microsonic

EVERY THING ULTRA SONIC

온라인 카탈로그 발췌:

esf+1 초음파 라벨 과 이매 접착 검출 센서

최신 버전: 2026-11-03

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esf+1 ultrasonic label sensor

The esf+1 ultrasonic label sensor reliably detects transparent, reflective and metallised labels at high web speeds. Designed for installation at the dispensing edge, it enables precise non-contact label detection in lab

Highlights

- Slim lower leg › for positioning close to the dispensing edge
- Flat sensor surfaces › for easy cleaning
- Measurement cycle time ≥ 150 µs › for use at high web speeds
- Robust high-tech plastic housing › with metal-like properties
- M12 connector can be rotated 90° › for flexible installation
- Asymmetrical mounting adapter for 2 installation positions › Mounting on the left or right of the dispensing edge
- Simple Teach-in › label Teach-in with a single button press
- IO-Link interface › for support of the new industry standard
- Recipe management via IO-Link › no need to re-teach materials

Basics

- Label and splice sensor as a fork sensor
- 2 Push-Pull switching outputs › for label detection and web break monitoring
- 3 LEDs and 1 button on the top of the housing
- LinkControl › as optional assistance for installation and commissioning

The ultrasonic label sensor esf+1

can reliably detect high-transparency, reflective and metallised labels without contact, regardless of colour. It can detect materials with grammages ranging from 20 g/m2 to 600 g/m2, as well as metal and plastic films up to 0.3 mm thick. For thin labels and backing materials, the esf+1 can work at its maximum speed, with a measurement cycle time of ≥ 150 µs.

The esf+1 is available in two versions:

- The **Pro version** detects all standard labels at the highest switching frequency of 500 kHz.
- The **Expert version** (Exp) with 200 kHz is the specialist for labels that are difficult to detect.

The Pro and Expert versions are identical in design. They can be easily exchanged with each other.

Recommendation: With a measurement cycle time of 150 µs, the Pro version is the faster option and should always be the first choice for label recognition. If labels are not recognised using the Pro version, the Expert version should be used.

Mounting close to the dispensing edge

The very flat design of the lower fork leg allows the material to be positioned close to the dispensing edge.



Label sensor for installation close to the dispensing edge

Easy to clean

The flat fork legs mean that it has no pinholes or hard-to-reach niches or hollows where dirt can accumulate.

M12 connector can be pivoted by 90°

In this way, the connection line can be led to the sensor from behind or, to save space, from above.



Label sensor with rotating M12 connector

Mounting adapter for two fitting positions

The asymmetrical mounting adapter can be inserted in 2 directions, thereby allowing it to be positioned optimally to the right and left of the dispensing edge.

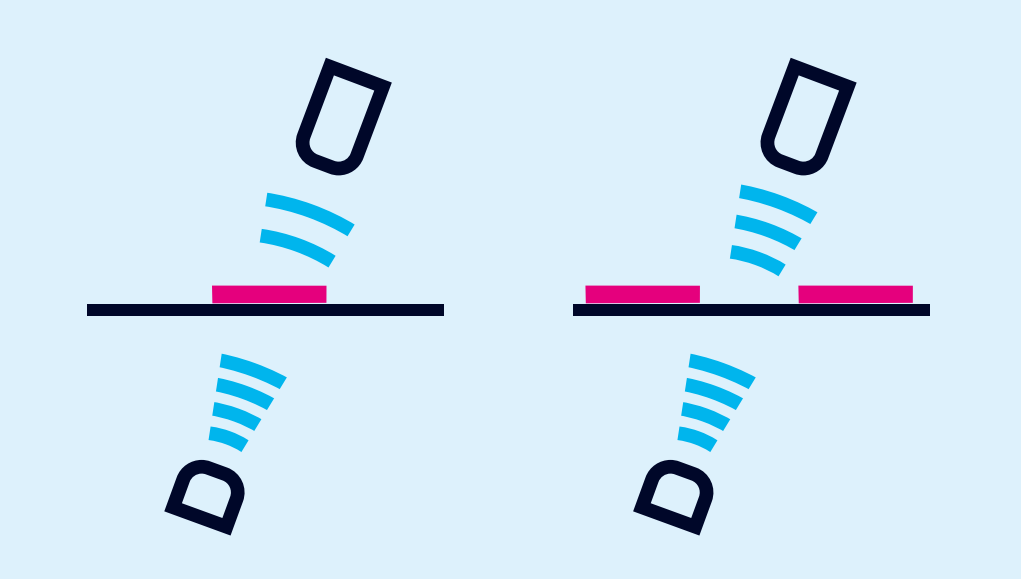


Precise detection of labels and splices

How ultrasonic label detection works

Labels are guided through the fork. An ultrasonic transmitter in the lower leg of the fork beams a fast sequence of pulses through the backing material (liner material/carrier web). The sound pulses cause the backing material to vibrate such that a greatly attenuated sound wave is beamed from the opposite side. The receiver in the upper leg of the fork receives this sound wave.

The liner material transmits a different signal level from the label. This signal difference is evaluated by the esf+1. The signal difference between the liner material and the label can be very slight. To ensure a reliable distinction, the esf+1 has to learn the label and backing material.



Functional principle of the label sensor: Backing material with a label provides an attenuated signal level

Applications of the esf+1

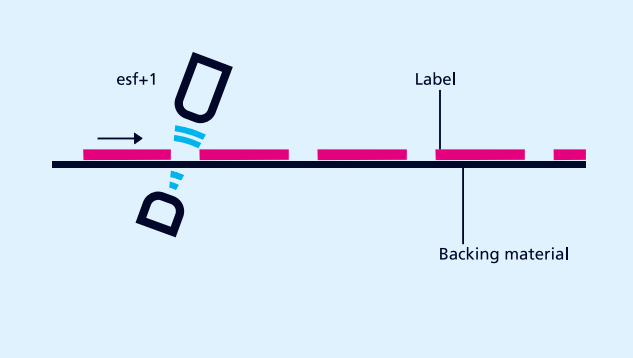
- Packaging machines
- Print & apply systems
- Converting machines
- Labelling systems
- Use with highly transparent, reflective and metallised labels
- Seam detection on paper, plastic or metal webs
- Web break monitoring
- Label counting

Simple Teach-in

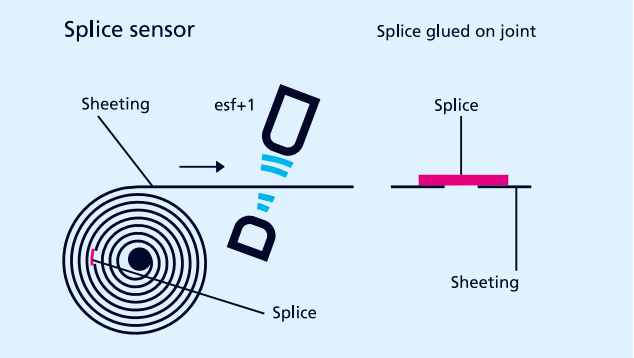
The label material can be taught-in very easily with the aid of the button.

1) Dynamic Teach-in of labels

During the Teach-in process, the carrier web and its labels are guided through the fork at a constant speed. The esf+1 sensor automatically learns the signal level for the labels and for the gaps between the labels. This is the standard Teach-in for labels.



esf+1 for non-contact label detection



esf+1 for non-contact splice detection

2) Teach-in for splice detection

Web material is generally processed from a roll. The splice to be detected is hidden somewhere in the roll. There is a separate Teach-in method available for this purpose, in which only the sheeting is learned. The esf+1 detects the level difference at the splice and sets its output.

The Teach-in procedure

can optionally be carried out with the button on the top of the housing or with pin 5 on the unit's connector.

With LinkControl

the esf+1 can optionally be parameterised. Measured values can also be shown graphically.

IO-Link and recipe management for fast product changes

esf+1 ultrasonic label and splice sensors have a Push-Pull switching output and support IO-Link in version 1.1.5.

The sensor features an integrated recipe management via IO-Link. Up to 20 different labels with backing material can be learned, and the material parameters can be saved directly in the sensor. In addition, material parameters for splice detection can also be saved in the recipe management, ensuring that material transitions are detected and processed.

All saved settings can be accessed at any time. The integrated recipe management reduces setup times and minimises machine downtime during product changes. There is no need to Teach-in the materials again.

Reliable label detection at high web speeds

The esf+1 ultrasonic label sensor reliably detects highly transparent, reflective and metallised labels without contact, regardless of colour. With a measurement cycle time of just 150 µs, the sensor is suitable for highly dynamic labelling processes and short label spacing. The flat design allows for mounting directly on the dispensing edge, whilst IO-Link and integrated recipe management support quick product changes without the need for re-teaching.

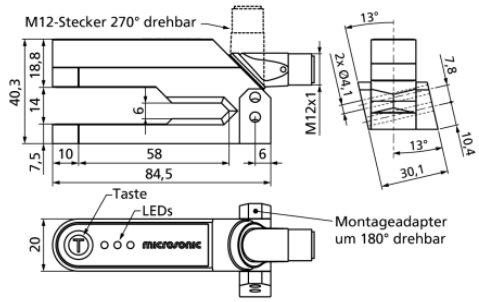
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당신의 어플리케이션에 대하여 말씀해 주십시오: +49 231 97 51 51-82.

esf+1/CFF/Pro

축척 도면



2 x Push-Pull

디자인	포크 형
작동 모드/기본 기능	IO-Link label/splice detection
특이성	Flat fork leg Mounting adapter for 2 mounting positions Swivelling M12 connector IO-Link Recipe management Measurement cycle time ≥ 150 µs to 2 ms (depending on material)

초음파 사양

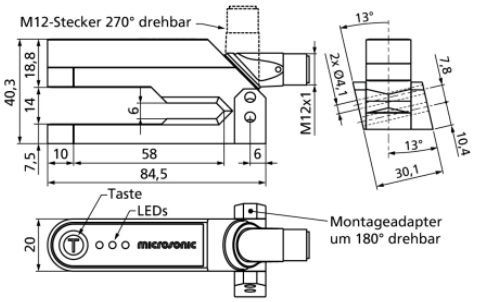
측정값	진폭 계산을 가진 펄스 작동
전송 주파수	500 kHz

전기적인 데이터

동작 전압 U_B	20 - 30 V d.c., 역극성 보호
전압 변동	± 10 %
무부하 소비전류	≤ 50 mA
연결 타입	5-핀 M12 규격 플러그

esf+1/CFF/Exp

축척 도면



2 x Push-Pull

디자인	포크 형
작동 모드/기본 기능	IO-Link label/splice detection
특이성	Flat fork leg Mounting adapter for 2 mounting positions Swivelling M12 connector IO-Link Recipe management

초음파 사양

측정값	진폭 계산을 가진 펄스 작동
전송 주파수	200 kHz

전기적인 데이터

동작 전압 U_B	20 - 30 V d.c., 역극성 보호
전압 변동	± 10 %
무부하 소비전류	≤ 50 mA
연결 타입	5-핀 M12 규격 플러그

출력

출력 1	스위칭 출력 web break Push-Pull, U_B-1 V, -U_B+1 V, I_{max} = 100 mA NOC/NCC 조정가능,쇼트 보호 회로
Ausgang 2	스위칭 출력 label/splice detected Push-Pull, U_B-1 V, -U_B+1 V, I_{max} = 100 mA NOC/NCC 조정가능,쇼트 보호 회로
응답속도	≥ 425 µs
선지연 유용성	< 300 ms

출력

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Ausgang 2	스위칭 출력 label/splice detected Push-Pull, U_B-1 V, -U_B+1 V, I_{max} = 100 mA NOC/NCC 조정가능,쇼트 보호 회로
응답속도	≥ 260 µs
선지연 유용성	< 300 ms

입력

입력 1	com 입력 teach-in 입력

하우징

재질	PA-GF50
초음파 송신기	폴리우레탄 폼, 글라스-에폭시 수지
EN60529에 따르는 보호등급	IP 65
동작온도	+5°C to +60°C
보관 온도	-40°C to +85°C
무게	60 g

기술 특징/특성

제어	1 push-button com input
세팅을 위한 범위	Teach-in via push-button Teach-in via com input on pin 5 LCA-2 with LinkControl IO-Link
Synchronisation	아니오
표시기	1 x LED grün: Power, 1 x LED gelb: Output, 1 x LED rot: Error

액세서리

분리가능 액세서리	KST5A-2/M12 KST5A-5/M12 KST5G-2/M12 KST5G-5/M12 LCA-2 LCA-2 Koffer

입력

입력 1	com 입력 teach-in 입력

하우징

재질	PA-GF50
초음파 송신기	폴리우레탄 폼, 글라스-에폭시 수지
EN60529에 따르는 보호등급	IP 65
동작온도	+5°C to +60°C
보관 온도	-40°C to +85°C
무게	60 g

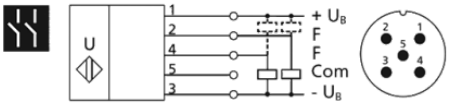
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핀 할당



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