

1. Record Nr.	UNINA9911020099203321
Autore	Razik Hubert
Titolo	Handbook of asynchronous machine with variable speed / / Hubert Razik
Pubbl/distr/stampa	London, : ISTE Hoboken, N.J., : Wiley, 2011
ISBN	9781118601037 1118601033 9781299146334 1299146333 9781118600863 111860086X 9781118600931 1118600932
Descrizione fisica	1 online resource (429 p.)
Collana	ISTE
Disciplina	621.31/36
Soggetti	Electric machinery, Induction - Automatic control Electric motors, Synchronous - Automatic control Electric driving, Variable speed
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Cover; Handbook of Asynchronous Machine with Variable Speed; Title Page; Copyright Page; Table of Contents; Foreword; Introduction; Chapter 1. Sensors and Electrical Measurements; 1.1. Optical encoder; 1.1.1. Technical aspect; 1.1.2. Absolute encoder; 1.1.3. Incremental encoder; 1.2. The velocity measurement; 1.2.1. Method of the frequency counter; 1.2.2. Method of the period measurement; 1.3. The resolver; 1.4. The isolated measurement; 1.4.1. The isolated ammeter; 1.4.2. The isolated voltmeter; 1.5. The numerical aspect; 1.6. The analog to digital converter 1.6.1. Principle of the flash converter 1.6.2. Principle of the successive approximation converter; 1.6.3. The zero-order hold; 1.6.4. The multiplexer; 1.6.5. Principle of converter using slope(s); 1.7. The

digital-to-analog converter; 1.8. The digital output; 1.9. The arithmetic logic unit; 1.10. Real time or abuse language; 1.11. Programming; Chapter 2. Analog, Numerical Control; 2.1. Structure of a regulator; 2.2. Stability of a system; 2.2.1. Introduction; 2.2.2. A formal criterion; 2.2.3. A graphical criterion; 2.2.4. The stability criterion; 2.3. Precision of systems
 2.3.1. The initial and final value 2.3.2. The precision of systems; 2.4. Correction of systems; 2.4.1. The lag and lead corrector; 2.4.2. Other correctors; 2.5. Nonlinear control; 2.5.1. First harmonic method; 2.5.2. The oscillation stability; 2.6. Practical method of identification and control; 2.6.1. Broida's method; 2.6.2. Ziegler's and Nichols's method; 2.7. The digital correctors; 2.7.1. Digital controller; 2.7.2. The Z-transform; 2.7.3. The Z-transform of a function; 2.7.4. Advanced Z-transform; 2.7.5. The Z-transform of a loop; 2.7.6. Some theorems; 2.7.6.1. The initial and final value
 2.7.6.2. The recurrence relation 2.7.6.3. The fraction expansion; 2.7.7. The Jury stability criterion; 2.7.8. Stability: graphical criterion; 2.7.8.1. The bilinear transform; 2.7.8.2. The formal criterion; 2.7.8.3. The graphical criterion; 2.8. Classical controllers; 2.8.1. The PID structure; 2.8.2. The PI anti-windup structure; 2.8.3. Conversion of an analog controller to a digital controller; 2.8.3.1. Approximation of the integrator; 2.8.3.2. Use of the bilinear transform; 2.9. Disadvantages of digital controller; 2.9.1. Choice of the sampling period; 2.9.2. Noise
 2.9.2.1. Reminder of some concepts 2.9.2.2. Quantization by truncation; 2.9.2.3. Quantization by rounding; 2.9.2.4. Quantization of a product using two's complement; 2.9.2.5. Quantization of a product by truncation; 2.9.2.6. The signal-to-quantization noise ratio; 2.9.3. Cycles limits and limitations; Chapter 3. Models of Asynchronous Machines; 3.1. The induction motor; 3.1.1. The electromagnetic torque; 3.1.2. The equivalent scheme; 3.2. The squirrel cage induction motor; 3.2.1. The stator inductances; 3.2.2. The stator mutual inductances; 3.2.3. The rotor inductances
 3.2.4. The rotor mutual inductances

Sommario/riassunto

This handbook deals with the asynchronous machine in its close environment. It was born from a reflection on this electromagnetic converter whose integration in industrial environments takes a wide part. Previously this type of motor operated at fixed speed, from now on it has been integrated more and more in processes at variable speed. For this reason it seemed useful, or necessary, to write a handbook on the various aspects from the motor in itself, via the control and while finishing by the diagnosis aspect. Indeed, an asynchronous motor is used nowadays in industry where variation speed a