
DB-DA and DB-DC Transducers for Ball Bearing Radial Force Measurement

FEATURES

- Nominal capacity:
DB-DA: 50 N, 100 N, 200 N, 350 N and 750 N
DB-DC: 1200 N
- Built-in overload protection up to 10× nominal force
DB-DA; 2× overload nominal force DB-DC (no
mechanical protection)
- Combined error due to nonlinearity and hysteresis:
$\pm 0.1\%$ (DB-50-DA $\pm 0.2\%$)
- Hermetically sealed; IP 67 protection class
- Three temperature versions available:
60 °C, 100 °C and 160 °C
- Three bearing diameter capabilities:
Ø17 mm, Ø20 mm and Ø25 mm
- Rust-resistant metallic construction
- Easy to install



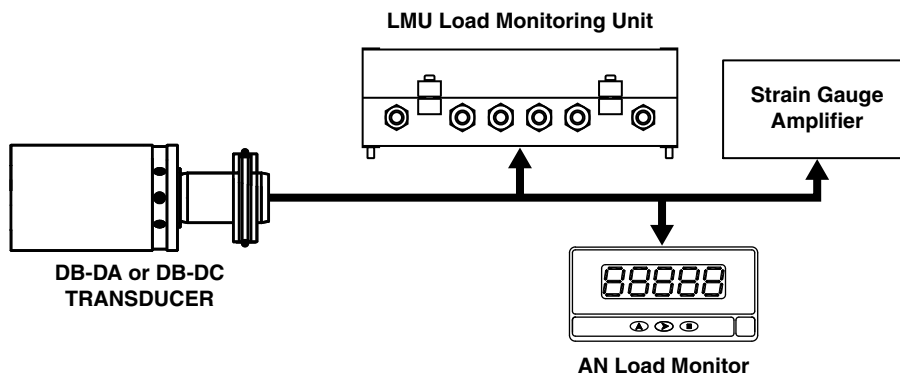
DESCRIPTION

Magtrol DB-DA and DB-DC transducers are designed for measuring radial forces in ball bearings. Available in several diameters and temperature ranges, these transducers incorporate strain gauge technology and provide a signal output proportional to the force to be measured.

APPLICATIONS

This transducer is ideally suited for belt, paper or textile tension control and for other measurement of radial forces on rotation cylinders. When connected to a signal conditioner, this transducer is an essential element for highly accurate tension control regulation.

SYSTEM CONFIGURATION

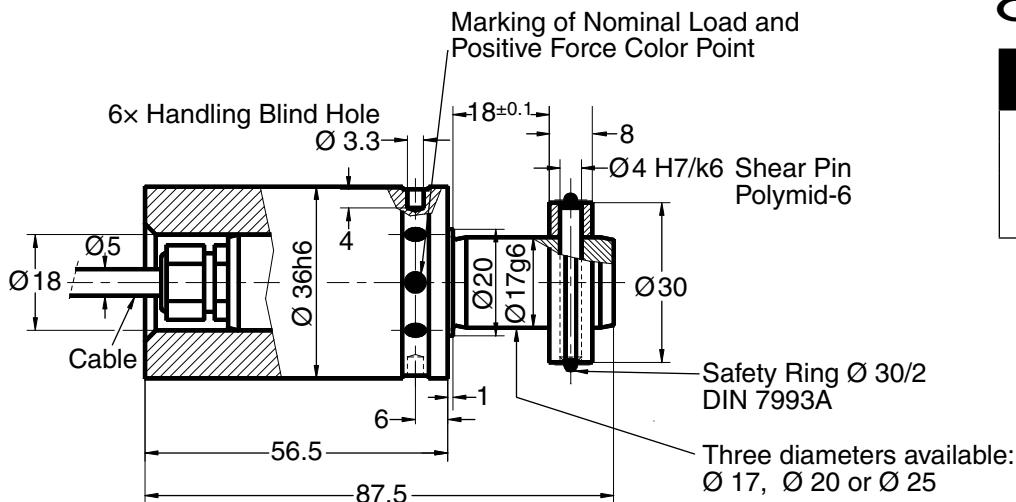


	DB-50-DA	DB-100-DA	DB-200-DA	DB-350-DA	DB-750-DA	DB-1200-DC
MECHANICAL CHARACTERISTICS						
Nominal Force	50 N	100 N	200 N	350 N	750 N	1200 N
Color of Marking Point	orange	green	white	red	yellow	blue
Admissible Overload	200%		150%			200%
Overload Limit (without zero drift)*	2000%		1500%		1000%	N/A
Overload at Rupture	> 2000%		> 1500%		> 1000%	500%
Maximum Dynamic Load (double amplitude)	80%					
Minimum Axial Retention Force of Safety Ring with Safety Pin	1000 N					
Displacement at Nominal Force	≈ 0.02 mm	≈ 0.04 mm	≈ 0.05 mm	≈ 0.08 mm	≈ 0.05 mm	
Weight	≈ 0.5 kg					
ELECTRICAL CHARACTERISTICS						
Nominal Sensitivity	1 mV/V ±3%					
Zero Load Signal	< ± 0.3 mV/V					
Bridge Impedance: Input	400 Ω					
Bridge Impedance: Output	350 Ω					
Insulation Resistance	> 10 ⁹ Ω					
Nominal Supply Voltage	5 V – 10 V					
Maximum Supply Voltage	15 V					
Combined Error (nonlinearity + hysteresis)	< ±0.2%		< ±0.1%			
ENVIRONMENTAL CHARACTERISTICS						
Reference Temperature, nominal	+23 °C					
Operating Temperature	3 options: 0 °C to 60 °C, 100 °C or 160 °C					
Temperature Influence: on zero	< ±0.15% / 10 K		< ±0.1% / 10 K			
Temperature Influence: on sensitivity **	≤ +0.3%					
Protection Class	IP 67					
CONNECTION CABLE						
Cable Length	0.25 m					
Cable Diameter	Ø 5 mm					

* Maximum overload without damage; active mechanical overload protection from approx. 150% to 200% (DB-DA 50/100: 250%)

** On request: tolerance $\Delta\text{signal} / \Delta\text{temperature} = \leq + 0.12\% / 10\text{ K}$

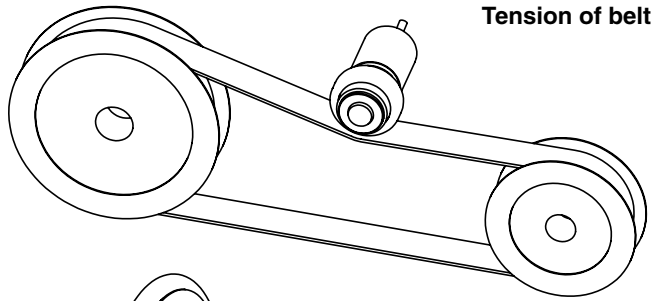
DIMENSIONS



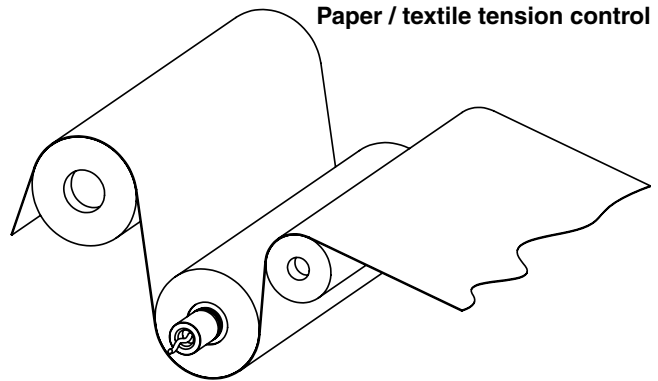
PIN CONNECTIONS

Pin	Color Code (according to DIN)
+ supply	red
- supply	blue
+ signal	white
- signal	yellow or black

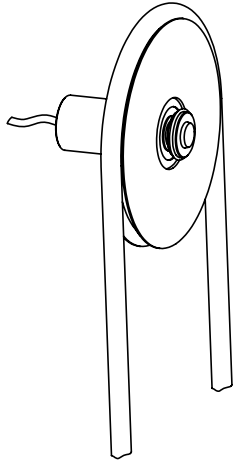
APPLICATIONS



Tension of belt



Paper / textile tension control



Cable tension control

ORDERING INFORMATION

	Model	Range (N)	Diameter (mm)	Temperature (°C)
Part number:	DB-DA	– XXX	– XX	– XX
	DB-DC	– 1200	– XX	– XX

Example:
A DB-DA transducer with 350 N nominal force, 17 mm diameter and 160 °C temperature range is ordered as P/N DB-DA-350-17-160

ACCESSORIES

Description	Model / Part #
Spare Polyamid-6 safety pins (Ø 4 mm)	contact Magtrol

Due to the continual development of our products, we reserve the right to modify specifications without forewarning.



www.magtrol.com

MAGTROL INC
70 Gardenville Parkway
Buffalo, New York 14224 USA
Phone: +1 716 668 5555
Fax: +1 716 668 8705
E-mail: magtrol@magtrol.com

MAGTROL SA
Centre technologique Montena
1728 Rossens/Fribourg, Switzerland
Phone: +41 (0)26 407 3000
Fax: +41 (0)26 407 3001
E-mail: magtrol@magtrol.ch

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