



$$P(0) = P_0 = P_0^T > 0, P_0 = \rho \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}, z = y(k), \phi = [y(k-1) \quad u(k-1)]^T,$$

$$\theta = [\theta_1 \quad \theta_2]^T, \hat{a} = \frac{-\ln \hat{\theta}_1}{T_S}, \hat{b} = \frac{\hat{\theta}_2 \hat{a}}{1-\hat{\theta}_1}, \text{ and } T_S \text{ is sampling time.}$$