

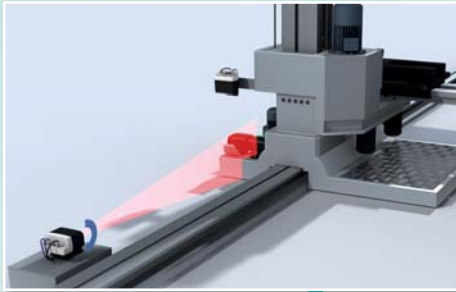


# Practical Training in Sensor Technology



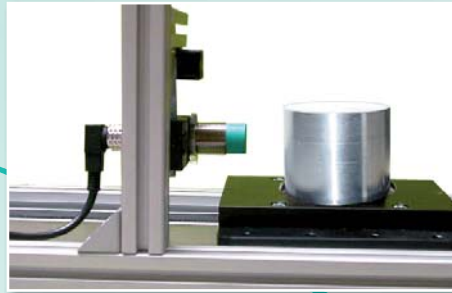
# SENSOR TECHNOLOGY

## FROM THEORY TO PRACTICE!



Operational order

Test setup



Testing



### COMPETENCIES

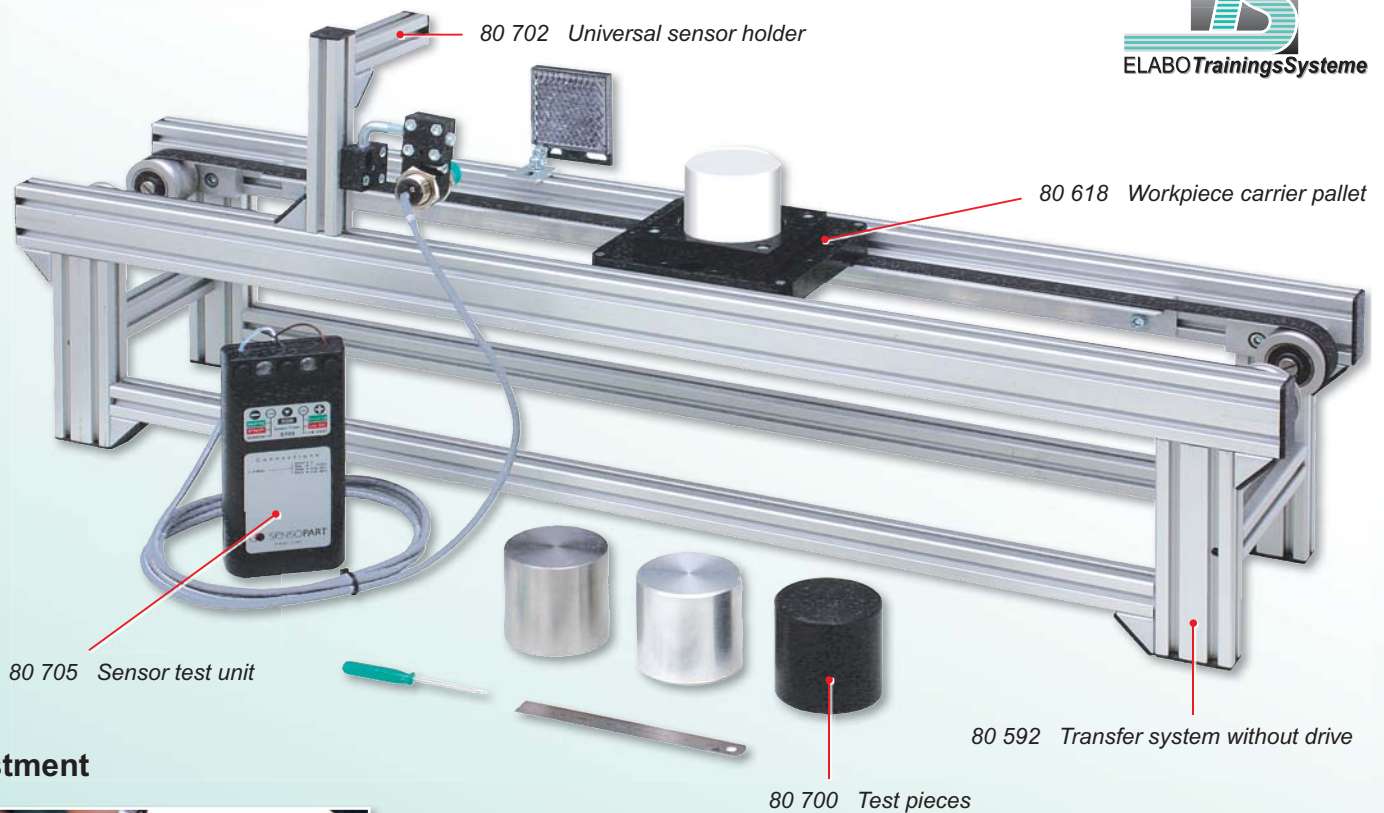
- ✓ Types of sensors and how they work
- ✓ Testing and adjustment of sensors
- ✓ Applications of sensors
- ✓ Distance measurement and material detection



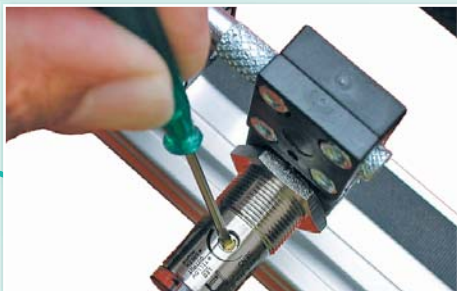
80 710 Sensorics Box

### Contents of Sensorics Box

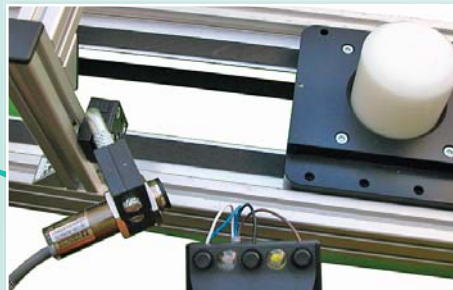
- 80 700 4 **test pieces** (plastic white, plastic black, aluminium, stainless steel)
- 80 701 4 **sensors** (capacitive, inductive, 2 x optical with 1 reflector and a fastening bracket)
- 80 702 2 **universal sensor holders** for accommodation of cylindrical sensors 5 – 30 mm
- 80 703 1 **set of fixing material for sensors**  
2 x slot nut  
2 x M4 threaded screws
- 80 704 1 **mounting system**  
1 x profile girder for setting up test stations at any free place on the transfer system
- 80 618 1 **workpiece carrier pallet**  
dimensions: 119 x 119 x 15 mm
- 80 619 1 **4-bit ident system**  
1 set, 4-fold
- 1 **compartment for sensor test unit** for accommodation of the sensor test unit (80 705)



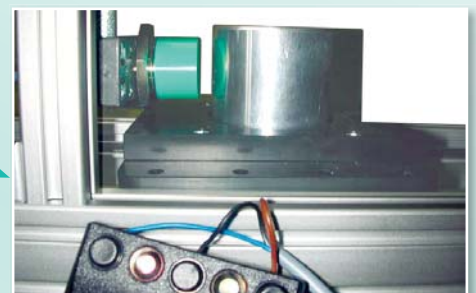
## Adjustment



## Commissioning and troubleshooting



## System function test



### Sensors:



- inductive
- capacitive
- optical:
  - diffuse reflective sensor
  - retro-reflective sensor

### Experiment routine:

- |                                  |                                       |                                   |
|----------------------------------|---------------------------------------|-----------------------------------|
| ■ 1. Tasks                       | ■ 4. Selection of sensors             | ■ 7. Proving the function         |
| ■ 2. Simplification / simulation | ■ 5. Circuit diagram                  | ■ 8. Evaluation of the experiment |
| ■ 3. Work planning               | ■ 6. Set-up of the measurement layout | ■ 9. Parts list / calculation     |

Trainer Section

## Basic Principles of Sensor Technology

**Trainer Section**  
Version 4.1 - Order No. E80 706

Basic Principles of Sensor Technology

E80 706CD Trainer Section

Practical Experiments

## Basic Principles of Sensor Technology




**Practical Experiments**  
Version 4.1 - Order No. E80 707

Basic Principles of Sensor Technology

E80 707CD Practical Experiments

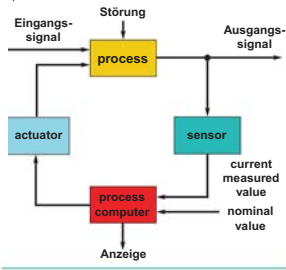
Transparencies

## Basic Principles

Use of sensors in control circuits

Sensors are frequently used in control circuits. Values frequently measured are:

- temperature
- flow
- pH value
- position
- pressures / force
- moisture
- speed
- revolutions



Basic Principles of Sensor Technology

E80 708CD Transparencies

OBS4000-18GM60-E5

Reflexionslichtschranke mit Polarisationsfilter  
**OBS4000-18GM60-E5**  
mit 2 m Festhubel



- Dual colour Anzeige LED
- Reichweite bis 4 m
- Spiegelischer durch Polarisationsfilter
- Hell-/dunkelschaltend verhaltensprogrammierbar
- Schutzart IP67
- Robustes Metallgehäuse in zylindrischer Bauform M18 x 1
- Empfindlichkeitsanalyzer zur optimalen Anpassung an die Applikation

Data sheets  
(contained in the  
Trainer Section)



Printed and digital!

06/1 2012

Subject to technical modifications and further developments

Copy and fax

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 Please contact me by e-mail

- Please send me a quotation  
for \_\_\_\_ sets of workstations

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