

Automation

Consultants Inc.

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Emergency Stop Alarm (Not Ready alarm)

The CNC control is told to enter into an emergency stop state by the ladder logic. A signal from the ladder logic to the control will place the machine into an e-stop state. The 0 control uses G21.4 while the 21 control uses G8.4 for the e-stop command. These signals must be high in order for the machine to be in normal operation. They can be observed in the ladder logic or diagnostics pages.

Most of the e-stop problems are related to the e-stop string. This is a string of contacts that send a 24 volt signal to the control. When troubleshooting an e-stop alarm always check the 24 volt power supply first. The +24V comes from the supply and goes through the e-stop push buttons. From there it goes through each of the over travel limit switches on the axis. After this, it goes through the overloads located on the bottom of each motor starter. If all of these components are good the voltage will turn on an ice cube relay labeled EMG.

This relay will send a signal to the control that the machine is OK and ready to run. If the EMG relay does not activate the control will assume that there is a problem and place the machine into an e-stop condition.

If the power supply is good verify that all of the e-stop push buttons are functioning. Don't forget about the one on the back or side of the machine.

It's easy to see if the problem is with one of the over travel limit switches. Each machine has a by-pass button that will allow you to over ride the limit switch. This allows you to power up the machine and carefully move the axis away from the switch. If you hold this button in and the machine powers up then the problem is with one of the over travel limits. Check to see if one of them is stuck.

The over loads used on the motor starters have a trip indicator and reset button. If the overload has tripped then there may be something wrong with one of the high voltage components. Don't just reset the overload without checking on why it tripped.

The EMG relay is the last thing in line. While it's rare for this to fail, it can happen.

The diagnostic to see if the e-stop string is working is X21.4 for the 0 control or X8.4 for the 21 control. Keep in mind that the e-stop input is just one input in the ladder logic. Other inputs are also used. Some of these include oil alarms or servo alarms. Look at the coil for the e-stop signal to verify why the machine is in an emergency stop state. The 0 control coil is G121.4 and the 21 is G8.4.

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