

Double Sheet Metal Monitors for forming technology

BDK Uno
Self-contained Double Sheet Metal Sensor
single-surface contact, for ferrous (Fe) sheets



Self-contained Double Sheet Metal Sensor BDK Uno

 integral evaluation

 cost-effective

 compact

Self-contained Sensor

BFD/L-54sg-1s
Ref. No. 13.35-01

Single-surface Double Sheet Metal Sensor with integral evaluation electronics for single-surface contact measurement of ferrous sheets.

Application

The BDK Uno Double Sheet Metal Sensor with integral evaluation electronics is used to check feeds of ferrous metal sheets and prevent double sheets from entering tools. During measurement, the sensor contacts the sheets (0.15 ... 0.5 mm). The sensor is simple to use and easy to install in plant and machinery. Because it needs no additional evaluation device, this is an exceptionally cost-effective solution.

Installation instructions

The sensor can be installed in the suction cup of the gripper or in a monitoring station. For measurement, the deposit of the sheet is necessary.

Mode of operation

The sensor and the evaluation unit are housed in a compact body.

An 8-pole M12 connector allows to connect the supply voltage, the controlling signals, and the digital outputs.

During measurement, an excitation coil generates a magnetic field. The resulting force draws the sheet towards the coil. The flux density in the magnetic circuit is measured and evaluated by a micro-controller, which is used to distinguish between 0, 1, or 2 sheet (s).

Measurement can be started by an external signal.

The teaching-in of *one metal sheet*, used to calculate the threshold for the double sheet message, is started by an external signal.

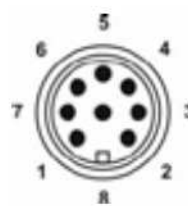
Subject to changes!

Technical data

Double Sheet Metal Sensor BFD/L-54sg-1s
Ref. No. 13.35-01

Measurement range (Sheet thickness)	0.15 ... 0.5 mm
Measurement method	Measurement of the magnetic flux density
Operating voltage U_B	18 ... 24 ... 30 V DC
Power consumption	max. 0.25 A
Operating temperature	0 ... + 55 °C
Inputs	
Start signal	Hi = 18 ... 24 ... 30 V DC Lo = 0 ... 5 V DC
Input current	approx. 5 mA (for 24 V DC)
Teach-In	Hi = 18 ... 24 ... 30 V DC Lo = 0 ... 5 V DC
Outputs	
Switching output	Semiconductor output, plus switching, resistant to short circuit
Output voltage	$U_B - 1.75$ V
Output current	max. 100 mA
Measuring time	< 10 ms
Repeat time	50 ms
Dimensions	54 mm
Total length	156 mm
Weight	approx. 1200 g

Connection



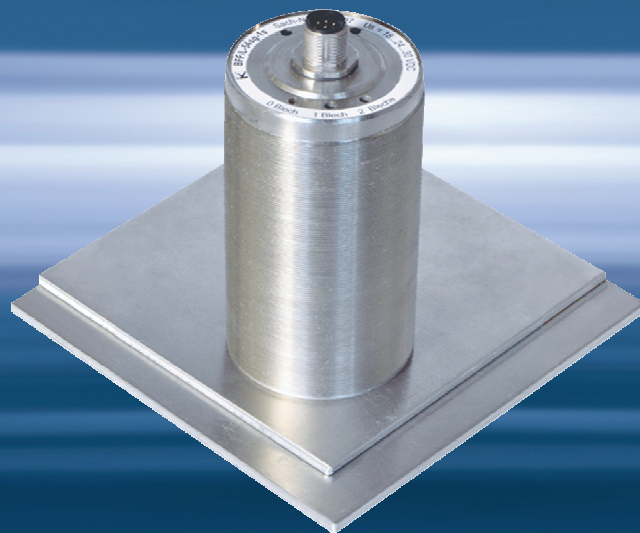
1	24 V DC
2	M
3	Switching output 0-sheet
4	Switching output 1-sheet
5	Switching output 2-sheet
6	Start signal
7	Teach-in signal
8	-

Connecting lead

VLG8E/8S/5-1 5 m Ref.no. 20.18-92-050
straight, shielded

Double Sheet Metal Monitors for forming technology

BDK Uno
Self-contained Double Sheet Metal Sensor
single-surface contact, for non-ferrous (NE) sheets



Self-contained Double Sheet Sensor BDK Uno for NE sheets

 integral evaluation

 cost-effective

 compact

Self-contained Double Sheet Metal Sensor BDK Uno for NE with integral evaluation electronics for single-surface contact measurement of non-ferrous sheets.

Application

The Double Sheet Metal Sensor BDK Uno for NE with integral evaluation electronics is used to check feeds of non-ferrous metal sheets and prevent double sheets from entering tools.

During measurement, the sensor contacts the non-ferrous sheets with a thickness of 0.1 mm to 6 mm for aluminium or 0.3 mm to 5 mm for stainless steel. The sensor is simple to use and easy to install in plant and machinery. Because it needs no additional evaluation device, this is an exceptionally cost-effective solution.

Installation instructions

The sensor can be installed in the suction cup of the gripper or in a monitoring station. For measurement, the deposit of the sheet is necessary.

Configuration and mode of operation

The BDK Uno for non-ferrous sheets is fitted with an 8-pole M12 connector for the power supply and control and signal function. Two semiconductor outputs (K0 and K1) indicate the number of the detected sheets. There are three LEDs for visual monitoring and for calibration indication. An optional version has a non-linear analogue output (with a choice of current or voltage output) to assist, for example, threshold value monitoring in a post-connected Programmable Logic Controller (PLC).

The BDK Uno for non-ferrous sheets consists of a sensor and evaluation electronics in a cylindrical housing made from nickel-plated steel. The exciter coil of the sensor generates an eddy current field in the non-ferrous sheet to be measured by the sensor coil. The field strength is nearly proportional to the sheet thickness. Since the field does not suck in the sheets, it is necessary, for measurement, that the sheet covers the complete sensor's surface without air gap.

Teach-In

Calibration is initiated by the high active control input *Teach-In*. It consists of two equal parts (two step calibration). The system is calibrated for sheet thickness and sheet type.

Subject to changes!

BED/L-54sg-1s

Operating voltage U_B 19 ... 24 ... 30 V DC
Reverse polarity protection yes
Power consumption max. 300 mA
Operating temperature 0 ... + 55 °C

Inputs

Start signal Hi = 12 ... 24 ... 30 V DC
Lo = 0 ... 5 V DC
approx. 5 mA (for 24 V DC)
Input current approx. 5 mA (for 24 V DC)
Teach-In Hi = 12 ... 24 ... 30 V DC
Lo = 0 ... 5 V DC
approx. 5 mA (for 24 V DC)
Input current approx. 5 mA (for 24 V DC)

Outputs

Logic outputs semiconductor output, plus switching, short circuit proof
Output voltage $\geq U_B - 1.75$ V
Output current max. 100 mA
Electrical isolation no
Status indicator 3 LED
Measuring time max. 20 ms, min. 3 ms
Measuring procedure eddy current
Wiring M12 Euro connector
Dimensions (H x d) 950 x 54 mm²
Weight approx. 750 g
Material of the housing nickel-plated stainless steel

Metal sheet thickness (1-sheet)

Non-ferromagnetic (Alu) 0.1 ... 6 mm
Non-ferromagnetic (V2A) 0.3 ... 5 mm

BEE/L-54sg-1s

Same technical data like BED/L-54sg-1s (13.35-05), but with additional analogue voltage output.
Output voltage 0 ... 10 V, non-linear
1-sheet corresponds to 40 % of the value range
Load resistance ≥ 10 k Ω
Resolution 256 steps

BEF/L-54sg-1s

Same technical data like BED/L-54sg-1s (13.35-05), but with additional analogue current output.
Output current 0 ... 20 mA, non-linear
1-sheet corresponds to 40 % of the value range
Load resistance ≤ 500 Ω
Resolution 256 steps

Connecting lead

VLG8E/8S/5-1 5 m **Ref. no. 20.18-92-050**
Straight, shielded