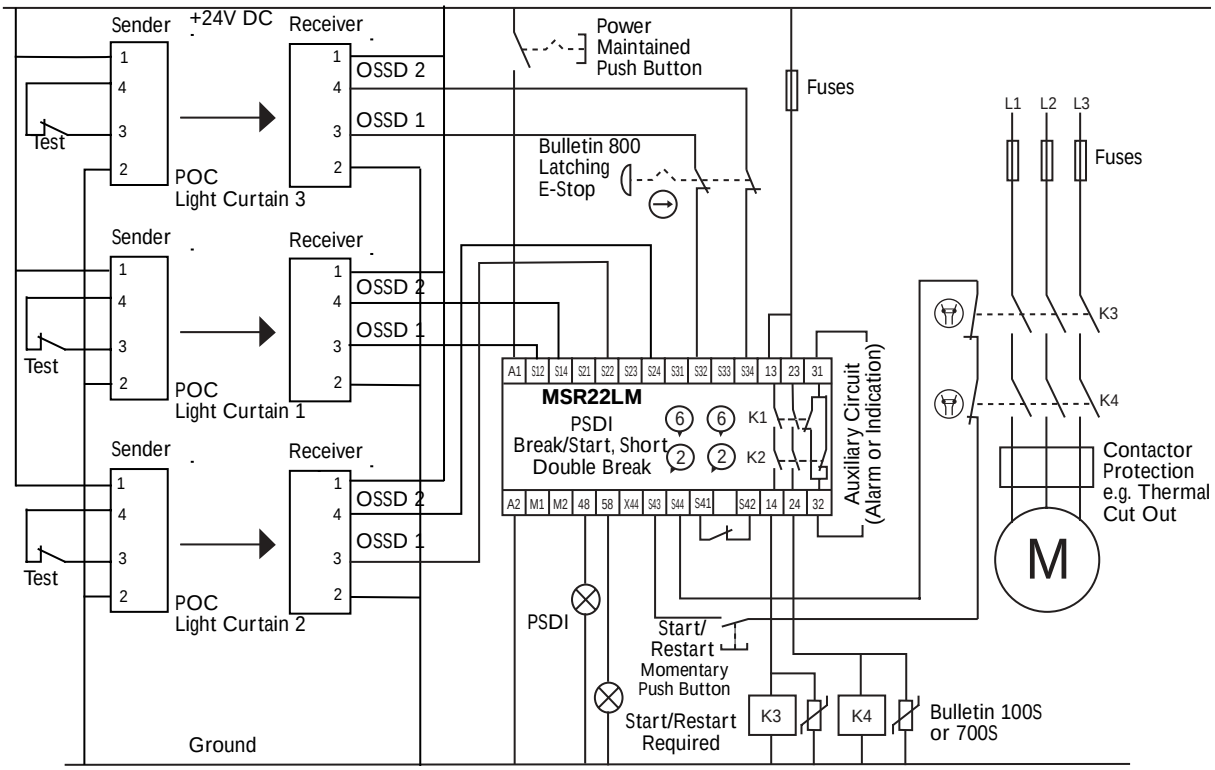
Light Curtains

POC, Bulletin 800, MSR22LM (PSDI), Bulletin 100S, Dual Channel



Circuit Status

Circuit shown with the three light curtains powered. The MSR22LM is not powered. The motor is off.

Operating Principle

Presence Sensing Device Initiation (PSDI) enables automatic restart of a machine after a certain number of accesses into the protected area through a light curtain. Only Light Curtain 1 (LC1) is used for PSDI; the other two light curtains operate in guard only mode.
Press the maintained Power button to apply power to the MSR22LM. Break LC1 twice. Then press and release the Start/Restart button to energize the contactors K3 and K4. The machine runs and opens the contact between S41 and S42, which de-energized K3 and K4, and turns the machine off.
Reach through LC1 and remove part from the machine. Reach through LC1 a second time to load the next part. Upon removal of the hands from LC1, contactors K3 and K4 will energize and automatically start the machine for the next cycle; no additional actions are required.
The Bulletin 800 e-stop can be used at any time to stop the motor. To restart the motor, release the e-stop button and then repeat the start sequence.

Fault Behavior

A single fault will not cause a loss of the safety function. If either contactor K3 or K4 sticks on, the motor will stop on command due to the other contactor. Indicators connected to the auxiliary contacts reveal the stuck contactor. A short across the Start/Restart button will be evident by a flashing Start/Restart Required lamp. If an open circuit is detected in the light curtain wiring, the MSR22LM will open its output, shutting off the motor. A single fault detected on the MSR22LM safety input circuits will result in the lock-out of the system to a safe (off) state. Diagnostic information is provided by a flashing code on the Run LEDs (see MSR22LM installation instructions). Cycle the power to reset the MSR22LM after a lockout condition is cleared.

Comments

There are four different methods of implementing muting with the MSR22LM. Check the instruction manual for further details. This type of arrangement is suitable for low to medium risk applications and does not meet Control Reliability requirements per ANSI B11 standards, as contactor monitoring is not interlocked to the control system. Design and installation of the light curtains must take into account the safety distance calculation Ds = K (Ts + Tc +Tr) + Dpf. See Section 1, *Safety Principles*, for details.