BEC100

INDUSTRIAL SENSOR TRAINING RIG



TRAINING APPLICATIONS

- **Studying and handling the various sensors commonly used in industry.**
- **Introduction to the object detection technologies most commonly used on industrial production lines (diffuse optical, retro-reflective optical, inductive, capacitive, reed switches, incremental encoders, etc.).**
- **Study of various sensor technologies:**
  - **Assessing compatibility between the detection technology and the material to be detected.**
  - **Determination and quantification of sensor hysteresis effects**
  - **Determining a sensor's detection zone.**
  - **Differences between discrete (on/off) and continuous (analogue) sensing.**
  - **Configuring a display to suit the sensor signal characteristics (setting the scale using a voltmeter and physical measurements, calculating the slope coefficient, etc.).**
- **Installing and adjusting sensors on different mounting supports.**
- **Training for personnel from machine operators to maintenance technicians.**

OPERATING PRINCIPLE

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BEC100

The BEC100 is a training **rig for studying and using industrial sensors, position detectors and a digital display.**
Its **robust** construction, ergonomic design (no sensors protrude beyond **the frame) and** carrying handles **make it easy to move by** hand without risk of damage. It is equipped with **all necessary safety** systems.
It enables the study and implementation of:

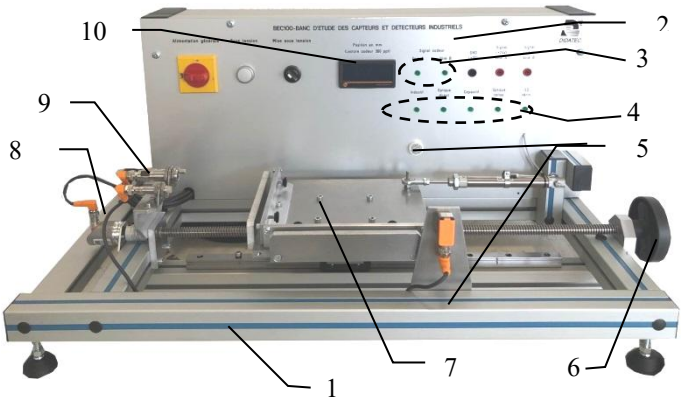
- the compatibility of a wide range of sensor technologies with **different materials (material** type, density, colour, transparency, etc.), to select the most suitable sensor for a given application.
- **Programming of an industrial** display according to the type of signal provided by the sensor.

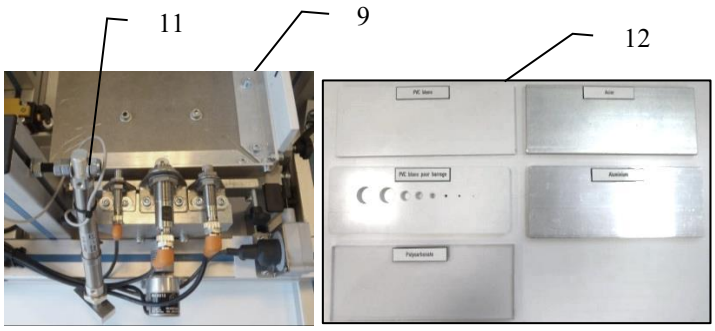
This rig also enables **accurate measurements to the nearest** 0.1 mm of:

- **detection distances**

Hysteresis effects and continuous **position measurements using an encoder.**

Illustrations





Technical specifications

1. **Robust** anodised aluminium frame on 4 vibration-damping feet, protecting the system during frequent movement. Carrying handles on the sides.
2. **Enclosure** serving as the machine control panel, fitted with a 24 Vdc power supply.
3. **Status indicators for the encoder's 2 channels A and** B, with shrouded safety sockets providing access to the corresponding electrical signals for voltmeter measurements.
4. **Status indicators** for the various sensors and a main on/off switch.
5. **Polarised retro-reflective optical sensor with honeycomb reflector.**
6. **Carriage** handwheel for precise adjustment of travel.
7. **Carriage mounted on linear** ball-bearing guides, with 1 front holder and 1 side holder for plates of different materials. A leadscrew and handwheel provide precise linear movement.
8. **Incremental encoder** with a resolution of 1 pulse per degree, mounted on the carriage drive screw shaft.
9. **Set of capacitive, reed switch** (cylinder-mounted), **diffuse-reflective optical and inductive sensors.**
10. **Digital display** of the position measured by the incremental encoder, with reset button.
11. **Removable double-acting** cylinder with reed switch sensor. The rod attaches to the moving carriage for precise displacement (determination of magnetic sensor characteristics).
12. **Set of 6 plates for detector characterization:**
    - Steel
    - White pvc
    - Aluminium
    - Polycarbonate
    - Reflective material
    - Plate with different aperture diameters for the light beams.

Installation requirements

- Power supply: 230 Vac – 50 Hz – 2 A
- Electrical supply type: 1 phase + Neutral + Earth.
- Dimensions (L × W × H, mm): 870 x 480 x 430
- Weight (kg): 35

Note: If the equipment is installed by our team, all utility connections must be located within 2 m of the machine.

Documentation

- Instruction manual
- Technical file with documentation of each component
- Practical exercises with answers
- Display program
- CE certificate of conformity

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