Abstract

This paper investigates a method for the state estimation of nonlinear systems described by a class of differential-algebraic equation (DAE) models using the extended Kalman filter. The method involves the use of a transformation from a DAE to ordinary differential equation (ODE). A relevant dynamic power systems model using decoupled techniques will be proposed. The estimation technique consists of a state estimator based on the EKF technique as well as local stability analysis. High performances are illustrated through a real time application on 5 buses test system with DSP device (Dspace DS1104).

References


**Index Terms**

Computer Science  
Power Systems

**Keywords**

Power system dynamics  
Extended Kalman Filter  
convergence analysis  
Time computing