

# SONARANGE® Ultrasonic Sensors



Ultrasonic sensors are mainly used in machine manufacturing and process control for distance measurement, as proximity switch or for room supervision. They work after the principle of time of flight measurement of sound. The time of flight in air (back and forth) is approx. 6ms per meter. Ultrasound is very robust compared to other measuring principles. It passes dirty environment as well, and it is reflected by almost all surfaces. Thus it is independent of material, color and surface structure of the target to be detected.

## Why ultrasound?

- ✚ Independent of material, surface, color and size of the object
- ✚ Works under dust, dirt, fog, bright light
- ✚ Detects transparent and shining objects
- ✚ Wide measuring ranges from few mm up to >5m

SNT Sensortechnik AG is a pioneer in the field of ultrasonic sensors for distance measurement. The **SONARANGE®** ultrasonic transducers are developed and manufactured in house. They differ from other products especially through their high emitted sound power. This enables them to detect also small and moving objects.

## Why SNT ultrasonic sensors?

- ✚ SNT develops and produces the **SONARANGE®** transducers in-house.
- ✚ The result is a measurably higher sound power achieved with high transmitter voltage.
- ✚ Thus the sensors are more sensitive and detect also moving and badly detectable and small targets, and they work under high contamination.
- ✚ SNT offers a wide range of sensors and versions.
- ✚ SNT offers customized solutions.

## Applications

### Level control

- ✚ Level measurement in containers and processes
- ✚ Liquids and granulates
- ✚ Checking for tailbacks on conveyor belts

### Process control

- ✚ Controlling belt tension or sag
- ✚ Web guide control
- ✚ Detecting material feed

### Counting / detection

- ✚ Counting and detection of parts and vehicles
- ✚ Detection of persons, door automation
- ✚ Detection of objects with 'difficult' surface

### Scanning of dimensions

- ✚ Height sensing
- ✚ Volume measurement
- ✚ Roll diameter measurement

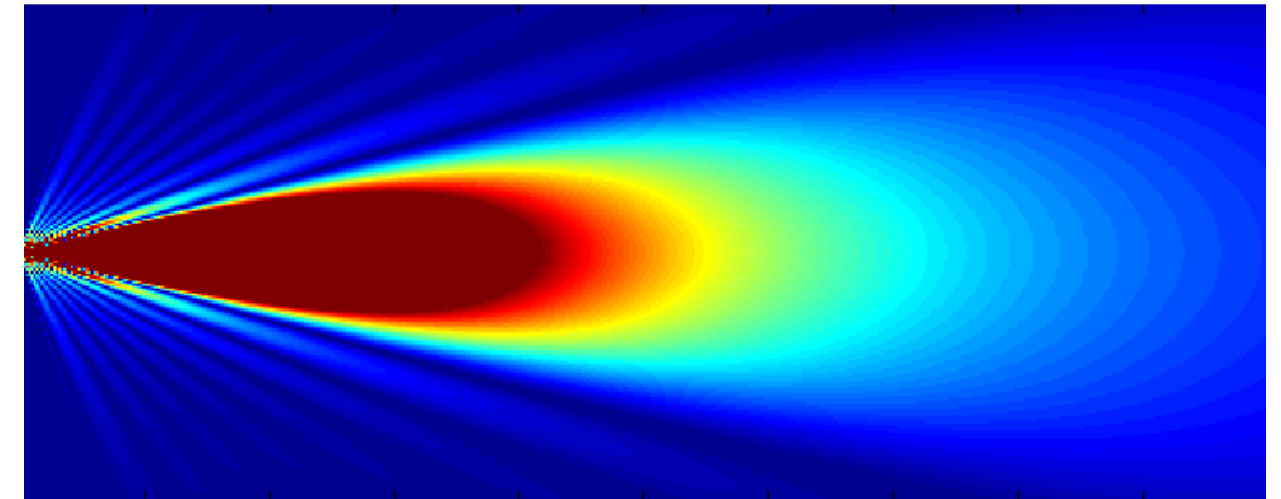
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The actual data sheets of all SNT products are available on our web site [www.sntag.ch](http://www.sntag.ch).

## ☑ Sensors for Process Automation



Sonic field of a UPK ultrasonic sensor: measurably higher sound power!

## Our products

- ✚ Your specialist for ultrasonic sensors **SONARANGE®**
- ✚ Your specialist for optical sensors **OPTORANGE®**

## Our markets

- ✚ Machine manufacturing
- ✚ Factory automation (assembling machines, robots)
- ✚ Process control (chemistry, food, construction)
- ✚ Door automation
- ✚ Person detection
- ✚ Vehicle detection
- ✚ ... and much more

## Our strengths

- ✚ Fit, fast, flexible, no bureaucracy, customer oriented
- ✚ Rugged sensors with high performance
- ✚ Know-how and production of ultrasonic transducers in-house
- ✚ Well established Swiss quality worldwide since 20 years
- ✚ Standard product range as well as customized solutions



[www.sntag.ch](http://www.sntag.ch)

# SONARANGE® Ultrasonic Sensors

## UPK Series

- ✦ The top series
- ✦ Highest detection sensitivity
- ✦ Very low profile, small size
- ✦ Measuring distances 80mm...>5m (3.15"...>16ft)
- ✦ Versions with analogue and/or binary outputs
- ✦ Versions with synchronisation input



The UPK series is characterized by its high acoustic power combined with small sensor size. This is achieved with new optimized **SONARANGE®** transducers, working at high electrical voltages. Thus also small, moving and poorly reflecting objects can be safely detected. Moreover the sensors work also under high contamination. With a length of <40mm (1.5") the UPK sensors are the most compact ultrasonic sensors for such high measuring ranges.

## UPR Series

- ✦ The medium series
- ✦ Small size M18x1
- ✦ Versions with 90° radial transducer
- ✦ Measuring distances from 180mm up to 1.5m (7...60")
- ✦ Versions with analogue and/or binary outputs
- ✦ Versions with synchronisation input
- ✦ Versions with chemically resistant PTFE housing



Outstanding features of the UPR series are the compact M18 size and the version with 90° radial **SONARANGE®** transducer for confine mounting conditions. The sensors are available as pure proximity switches and as distance sensors with V or mA analogue output as well. Typical applications are detection of objects as well as distance and level measurement.

## UPX / UPS / UPL Series

- ✦ The miniature sensors
- ✦ Detection ranges 20...500mm
- ✦ Small size (popular 'R-shape', M12, M30)
- ✦ Versions with analogue or binary outputs



UPX  
Universal proximity switches with fast reaction time  $t_{on}$   
UPS  
Miniature sensors (M12) with narrow detection beam  
UPL  
Good value ultrasonic proximity switch with fixed switching distance.

## UPB / UPF Series

- ✦ The ultrasonic through beams
- ✦ Large detection range combined with high speed
- ✦ No blind zone
- ✦ For detection of fast objects and objects with small mutual distance
- ✦ For detection of non right-angled objects
- ✦ Adjustable transmitter power and switching delay
- ✦ Ultrasonic fork sensors for web guide control



The high measuring speed combined with the large measuring range of 1500mm (5ft) are the outstanding characteristics of the UPB ultrasonic barrier. The UPF fork sensors with analogue output are well suited for edge detection on web guiding systems, mainly for transparent foils.

# OPTORANGE® Optical Sensors

## OPF Series

- ✦ Fast and precise fork light barriers
- ✦ Simple and quick mounting and Teach-In
- ✦ Detection of smallest objects
- ✦ Fork widths 2...120mm
- ✦ High switching frequency up to 4kHz
- ✦ Versions with red light IR or laser light



Fork light barriers have several advantages compared to standard light barriers. Transmitter and receiver are perfectly aligned. Mounting is therefore very easy. There is no mechanical misalignment possible after mounting. Furthermore each version of fork width is optimized in light intensity, sensitivity and measuring frequency. Thus fork light barriers have a high resolution and reproducibility. They are ideally suited for detection of small parts and for precise edge detection. The versions with laser instead of red light are even approx. 10 times more precise.

## OPE / OPD Series

- ✦ The OP... proximity switches are the basic electronics for the SNT optical wave guides types FOY and FOI
- ✦ They can be used as a stand-alone proximity switch as well
- ✦ Switching distances up to 1500mm without wave guide
- ✦ Least susceptible to parasitic light sources thanks to infrared light
- ✦ Teach-In
- ✦ Versions for 110/230VAC with relay output



Optical wave guide sensors are ideally suited when objects have to be detected in confine conditions. The sensor is separated from the small scanner head. Glass-fiber wave guides are more robust and have longer service life compared to plastic guides. They have lower attenuation and thus allow also very long wave guides.

## FOY Series

- ✦ Miniature glass-fiber scanners
- ✦ For detection under very confine conditions
- ✦ High scanning distances
- ✦ High temperature range, ATEX
- ✦ No aging
- ✦ Various cross sections and scanner heads
- ✦ Smallest diameters 1mm
- ✦ Lengths from 25cm to >5m
- ✦ Customized versions offered
- ✦ Operates together with OP... proximity switches



## FOI Series

- ✦ Miniature glass-fiber light barriers
- ✦ For barrier widths up to 1500mm
- ✦ Very robust thanks to glass instead of plastic
- ✦ High temperature range, ATEX
- ✦ No aging
- ✦ Various cross sections and scanner heads
- ✦ Smallest diameters 1mm
- ✦ Various lengths
- ✦ Customized versions offered
- ✦ Operates together with OP... proximity switches

