

CASPOC 2003

A Simulation Experience

Electrical Drives Example Package

65+ Examples with questions

Educational Electrical Drives Simulation & Animation Examples Fast & Easy!

Questions and remarks

- Open the example srm64_igbt.csi.
- Start the Simulation.
- Calculate the maximum current through L1.
- Explain the dependence on the rotor angle of the current through L1. Observe the rotor position in the animation.

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Electrical Drives Example Package

Explore the world of Electrical Drives using Caspoc. This Educational Example Package contains over 65 preprogrammed examples of Electrical Drives simulations for CASPOC. The examples include schematic, printed simulation results and educational questions and remarks on the example.

LINEAIR AND ROTATING SYSTEMS

Mass and damper
Mass, damper and spring
Axis inertia
Rotating axis
Sticktion

LOADS

Non linear loads
Inertia determining
Gearbox
Gearbox with margin
Lead-screw driven load
Lead-screw X- Y-axis driven load
Conveyor-belt
Conveyor-belt with variable load
Elevator
Moving car
Walking crane
Paper windup device with one roll
Paper windup device with two rolls

DCM MACHINES

Shunt-machine without induction
Shunt-machine with induction
Series-machine without induction
Series-machine with induction
Series-machine with induction and variable friction
DCM with permanent magnet
DCM temperature dependent

TRANSFORMATIONS

Transfer Ur, Us, Ut to Alpha and Beta vector
Transfer Alpha and Beta to D and Q vector
Transfer D and Q to Alpha and Beta vector
Transfer Alpha and Beta to Ur, Us and Ut
Transfer Ur, Us, Ut to Uu, Uv and Uw

MODULATION PRINCIPLES

Six pulse
Pulse wide modulation
Pulse amplitude modulation
Pulse frequency modulation
Vector pause modulation
Notch

ENCODERS

Analog to discreet encoder
Analog to amplitude modulation encoder
Analog to pulse freq. modulation encoder
Analog to three phase sinus encoder
Analog to trapezium encoder

INDUCTION MACHINES

Induction machine with formula of Kloss
Induction machine based on the T-model
Induction machine T-model with powers
Startup induction machine T-model
No load test with T-model
Induction machine slip=1
Direct current test induction machine
Startup induction machine 3-phase model
3-phase model with constant slip
3-phase mutual induction saturation
Vector diagram induction machine
Comparison T-model and 3-phase model

DRIVES INDUCTION MACHINES

Voltage source inverter
Adjustable speed drive
Induction machine in delta
Induction machine in star
Induction machine from star to delta
Soft-starter with constant fire angle
Soft-starter with decreasing fire angle
Six-step control

FIELD ORIENTED CONTROL

Vector-drive 1
Vector-drive 2
Vector-drive 3
Vector-drive 4
Vector-drive 5

DRIVES DCM

SCR-bridge with DCM
DCM, four quadrants and converter
Chopper controlled shunt DCM
Chopper controlled shunt DCM with brake
Controlled DCM with 3-phase SCR drive

STEP MACHINES

Step machine bipolar full-step
Step machine bipolar half-step
Step machine unipolar full-step
Step machine unipolar half-step

SWITCHED RELUCTANCE MACHINES

Switched Reluctance Machine 4/6
Switched Reluctance Machine 6/8
Switched Reluctance Machine 4/6 with current control

The Electrical Drives Example package is included in the Educational Version in electronic form. A printed version can be ordered additionally.

More info:

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