Speed / Standstill
PDZ

Speed and standstill monitor in accordance with VDE 0113-1, EN 60204-1 and EN 1088

Features

- Combined speed and standstill monitoring
- Separate relay outputs for speed and standstill monitoring
- Designed for variable-frequency inverter operation
- Programmable maximum speed via wire links
- Programmable trip via wire links
- Connections for 2 PNP proximity switches

Approvals

	PDZ
BG-PRÜFZERT	●
c UL us LISTED	●

Technical Details	PDZ
Electrical Data	
Supply Voltage	24 VDC
Tolerance	85 ... 110 %
Residual Ripple DC	20 %
Power Consumption	Max. 10 W
Utilisation Category in accordance with EN 60947-4-1	AC1: 240 V/5 A/1200 VA DC1: 24 V/5 A/120 W
Output Contacts for speed monitoring for standstill monitoring	 1 safety contact (N/O) + 1 auxiliary contact (N/C) 1 safety contact (N/O) + 1 auxiliary contact (N/C)
Contact Fuse Protection in accordance with EN 60947-5-1	6 A rapid or 4 A slow
Measuring Values	(see tables)
Temperature Dependency of the Switching Point	0.02 % per °C
Repetition Accuracy	±0.1 %
Mechanical Data	
Maximum Cross Section of External Conductors	1 x 2.5 mm² or 2 x 1.5 mm² Single-core or multi-core with crimp connectors
Dimensions (H x W x D)	87 x 90 x 121 mm
Weight	510 g

The version of the standards current at 05/03 shall apply.

Description

- 90 mm P-93 housing, DIN-Rail mounting
- Positive-guided relay outputs:
  - 1 safety contact (N/O) and 1 auxiliary contact (N/C) for speed monitoring
  - 1 safety contact (N/O) and 1 auxiliary contact (N/C) for standstill monitoring
- Dual-channel speed and standstill monitoring
- R programmable input for variable setup speed
- Connection option for rotary encoder via the PAD adapter
- LEDs for power, stop and speed

Function Description

The PDZ provides a safe speed and standstill monitoring. The response is determined via the programmable inputs and the the range of movement is carried out via the PNP proximity switches or a rotary encoder (only possible via the PAD adapter).

Pilz GmbH & Co. KG, Sichere Automation, Felix-Wankel-Straße 2, 73760 Ostfildern, Germany
Telephone +49 711 3409-0, Telefax +49 711 3409-133, E-Mail: pilz.gmbh@pilz.de

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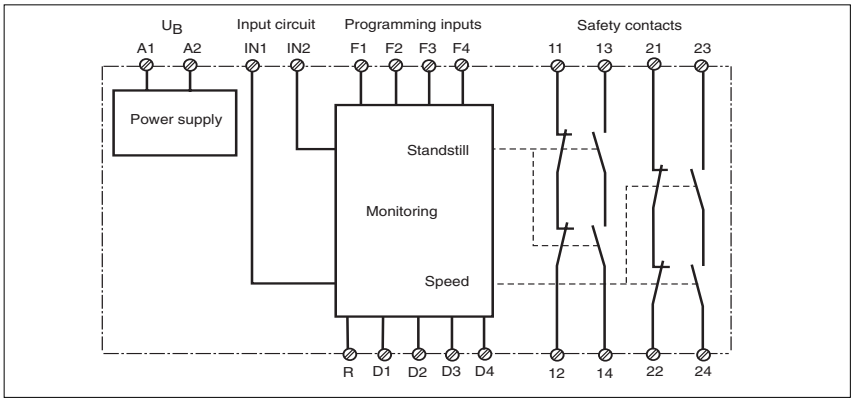
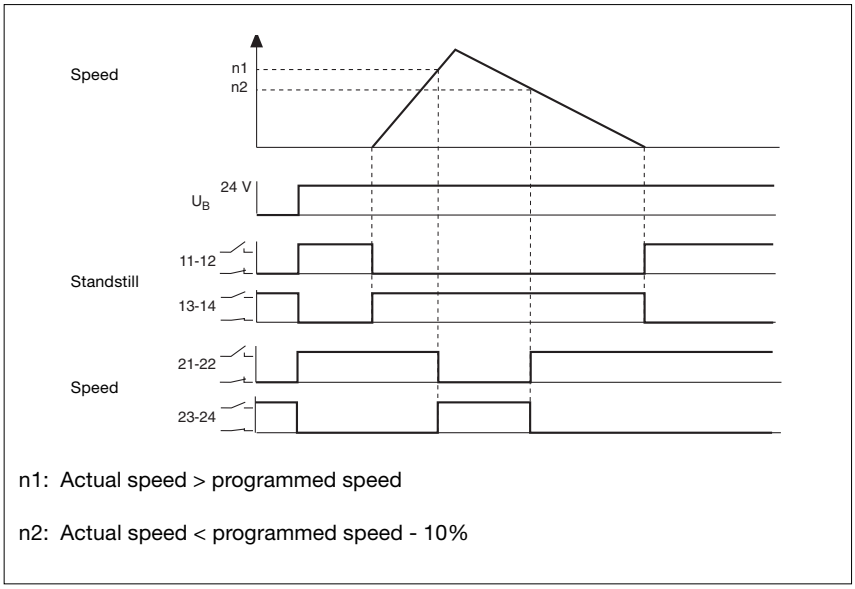
Internal Wiring Diagram



Function Diagram



n1: Actual speed > programmed speed

n2: Actual speed < programmed speed - 10%

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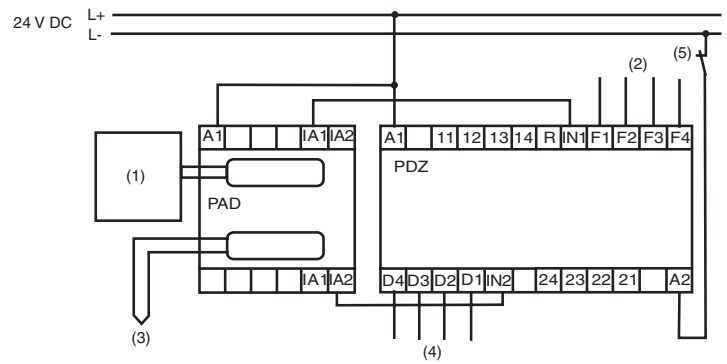
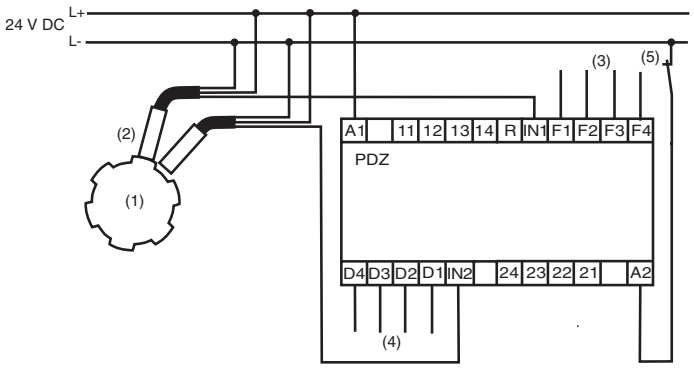
Connection Example

– Operation by rotary encoder



(1) Rotary encoder
(2) Programmable inputs for reducing the frequency
(3) To control
(4) Programmable inputs for frequency
(5) Reset button for fault memory

– Operation by PNP proximity switches



(1): Example of a 6-toothed wheel
(2): PNP proximity switches
(3): Programmable inputs for reducing the frequency
(4): Programmable inputs for frequency
(5): Reset button for fault memory

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Programmable values for
Automatic Mode (max. speed) and
Setup Mode (trip speed)
Max. speed values based on a
6-toothed wheel

Programming Inputs				Automatic mode F1 ... F4 = 24 V DC		Setup mode F1 ... F4 = 0 V			
				Frequency in Hz	Speed in 1/min	Frequency in Hz	Speed in 1/min	Frequency in Hz	Speed in 1/min
D1	D2	D3	D4			R = 24 V DC		R = 0 V	
0 V	0 V	0 V	0 V	100	1000	2	20	5	50
24 V	0 V	0 V	0 V	112	1120	2,2	22	5	50
0 V	24 V	0 V	0 V	140	1400	2,4	24	5	50
24 V	24 V	0 V	0 V	180	1800	2,8	28	5	50
0 V	0 V	24 V	0 V	200	2000	3,0	30	5	50
24 V	0 V	24 V	0 V	224	2240	3,2	32	5	50
0 V	24 V	24 V	0 V	275	2750	3,6	36	5	50
24 V	24 V	24 V	0 V	315	3150	4,2	42	5	50
0 V	0 V	0 V	24 V	355	3550	4,7	47	5	50
24 V	0 V	0 V	24 V	400	4000	5,3	53	5	50
0 V	24 V	0 V	24 V	450	4500	6,0	60	5	50
24 V	24 V	0 V	24 V	500	5000	6,6	66	5	50
0 V	0 V	24 V	24 V	550	5500	7,3	73	5	50
24 V	0 V	24 V	24 V	630	6300	8,4	84	5	50
0 V	24 V	24 V	24 V	700	7000	9,3	93	5	50
24 V	24 V	24 V	24 V	800	8000	10	100	5	50

Programming Inputs				Reducing the max. speed set by D1 ... D4 to	Setup mode F1 ... F4 = 0 V			
				%	Frequency in Hz	Speed in 1/min	Frequency in Hz	Speed in 1/min
F1	F2	F3	F4		R = 24 V DC, D1 ... D4 = 0 V		R = 0 V	
0 V	0 V	0 V	0 V		*		5	50
24 V	0 V	0 V	0 V	25	1,2*	12	5	50
0 V	24 V	0 V	0 V	30	1,3*	13	5	50
24 V	24 V	0 V	0 V	35	1,3*	13	5	50
0 V	0 V	24 V	0 V	40	1,4*	14	5	50
24 V	0 V	24 V	0 V	45	1,4*	14	5	50
0 V	24 V	24 V	0 V	50	1,5*	15	5	50
24 V	24 V	24 V	0 V	55	1,5*	15	5	50
0 V	0 V	0 V	24 V	60	1,6*	16	5	50
24 V	0 V	0 V	24 V	65	1,6*	16	5	50
0 V	24 V	0 V	24 V	70	1,7*	17	5	50
24 V	24 V	0 V	24 V	75	1,7*	17	5	50
0 V	0 V	24 V	24 V	80	1,8*	18	5	50
24 V	0 V	24 V	24 V	85	1,8*	18	5	50
0 V	24 V	24 V	24 V	90	1,9*	19	5	50
24 V	24 V	24 V	24 V	100	2*	20	5	50

* Last status of the F-inputs is stored.

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General Technical Data

Unless stated otherwise in the technical details for the specific unit

Electrical Data	
Frequency Range AC	50 ... 60 Hz
Residual Ripple DC	160 %
Contact Material	$AgSnO_2$
Continuous Duty	100 %
Environmental Data	
EMC	EN 60947-5-1
Vibration in accordance with EN 60068-2-6	Frequency: 10 ... 55 Hz, Amplitude: 0.35 mm
Airgap Creepage	DIN VDE 0110-1
Ambient Temperature	-10 ... +55 °C
Storage Temperature	-40 ... +85 °C
Mechanical Data	
Torque Setting on Connection Terminals	0.6 Nm (screws)
Mounting Position	Any
Housing Material	PPO UL 94 V0
Protection	Mounting: IP 54 Housing: IP 40 Terminal Range: IP 20

The units were tested in accordance with the relevant standards current at the time of development.

Order References

Type	U_B	Order No.
PDZ	24 VDC	774 400

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