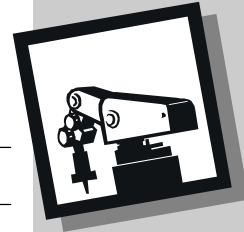
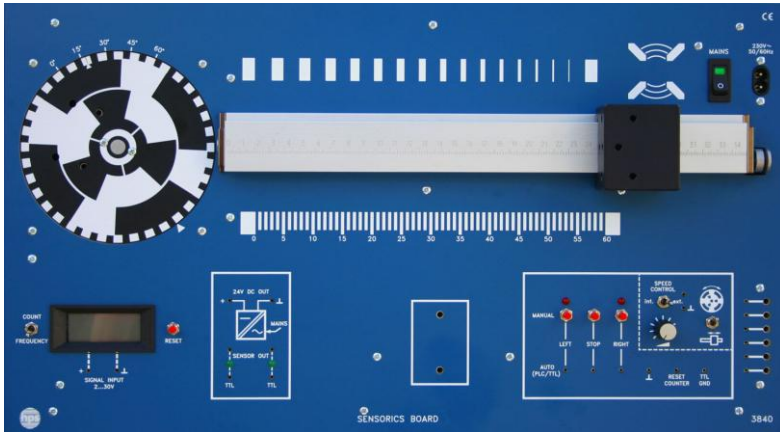


Sensor Technology / Automation Technology

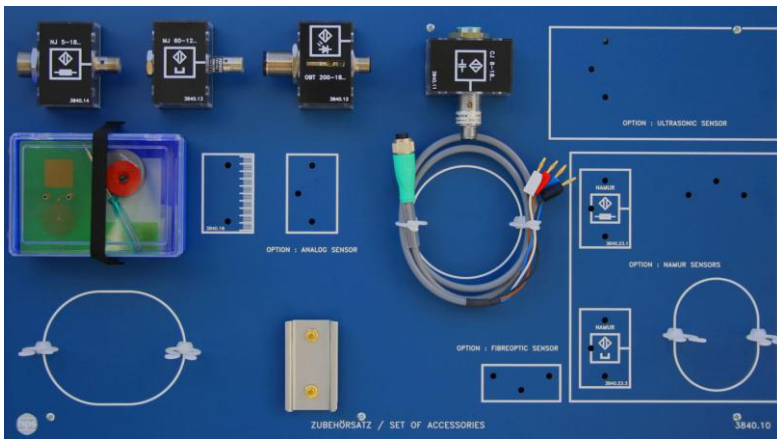


SENSORICS BOARD

Type 3840



SENSORICS BOARD (Type 3840) Experiment assembly



Set of Accessories (Type 3840.10) Standard equipment

- Training and instruction system for sensor and automation technology
- With built-in power supply
- With integrated counter and frequency meter
- Rotary and linear movement with motors
- Clear storage arrangement of accessories on a separate Board
- Can be triggered with PCL, PC, TTL signals or manually
- Expandable with ultrasonic, fibre optic, NAMUR and analog sensors

With the SENSORICS BOARD hps SystemTechnik offers a training concept which clearly demonstrates the principle, structure and application of industrial sensors in practice-oriented experiments. This training system is particularly suitable as an introduction for

mechanical engineers, mechanics, control-, production- or hybrid technicians.

The respective market share and application in control and automation engineering have been taken into consideration in the choice of sensors.

The standard equipment contains the following sensors:

- Inductive Sensor
- Capacitive Sensor
- Optical Sensor
- Magnetic Field Sensor

Options

- Ultrasonic Sensor
- Fibre Optic Sensor
- NAMUR Sensors
- Analog Sensor

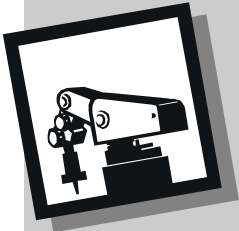
The SENSORICS BOARD has been designed in such a way that all the components required for conducting the experiments are built in. The experiments are fast and easy to set up.

The functional principle of inductive, capacitive, optical and magnetic field sensors is studied in the basic experiments.

The sensors can be plugged onto a sliding carriage which can also be controlled by these sensors.

The guide rail of the carriage has a millimeter scale. The carriage can be moved by an adjustable-speed motor or manually.

Different material samples can be mounted in a holder and moved to record sensitivity curves.



SENSORICS BOARD

Type 3840

In addition, a motor-driven disk can be scanned sensorially. The disk exhibits metallic fields in order to be able to scan the rotary motion with the inductive sensor as well.

Both motors in the SENSORICS BOARD are provided with an electronic current cut-out.

All the accessories of the SENSORICS BOARD are stored in a clear arrangement on a separate Board.

To conduct the experiments, the SENSORICS BOARD is

placed on a table or suspended in an hps rack for demonstration purposes.

The SENSORICS BOARD can be converted into a portable training unit by simply screwing it into a Box:

All the experiments can be conducted directly in the Box. Dust-free storage and protection against transport damages are further advantages of the Box version.

In the Box version the Set of Accessories (Type 3840.10) is stored in the lid of the Box.

Accessories Included

- Set of Accessories (Type 3840.10), consisting of: Storage Board, sensors, different material samples and connecting leads

Accessories Recommended

Experiment manual:
Sensor Technology – Components of Automation Technology“ (Type V 0140)

Sensor Technology / Automation Technology

Technical Data

Mains connection

- Voltage: 230 V AC / 115 V AC (110 V AC); 50 ... 60 Hz; approx. 40 VA

Integrated power supply for sensors

- 24 V DC / 250 mA (output short-circuit-proof)
- Pilot LED; U_{in} : approx. 15 V ... 30 V

Start-stop logic

- With optical indicators
- Left- and right-hand running for rotary disk or carriage
- Inputs for PLC or TTL operation; U_{in} : approx. 5 V ... 24 V

Frequency meter

- Frequency range: 1 ... 9999 Hz
- Input level: 5 ... 24 V
- Pulse counter: 1 ... 9999

Mechanical data

The front panel of the SENSORICS BOARD is made of 5 mm thick laminate, matt blue in colour with white engraving representing the built-in function groups.

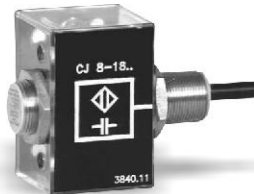
The rear of the Board is protected with a grey plastic cover. Its shape allows the Board to be placed at an ergonomically favourable angle for example on a table.

Dimensions and weights

- Board version (Type 3840):
532 x 297 x 135 mm (w x h x d);
weight: 4.1 kg
- Set of Accessories (Type 3840.10):
532 x 297 x 150 mm (w x h x d);
weight: 2.5 kg
- Box version, consisting of:
SENSORICS BOARD (Type 3840);
Set of Accessories (Type 3840.10) and
Box (Type 3840.20): 580 x 450 x 200 mm;
total weight: approx. 11 kg

Sensor Technology / Automation Technology

Sensors of the Standard Equipment



Capacitive Sensor
(Type 3840.11)



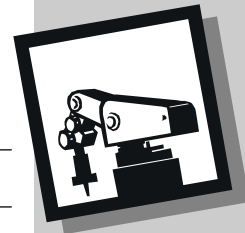
Optical Sensor
(Type 3840.12)



Magnetic Field Sensor
(Type 3840.13)



Inductive Sensor
(Type 3840.14)



SENSORICS BOARD

Type 3840

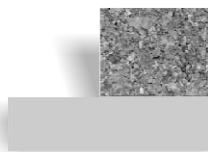
The sensors are built in unbreakable transparent plastic housings or mounted onto holders (except for the Fibre Optic Sensor).

For conducting experiments the sensors are plugged onto the sliding carriage of the SENSORICS BOARD. To this end the bottoms of the transparent plastic casings as well as the holders are provided with three gold-plated laminated plugs (4 mm).

Optional Sensors



Ultrasonic Sensor
(Type 3840.21)



Material Sample for Ultrasonic Sensor



Fibre Optic Sensor
(Type 3840.22)

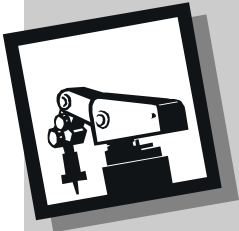


Optic Fibre with Holder for Fibre Optic Sensor

For experimenting the Fibre Optic Sensor is clamped onto a top-hat rail which is equipped with two laminated plugs at its bottom for plugging the top-hat rail into the SENSORICS BOARD. The top-hat rail is part of the standard equipment.

Dimensions without plugs

- Transparent plastic housing:
38 x 57 x 35 mm
(w x h x d)
- Holder:
41 x 57 x 41 mm
(w x h x d)



SENSORICS BOARD

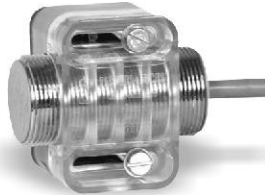
Type 3840

Subjects dealt with in
experiment manual:
„Sensor Technology –
Components of Auto-
mation Technology“
(Type V 0140)

- Response curve
- Switching hysteresis
- Switching distance and
behaviour
- Material dependence
(reduction factors)
- Pulse counting / speed
measurement
- Triggering of a switching
process through a
housing wall
- Filling level measurement
- Definition and sampling
width of optical sensors
- Application possibilities for
optic fibres
- Position registration and
control of a transport
carriage
- Tool positioning
- Barcode scanning

Sensor Technology / Automation Technology

Optional Sensors



Analog Sensor
(Type 3840.24)

Optional NAMUR Sensors



Inductive Sensor
(Type 3840.23.1)



Capacitive Sensor
(Type 3840.23.2)



Post-Switch Amplifier for
NAMUR Sensors
(Type 3840.23.4)



Magnetic Field Sensor
(Type 3840.23.3)

For experimenting the Post-Switch Amplifier is clamped onto a top-hat rail which is equipped with two lamella plugs at its bottom for plugging the top-hat rail into the SENSORICS BOARD. The top-hat rail is part of the standard equipment.

Subject to technical modifications.