

Course PLC Project # 5: Traveling Hopper Control

A traveling hopper is used to transport material from position A to position B and C. The hopper has a travel motor (M1) and a motor (M2) that opens and closes the chute gate. Design Ladder diagram to fulfill the following function description.

- *Function description*

The hopper moves to position B (limit switch S2 actuated) when

- It was already in position A (limit switch S1 actuated)
- The chute gate is closed (S7 actuated) and
- Start button S0 is pressed.

In position B, the chute gate is opened and material discharged for a period of 6 seconds (T1). When time T1 has expired, the hopper gate is closed and the hopper moves to position C (limit switch S3 actuated).

In position C, the gate is opened for 4 seconds (T2), after which closes again and the hopper moves back to position A. New material can be then loaded.

Indicator lamp H0 flashes while the hopper is in motion.

Pressing OFF button S13 can interrupt the sequence. When the hopper has come to standstill, momentary contact pushbutton S10 can be actuated to return it to position A.

The two motors are protected by thermal overcurrent releases F1 and F2.

