

**FISSLER**  
ELEKTRONIK

# AKAS® SBM

Safety device for  
folding machines



HOMEPAGE



# AKAS® SBM





## Our vision:

We protect people from accidents and have convincing high quality innovative, user-friendly safety solutions for the customers and are always willing to provide the customer with help and advice.

## Our passion:

FieSSLer Elektronik has been producing optoelectronic components for the industry since 1956. The resulting development and production of the first fully electronic safety light curtain and safety light grid on the basis of the transmitter-receiver principle began in 1965.

Nearly 30 years later in 1996, FieSSLer Elektronik was the first manufacturer worldwide to introduce the groundbreaking innovation of a specially coupled motion safety solution for blanking presses (AKAS®).

In 2005, FieSSLer Elektronik completed its solution for blanking presses with its programmable FPSC safety control.

Permanent product care and new developments in dialogue with our customers is what guarantees perfect solutions and high quality products. Certifications, quality monitoring and prototype tests in accordance with worldwide standards are a matter of course for FieSSLer Elektronik.



Company  
description





## Service – worldwide

Fiessler Elektronik serves customers in all industrial regions of the world. The service network of Fiessler Elektronik is available in more than 30 countries.

These support points provide effective supervision to machine manufacturers as well as end users.



Branches

AKAS® SBM

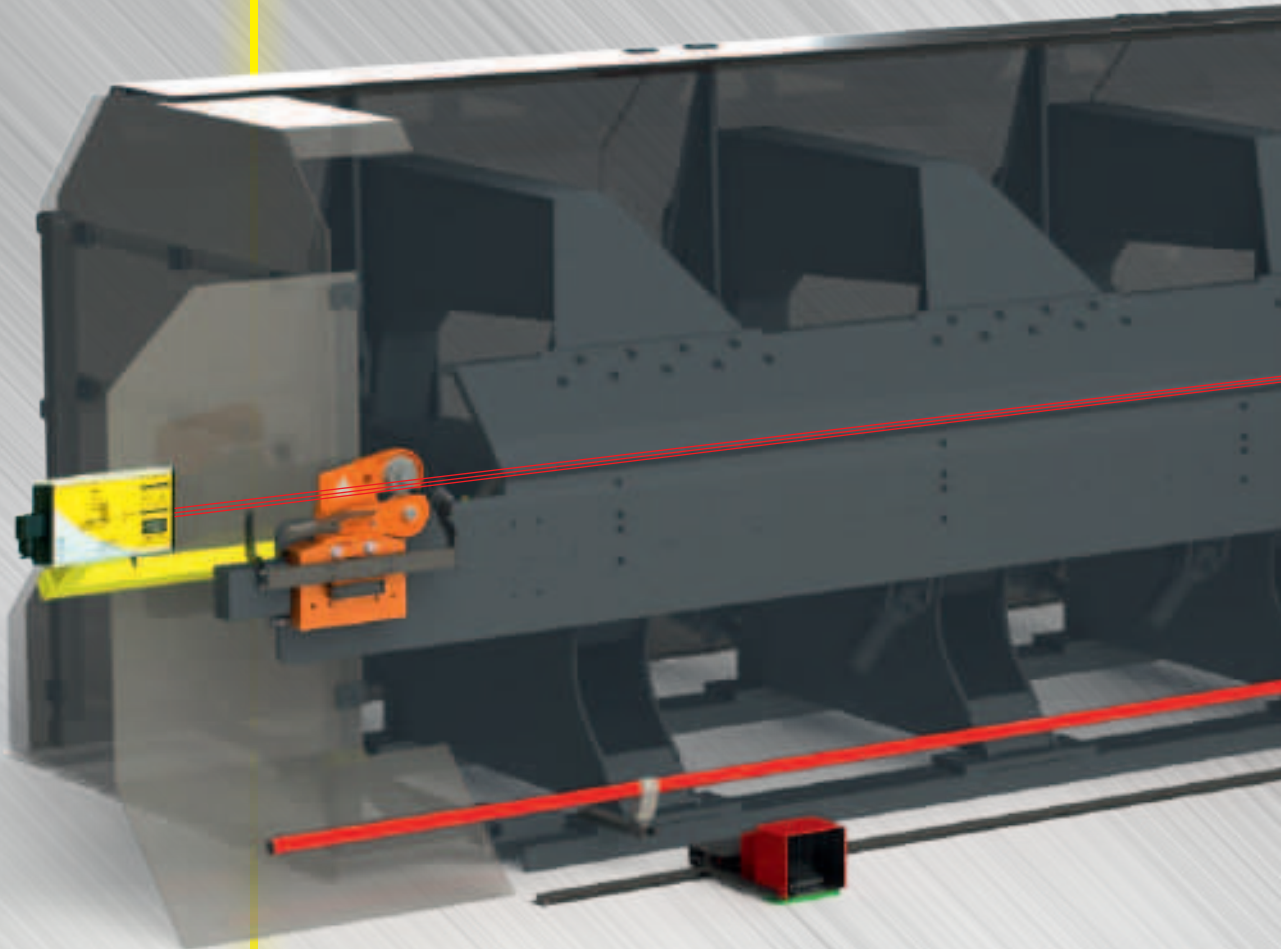


## AKAS® SBM

### Transmitters

When the upper beam is closed, the laser safety field is progressively blanked out. The system offers protection up to 6 mm opening.

Safety and protection system for open frame folding machines.



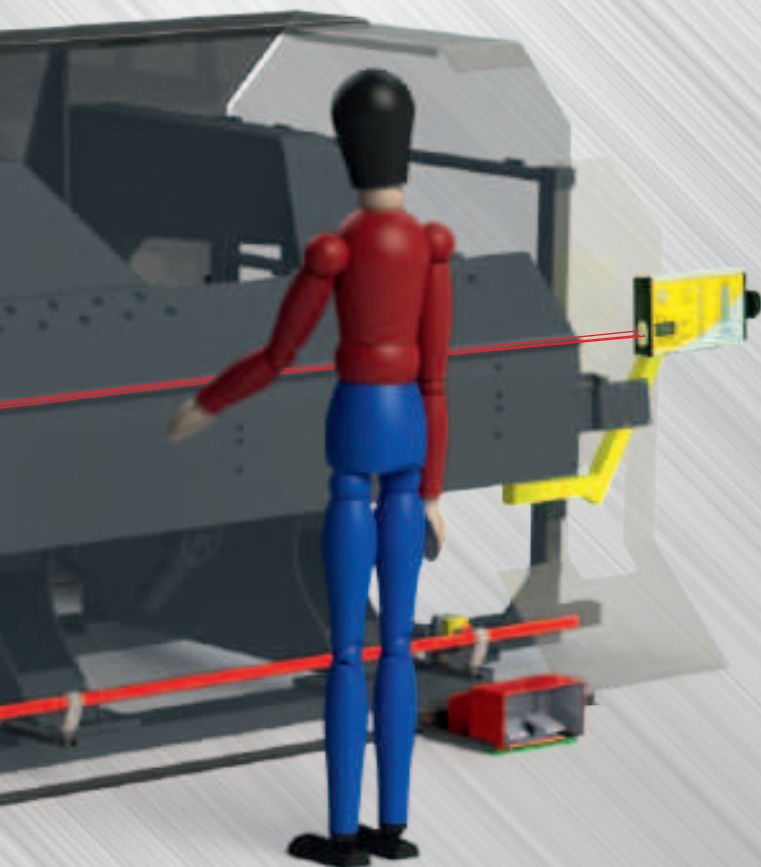
### Optional:

With columns for floor mounting

The three-dimensional laser protection field consisting of laser transmitter and receiver protects the clamping area between the upper and lower beam. It serves as protection during the clamping movement. Additional monitoring of the entire safety functions of a folding machine by redundant, dynamic high-speed monitoring according to PL e, Sil 3, safety category 4.



**Optional:  
human machine interface  
FE-HMI-DL-F-B**  
for status and error messages  
and for selecting operating  
modes such as „box bending  
function“.



**Optional: With columns  
for floor mounting**

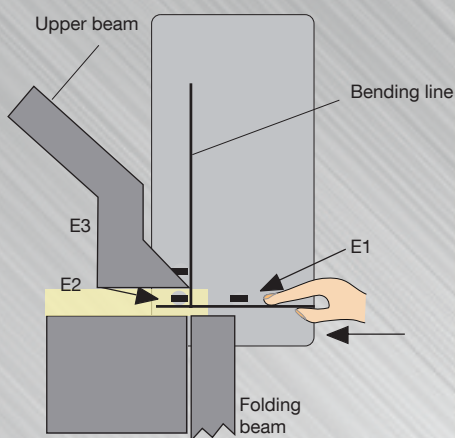
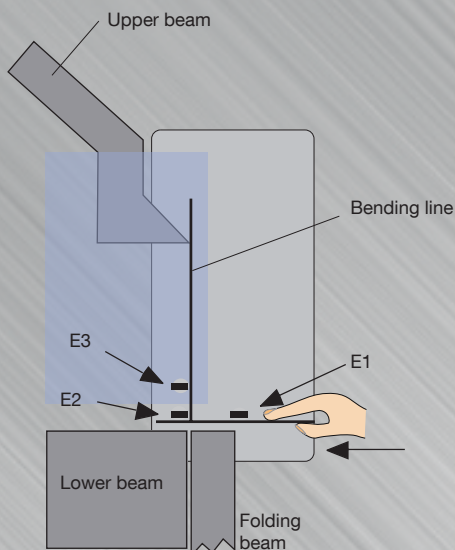
The columns are mounted on  
the floor and the transmitter  
and receiver can be adapted  
both vertically and horizontally  
to the respective machine.



**Receiver**

The horizontal and vertical laser  
protection field protects against  
pinching of limbs when closing  
the upper beam.





- Upper beam in fast speed
- Upper beam in slow speed

## AKAS® SBM

Fiessler Elektronik safety solutions for folding machines (SBM) consist of optical safety and a safety controller. The components are CE type tested (c)UL listed and comply with other national and international standards.

### Functional principle of optical safety device:

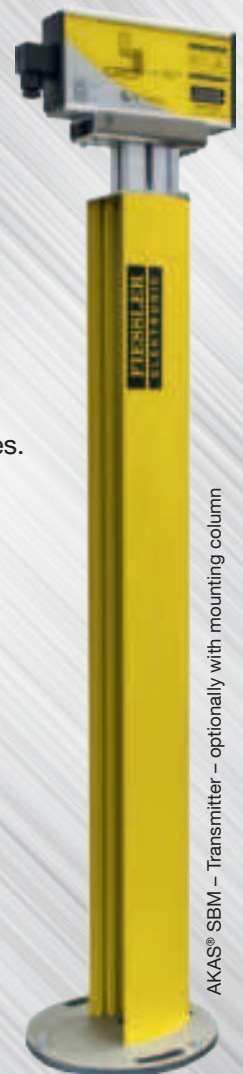
A three-dimensional laser protective field between AKAS® SBM transmitter and AKAS® SBM receiver monitors the clamping area between the upper and lower beam. Due to the special type of beam arrangement, the protection up to the nearest in front of the danger spot.

This eliminates the intermediate stop at 15 mm which would otherwise be necessary.

The result: maximum safety with maximum productivity.

The AKAS® SBM safety solution also offers permanently redundant safety monitoring of all safety-relevant functions of a folding machine.

Flexibility in assembly AKAS® SBM transmitters and receivers can be individually attached directly to the machine body with the flexible T-slot mounting on 3 sides. Floor mounting is easily possible through the height-adjustable mounting column (SAU\_AKAS\_SBM).



AKAS® SBM – Transmitter – optionally with mounting column



## FMSC safety controller

### FMSC (Fiessler modular Safety Center):

The FMSC safety PLC provides an optimal OEM integrated solution for the integration of the AKAS® SBM safety system.

Short reaction times enable maximum productivity and safety of the bending machine. The safety PLC FMSC takes over all safety-relevant tasks of the machine. Free programming allows the respective parameters to be optimally adapted to the machine situation.

An interface enables the status messages to be displayed on the terminal screen of the machine control or via an additional HMI ("human machine interface") FE-HMI-DC-F-B.

### FMSC set for folding machines:

- 2 counter inputs for linear scales for permanent speed monitoring. The counter inputs can also be used for overtravel monitoring.
- 12 safe inputs, expandable
- 4 safe outputs, expandable
- Application modules for all safety applications on a folding machine
- Connection possibility of optical safety system such as AKAS® SBM, safety light curtains, two-hand controls.
- Interface for communication with all common CNC controls.
- Connection option for HMI ("human machine interface").
- I/O extensions with additional "slaves".



FMSC

AKAS® SBM



## Simple diagnosis

### Simple status display

The AKAS® SBM receiver is equipped with status indicators. With these LED indicators a simple on-site diagnosis is possible. In addition, the AKAS® SBM receiver is equipped with an interface to display the status directly on the screen of the controller or via an HMI in text format.



### Optional: Status display FE-HMI-DL-F-B

for status and error messages and for selecting operating modes such as "box bending function".



# Safety funktionen

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## Overview



	AKAS® SBM OEM version	Retrofitting
<b>Hardware</b>	CE-certified, category 4 PL e, Sil 3	
<b>Software</b>	CE-certified operating software	
Laser-transmitter	Class 1	
Receiver	photocell receiver	
Optical range	14 meters	
Inputs	up to 204	14
Safety outputs	up to 68	9
Expandable I/O modules	up to 16	
Counter inputs	up to 34	2
Interface to CNC control	✓	✓
Reaction time	0,5 ms	1,5 ms
Finger guard	✓	✓
Safety monitoring of the upper beam drive	✓	✓
EDM	✓	✓
Safety foot pedal	✓	✓
E-stop, emergency stop	✓	✓
Speed monitoring	✓	✓
Overrun monitoring	✓	✓
Safety gate monitoring	✓	✓
Two-hand control	✓	
<b>Additional functions</b>		
Monitoring of emergency stop switches and foot pedals	✓	✓
Monitoring of additional safety functions (safety light barriers, safety laser scanners, safety mats, safety locking switches, etc.)	✓	
Customized machine safety and monitoring functions	✓	
<b>Operator panel</b>		
RS 232 Interface	✓	✓
FE-HMI-DL-F-B Display	optional	optional
<b>Optical safety device</b>		
AKAS® SBM (transmitter + receiver)	M <sup>1</sup>	F <sup>1</sup>
<b>Assembly</b>		
	T-slot mounting on 3 sides of transmitter and receiver housing, optionally with mounting brackets	with mounting brackets
Vertical adjustment range	—	250 – 1050 mm



### Optional

Protection of the cutting device by  
a second three-dimensional laser  
protection field



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Film

<sup>1</sup> Version



# Bending mode

## The right choice for every type of bending

The AKAS® SBM safety system provides the user with three easy-to-select operating modes:

### Flat bending mode

The basic mode of the safety system AKAS® SBM is the flat bending mode. In the flat bending mode, the protective field in front of the operator and the vertical protective field directly at the bending line are active. This means that the complete 3-dimensional protective field protects the operator during the complete closing movement of the upper beam.

### Box bending mode

The box bending mode is selected by the operator when box-shaped parts have to be bent. In this operating mode, the front part of the laser safety field is blanked out for the duration of the box bending stroke. This enables the upper beam to close without interruption even if the front part of the protective field is interrupted by the edged sides of a box. The operator is protected by the vertical protective field on the bending line.

The AKAS® SBM safety system therefore also offers full protection against rapid intervention in this operating mode - even shortly before the upper beam is completely closed.

### Bending of wavy material

This mode of operation allows the bending of wavy material.



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Film



## High productivity, fast closing speed

### The Innovative Generation

- AKAS® SBM Folding machine safety device
- permanent product care

### Very short reaction time

- minimum overrun
- Significantly higher rapid traverse speeds of the folding machines possible
- thus higher productivity of the folding machines

### Maximum safety

- through the special arrangement of laser beams, both for flat bending as well as for box bending
- optimal bending frequencies

### Integrated safety functions

- Possibility of directly connecting and monitoring of foot pedal
- Emergency stop button, safety switch for left and right safety door
- Back space protection, monitoring of safety valves

### Increased productivity

- Compared to previous solutions, it is possible to close the folding machine without an intermediate stop

### User friendly

- Closing without intermediate stop and unnecessary foot pedal sequences
- Ergonomic

### Time saving

- compared to the previous “safety stop”





# The delivery programme

## Innovative solutions

### Safety light curtains

Type 4, SIL 3, PL e

Type 2, SIL 1, PL c

Finger and hand guard, entrance protection

Blanking and cascading

Protective field height up to 2500 m  
high range up to 60 m

Very short response time as of 2 ms

Safety controller integrated

### AKAS® press brake safety system

fully automatic adjustment

after tool change

laser-optics safety light grid

innovative finger guard through  
continuous bending without stop

### FMSC safety PLC

Emergency shutdown

(fast shut down) max. 0.5 ms

Expandable with up to 16 expansion modules

Easiest programming

Cat 4, SIL 3, PL e

### Safety contact mats

Type 3, SIL 2, PL d

Series connection of up to  
ten mats

Load capacity up to 2000N

single component casting also  
in several colors

individual sizes and shapes

Polyurethane, aluminum or  
Stainless steel surface

with integrally cast ramp rail  
available

### Safety laser scanner

Cat 3, SIL 2, PL d

Protective field 4 m, range 7 m

Metering section 50 m range

Easy assembly

Warning field 15 m

Several programmable sections

### Safety foot pedals

Single-pedal or double-pedal

### Controlling, detecting and measuring

Measuring light curtains

Loop sensors

Directional counting light barriers

Hole detectors

Encoding strips