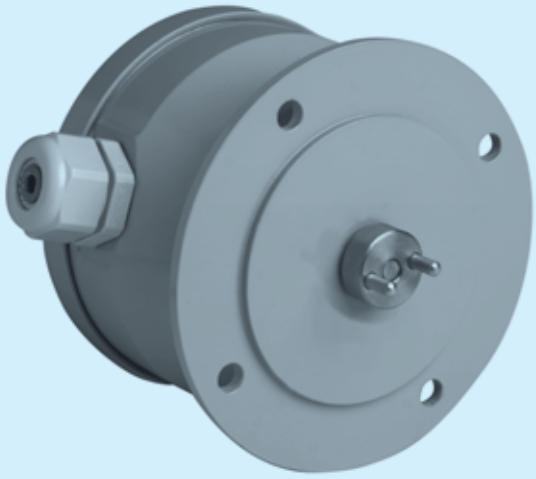
ROTATION SPEED MONITOR 6KB 4110/AL-Ni

- Robust speed monitor
- Switching speed range 60 to 6000 rpm
- Adjustable by code swittches
- Seperate relays for left and right turning
- No external power supply required
- Hysteresis 30 to 60 rpm



Function Principle

When the shaft is turned a stepper motor induces the supply power for the signal processing circuits and the signal voltages for determination of revolution and direction.

When the speed selected by the code switches is reached relay 1 switches at left turning and relay 2 switches at right turning.

Electrical Data:

Supply voltage:	Internally generated
Nominal speed range:	60 to 6.000 r.p.m. (1 to 100 r.p.s.)
Relay contacts:	2 change over, for left and right turning
Switching performance:	max. 400 V AC, 5 A, 1250 VA max. 240 V DC, 5 A, 150 W (resistive load)

Mechanical Data:

Adaptation:	Pin adapter with plugged elastic clutch
Cable entry:	M 20 cable gland for cable ø 7 to 12 mm
Housing material:	Glass fibre reinforced plastic; oil, grease and acid resistant
Housing dimensions:	According to fig. 1
Flange diameter:	120 mm
Shaft bearing:	2 ball bearings
Environmental temperature:	Operating -25 °...+70 °C Storage -40 °...+80 °C Transport -40 °...+80 °C
Enclosure:	IP 65

Testing and Qualification of the Item:

Humidity:		DIN IEC 68-2-30		
		Lower temp.	+25 °C	97 % rel. hum.
		Upper temp.	+55 °C	93 % rel. hum.
		Test duration	6 days	
Vibration:		DIN EN 60 068 -2 -6		
		Frequency	10 – 150 Hz	
		Amplitude	0,35 mm	
		Resp. acceleration	5 g (20 Cycles per axis)	
Shock loads:		DIN EN 60 068 -2 -27		
		Shocktype	semi-sine	
		Amplitude	30 g	
		Duration	18 ms	
		Shocks per orientation	3	
Long term shock loads:		DIN EN 60 068 -2 -29		
		Shocktype	semi-sine	
		Amplitude	25 g	
		Duration	6 ms	
		Shocks per orientation	1000	
Isolation:		DIN / VDE 0435 Part 303		
		Check value	2 kV AC	
Susceptibility:	Conducted susc.	DIN / EN 50141	10 V	
	Radiated susc.	DIN ENV 50140	10 V/m	
	Electrostatic discharge	DIN EN 61 000-4-8		
			Contact	4 kV
			Air gap	8 kV
	Burst:	DIN EN 61 000-4-4	2 kV	
	Surge:	DIN EN 61 000-4-5		
			asymmetrical	4 kV
			symmetrical	2 kV
Emission:	Radiated emission:	DIN EN 55 022	Line B	

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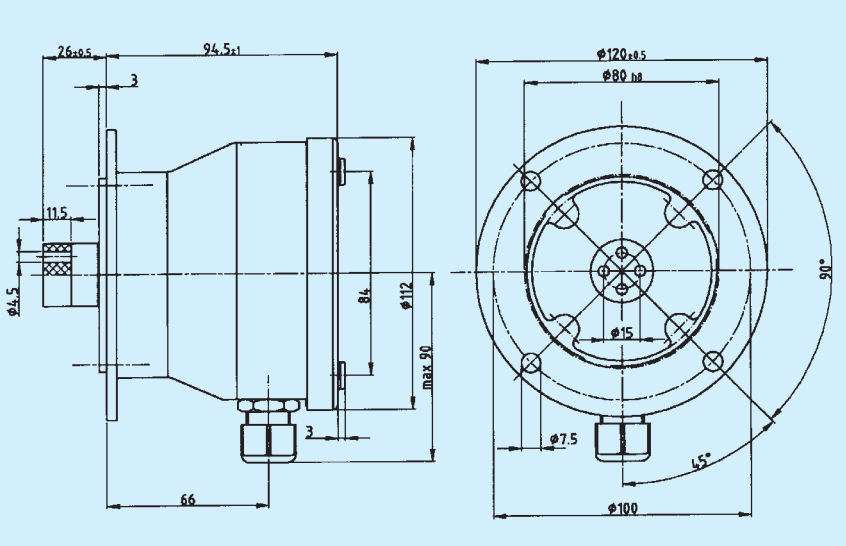
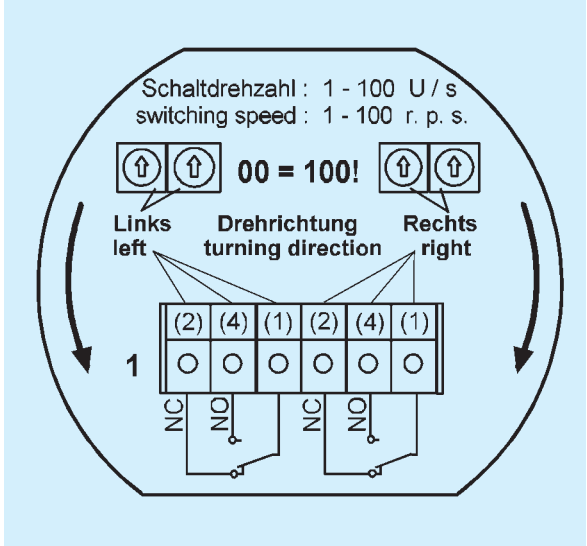
ROTATION SPEED MONITOR 6KB 4110/AL-Ni

Dimensioned drawing



Terminal assignment



Code Switch setting

Pos.	rps	rpm	Pos.	rps	rpm	Pos.	rps	rpm	Pos.	rps	rpm	Pos.	rps	rpm
*1 0 : 1	1	60	2 : 1	21	1260	4 : 1	41	2460	6 : 1	61	3660	8 : 1	81	4860
0 : 2	2	120	2 : 2	22	1320	4 : 2	42	2520	6 : 2	62	3720	8 : 2	82	4920
0 : 3	3	180	2 : 3	23	1380	4 : 3	43	2580	6 : 3	63	3780	8 : 3	83	4980
0 : 4	4	240	2 : 4	24	1440	4 : 4	44	2640	6 : 4	64	3840	8 : 4	84	5040
0 : 5	5	300	2 : 5	25	1500	4 : 5	45	2700	6 : 5	65	3900	8 : 5	85	5100
0 : 6	6	360	2 : 6	26	1560	4 : 6	46	2760	6 : 6	66	3960	8 : 6	86	5160
0 : 7	7	420	2 : 7	27	1620	4 : 7	47	2820	6 : 7	67	4020	8 : 7	87	5220
0 : 8	8	480	2 : 8	28	1680	4 : 8	48	2880	6 : 8	68	4080	8 : 8	88	5280
0 : 9	9	540	2 : 9	29	1740	4 : 9	49	2940	6 : 9	69	4140	8 : 9	89	5340
1 : 0	10	600	3 : 0	30	1800	5 : 0	50	3000	7 : 0	70	4200	9 : 0	90	5400
1 : 1	11	660	3 : 1	31	1860	5 : 1	51	3060	7 : 1	71	4260	9 : 1	91	5460
1 : 2	12	720	3 : 2	32	1920	5 : 2	52	3120	7 : 2	72	4320	9 : 2	92	5520
1 : 3	13	780	3 : 3	33	1980	5 : 3	53	3180	7 : 3	73	4380	9 : 3	93	5580
1 : 4	14	840	3 : 4	34	2040	5 : 4	54	3240	7 : 4	74	4440	9 : 4	94	5640
1 : 5	15	900	3 : 5	35	2100	5 : 5	55	3300	7 : 5	75	4500	9 : 5	95	5700
1 : 6	16	960	3 : 6	36	2160	5 : 6	56	3360	7 : 6	76	4560	9 : 6	96	5760
1 : 7	17	1020	3 : 7	37	2220	5 : 7	57	3420	7 : 7	77	4620	9 : 7	97	5820
1 : 8	18	1080	3 : 8	38	2280	5 : 8	58	3480	7 : 8	78	4680	9 : 8	98	5880
1 : 9	19	1140	3 : 9	39	2340	5 : 9	59	3540	7 : 9	79	4740	9 : 9	99	5940
2 : 0	20	1200	4 : 0	40	2400	6 : 0	60	3600	8 : 0	80	4800	0 : 0	100	6000

*1 not 6KB 4110/AL-Ni-M

ORDERING CODE

	Speed range	Relay type	Ident-No.
6KB 4110/AL-Ni	60–6000 rmp	bistable	SI 100
6KB 4110/AL-Ni-M	120–6000 rpm	monostable	SI 101

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CONVEYOR BELT MONITOR

6KB 4111

- Robust speed monitor
- Switching speed range 60 to 6000 rpm
- Adjustable by code switches
- Seperate relays for left and right turning
- No external power supply required
- Hysteresis 30 to 60 rpm

Function Principle

When the shaft is turned a stepper motor induces the supply power for the signal processing circuits and the signal voltages for determination of revolution and direction.

When the speed selected by the code switches is reached relay 1 switches at left turning and relay 2 switches at right turning.

Electrical Data:

Supply voltage:	Internally generated
Nominal speed range:	60 to 6.000 r.p.m. (1 to 100 r.p.s.)
Relay contacts:	2 change over, for left and right turning
Switching performance:	max. 400 V AC, 5 A, 1250 VA max. 240 V DC, 5 A, 150 W (resistive load)

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Adaptation:	Pin adapter with plugged elastic clutch
Cable entry:	M 20 cable gland for cable ø 7 to 12 mm
Housing material:	Glass fibre reinforced plastic; oil, grease and acid resistant
Housing dimensions:	According to fig. 1
Flange diameter:	120 mm
Shaft bearing:	2 ball bearings
Environmental temperature:	Operating -25 °...+70 °C Storage -40 °...+80 °C Transport -40 °...+80 °C
Enclosure:	IP 65

Testing and Qualification of the Item:

Humidity:		DIN IEC 68-2-30		
		Lower temp.	+25 °C	97 % rel. hum.
		Upper temp.	+55 °C	93 % rel. hum.
		Test duration	6 days	
Vibration:		DIN EN 60 068 -2 -6		
		Frequency	10 – 150 Hz	
		Amplitude	0,35 mm	
		Resp. acceleration	5 g (20 Cycles per axis)	
Shock loads:		DIN EN 60 068 -2 -27		
		Shocktype	semi-sine	
		Amplitude	30 g	
		Duration	18 ms	
		Shocks per orientation	3	
Long term shock loads:		DIN EN 60 068 -2 -29		
		Shocktype	semi-sine	
		Amplitude	25 g	
		Duration	6 ms	
		Shocks per orientation	1000	
Isolation:		DIN / VDE 0435 Part 303		
		Check value	2 kV AC	
Susceptibility:	Conducted susc.	DIN / EN 50141	10 V	
	Radiated susc.	DIN ENV 50140	10 V/m	
	Electrostatic discharge	DIN EN 61 000-4-8		
			Contact	4 kV
			Air gap	8 kV
	Burst:	DIN EN 61 000-4-4	2 kV	
	Surge:	DIN EN 61 000-4-5		
			asymmetrical	4 kV
			symmetrical	2 kV
Emission:	Radiated emission:	DIN EN 55 022	Line B	

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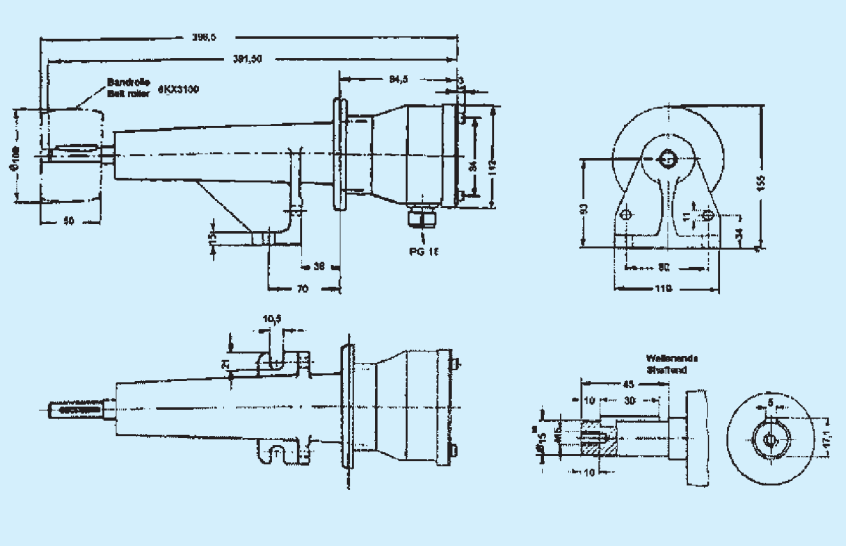
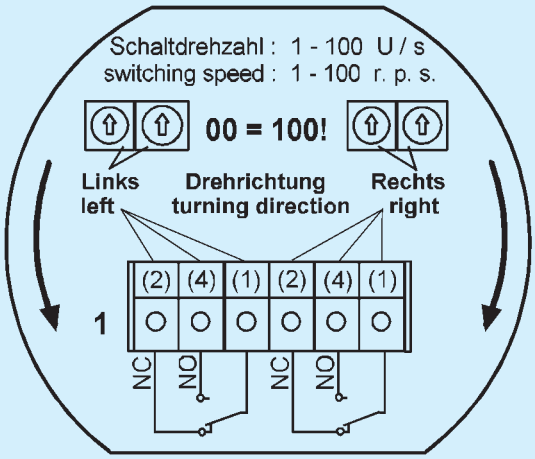
CONVEYOR BELT MONITOR

6KB 4111

Dimensioned drawing



Terminal assignment



Code Switch setting

Pos.	rps	rpm	Pos.	rps	rpm	Pos.	rps	rpm	Pos.	rps	rpm	Pos.	rps	rpm
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0 : 5	5	300	2 : 5	25	1500	4 : 5	45	2700	6 : 5	65	3900	8 : 5	85	5100
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1 : 9	19	1140	3 : 9	39	2340	5 : 9	59	3540	7 : 9	79	4740	9 : 9	99	5940
2 : 0	20	1200	4 : 0	40	2400	6 : 0	60	3600	8 : 0	80	4800	0 : 0	100	6000

ORDERING CODE

	Speed range	Relay type	Ident-No.
6KB 4111	60 – 6000 rmp	bistable	SI 099
accessory: 6KX 3100	pressure roller		SI 101

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