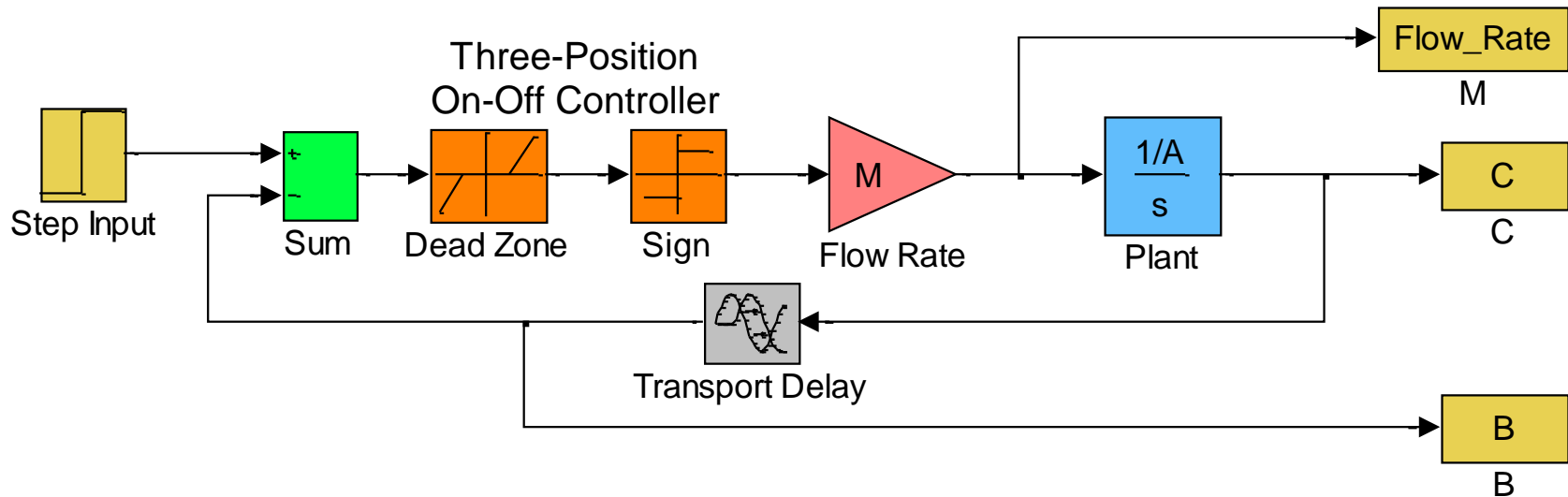


B = feedback signal
 E = actuating signal
 R = reference input
 R_s = step reference input

M = manipulated input
 C = controlled variable

MatLab / Simulink Block Diagram

Tank Level Feedback Control System



$M = 3, A = 2, \tau_{dt} = 0.1$: stable

$M = 5, A = 2, \tau_{dt} = 0.2$: unstable

Instability in a feedback control system results from an **improper balance** between the strength of the corrective action (here the combination of M and $1/A$) and the system dynamic lags (here the transport delay).

