SONARANGE

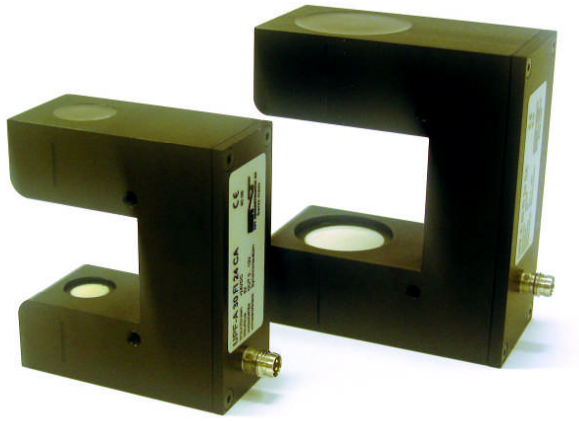
UPF-A 10.08 e

SNT SENSORTECHNIK AG

Ultrasonic fork sensors for web guide and edge control
UPF-A Series “advanced”

- Ultrasonic fork barrier with analogue output 0...10V
- The analogue signal is a function of lateral covering
- For edge control and web guidance systems
- For transparent foils
- For contaminated air
- High accuracy and temperature stability
- High measurement range
- Very small plane change influence
- high sampling rate
- Swiss made

New generation!
with the 5 advantages



Technical Data		**UPF-A 30 FI 24 CA**	**UPF-A 40 FI 24 CA**
Fork width	mm	30	40
Detection width	mm	~8 (±4)	~13 (±6.5)
Resolution (noise):			
- @ 20...80% covered	mm	~0.1	
- @ 0...100% covered	mm	~0.15	
Plane change (influence of position between transm. and receiver):			
- ±13mm from center	mm		≤ ±0.1
- out of ±13mm from center	mm		≤ ±0.5
- ±10mm from center	mm	≤ ±0.1	
- out of ±10mm from center	mm	≤ ±0.3	
Linearity @ 10...90% covered (typical)	%FS	≤ 2	≤ 4
Ultrasonic frequency	kHz	~180	~130
Sampling frequency (in non synchronized mode)	Hz	500	285
Output signal	V	0...10	
Temperature stability 0...60°C (typical)	%	±5	
Power supply voltage (polarity reversal protection)	VDC	8...30	
Ripple of supply voltage	%	10	
Current consumption @ 24VDC	mA	35	
Power consumption	W	0.9	
Power indicator	-	yellow LED in connector	
Ambient temperature during operation	°C	0...+60	
Storage temperature	°C	-10...+70	
Synchronization input (connector pin 4)			
- square wave signal (on rising edge)	V	3.5 … 30	3.5 … 30
- min. signal duration	ms	0.02	0.02
- max. sampling frequency (for proper signal)	Hz	500	285
Max. cable length	m	20	
Protection class	-	IP67	
Housing material	-	black anodized aluminum	
Electrical connection	-	M8 connector, 4-pin	
Mass	g	200	370

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Properties

The edge sensors type UPF-A are based on the experience of SNT Sensortechnik AG with ultrasonic through beam sensors. New software algorithms and a unique ***SONARANGE*** ultrasonic transducer material allow an accuracy and temperature stability so far only realized with optical systems. But the ultrasonic fork barrier is much less sensitive to dirt and dust compared to optical sensors. Further more transparent materials such as foils can be perfectly handled.

The 5 advantages of SNT ultrasonic fork sensors

1. The SNT ultrasonic transducers have a large diameter.
   Result: large measurement range combined with high linearity and resolution.

2. The all new ***SONARANGE*** material of the ultrasonic transducers has a Young's modulus which is constant up to higher temperatures compared to the past.
   Result: high temperature stability.

3. The signals are compensated with computed data as well as with a temperature sensor.
   Result: precise operation up to 60°C.

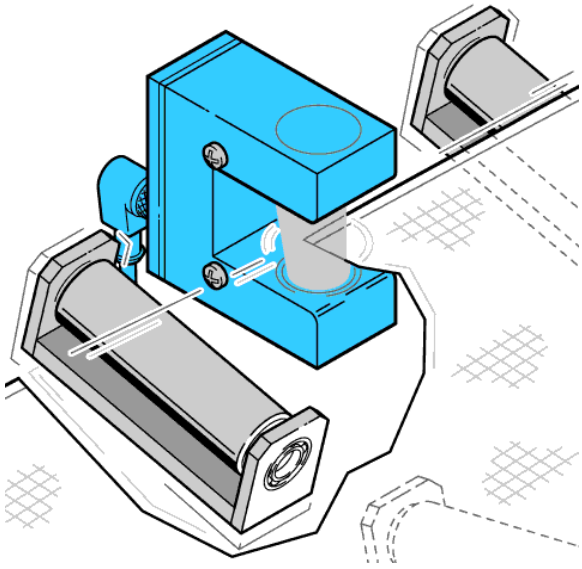
4. Each sensor is individually trimmed.
   Result: The sensors are reproducible, and the influence of air humidity and pressure is considerably reduced.

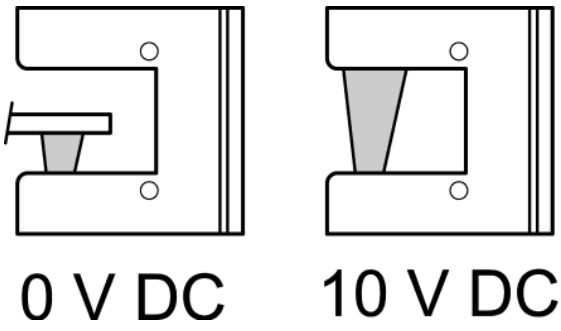
5. Software and transducers are designed to eliminate the influence of multiple echoes.
   Result: Very small influence of plane change and high measuring speed.

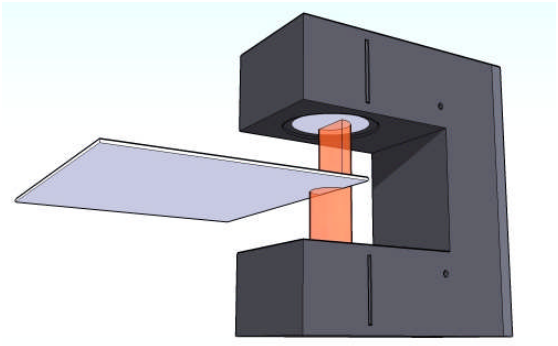
The UPF-A are ultrasonic through beam sensors with separated transmitter and receiver. They are suited for edge detection on web guiding systems. In contrast to conventional barriers they do not offer a simple on/off output signal, but they measure the degree of covering of the ultrasonic receiver as an analogue output signal. If the receiver is fully covered, the output is 0V and if not covered at all 10V.

The relative humidity of air and the air pressure as well (sea level) have an influence on the output signal due to physical laws (attenuation of sound). Higher air humidity or decreasing air pressure do reduce the output signal at a given edge position.

Application







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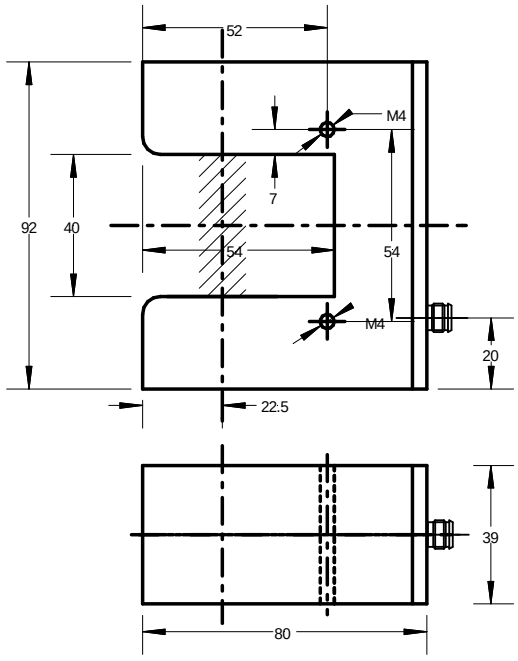
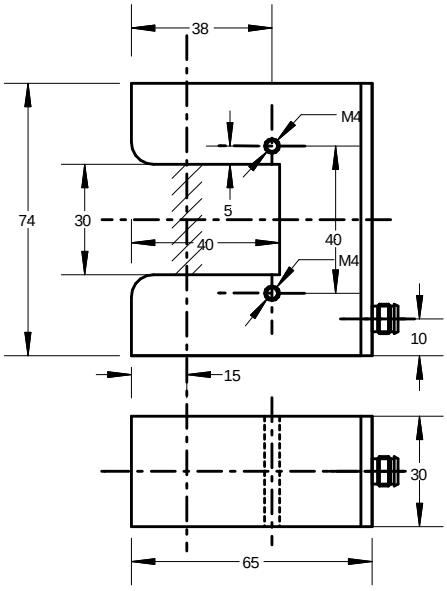
Dimensions



UPF-A 40 FU 24 CA

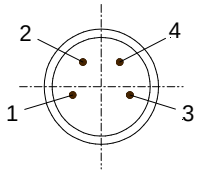


UPF-A 30 FI 24 CA

Synchronization

The internal sampling clock of the sensor can be overcome with an external repeating signal. This can be helpful if several sensors are measuring along a fast moving web.

Electrical connection



View on the sensor

1 brown:	+24VDC
2 white:	analogue output 0...10V
3 blue:	0V
4 black:	synchronization input

Accessories (see also data sheet ‚ACC')

Cables 4-pin with M8 screw connector, PUR:

With straight connector:	l=2m	Type KAB 2K4VGPUR
	l=5m	Type KAB 5K4VGPUR
with 90° connector:	l=2m	Type KAB 2K4VWPUR
	l=5m	Type KAB 5K4VWPUR

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