

# Course PLC Project # 3: Airlock Door Control

The airlock with two sliding doors (A and B) has been installed in order to keep a room as free of dust as possible. Design Ladder diagram to fulfill the following function description.

- *Function description*

Either momentary-contact pushbutton S1 or S2 must be actuated in order to pass the airlock. In addition to the momentary-contact pushbuttons, signal lamps have been installed to indicate that the control system has recognized the signal from the associated pushbutton.

For instance, pushbutton S1 is actuated when a person wants to enter the room. Door A opens and the person enters the airlock. The door closes again three seconds later. Door B then opens automatically when door A is closed. An analogous sequence is used for the reverse direction.

Each door is equipped with two inductive limit switches which signal when the door is open or closed. In addition, a photoelectric light barrier monitors each entry to the airlock. The door may not close as long as the light barrier is interrupted. A door opens again immediately when the associated light beam is interrupted while the door is in the process of closing or when the associated pushbutton (S1, S2, S3, or S4) is actuated.

It is possible that a person might enter the airlock without first actuating S1 or S2 by passing through a door that was still open because another person just left the airlock. Pushbuttons S3 and S4 were therefore installed in the airlock to open door A (S3) or Door B (S4) in an emergency.

