

**Luse, D. William****Multivariable singularly perturbed feedback systems with time delay.** (English)

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The paper deals with a singularly perturbed linear control system with time delays appearing in the feedback loop. The frequency domain technique is used to derive stability conditions for the closed-loop system. Two cases are considered: when the feedback depends on the small parameter that represents the singular perturbation and on the small time delay, and when the feedback is with a fixed large time delay. A Nyquist-type criterion is obtained in terms of the properties of the slow and the fast subsystems.

Reviewer: [A.Dontchev](#)**MSC:**[93D15](#) Stabilization of systems by feedback[34E15](#) Singular perturbations, general theory for ordinary differential equations[93C35](#) Multivariable systems, multidimensional control systems[34K35](#) Control problems for functional-differential equations[93C05](#) Linear systems in control theoryCited in **6** Documents**Keywords:**

singularly perturbed linear control system with time delays; frequency domain; stability conditions; Nyquist-type criterion

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