Sensorless Position Estimation Of Permanent Magnet

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Sensorless Position Estimation Of Permanent

Sensorless position estimation of Permanent-Magnet ...
Sensorless position estimation of Permanent-Magnet Synchronous Motors using a saturation model Al Kassem Jebai, François Malrait, Philippe Martin and Pierre Rouchon Abstract—Sensorless control of Permanent-Magnet Syn-chronous Motors (PMSM) at low velocity remains a challenging task A now well-established method consists in injecting ahigh-
Sensorless position estimation and control of permanent ...
INTERNATIONALJOURNALOFCONTROL, VOL ,NO , – http://dxdoiorg/ / Sensorlesspositionestimationandcontrolofpermanent-magnetsynchronous
Position and Speed Sensorless Control System of Permanent ...
4 The Position and Speed Sensorless Control Method Various methods have been proposed [10] as a posi-tion and speed sensorless control method In this paper the authors adopt [7] sensorless control using an extended electromotive force estimation method using a motor model based on the extended electromotive force on rotating co-
Estimation of position and resistance of a sensorless PMSM ...
estimation of the rotor position of a non-salient Permanent Magnet Synchronous Motors (PMSM) with known inductance L , known magnet ux , but unknown stator resistance R , and in the so-called sensorless setting, namely when only electric variables – currents and voltages – …
Paper: Sensorless position control of Permanent Magnet ...

current has to be processed for position estimation, there is no additional hardware necessary besides that for standard drives with field oriented control Index terms — sensorless position control, high-frequency injection, anisotropic machine properties, sig-nal modulation, surface mounted permanent magnet synchronous machine I INTRODUCTION

Position Estimation of Outer Rotor PMSM using Linear Hall ...

of sensorless position estimation methods Learning signal data sets are acquired with commercial sensors and an outer rotor PMSM, and offline training steps and results are discussed Index Terms—permanent magnet synchronous machine, PMSM, position estimation, neural network, Hall effect sensor I INTRODUCTION

Sensorless rotor position estimation of PMSM by full-order ...

Keywords: PMSM; permanent magnet synchronous motor; rotor position estimation; full-order observer; sliding mode observer; sensorless control; electric vehicles; hybrid electric vehicles Reference to this paper should be made as follows: Comanescu, M (2013) 'Sensorless rotor position estimation of PMSM by full-order and sliding mode

POSITION/SPEED SENSORLESS CONTROL FOR PERMANENT ...

position estimation and the sensorless PMSM control system The proposed methods were effective for both salient-pole and nonsalient-pole PMSMs In the low-speed region, saliency tracking observers are commonly used for rotor position estimation of salient-pole PMSMs However, for a nonsalient-pole PMSM, due to the symmetric rotor

Comparative Study of Sensorless Control Methods of PMSM ...

Keywords: permanent magnet, synchronous motor, sensorless control, speed estimation, position estimation, parameter adaptation 1 Introduction Permanent magnet synchronous motor (PMSM) drives are replacing classic dc and induction motors drives in a variety of industrial applications, such as industrial robots and machine tools [1-3

A High-Speed Sliding-Mode Observer for the Sensorless ...

Index Terms—Estimation, Lyapunov function, permanent-magnet synchronous motor (PMSM), sensorless control, sigmoid function, sliding-mode observer (SMO) I instead of using position sensors, a sensorless control method has been developed for control of the motor using the estimated values of the position and velocity of the rotor [3]–[12]

Sensorless control of interior permanent-magnet machine ...

Sensorless Control of Interior Permanent-Magnet Machine Drives With Zero-Phase Lag Position Estimation Hyunbae Kim, Student Member, IEEE, Michael C Harke, Student Member, IEEE, and Robert D Lorenz, Fellow, IEEE Abstract— This paper presents an improved method to estimate rotor motion states for an interior permanent-magnet machine drive

Sensorless Field Oriented Control (FOC) for Permanent ...

We will talk about Field Oriented Control (FOC) specifically targeting Permanent Magnet Synchronous Motors (PMSM) We will cover the main block for Field Oriented Control Secondly, we will cover a position estimator to allow FOC control in a PMSM Motor

Sensorless Position Estimation in Fault-Tolerant Permanent ...

Sensorless Position Estimation in Fault-Tolerant Permanent Magnet AC Motor Drives with Redundancy Jae Sam An Thesis submitted forthe degree of Doctor of Philosophy TheSchoolof Electrical& ElectronicEngineering, Faculty of Engineering, Computer & MathematicalSciences, TheUniversity of Adelaide, Australia September 2010

Improved Rotor Position and Speed Estimators for ...

validate the proposed rotor position/speed estimation schemes Index Terms—Interior permanent-magnet synchronous machine (IPMSM), model reference adaptive system (MRAS), position/speed estimation, sensorless control I INTRODUCTION I NTERIOR permanent-magnet synchronous machines (IPMSMs) are widely used in electric and hybrid electric

Estimation of Rotor Position for Permanent Magnet ...

Many techniques have been presented to achieve sensorless rotor position estimation and running for PMSMs Most of the proposed methods are based on the detection of the inherent feature of rotor magnetic saliency Therefore, the estimation of the rotor position at standstill and low speed in surface mounted permanent magnet synchronous motors SM-

Sensorless Control of Non-salient Permanent Magnet ...

Sensorless Control of Non-salient Permanent Magnet Synchronous Motor Drives using Rotor Position Tracking PI Controller Jong-Kun Lee* and Jul-Ki Seok† Abstract – This paper presents a new velocity estimation strategy for a non-salient permanent magnet synchronous motor drive without high frequency signal injection or special PWM pattern This

Improved Sliding Mode Observer for Position Sensorless ...

Figure 2 Sensorless control system of open-winding PMSM 31 IPMSM Rotor Position Estimation Scheme Based on SMO In order to design the SMO for estimating the rotor position and speed, the mathematical model of the motor can be transformed to the equation in α-β stationary frame Consequently, the mathematical

Sensorless Control of Permanent Magnet Synchronous Motor ...

Sensorless Control of Permanent Magnet Synchronous Motor Using Luenberger Observer P Brandstetter, P Rech, and P Simonik it is necessary for the estimation speed and angular position…

INITIAL ROTOR POSITION ESTIMATION FOR LOW SALIENCY ...

up Conventionally, the initial rotor position information is obtained from a mechanical sensor attached to the shaft of the rotor The mechanical sensor adds additional cost, size and weight to the motor drive, and compromises reliability All these limitations make sensorless control technique extremely desirable Previous Sensorless Control Work