVC178 (\$11.00). Cable included with custom holder \$100.

Mini Switches: Toggle ON-ON for 1 or 2 stage braking and jog direction (\$10.00); Proximity mechanical safety stop/bypass switches (2 required), Momentary pushbutton, NC and NO (\$20) ON-(ON) (come with custom holder)

DN-R35SAL1-2 Aluminum DIN rail, 35mm x 10mm, slotted, silver, 1 meter (3 feet 3 inches) length. 2 pieces per package.

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