Recursive Least Square Algorithm based Selective Current Harmonic Elimination in PMBLDC Motor Drive

Abstract

This paper describes the concept of adaptive current harmonic elimination for the permanent magnet brushless dc (PMBLDC) motor drive. Selective harmonic elimination pulse-width modulation (SHE-PWM) techniques offer a tight control of the harmonic spectrum of a given voltage/current waveform generated by a power electronic converter. In the proposed recursive
mean square (RMS) adaptive filtering algorithm, the reference input is adaptively selected and subtracted from the line current. The reference is containing harmonics to be eliminated and correlated in some unknown way with the distorted line current. The weights of adaptive filter are adjusted to totally eliminate the component with undesired frequency. An important feature of RLS algorithm is that it utilizes the information contained in the input data. The simulation results demonstrate the good performance of the proposed algorithm in eliminating selected harmonics in the drive line current.

Reference

Index Terms

Computer Science  
Power Systems

Key words

Adaptive Selective Current Harmonic Elimination (ASCHE)
Current harmonics
Recursive Least Squares algorithm
BLDC Drive