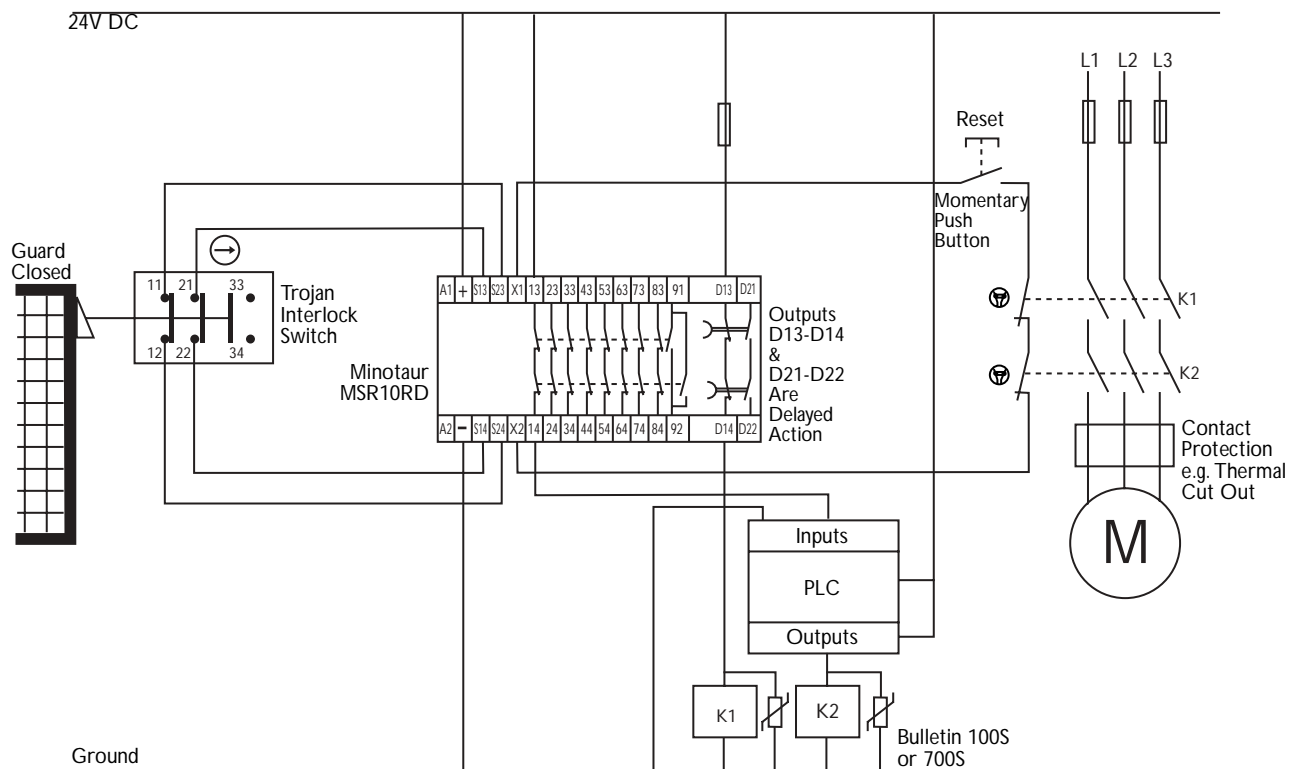


Tongue Interlocks

Trojan 5, MSR10RD, Bulletin 100, PLC, Dual Channel



Circuit Status

Circuit shown with guard door closed, ready for motor starting (via signals from the PLC).

Operating Principle

The Minotaur MSR10RD immediate action outputs at 13-14 are connected to inputs at the PLC and the delayed outputs at D13-D14 are connected to the contactor K1. The relevant PLC outputs are connected to contactor K2. If the guard is opened the Minotaur contacts 13-14 immediately signal the PLC to stop the motor. The PLC then has a pre-set time limit (adjustable at the MSR10RD) to execute its shut down sequence and switch OFF contactor K2. After this time period has elapsed, the delayed action outputs D13-D14 will switch off contactor K1, thus ensuring isolation even if there is a hardware, program or systematic fault in the PLC.

Fault Detection

If either contactor K1 or K2 sticks ON, the motor will stop on command but the Minotaur cannot be reset (thus the fault is revealed to the operator).

A single fault detected on the Minotaur input and output circuits will result in the lock-out of the system to a safe state (OFF). All safety critical single faults will be detected at the next opening of the guard.

Comment

This system has the high integrity of hard wiring and allows a correctly sequenced shut-down which protects the machine and program.

