



E6.3.5

TECHNICAL PROCESSES WITH LARGE SCALE MODELS

E6.3.5.9

Ball & Plate

Ball & Plate (E6.3.5.9)

Cat. No.	Description	E6.3.5.9
33-052	Ball & Plate Control System	1
	additionally required: 1 PC with Windows 7/8/10	

Ball & Plate

The Ball and Plate Control System is controlled by (National Instruments NI) LabVIEW using a NI interface card and demonstrates a classic control problem of balancing a sphere on a flat surface and maintaining its position. It can then be programmed to make the ball describe a circular or any other shaped path around the plate. The unique electromagnetic table actuation enables the study of this unstable system in real-time using sophisticated controllers in NI LabVIEW. The progressive nature of the student exercises enables the study of the problem from first principles to more advanced control concepts. The product provides a useful insight into control engineering at all levels of undergraduate study and enables advanced users to model and control the Ball and Plate using their own strategy.

Topics

- Non-linear model simplification
- Non-linear model testing
- Model linearization
- Plant control
- PID controllers
- Plate orientation control
- etc.

A LabVIEW™ license is required for this experiment and is not included in the scope of delivery.

The equipment can require additional software modules.