1. Application

The use of Double Sheet Metal Monitors BDK-1.3 or BDK-ET often require the connection of different sensors to one monitor. The BDIW sensor switch permits to connect up to 4 identical or different sensors to select the appropriate sensor required for monitoring. This allows fast, variable and safe detection of very different sheet metal thicknesses and materials in a press or at different locations in the material supply. BDIW sensor switch allows to avoid these sensor changes and thereby production downtimes.

The thickness sensors for single surface contact measurement (DSP, DSPW, BDWF) can be connected to Monitors BDK-ET and BDK-1.3. BDK-1.3 allows also the detection of single surface non-contact measurement (DSD) and double surface non-contact measurement with separate transmitter (BDWD/S) and receiver module (BDWD/E). Transmitter and receiver requires each an own sensor switch. Alternatively a T-coupler (ADD) allows to join both transmitter and receiver leads (VLG). Up to 4 sensor pairs BDWD/S and BDWD/E can be connected to one sensor switch BDIW.

2. Configuration

The sturdy plastic housing with IP 65 protection rating allows the use in harsh environments.
The signals from up to 4 double sheet metal sensors are switched over to the evaluation device (BDK-1.3 or BDK-ET) by semi-conductor relays which are free from wear.
LED signals allows visual function control and signalises the activation of the sensor channel and the readiness of the sensor switch for operation.
For mounting the Monitor directly to the equipment, use the 4 screws (M5) and the fastening lugs located at the bottom of the housing. When the device will be subjected to heavy shocks, we recommend to mount rubber-bonded metals or shock absorbers.

All connecting leads (VLG) are pluggable. The sensor leads are connected via 9-pole sockets. Control signalling and power supply are connected via an 8-pole plug complying (SPF8) with DIN 43651.

3. Mode of Operation

The BDIW sensor switch is connected between the Double Sheet Metal Monitors (BDK-1.3 or BDK-ET) and the thickness sensors. The selection of the sensors is done by the external control signals.

Assignment control signals - sensor:

Control lead			Selected Sensor			
C4	C3	C2	4	3	2	1
L	L	L				X
L	L	H			X	
L	H	L		X		
H	L	L	X			
H	L	H			X	
H	H	H			X	
H	H	L		X		

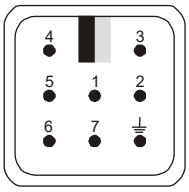
L: Low H: High (active)

Note: *The control lead with the lowest order bit has priority. If neither a control signal nor a power supply is present, sensor 1 will be connected to the Double Sheet Metal Monitor.*

Attention: *Switching from one sensor to another must only be done during the interval between two consecutive measurements.*

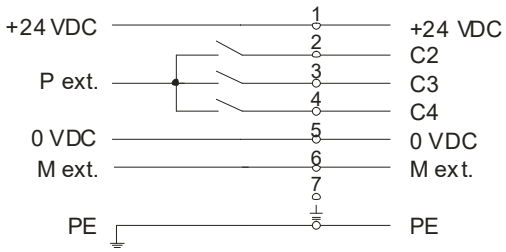
4. Connection

Terminal pin assignment supply and control lead

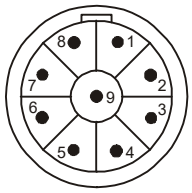


1	+24 VDC
2	C2
3	C3
4	C4
5	0 VDC
6	M ext.
7	
⏚	PE

Wiring

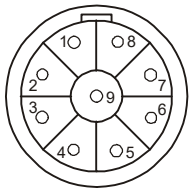


BDIW-1.4 connection for the BDK



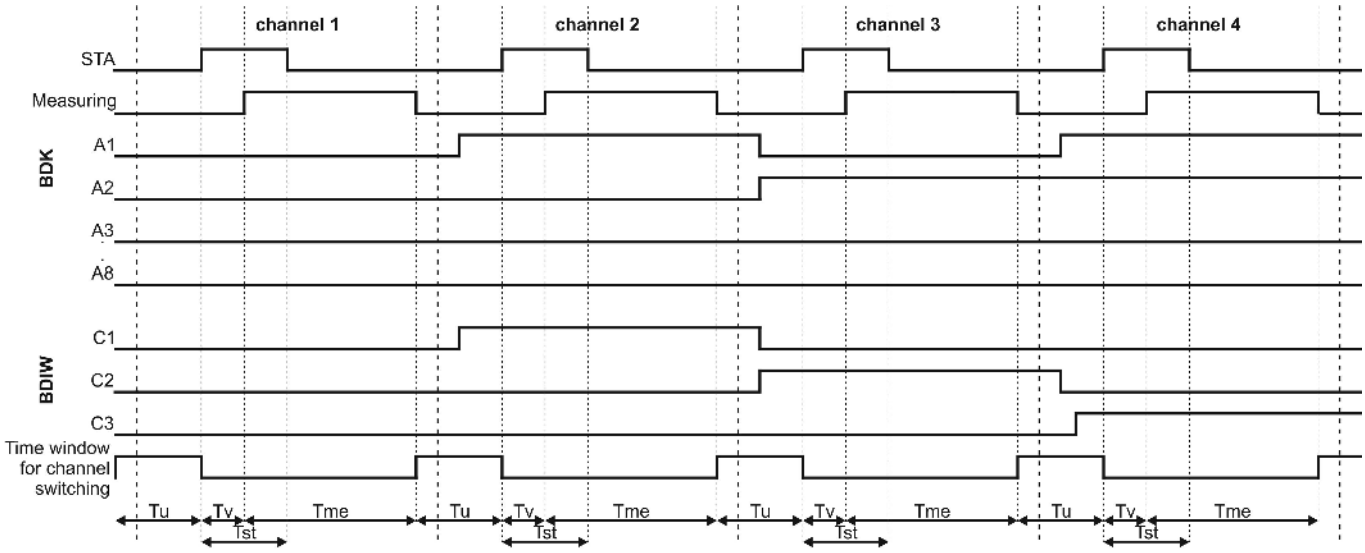
1	+24 VDC	(yellow)
2	OUT	(black)
3	M	(purple / brown / grey)
4	IN1	(pink)
5	IN	(green)
6	IN2	(blue)
7	S-OUT1	(brown, 1 qmm)
8	S-OUT2	(white, 1 qmm)

BDIW-1.4 connection for the following sensors: BDWF, BDWD, DSP, DSPW, DSD



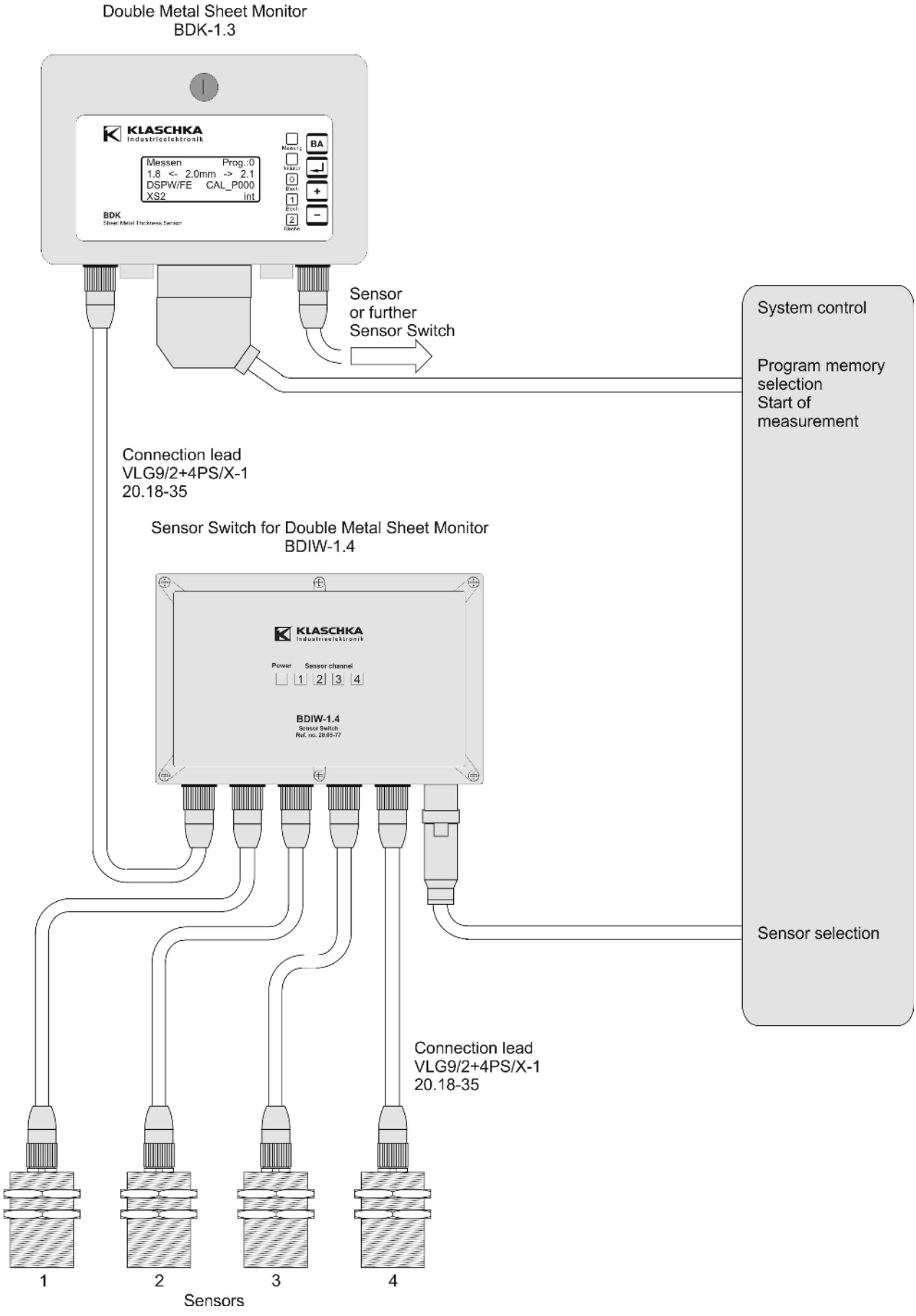
1	+24 VDC	(yellow)
2	OUT	(black)
3	M	(purple / brown / grey)
4	IN1	(pink)
5	IN	(green)
6	IN2	(blue)
7	S-OUT1	(brown, 1 qmm)
8	S-OUT2	(white, 1 qmm)

5. Time diagram

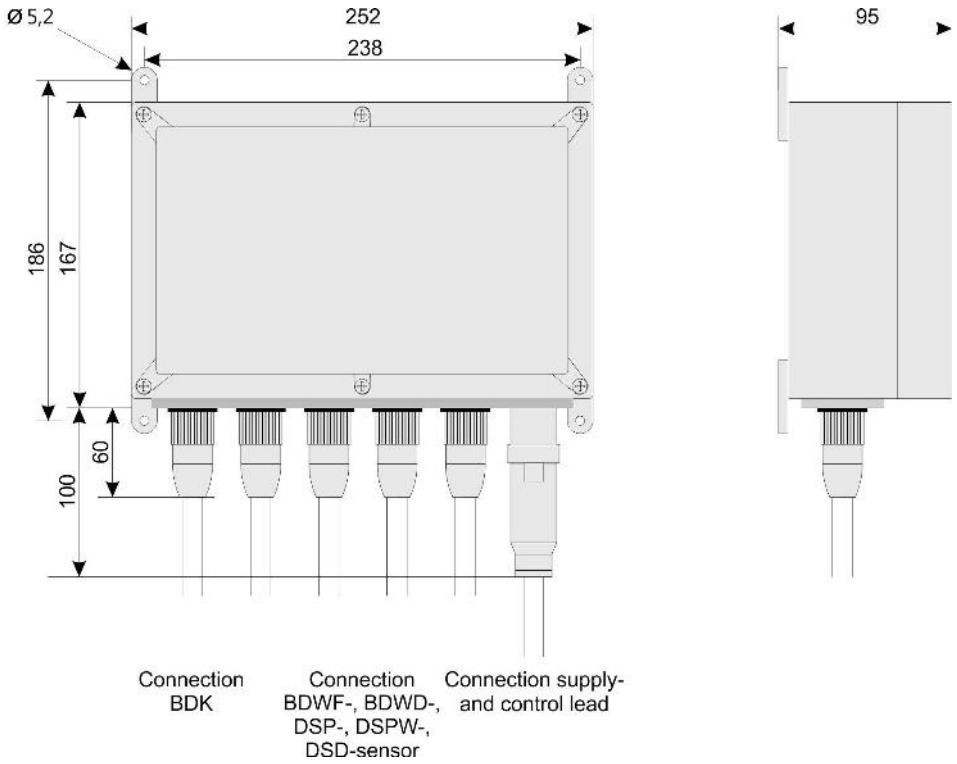


Tv	< 10 ms	Delay in beginning measurement after STA signal
Tst	> 5 ms	Pulse length of the "External Start" signal
Tme	> 20 ms	Measurement and recovery time depending on sensor type
Tu	> 10 ms	Time window for channel switching

6. Application example



7. Dimensions of the housing



8. Technical Data

Inputs

Control inputs	
- Lo-level	1 ... 8 VDC
- Hi-level	12 ... 30 VDC
Input current	approx. 10 mA
Electrical isolation	yes (to power supply)

Power supply

DC voltage	24 VDC
- Tolerance range	± 15 %
- Residual ripple	max 10 %

Power consumption	max. 55 mA
Housing	plastic
- Protection rating	IP 65
- Fastening	screw mounting (4 x M5)
Weight	approx. 1.110 kg
Ambient temperature	0 ... 55 °C

8.1. Standards Applied

Measuring relays and protection equipment	EN 60255-1
EMC emission	EN 61000-6-4
EMV immunity	EN 61000-6-2

9. Order Data

BDIW-1.4 Ref. no. 20.05-77

Sensor switch for selection of one out of four sensors, (DSP, DSPW, BDWF, or DSD, BDWD).
Power supply 24 VDC.

Connecting leads for BDIW-1.4

VLG9/2+4PS/X-1 Ref. no. 20.18-35

Connecting lead BDK <---> BDIW-1.4 and BDIW-1.4 <---> Sensor connection (DSP, DSPW, BDWF, or DSD-60, BDWD), straight plug on sensor end.

VLG9/2+4PS/X-2 Ref. no. 20.18-36

Connecting lead BDIW-1.4 <---> Sensor connection (DSP, DSPW, BDWF, or DSD-60, BDWD), angled plug on sensor end.

Connecting leads

All connecting leads are oil-resistant and suitable for drag chains. Please indicate the lead length X when placing your order (standard length X = 5 m). The connectors are straight on device end and alternatively straight or angled on sensor end.

SPF8-1 Ref. no. 13.99-05

Socket for connecting supply and control leads.

We are certified according to DIN EN ISO 9001

Subject to technical changes!