SONARANGE

UPL 09.11 e

SNT SENSORTECHNIK AG

Ultrasonic proximity sensor
UPL 200

- Detection range up to 200mm
- Short M30 housing with M12 connector
- No blind range for most materials
- Measurement independent of material, surface, colour and size of target
- Works under dust, dirt, fog, bright light
- Detects transparent and bright objects
- Protection class IP 67, fully watertight, robust
- Good value
- Swiss made

download data sheet on your smart phone with a QR-Code scanner app.

Technical specifications		**UPL 200**
Detection range	mm	0...200
Fixed switching distance	mm	~200
Hysteresis of switch output, axial, @200mm	mm	~16
Reproducibility	%FS	<1
Operating frequency	kHz	~350
Status indicator	-	LED red
Switch output, short circuit proof, max. 0.1A	-	by choice PNP, NPN, NO, NC
Switching frequency	Hz	~15
t_{on} switch output	ms	<5
t_{off} switch output	ms	<40
Power supply voltage (reversal polarity protection)	VDC	12...28
Ripple of supply voltage	%	<10
Mean consumption, switched wo. load	mA	~45
Peak current, switched wo. load	mA	100/0.05ms
Ambient temperature during operation	°C	-20...+50
Sensor temperature during operation	°C	-20...+70
Pressure range	$mbar_{abs}$	~900...1100
Mass without cable	g	~100
Protection class	-	IP67
Housing material	-	nickel plated brass
Electrical connection	-	M12 connector

www.sntag.ch

SNT Sensortechnik AG, Bahnhofstrasse 25, CH-8153 Rümlang, Switzerland, Phone +41 44 817 29 22, Fax +41 44 817 10 83, info@sntag.ch

Properties

Ultrasonic sensors are best suited for detection of objects with very different surfaces and materials, as well as under difficult environmental conditions such as dust, dirt, fog, bright light. There they have clear advantages compared to inductive, capacitive and optical sensors.
The ultrasonic proximity switch UPL 200 is designed for detection in the rather close range up to 200mm. It has a fixed switching distance and no setting elements (only an LED). Thus it is most suited for lateral approximation of objects, e.g. on conveyors. In order to detect targets in the whole range between 0…200m, the object should have a minimum size of approx. 15mm and it should not be made of sound absorbing material. In the range 80…200mm the sensor detects also much smaller and sound absorbing objects.

Blind range

The typical zone close to the ultrasonic sensor is called blind zone. Conventional sensors cannot detect in the blind range. However the UPL type detects most objects also in the blind range due to its high power ***SONARANGE*** transmitter and the M30 surface, i.e. in the whole range from 0…200mm. Only very bad reflecting (e.g. some textiles) or very small objects (<15mm) can be detected only above 80mm distance. Thus for most objects the sensor works without blind zone.

Inclination angle of object

Smooth surfaces can be detected up to an inclination angle of approx. 10°. However rough and structured (granular) surfaces can be detected up to much higher angles.

Cable

The sensor has an electrical connector in M12 size. A cable with connector is not scope of delivery. The cable should be kept as short as possible. Maximum cable length is approx. 100m, if cross section area is appropriate (peak current of 100mA!, use 470µF/35V backup capacitor close to sensor). The cable should not be mounted parallel or close to high current cables. Cables for connection to the M12 connector have to be ordered separately.

Power supply

Ideally a power supply is used exclusively for the sensor. The power supply must be able supply the short peak current of approx. 100mA. In order to avoid disturbances the part where the sensor is mounted must be correctly earthed.

Monting

The sensor can be mounted with the two M30 hex nuts (scope of delivery) in a mounting bore.

Detection zone UPL 200

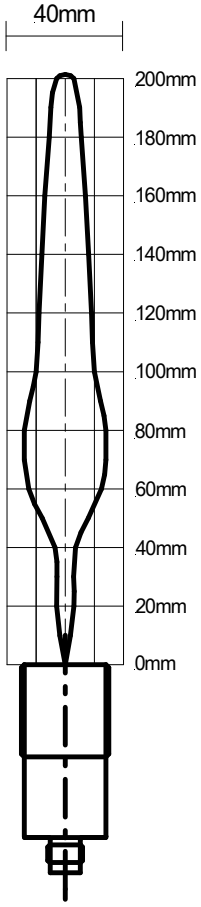
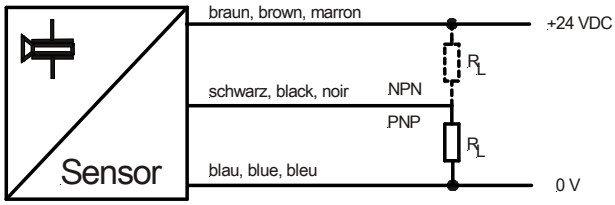
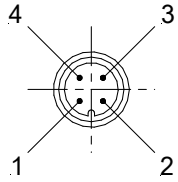


Diagram of connections





1 +24VDC (brown)
2 nc.
3 0V (blue)
4 OUT PNP NO (black)

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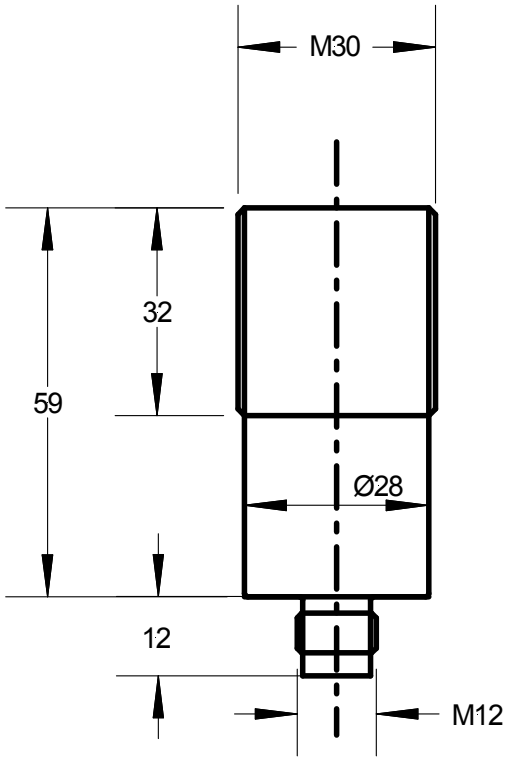
Standard versions

Type	Detection range	Description
UPL 200 FIPS 24 C	200mm	switch output PNP, NO
UPL 200 FINS 24 C	200mm	switch output NPN, NO
UPL 200 FIPO 24 C	200mm	switch output PNP, NC
UPL 200 FINO 24 C	200mm	switch output NPN, NC

Dimensions



Scope of delivery

- Sensor
- 2 M30 hex nuts

Accessories (see also data sheet ‚ACC')

PVC cable 3-pin with M12 screw connector
with straight connector: l=2m Type KAB 2L3VGPVC

Some typical ultrasound applications

Level measurement
- Measuring level in small containers
- Water gauge measurement
- Monitoring liquid levels in bottling plants
- Checking for tailbacks on conveyor belts
- Monitoring contents of granulate hoppers on injection moulding machines
- Distance monitoring on combine harvesters, beet lifters etc.
- Monitoring ground clearance and distance on agriculture and construction vehicles

Process control
- Controlling belt tension or sag
- Sensing and signalling valve positions
- Measuring roll diameter on reeling machines
- Monitoring the height of stacks (charges, storehouse, assembling machines)
- Detecting material feed
- Detecting the feed of strip stock to blanking machines and presses
- Detecting on plastic blow-moulding machines

Counting / Detection
- Counting onlookers at freestanding sales displays or show cases
- Access supervision at rotating doors, counters etc.
- Door automation
- Detecting transparent objects, foils, flat glass, bottles etc.
- Sensing objects in robot grippers
- Recognizing full or empty pallets
- Count and detect objects with 'difficult' surface
- Detect wrong parts on conveyors
- Collision protection on vehicles

Scanning of dimensions
- Determining the dimensions of packages
- Sensing the height of plants in automated green houses
- Measuring the volume of tree-trunks

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