

## Rotating Dual Range Torque Sensor DR-2208/DR-2208-P (contactless) with Rated Torque from 5/0.5 ... 20000/2000 N·m



*This sensor has a contactless and digital signal transmission from rotor to stator without signal falsification of the measurement data. It is therefore highly accurate and maintenance-free.*

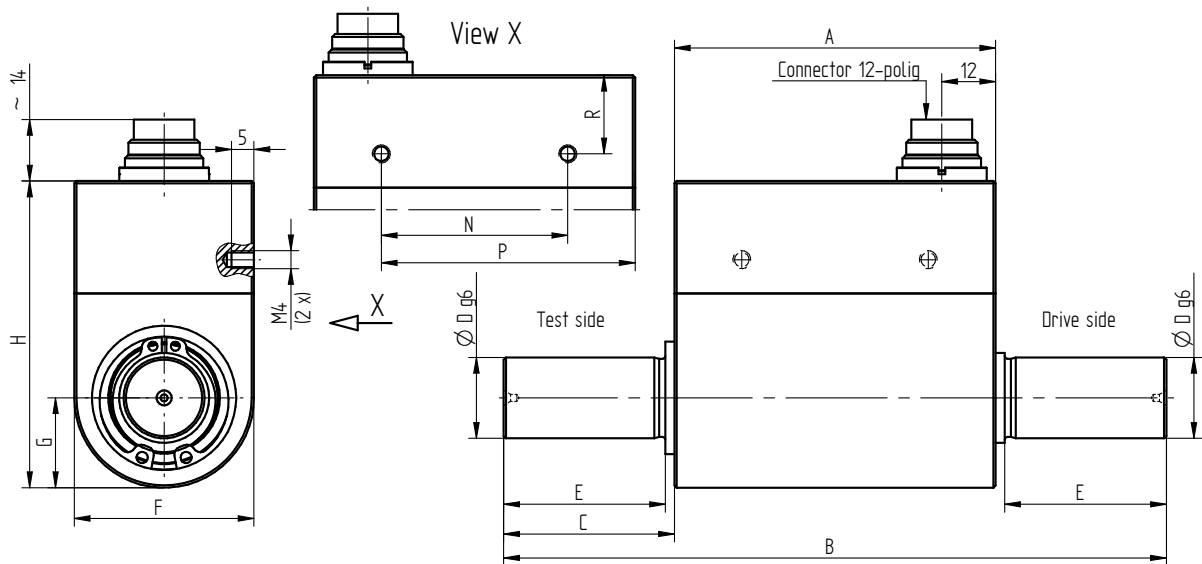
### Performance Features

- Torque sensor for e.g. test bench applications
- Accuracy class 0.1%
- Active output  $\pm 5V$  (optional  $\pm 10V$ )
- Integrated speed/angle measurement, optional
- Speed up to  $15000 \text{ min}^{-1}$
- Very short axial length
- High torsional stiffness
- Simple handling and assembly
- Special versions on request

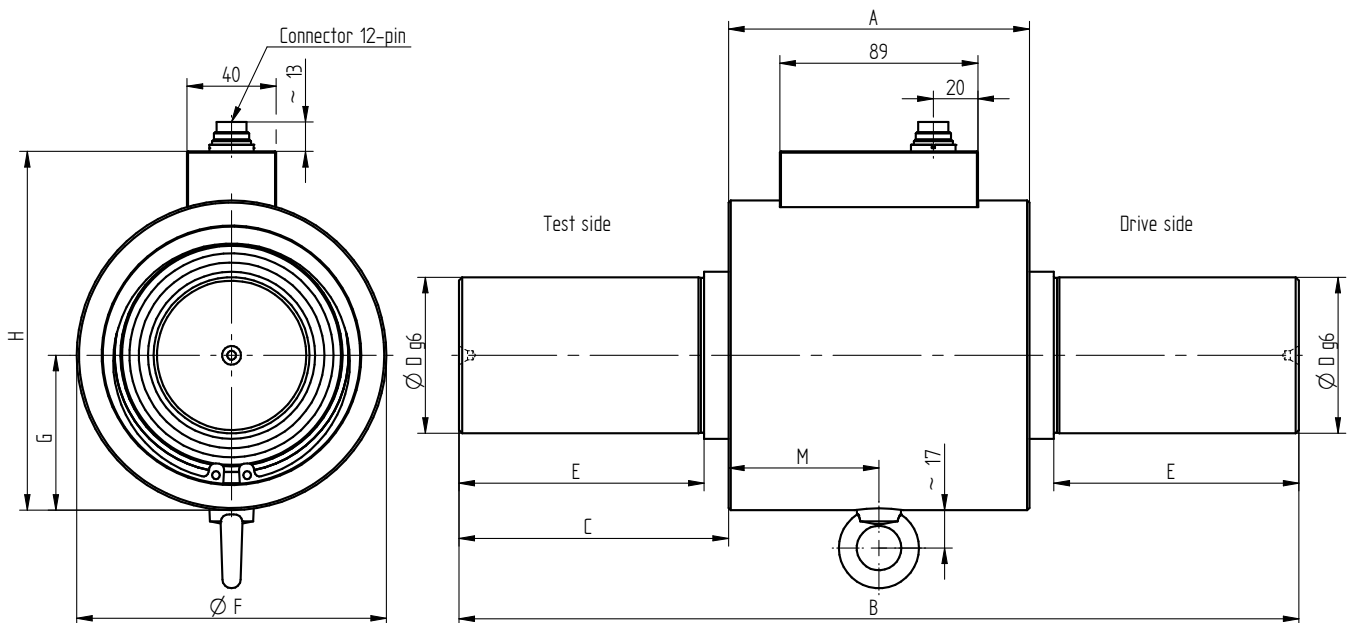
### Application

- Research and development
- Process measuring and control technology
- Fully automated machining centres
- Measuring and control devices
- Tool engineering
- Special mechanical engineering

## Dimensions of DR-2208 / DR-2208-P in mm

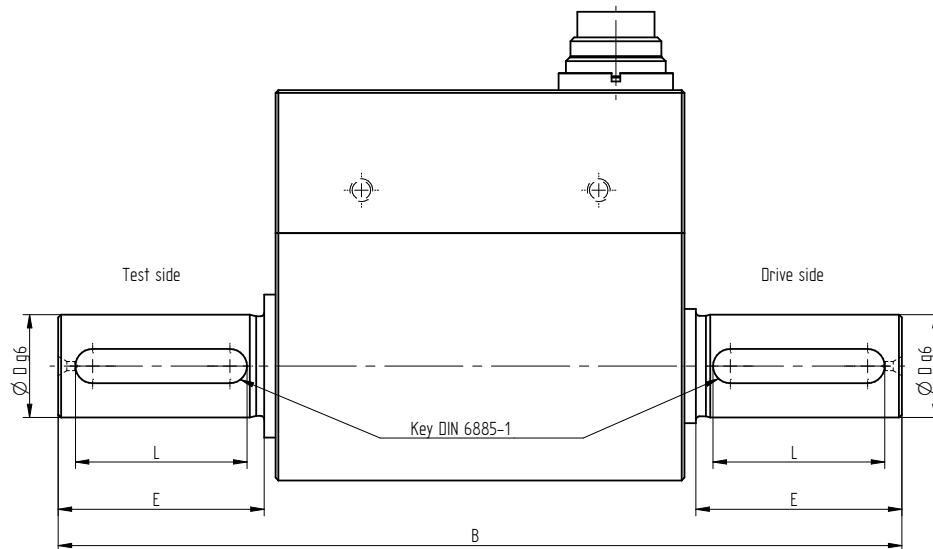


Rated Torque [N·m]	Dimensions [mm]											Weight [kg]
	A	B	C	Ø D	E	F	G	H	N	P	R	
5/0.5	71.5	107.5	18	8	17	40	20	68.2	41.5	56.5	17.5	0.4
10/1	71.5	107.5	18	10	17	40	20	68.2	41.5	56.5	17.5	0.4
20/2; 30/3	71.5	111.5	20	18	18	40	20	68.2	41.5	56.5	17.5	0.5
50/5; 100/10	71.5	147.5	38	18	36	40	20	68.2	41.5	56.5	17.5	0.6
200/20; 500/50	80.5	159.5	39.5	32	38	61	30.5	86.2	29.5	55.5	17	1.5



Rated Torque [N·m]	Dimensions [mm]									Weight [kg]
	A	B	C	Ø D	E	Ø F	G	H	M	
1000/100	130	262	66	50	58	115	57.5	136	64.5	7.2
2000/200; 5000/500	135	377	121	70	110	139	69.5	161	67.5	15.5
10000/1000; 20000/2000	190	470	140	110	120	210	105	233	95	47.5

## Dimensions of Version with Feather Keys in mm



Rated Torque [N·m]	Dimensions [mm]					Feather Key <sup>1</sup>	Weight [kg]
	B	Ø D	E	L			
5/0.5	107.5	8	17	14		2 x 2 x 14	0.4
10/1	107.5	10	17	14		3 x 3 x 14	0.5
20/2; 30/3	111.5	18	18	14		6 x 6 x 14	0.5
50/5; 100/10	147.5	18	36	30		6 x 6 x 30	0.6
200/20; 500/50	159.5	32	38	36		10 x 8 x 36	1.5
1000/100	262	50	58	50		14 x 9 x 50	7.2
2000/200; 5000/500	377	70	110	100		20 x 12 x 100	15.5
10000/1000; 20000/2000	570	110	170	160		28 x 16 x 160	47.5

## Connection Assignment

12-pin	DR-2208/DR-2208-P		Series 581
Pin A	NC	-	
Pin B	Signal angle B, option	5V TTL	
Pin C	Signal 1 (+)	±5V (±10V)	
Pin D	Signal (GND)	0V	
Pin E	Supply (GND)	0V	
Pin F	Supply (+)	12 ... 28VDC	
Pin G	Signal angle A, option	5V TTL	
Pin H	Signal 2 (+)	±5V (±10V)	
Pin J	NC	-	
Pin K	Control signal	L <2.0V; H >3.5V	
Pin L	NC	-	
Pin M	Shield	-	

<sup>1</sup> Calculated load type for feather key: single side light shocks

## Technical Data acc. to VDI/VDE/DKD 2639

Torque Sensor		DR-2208/DR-2208-P
Rated torque $M_{nom}$	N·m	5/0.5 ... 20000/2000
Accuracy class	% $M_{nom}$	0.1
Relative repeatability error in unchanged mounting position $b'$	% $M_{nom}$	±0.02
Rated range of supply voltage	VDC	12 ... 28
Current consumption	mA	≤60
Output signal	V	±5
Control signal excitation	V	L <2.0; H >3.5
Sample rate	kSample/s	5
Electrical connection		12-pin series 581 <sup>2</sup>
Reference temperature $T_{ref}$	°C	23
Rated temperature range	°C	5 ... 45
Operating temperature range	°C	0 ... 60
Storage temperature range	°C	-10 ... 70
Temperature effect on zero signal $TK_0$	% $M_{nom}/10 K$	±0.2
Temperature effect on characteristic value $TK_C$	% $M_{nom}/10 K$	±0.1
Maximum operating torque $M_G$ (static)	% $M_{nom}$	150
Torque limit $M_{max}$ (static)	% $M_{nom}$	200
Breaking torque $M_B$ (static)	% $M_{nom}$	>300
Permissible oscillation stress when subjected to torque $M_{df}$	% $M_{nom}$	70 (peak-to-peak)
Level of protection		IP50

Article-No. DR-2208	Article-No. DR-2208-P <sup>3</sup>	Rated Torque [N·m]	Limit Speed [min <sup>-1</sup> ]	Spring Rate [N·m/rad]	Mass Moment of Inertia [kg·m <sup>2</sup> ] <sup>4</sup>		Axial Force Limit [N] <sup>5</sup>	Lateral Force Limit [N] <sup>5</sup>
					Drive Side	Test Side		
109844	115721	5/0.5	15000	2.1E+02	9.0E-06	8.4E-06	450	3
100911	115055	10/1	15000	7.1E+02	9.3E-06	8.5E-06	710	12
100912	113224	20/2	15000	1.9E+03	1.1E-05	9.9E-06	1150	23
100910	115722	30/3	15000	2.9E+03	1.1E-05	9.9E-06	1500	35
100913	112646	50/5	15000	5.4E+03	1.3E-05	1.1E-05	2150	45
100914	113529	100/10	12000	8.0E+03	1.3E-05	1.2E-05	3400	90
100915	113384	200/20	12000	3.4E+04	1.1E-04	8.4E-05	5800	175
100917	111148	500/50	10000	6.3E+04	1.2E-04	8.6E-05	10000	410
100918	115714	1000/100	8000	2.0E+05	1.6E-03	1.1E-03	16200	530
100919	115723	2000/200	5500	5.1E+05	5.3E-03	4.2E-03	25000	720
100921	110223	5000/500	5500	7.2E+05	5.3E-03	4.3E-03	42000	1850
107792	113003	10000/1000	5000	3.1E+06	4.1E-02	3.6E-02	66000	2700
107793	115724	20000/2000	5000	3.7E+06	4.1E-02	3.7E-02	98000	5200



<sup>2</sup> Female cable connector in scope of delivery at first delivery

<sup>3</sup> Version „-P“ feather key

<sup>4</sup> Without option speed/angle measurement

<sup>5</sup> Unsupported shaft (free floating assembly)

## Options

Article-No.	Description	
103562	Output signal	±10V
101560	Speed/angle measurement, 2 x 360 impulses, 90° displaced	5V TTL, CW-turn CH A  CH B 
104097 <sup>6</sup>	Speed measurement, 1 x 60 impulses	5V TTL
106154	Control signal	50 % M <sub>nom</sub>
100739	Control signal	80 % M <sub>nom</sub>

## Calibrations

Article-No.	Description	
400676	Linearity diagram in accordance to factory standard	25 % steps
400664	Linearity diagram in accordance to factory standard	10 % steps
400961	Proprietary calibration acc. to VDI/VDE 2646	3 steps
400700	Proprietary calibration acc. to VDI/VDE 2646	5 steps
400688	Proprietary calibration acc. to VDI/VDE 2646	8 steps
401023	Proprietary calibration for the angle of rotation acc. to VDI/VDE 2648-1	
	DAkKS-Calibration/Standard on request	

## Accessories

### Electrical Connection

Article-No.	Description
41382	Female cable connector 12-pin series 581
45598	Female angled connector 12-pin series 682
10270	Connection cable, 3 m, with 12-pin female cable connector series 581 and free strands
10345	Connection cable angled, 3 m, with 12-pin female angled connector series 682 and free strands

### Amplifiers

Examples of suitable amplifiers for the torque sensor DR-2208/DR-2208-P:



Further suitable amplifiers you can find on our homepage under <https://www.lorenz-messtechnik.de/english/products/>.

<sup>6</sup> Rated torque ≥10000 N·m