



# KNX S0250 basic

## Ultrasound Tank Sensor

### Technical specifications and installation instructions

Item number 70153



**Elsner Elektronik GmbH** Control and Automation Engineering

Sohlengrund 16

D - 75395 Ostelsheim Phone +49 (0) 70 33 / 30 945-0 info@elsner-elektronik.de

Germany Fax +49 (0) 70 33 / 30 945-20 www.elsner-elektronik.de

# 1. Description

The **KNX SO250 basic ultrasound sensor** is used to detect the liquid content of tanks and for distance measurements. The sensor head is resistant to heating oil and water and can, for example, be used for reservoirs, ponds or oil tanks. There are five variable thresholds for filling, emptying, dry running protection and overflow alarm.

## Functions:

- **Distance measurement**
- **Level measurement** (filling volume or height) in ball, cubical and cylindrical tanks. Several tanks of the same type set up as a bank
- **5 switched outputs** with variable thresholds (thresholds are set optionally by parameters or via communication objects)

Configuration is made using the KNX software ETS. The **product file**, the data sheet and the manual can be downloaded from the Elsner Elektronik homepage on **www.elsner-elektronik.de** in the "Service" menu.

## 1.1. Scope of delivery

- Evaluation unit in series installation housing
- Ultrasound sensor with 10 m power cable

## 1.2. Technical data

### 1.2.1. Evaluation unit

Housing	Plastic
Colour	White
Assembly	Series installation on mounting rail
Protection class	IP 20
Dimensions	approx. 53 x 88 x 60 (W x H x D, mm), 3 dividing units
Weight	approx. 120 g
Ambient temperature	Operational -5...+45°C, storage -25...+70°C
Ambient humidity	max. 95% RH, avoid condensation
Operating voltage	KNX bus voltage
Bus current	max. 16 mA
Data output	KNX +/- Bus connector terminal
BCU type	own microcontroller
PEI type	0
Group addresses	max. 254
Assignments	max. 255
Communication objects	57

The product conforms with the provisions of EC guidelines

- EMC Directive 2004/108/EC
- Low Voltage Directive 2006/95/EC

The following standards and/or technical specifications have been applied:

- EN 50491-5-1: 2010
- EN 50491-5-2: 2011

### 1.2.2. Air-ultrasound sensor

Housing	Plastic
Colour	Black
Protection class	IP 52
Chemical resistance	Water, heating oil
Dimensions	Overall diameter approx. 60 mm, Total sensor height approx. 45 mm, thread 1½ inches
Connector cable	RG 58 coaxial cable with BNC plug length 10 m, can be extended to max. 40 m
Total weight	approx. 430 g
Ambient temperature	+0...+40°C
Measurement range	12...250 cm

## 2. Installation and start-up

### 2.1. Installation notes



Installation, testing, operational start-up and troubleshooting should only be performed by an electrician.



#### **CAUTION!** **Live voltage!**

There are unprotected live components inside the device.

- National legal regulations are to be followed.
- Ensure that all lines to be assembled are free of voltage and take precautions against accidental switching on.
- Do not use the device if it is damaged.
- Take the device or system out of service and secure it against unintentional use, if it can be assumed, that risk-free operation is no longer guaranteed.

The device is only to be used for its intended purpose. Any improper modification or failure to follow the operating instructions voids any and all warranty and guarantee claims.

After unpacking the device, check it immediately for possible mechanical damage. If it has been damaged in transport, inform the supplier immediately.

The device may only be used as a fixed-site installation; that means only when assembled and after conclusion of all installation and operational start-up tasks and only in the surroundings designated for it.

Elsner Elektronik is not liable for any changes in norms and standards which may occur after publication of these operating instructions.

## 2.2. Instructions for assembly and operational start-up

---

### 2.2.1. Evaluation unit

---



**Install and use only in dry conditions in a room.** Avoid condensation.

---

The evaluation unit of **KNX SO250 basic** is designed for series installation on mounting rails and occupies 3 units.

After the bus voltage has been applied, the device will enter an initialisation phase lasting a few seconds. During this phase no information can be received via the bus.

### 2.2.2. Air-ultrasound sensor

---



**Do not stress the front (rubber) part!**

---



**The measuring head must be dry:**  
It must not be flushed with liquid!  
No condensation, no drops forming!

---



**The measurement section must be clear:**  
No vapour, mist or the like between sensor and measuring area! Vapour is formed e.g. when a warm fluid is poured into a tank.

---



**The measuring area must be at rest:**  
No waves, no vibration!

---

To avoid wave formation in fluids, the measured area can be separated using a measuring tube ( $\varnothing$  at least 50 mm).

Please note: the measuring area is only calm as long as the end of the tube is below the surface of the liquid.

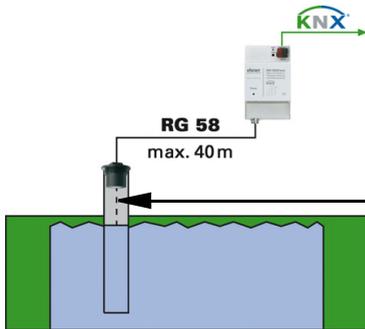


Fig. 1

Area must not be hermetically sealed so that the fluid level in the tube may change.

Loud surrounding noise (e.g. when filling metal tanks) may disrupt the measurement. Please contact us with any questions regarding the area of application or installation.

## 2.3. Device/connection design

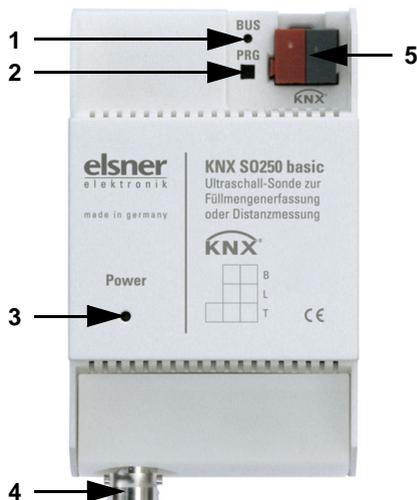


Fig. 2

- 1 Program LED
- 2 Programming buttons
- 3 "Power/operation" LED
- 4 Measurement-sensor connection (BNC socket)
- 5 Bus terminal slot (KNX terminal  $\pm$ )