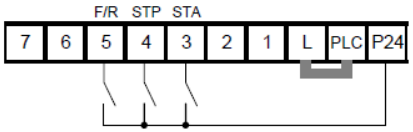
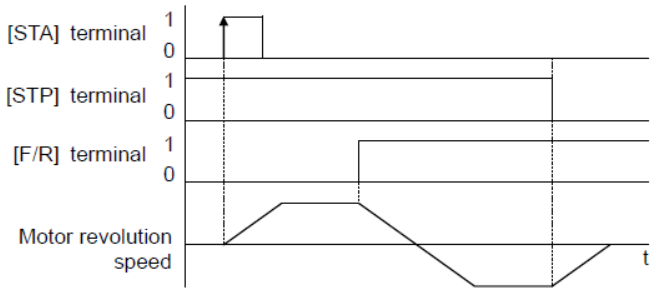
Three-wire Interface Operation

The 3-wire interface is an industry standard motor control interface. This function uses two inputs for momentary contact start/stop control, and a third for selecting forward or reverse direction. To implement the 3-wire interface, assign 20 [STA] (Start), 21 [STP] (Stop), and 22 [F/R] (Forward/Reverse) to three of the intelligent input terminals. Use a momentary contact for Start and Stop. Use a selector switch, such as SPST for the Forward/Reverse input. Be sure to set the operation command selection A002=01 for input terminal control of motor.

If you have a motor control interface that needs logic-level control (rather than momentary pulse control), use the [FW] and [RV] inputs instead.

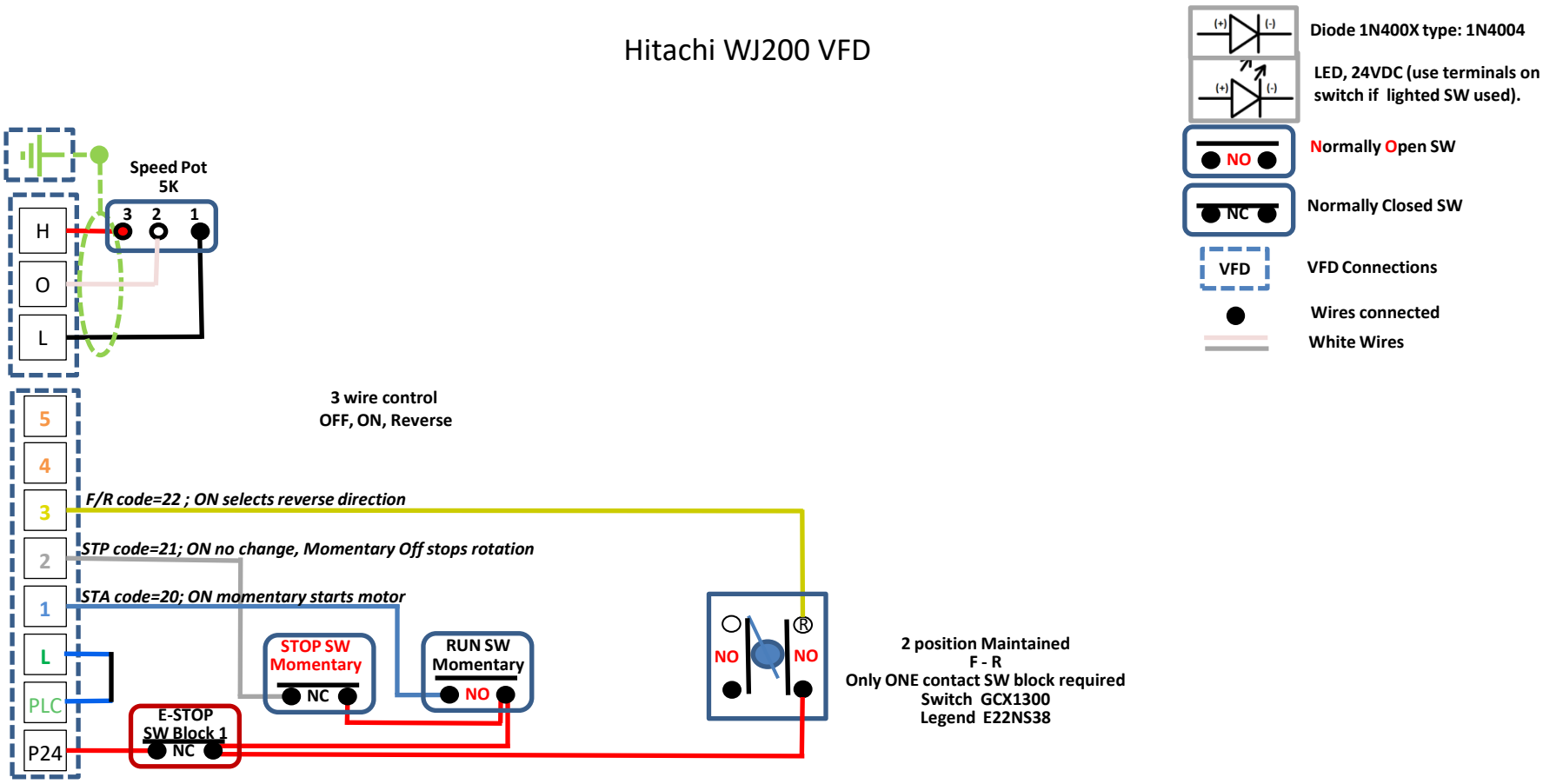
Option Code	Terminal Symbol	Function Name	State	Description
20	STA	Start Motor	ON	Start motor rotation on momentary contact (uses acceleration profile)
			OFF	No change to motor operation
21	STP	Stop Motor	ON	No change to motor operation
			OFF	Stop motor rotation on momentary contact (use deceleration profile)
22	F/R	Forward/Reverse	ON	Select reverse direction of rotation
			OFF	Select forward direction of rotation
Valid for inputs:		C001~C007		Example (default input configuration shown):
Required settings		A002 = 01		
Notes: • The STP logic is inverted. Normally the switch will be closed, so you open the switch to stop. In this way, a broken wire causes the motor to stop automatically (safe design). • When you configure the inverter for 3-wire interface control, the dedicated [FW] terminal is automatically disabled. The [RV] intelligent terminal assignment is also disabled.				 See I/O specs in chapter 4.

The diagram below shows the use of 3-wire control. STA (Start Motor) is an edge-sensitive input: an OFF-to-ON transition gives the Start command. The control of direction is level-sensitive, and the direction may be changed at any time. STP (Stop Motor) is also a level-sensitive input.



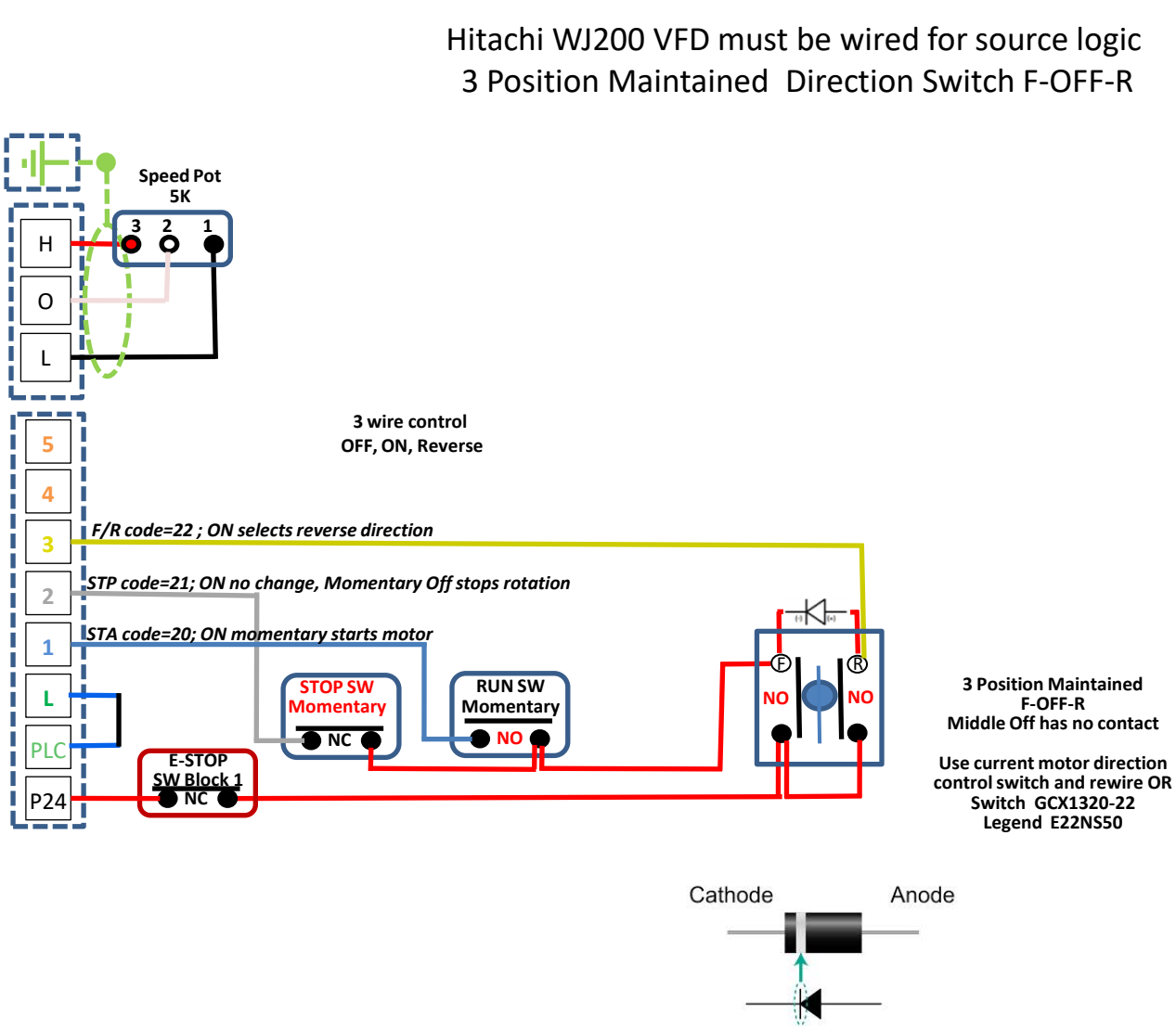
Basic 3 Wire Mill Control With E-Stop Switch, no indicator ON light

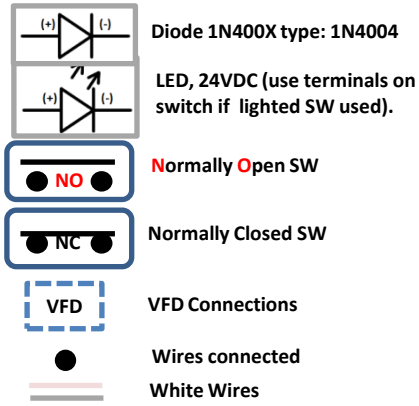
Hitachi WJ200 VFD



Basic 3 Wire Mill Control With E-Stop Switch, no indicator ON light

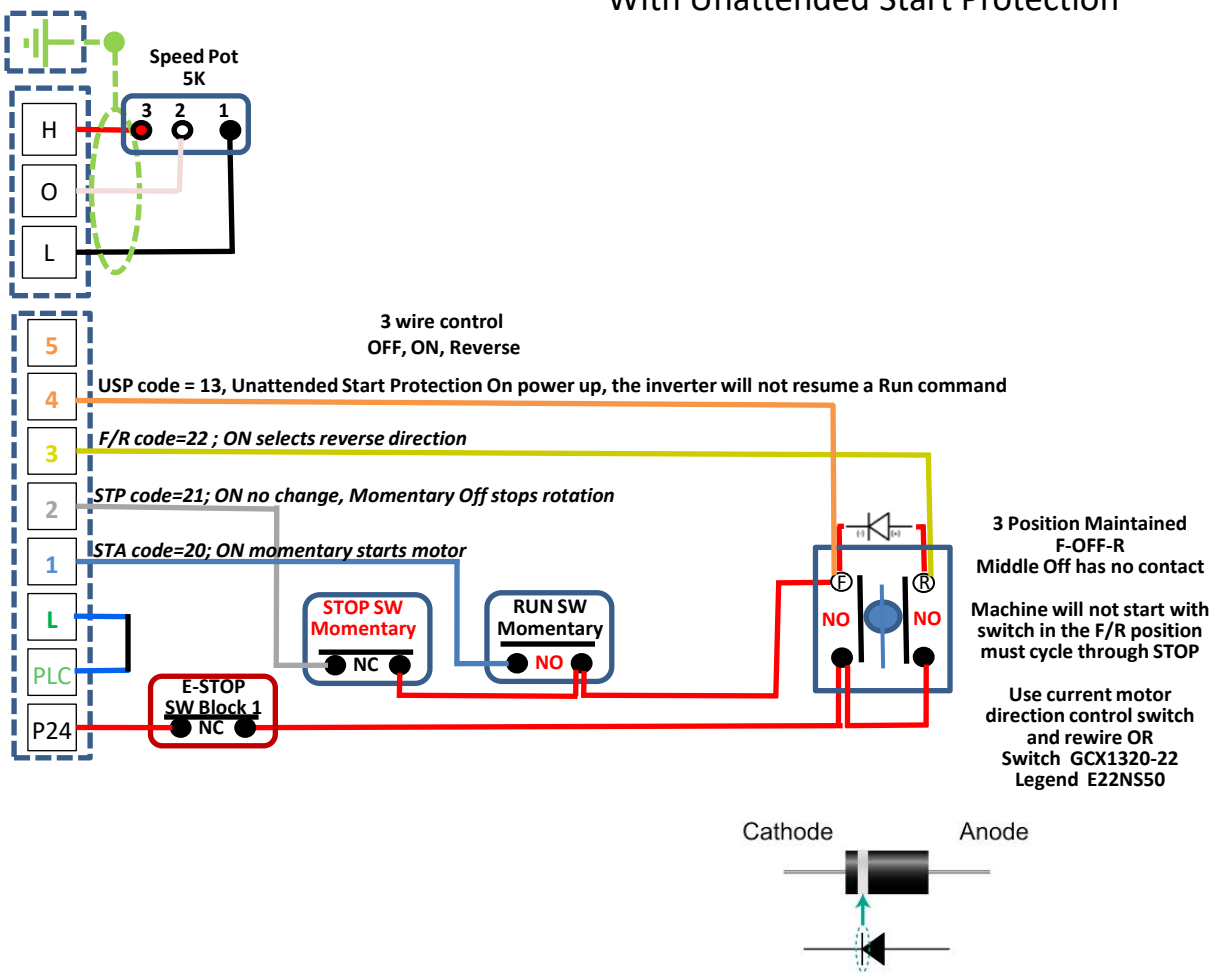
Hitachi WJ200 VFD must be wired for source logic
3 Position Maintained Direction Switch F-OFF-R

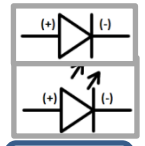




3 Wire Mill Control With E-Stop Switch, no indicator ON light

Hitachi WJ200 VFD must be wired for source logic
3 Position Maintained Direction Switch F-OFF-R
With Unattended Start Protection





Diode 1N400X type: 1N4004

LED, 24VDC (use terminals on switch if lighted SW used).

Normally Open SW

Normally Closed SW

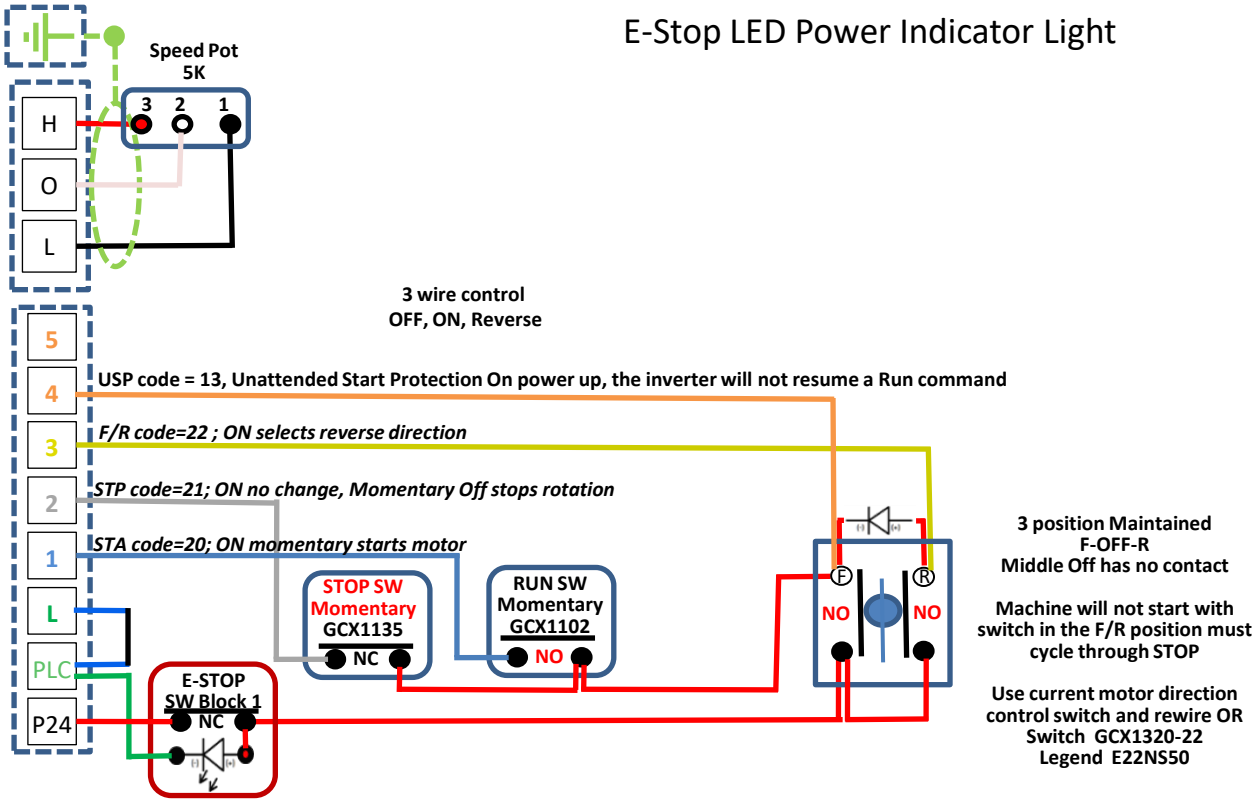
VFD Connections

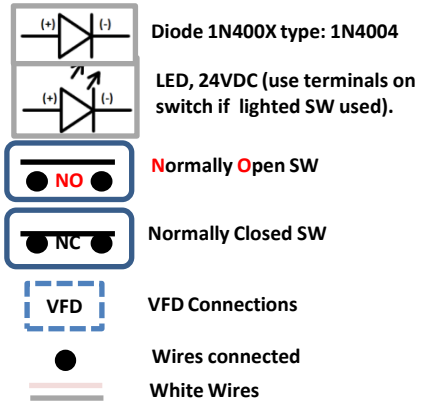
Wires connected

White Wires

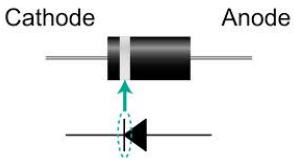
3 Wire Mill Control With Lighted ON E-Stop Switch

Hitachi WJ200 VFD must be wired for source logic
3 Position Maintained Direction Switch F-OFF-R
With Unattended Start Protection
E-Stop LED Power Indicator Light



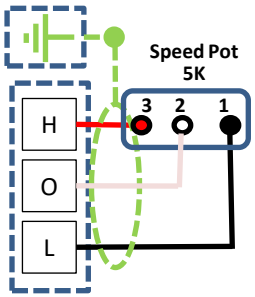


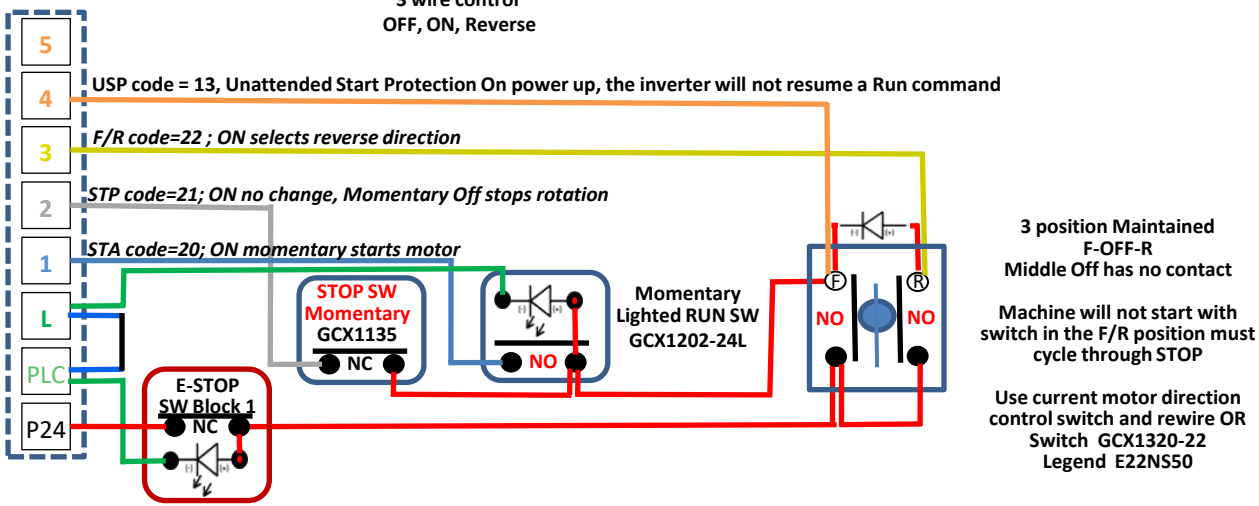
Lighted E-Stop **AR22V0L-01E3R OR IDEC AVLW49911D-R-24V**
LED goes on with VFD power and E-Stop not pushed in
LED in switches is not polarity sensitive
Jumper cable L to PLC and to LED is fabricated
Use crimp pins for all VFD logic and speed pot inputs



3 Wire Mill Control With Lighted ON E-Stop Switch
Momentary Green Run light is ON when RUN selector in F/R Position

Hitachi WJ200 VFD must be wired for source logic
3 Position Maintained Direction Switch F-OFF-R
With Unattended Start Protection
E-Stop LED Power Indicator Light
Green Run Indicator LED Light in RUN Switch



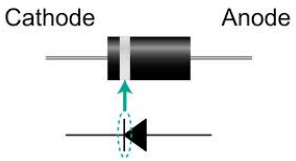


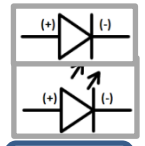
3 position Maintained
F-OFF-R
Middle Off has no contact

Machine will not start with switch in the F/R position must cycle through STOP

Use current motor direction control switch and rewire OR
Switch GCX1320-22
Legend E22NS50

Lighted E-Stop AR22V0L-01E3R OR IDEC AVLW49911D-R-24V
LED goes on with VFD power and E-Stop not pushed in
LED in switches is not polarity sensitive
Jumper cable L to PLC and to LED is fabricated
Use crimp pins for all VFD logic and speed pot inputs





Diode 1N400X type: 1N4004

LED, 24VDC (use terminals on switch if lighted SW used).

Normally Open SW

Normally Closed SW

VFD Connections

Wires connected

White Wires