

PULSE TRANSDUCERS



APPLICATION

The Kiepe pulse transducer of the DG series are inductive proximity sensors and operate contactless and non-touch. They are particularly suitable for applications where high switching accuracy, long service life, wear resistance and corrosion resistance are required. They are preferably used in conveyor systems to monitor the speed of rotating machine parts and can also be used as position switches. The sensor is intended for use in stationary systems and vehicles.

The pulse transducers generate pulse sequences whose frequencies are speed-dependent. The pulse sequences can be

used for overspeed or underspeed monitoring with the Kiepe speed monitor type EDW.

The Kiepe pulse transducer type DG series conforms to the Low Voltage Directive 2014/35/EU, EMC Directive 2014/30/EU and RoHS Directive 2011/65/EU.

Note:

Use in safety circuits is not permitted.

The use of these devices in applications where the safety of persons depends on their function is not permitted.

FUNCTION

2-Wire-pulse transducer according to NAMUR-EN 60947-5-6

These pulse transducers essentially consist of a transistor oscillator whose high-frequency stray field forms the response zone. When a metallic object is immersed in the effective range of the stray field, the oscillating circuit is short-circuited and its internal resistance becomes highly resistive. The oscillations stop and the current consumption of the encoder decreases. This change in current is evaluated by the Kiepe speed monitors.

3-Wire-pulse transducer PNP-switching according to EN 60947-5-2

These pulse transducers type DGP differ from the NAMUR encoders type DG by an additional, downstream toggle stage, which causes the output potential to change from GND to +U_b when the active zone is attenuated. The DGP can also be connected directly to a PLC. The sensor is protected against short circuits and polarity reversal.

TECHNICAL DATA

Designation	Impulse Transducer Type DG
Type of actuation	Inductive Proximity Sensor
Complies with	Type DG: EN 60947-5-6; Type DGP: EN 60947-5-2
Suited for	Metal detection
Permissible ambient temperature	-25°C...+70°C
Extended ambient temperature range	TN: -40°C...+70°C TH: -25°C...+100°C
Display	see selection table
Protection rating	IP67

Version	Pulse Transducer NAMUR		Pulse Transducer PNP switching	
Type	DG 5	DG 10	DGP 5	DGP 10
Rated operating distance s_n	5 mm	10 mm	5 mm	10 mm
Secured operating distance s_a	$\leq 0,81 \times s_n$			
Correction factors	St37=1; Al=0,3; stainless steel=0,7; Ms=0,4			
Hysteresis (max.)	1-10 %		3-15 %	
Housing	DG: CuZn (brass), chrome-plated DG TN: PA12-GF 30 DG TH: PA12-GF 30		CuZn (brass), chrome-plated	
Housing Diameter D	18 mm	30 mm	18 mm	30 mm
Rated operating voltage U_o	-		DC 10-30V	
Rated voltage	(nom.) 8,2 V		-	
Actuated current consumption	$\leq 1,2$ mA		-	
Non-actuated current consumption	$\geq 2,1$ mA		I_o	
Short-circuit protection	-		yes / clocking	
Switching output	2-wire, NAMUR		3-wire, PNP	
Rated operating current I_e (max.)	-		200 mA	
Voltage drop at I_e (max.)	-		1,8 V	
No-load current I_o	-		≤ 15 mA	
Residual current I_R	-		$\leq 0,1$ mA	
Rated insulation voltage U_i	-		500 V	
Switching frequency (max.)	1 kHz	0,5 kHz	0,5 kHz	
Connection Drawing	A		B	

SELECTION TABLE

Switch type	Switching distance s_n [mm]	Diameter \varnothing [mm]	Display	Ordering Code
NAMUR (2-Wire), DC 8,2V				
DG 5	5	18	LED	96.040 610.105
DG 5 TN (-40°C)	5	18	-	215.36.01.02.10
DG 5 TH (100°C)	5	18	-	215.36.01.02.11
DG 10	10	30	LED	96.040 610.110
DG 10 L 55mm long	10	30	LED	215.21.02.03.09
DG 10 TN (-40°C)	10	30	-	215.36.01.02.15
DG 10 TH (100°C)	10	30	-	215.36.01.02.16
PNP (3-Wire), DC 10-30V				
DGP 5	5	18	LED	383.06.07.20.00
DGP 10	10	30	LED	383.06.07.03.00

The TN and TH versions are also resistant to oils, petrol and alkalis.

MOUNTING

The transducers must be installed in such a way that one or more metal parts (preferably ferrous metals) rotate past the encoder head within the response distance. One pulse is generated per metal part. For lower speeds, pulse multiplication is recommended by symmetrically arranging several metal parts. The metal parts should have at least the same dimensions as the encoder head. To ensure trouble-free operation, the installation conditions of the sensor must be observed. The pulse transducers are fastened with two fastening nuts or using the supplied plastic clamp or weld-on plate.

INSTALLATION

Metal-free zone for sensor:

Opposite metal surfaces

Around sensor

Side by side

Facing each other

Minimum distance in mm

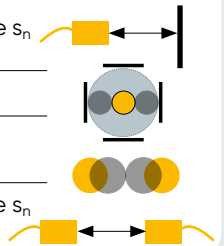
3x switching distance s_n

3x Sensor \varnothing

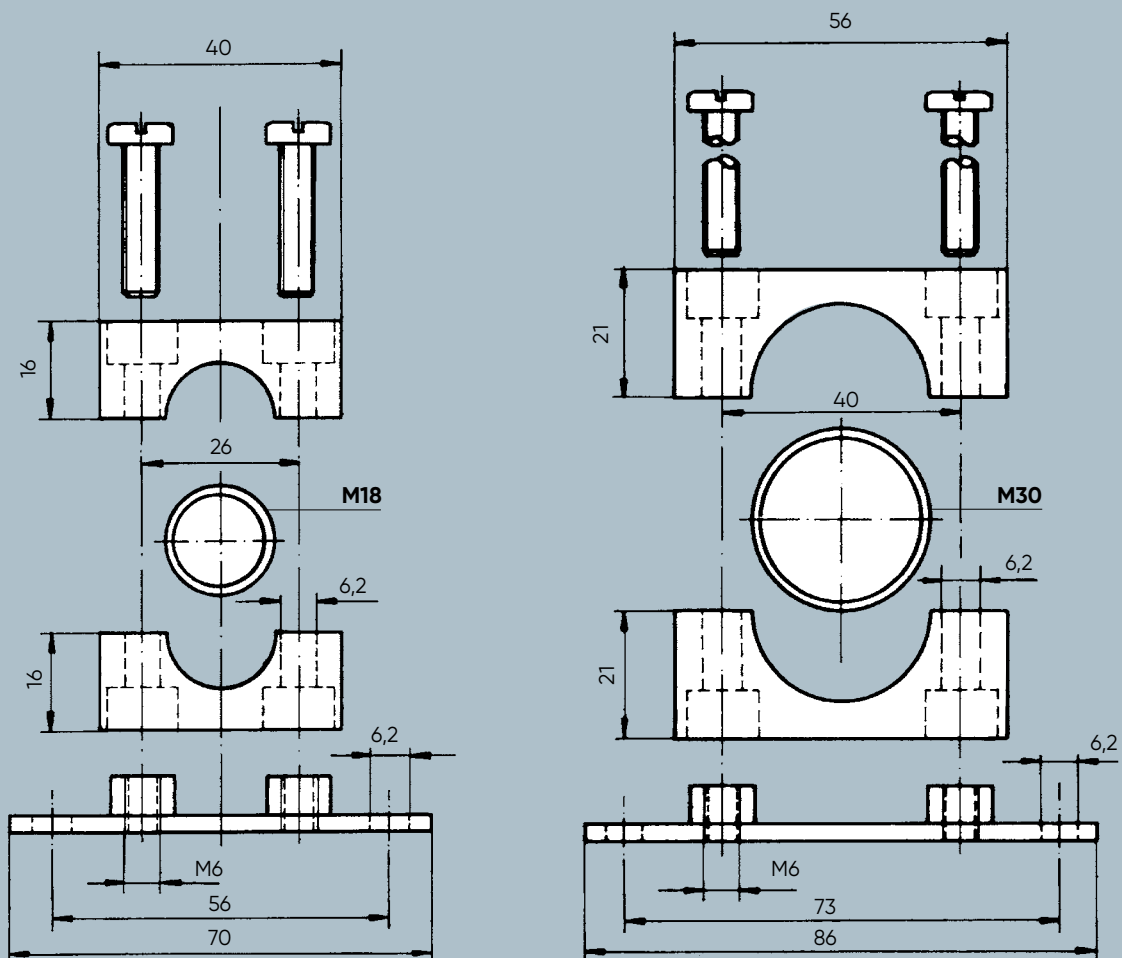
2x Sensor \varnothing

6x switching distance s_n

Drawing

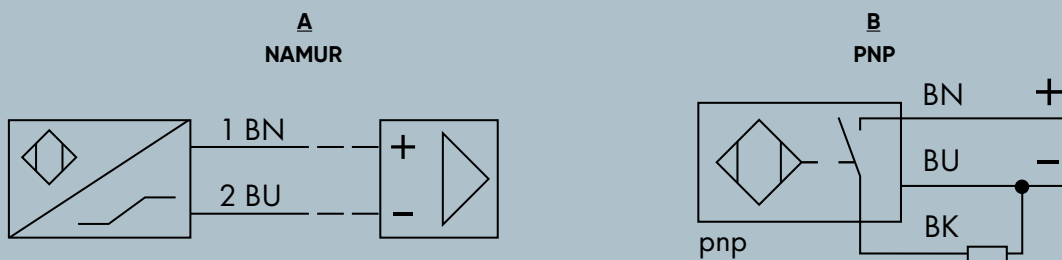


MOUNTING DIAGRAM



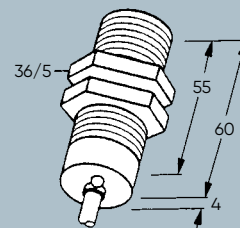
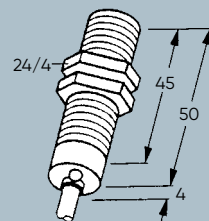
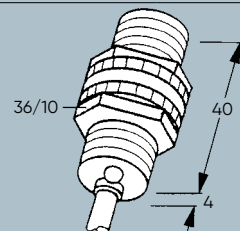
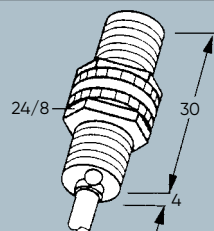
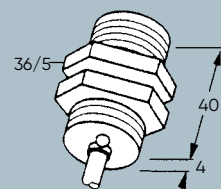
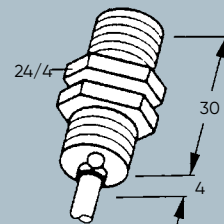
Width of the weld-on plates: 30mm
Thickness of the weld-on plates: 7 mm

CONNECTION DRAWING



CONSTRUCTION FORMS AND DIMENSIONS

DG 5	<p>Threaded barrel M18 x 1 Housing diameter 18 mm Fixing torque 25 Nm Spanner size (AF) 24 Thickness of nut 4 mm LED Connection Cable, PVC, 2m, Ø5,2mm; 2 x 0,34 mm²</p>
DG 10	<p>Threaded barrel M30 x 1,5 Housing diameter 30 mm Fixing torque 75 Nm Spanner size (AF) 36 Thickness of nut 5 mm LED Connection Cable, PVC, 2m, Ø5,2mm; 2 x 0,5 mm²</p>
DG 5 TH DG 5 TN	<p>Threaded barrel M18 x 1 Housing diameter 18 mm Fixing torque 2 Nm Spanner size (AF) 24 Thickness of nut 8 mm TH: Connection Cable, PVC, 2m, Ø5,2mm; 2 x 0,5 mm² TN: Connection Cable, silicon, 2m, Ø5,2mm; 2 x 0,5 mm²</p>
DG 10 TH DG 10 TN	<p>Threaded barrel M30 x 1,5 Housing diameter 30 mm Fixing torque 5 Nm Spanner size (AF) 36 Thickness of nut 10 mm Connection Cable, PVC, 2m, Ø5,2mm; 2 x 0,5 mm²</p>
DGP 5	<p>Threaded barrel M18 x 1 Housing diameter 18 mm Fixing torque 25 Nm Spanner size (AF) 24 Thickness of nut 4 mm LED Connection Cable, PVC, 2m, Ø5,2mm; 3 x 0,34 mm²</p>
DGP 10	<p>Threaded barrel M30 x 1,5 Housing diameter 30 mm Fixing torque 75 Nm Spanner size (AF) 36 Thickness of nut 5 mm LED Connection Cable, PVC, 2m, Ø5,2mm; 3 x 0,5 mm²</p>



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