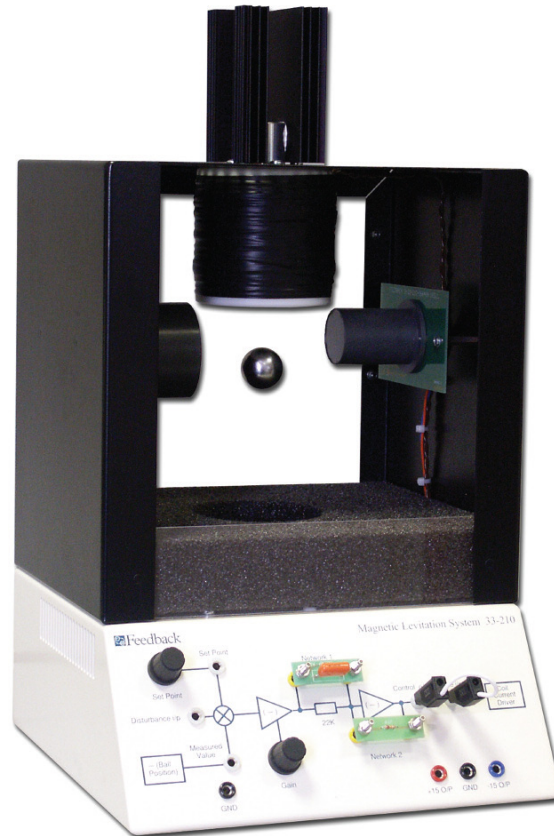


## Magnetic Levitation System

33-026



### Features

- Well presented control experiment manual with progressive exercises
- Non-linear, unstable process
- Analogue and Digital control
- Optical sensing with 20mm set-point range
- Closed-loop identification
- Fully assembled plant with integral power supplies
- Lightweight 25mm suspended body
- Open architecture, design-oriented system

### Description

This 33-026 Magnetic Levitation System demonstrates a classic magnetic levitation control experiment, that of suspending a body in space. The suspended body is a 25mm diameter sphere. This is a visually appealing system with convenient time constants for both Analogue and Digital control solutions. Convenient sockets on the front panel allow for quick changes of gain and compensation components.

In the Digital mode, the 33-026 operates with NI LabVIEW™ which allows system parameters to be determined and the system to be modelled. This simulation phase is used to select the digital controller parameters. Once they have been determined, the designed controller can be used to run the hardware and the actual control performance can be seen and analysed.

The system operates under Windows ® and provides a graphical interface. It is suitable for directed experimentation for conventional laboratory work, or for design and project oriented studies.

## Curriculum Coverage

### Magnetic Levitation set description

#### Magnetic Levitation model

Non-linear model testing  
Model linearisation  
Linear model

#### Maglev model identification

#### Maglev setup control

Plant control

PID controller

#### Maglev position control

PD control of ball position  
Real time PD control of ball position  
Real time PID control of ball position

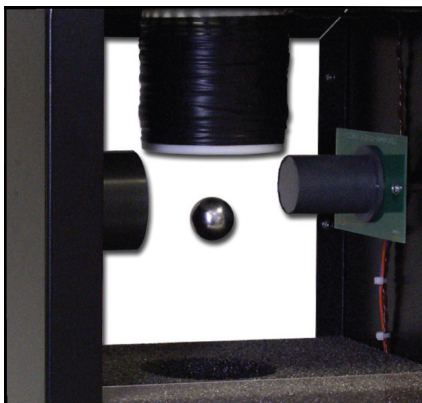
#### Advanced Maglev control

WMV ball position model control  
WMV ball position Real Time control

#### Additional Experiments

Stand alone controller tracking  
External set point

The 33-026 Magnetic Levitation System consists of an enclosed magnet system, sensors and drivers shown over-leaf, with a computer interface card, connecting cables, Feedback operating software (33-942) and a set of laboratory manuals.



Fully compatible with NI Lab VIEW™.



## Specification

### Dimensions and Weight

Magnetic Enclosure:

Width: 250mm,  
Depth: 260mm,  
Height: 370mm,  
Weight: 10kg.

### Services Required

Power Supply included

## Tender Specification

A self-contained Magnetic Levitation trainer.

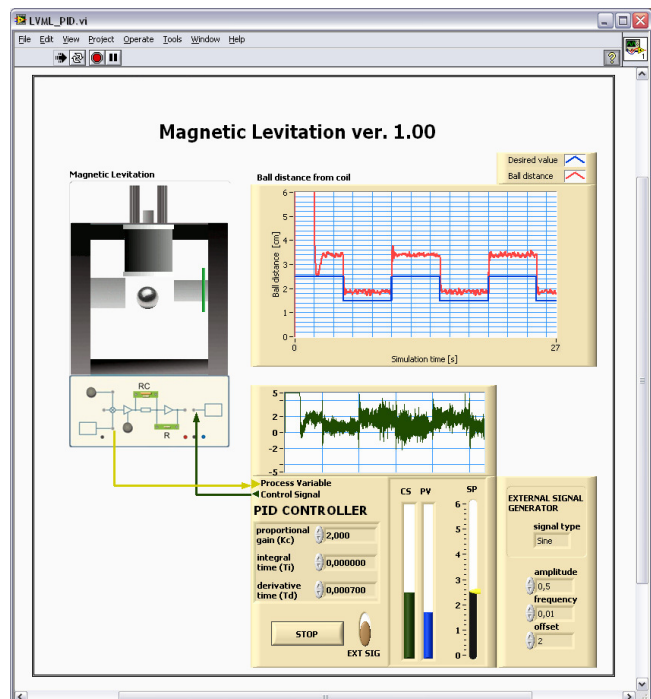
To be used for teaching the principles of magnetic levitation control.

Can be used as a standalone system or with LabVIEW™.

System to have dimensions approx. 370mm x 250mm x 260mm and weight approx 10kgs.

To be supplied with an experimental manual.

To be supplied by a company offering a 1 year parts and labour warranty.



Real time Maglev position control

# Feedback

Feedback Group

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Feedback reserves the right to change these specifications without notice

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