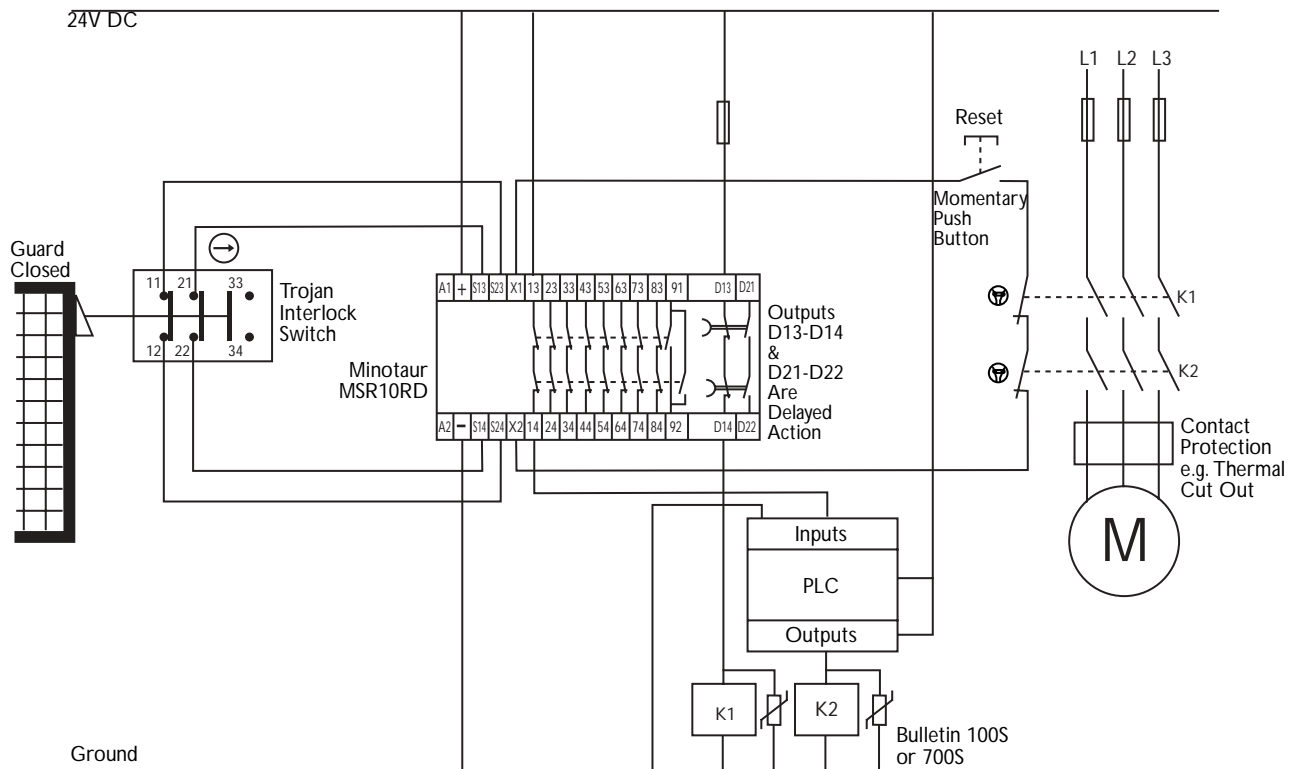


## Tongue Interlocks

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.

