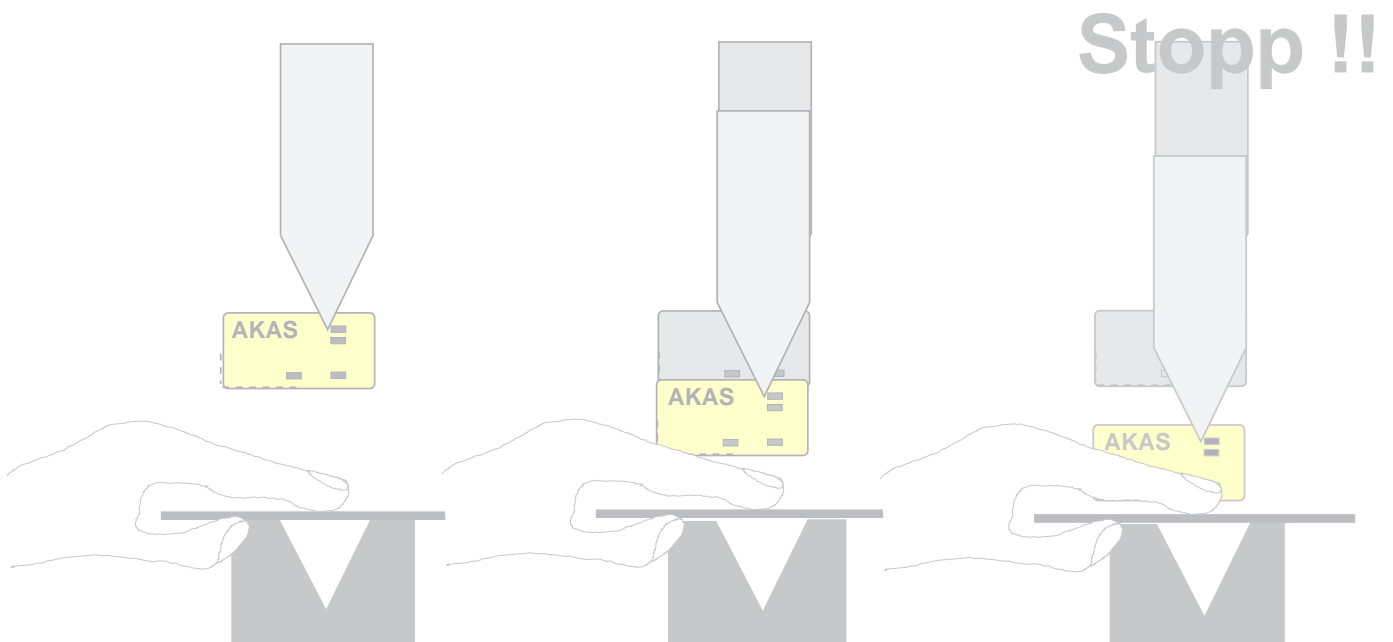


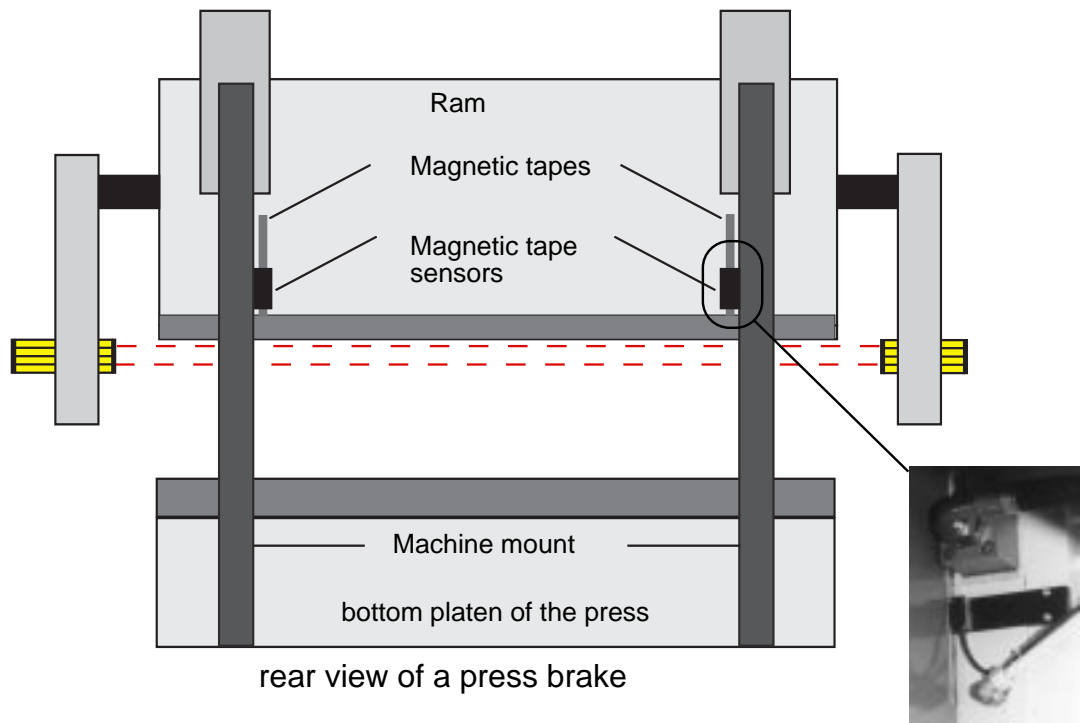
# AMS AKAS Muting System



**Function:** The AMS provides the muting signal according to safety class 4 and the control signals for the AKAS. It measures and evaluates speed, traverse and direction of the closing and opening movement of the press. Furthermore, it can carry out the overrun traverse control during the first stroke of the machine.

The AMS is especially designed for retrofitting certain older presses that do not have any work speed valves or position monitoring.

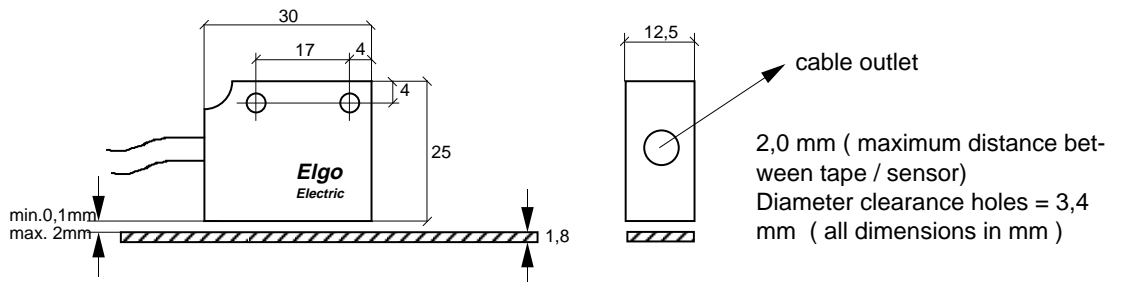
The AMS verifies the nature of the movement of the machine. For this purpose, there are incremental magnetic metal tapes on the left and on the right hand side of the moving part of the press. Each of them is scanned by a magnetic sensor.



**mounting:** The switchgear of the AMS must be installed into a switch cabinet of the protective class IP 54. On the ram (on presses with underneath drive it will be the bottom platen of the press) the magnetic tapes must be fixed vertically. The length of the magnetic tapes must be as long as the maximum lift of stroke plus 20 mm reserve at each end of both tapes.

Example: maximum stroke of the press without tool: 300mm + 2 x 20mm reserve = 340mm overall length of the magnetic tape.

The magnetic sensors must be placed vertically on the machine mount so that the sensor surface is placed directly above the magnetic tape with a maximum distance of 2mm to the tape. The sensor can be fastened by using 2 screws M3 in the ø 3,4 mm clearance holes.



**Electrical connection  
Sensor:**

Brown = + 24 V DC  
White = 0 V  
Green = channel A  
Yellow = channel B

Connection diagram is only valid if the sensor is installed so that the cable outlet is at the lower edge of the sensor. If the cable outlet is on the top edge of the sensor, channels A (green) and channels B (yellow) must be switched over. On presses with an underneath drive the wiring procedure must be installed vice-versa.

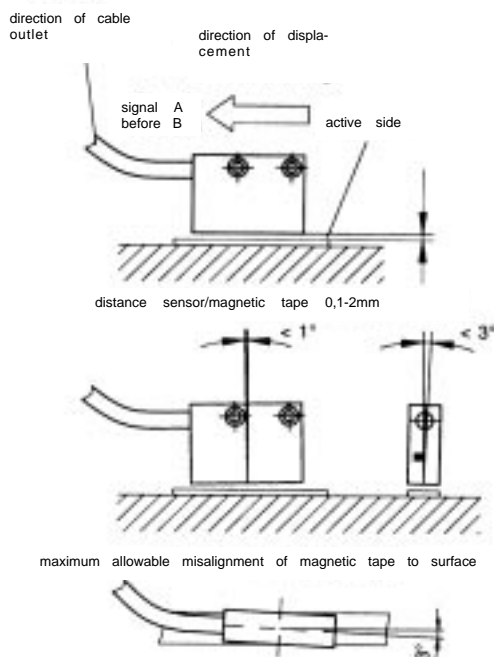


The connection of the insulation of the sensor cables at the equipotential bonding must be made at large surface (low impedance). Sensors and their connecting cables must be laid out well separated from other conductors that may be faulty. If necessary, additional insulating measures have to be met. Avoid any layout of cables parallel to energy transmitting cables.



The spools of the valves must be equipped with spark quenching elements.

When performing electric welding work on the machine, you must remove the terminal strip of the switchgear, otherwise the stray welding currents may cause destruction of the installed electronics.



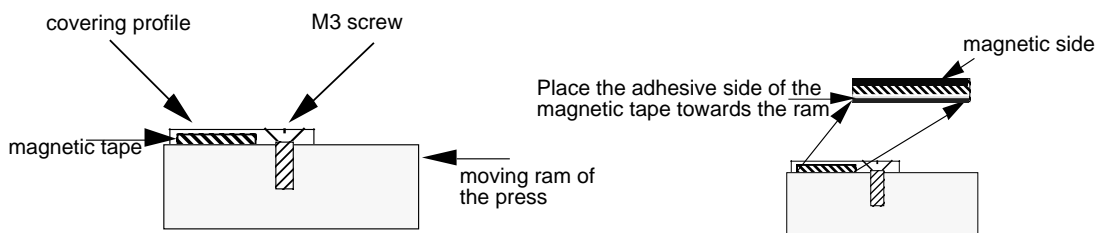
**mounting of magnetic tape:**

Installation must be performed strictly parallel to the mounting surface, i.e. to the traverse to be measured. Uneven surfaces will always reduce the accuracy of measurement.

**Notice:**

For an optimum of adhesion, all anti-adhesive substances (such as oil, grease, dust etc.) must be removed by using residue-free (=evaporating) cleaners. Ketones (acetone) or alcohols like the fast cleaning agents available from companies like Loctite or 3M are suitable substances for this purpose. Surfaces must be dry and adherends must be pressed against each other as tightly as possible. Temperature of adherends will be optimal between 20° und 30 °C in dry ambiance.

**mounting the covering profile of magnetic tape**

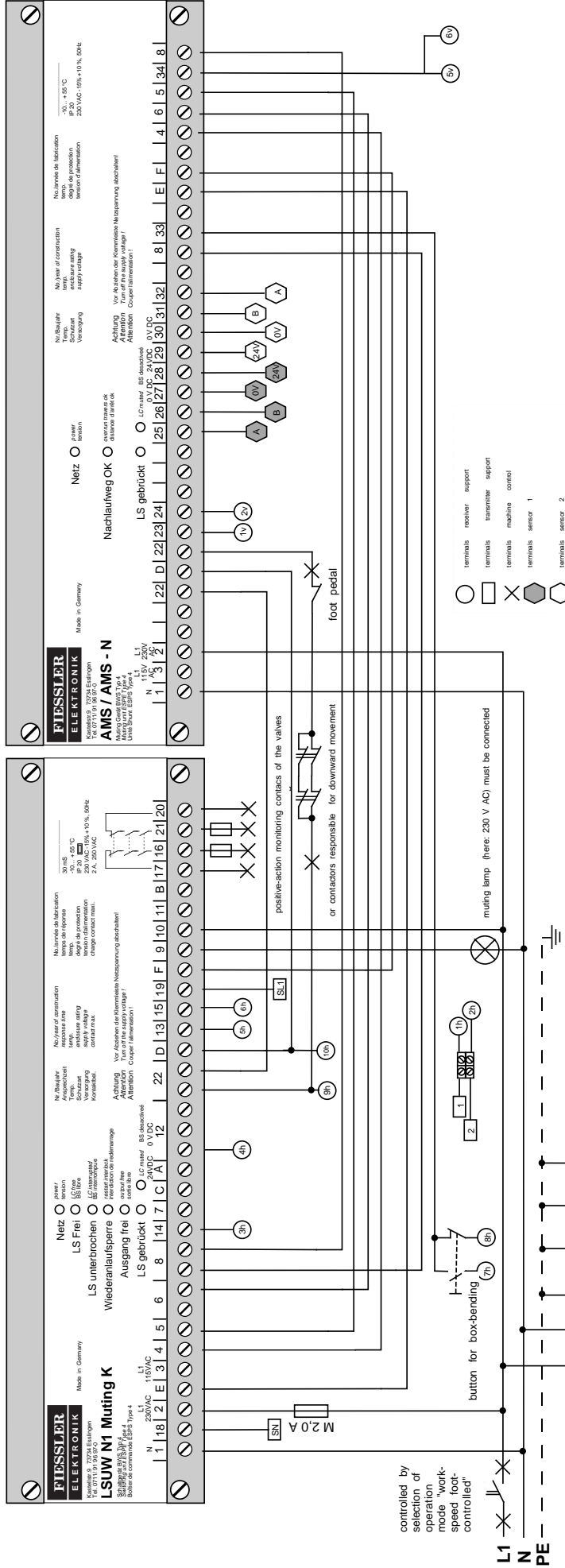


If the magnetic tape is mounted without its covering profile, the self-adhesive steel tape must be glued onto the magnetic tape as a protective means against mechanical damages.



Avoid any unwanted influences of magnetic fields. In particular, all sorts of magnetic fields ( e.g. from magnetic clamps or from similar permanent magnetic materials) must be kept away from direct contact with the magnetic tape.

## electrical connection AKAS I / II with AMS / AMS2 230 V AC



operation voltage 230 V 50 Hz, -15 %, + 10 % ( Optional 24 V )

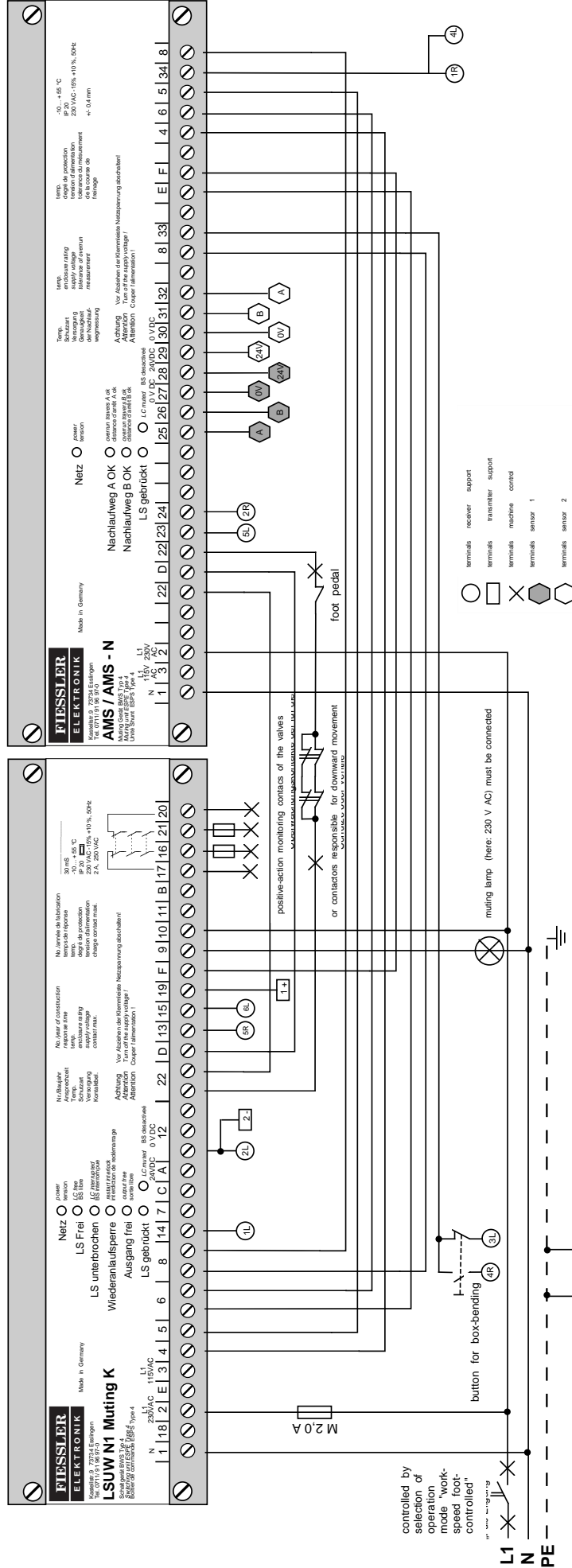
protected against in-circuit connection  
short circuit strength Outputs are not protected against short circuits.



Notice

The AMS must be connected to the same voltage as the N1 K Muting switchgear ( AMS dead when AKAS out of operation/disconnected)

electrical connection  
AKAS - LC transmitter  
and receiver 24 V DC,  
Muting K, Muting lamp  
and AMS / AMS2  
230 V AC



**Display**  
red LED lights up: power is on  
green LED stays dark: overrun traverse measuring result still unknown or overrun traverse measuring result too high.  
green LED lights up: overrun traverse measuring result o.k.  
green LED flashes during overrun traverse measuring ( AMS2 ) : the measured overrun traverse will be shown through blinking.  
green LED flashes: Error! If this error cannot be eliminated by a voltage reset, check connection of sensors at the initial operation.  
If error occurs during regular operation, search possible defect in the sensors or in the AMS unit.

operation voltage 230 V 50 Hz, -15 %, + 10 % ( Optional 24 V )

protected against in-connection short circuit strength

Outputs are not protected against short circuits.

Cables must be laid out separately from high-voltage lines.  
The cable layout must be arranged so that no mechanical damage of the cable is possible.  
The possibility of the conductors short-circuiting is thereby excluded. Any short-circuiting must be excluded between the wires from the start button and between the line 5v and any other 24 V lines.

The AMS must be connected to the same voltage as the N1 K Muting switchgear ( AMS dead when AKAS out of operation/disconnected)

**Notice**

controlled by selection of operation mode "work-speed foot-controlled"

button for box-bending

muting lamp (here: 230 V AC) must be connected

positive-action monitoring contacts of the valves or contactors responsible for downward movement

foot pedal

terminal receiver support  
terminal transmitter support  
terminal machine control  
terminal sensor 1  
terminal sensor 2

## Inbetriebnahme AMS2 :

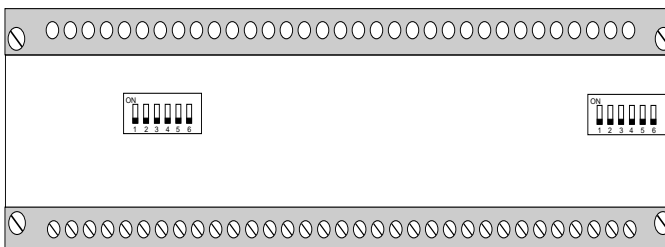
Prior to the first starting up of the system, the desired operating mode must be programmed into the AMS via the 2 strips of DIP-Switches that are located behind the yellow front plate ( AKAS I / LC with / without overrun traverse measuring, i.e. AKAS II with / without overrun traverse measuring. When using AKAS II with overrun traverse measuring, the maximum allowable overrun traverse from 5 mm to 14 mm can be entered as option.)

You will find all available operating modes in the following table. An additional sticker showing a print of this table is placed on the housing of the AMS2 right beside the Dip-switch strip. The yellow front plate of the AMS2 can be removed with a small screw driver turned between the lateral edges.

X = ON Dipswitches 1 2 3 4 5 6

AKAS 1 without overrun traverse test					X
AKAS 1 with max. 15 mm overrun					
AKAS 2 without overrun traverse test				X	X
AKAS 2 with max. 14 mm overrun				X	
AKAS 2 with max. 12 mm overrun			X	X	
AKAS 2 with max. 10 mm overrun		X		X	
AKAS 2 with max. 9mm overrun	X			X	
AKAS 2 with max. 8 mm overrun		X	X	X	
AKAS 2 with max. 7 mm overrun	X	X	X		
AKAS 2 with max. 6 mm overrun	X	X	X	X	
AKAS 2 with max. 5 mm overrun	X	X	X	X	
Stroke length before overrun test = 40 mm					
Stroke length before overrun test = 20 mm	X				

					X
				X	X
				X	
		X	X		
	X			X	
		X	X	X	
	X	X	X		
	X	X	X	X	
X					



Front view of the AMS2 after removal of the front plate.



The Dip switch combinations on both Dip switch strips must be strictly identical at any time!

## overrun traverse measuring AMS 2 :

After the voltage reset of the AMS, an overrun traverse control is carried out during the first stroke of the press. For this purpose, the stroke of the machine is stopped after either 20 mm or 40 mm traverse and the AMS checks the overrun traverse. If the overrun traverse does not exceed either 15 mm on the AKAS 1 or the pre-programmed maximum allowable overrun traverse of the AKAS 2, the measured traverse is displayed by the number of flashes by the green LED on the AMS. Example: if the upper green LED flashes 8 times and the lower LED 6 times, the traverse measured at the right hand sensor input would be 8mm, that at the left hand sensor would be 6mm. In turn, if the AKAS2 is used, the maximum allowable overrun traverse can be programmed at the AMS 2 onto 8mm (with reserve: 9mm).

According to this, the AKAS2 receiver can now be adjusted onto 8mm/9mm as overrun traverse parameter. For further information about adjusting the AKAS2, please refer to page 21 of the instruction manual for AKAS I / LC / AKAS II.

If the overrun traverse is exceeded, the green LED remains dark and, after having completed the opening movement, another overrun traverse control procedure starts during the next stroke of the press. As long as the overrun traverse measuring does not furnish correct measuring results, no operation will be possible. For machines already equipped with an overrun traverse control, the above-mentioned measuring procedure may be deactivated by adjusting both jumpers "6" beneath the removable type plate of the AMS switch gear.



**Never operate the press with AKAS without having executed the overrun traverse control first!**

## Notice for using AMS/N and AMS 2/N :

-If, after the first starting up of the machine, no stroke is carried out, please check if the downward movement is always interrupted after 1cm. If this is the case, the sensor cables A and B might be connected incorrectly. (A and B mixed up).

-If no overrun traverse measuring is carried out, i.e. if there is no Muting activated when the overrun control measurement is deactivated, check the distance between magnetic tape (adhesive side must face the machine) and the sensors. If everything is installed correctly, check with a measuring tool at the sensor cables A and B during upward / downward movement, if a constant alternation from 0 V to approx. 24 V is produced. If 0 V is constantly obtained as measuring result, the sensors themselves are probably defective.



In case of problems with the Muting function, the following spots are not recommended to be used as upper dead center:

-From switch-over point of the machine from fast speed into slow speed until + 4 mm above the switch-over point.

**Example:** if the switch-over point is e.g. 16 mm above the sheet metal surface, then avoid using the sector between 16mm and 20 mm above sheet metal surface as upper dead center.

-The sector of **14 mm** after the switch-over point on **AKAS I / LC +/- 2 mm**, or **6 mm** after the switch-over point from fast speed into slow speed when using **AKAS II +/- 2 mm**

**Example:** the switch-over point at the AKAS II was programmed onto 15 mm above sheet metal surface. 15 mm - 6 mm = 9 mm +/- 2 mm => Avoid using the sector between 7mm and 11 mm as upper dead center.

**ambient conditions of  
the AMS**

**ambient temperature  
during storage and  
transport:**

- 10 up to + 55 °C

**protection/enclosure:**

IP 40; optional IP 55 ( wall-mounting housing)

**humidity class:**

E

**Electrical data AMS:**

**operational voltage:**

230 V 50 Hz- 15 %, + 10 % (optional 24 V DC )

**protection against  
faulty connection:**

Protection against all possibilities of faulty connections is not provided.

**short circuit strength:**

Outputs not protected against all possibilities of short-circuit

**surge voltage:**

surge voltage class 2 with safe separation, surge voltage class 3 without safe separation

**delivery:**

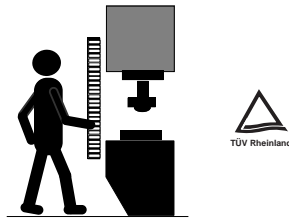
Switch gear	AMS
Magnetic sensor	with 5m cable
Magnetic sensor	with 10m cable
Magnetic tape	length 1m (2 x 0,5m) , for a maximum stroke traverse of 468mm. (longer magnetic tapes are optionally available)

**order code:**

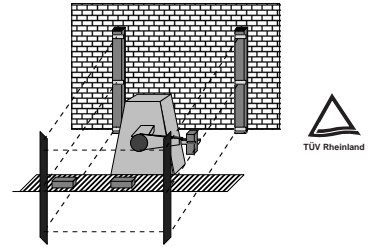
AKAS Muting System with integrated overrun traverse measuring: **AMS/N, AMS 2 / N**

# Lieferprogramm:

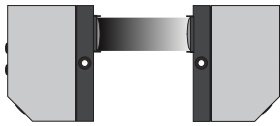
Fiessler Elektronik  
 Kastellstr. 9 D-73734 Esslingen  
 Telefon: 0711 / 91 96 97-0  
 Telefax: 0711 / 91 96 97-50  
 WWW.fiessler.de  
 E-Mail: info@fiessler.de



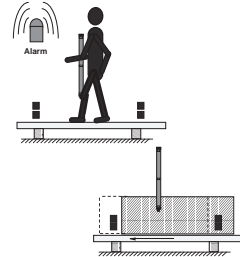
safety light curtains



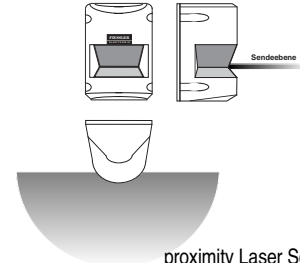
safety light grids



single-beam safety light barrier



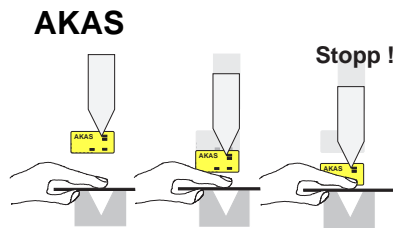
safety light grid with muting function



proximity Laser Scanner



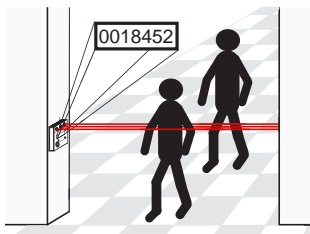
safety mats



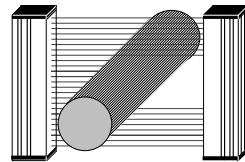
the innovative finger guard for press brakes



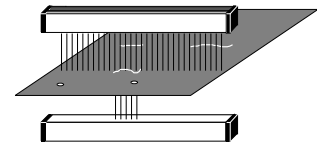
Safety foot pedal



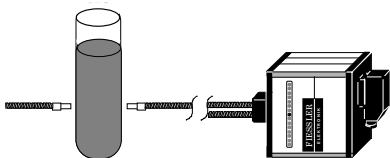
photoelectric controls for counting applications



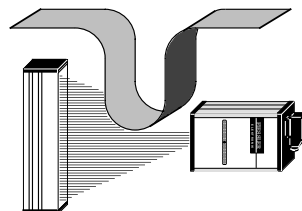
switching and analogue light curtains



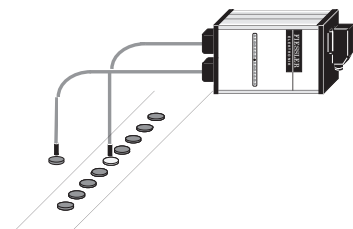
hole detectors



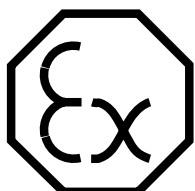
cloudiness sensors



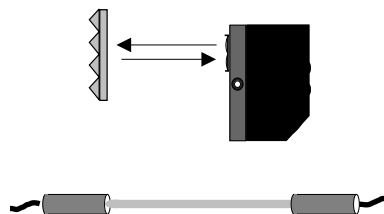
analogue loop detectors



reference-sensors



light barriers for EX-zones



light barriers for general applications



your application