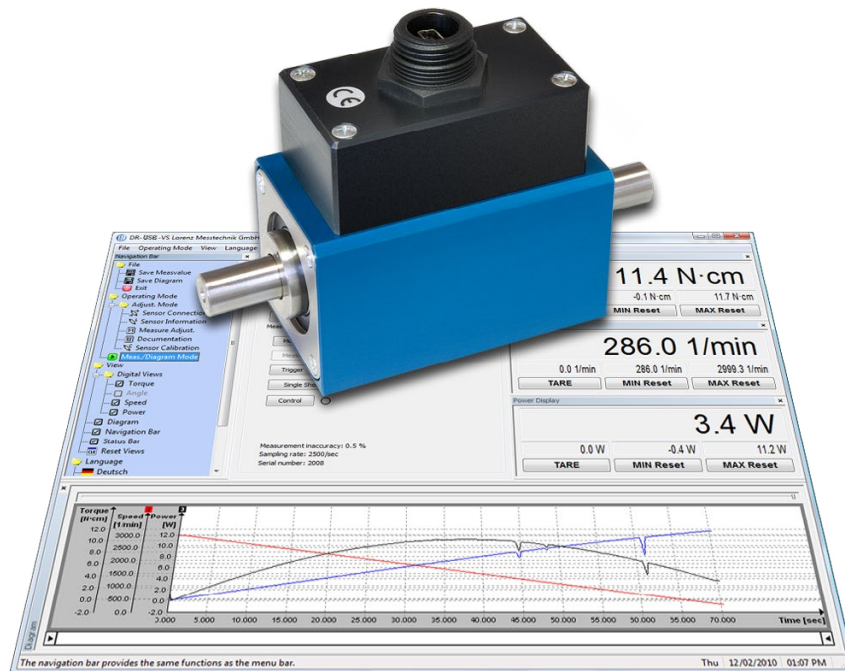


USB-Torque Sensor DR-3000/DR-3000-P (contactless) with Rated Torque from 0.1 ... 5000 N·m



이 센서는 측정 데이터의 신호 위조없이 로터에서 고정자로 비접촉 디지털 신호 전송을 제공합니다. 따라서 매우 정확하고 유지 보수가 필요 없습니다.

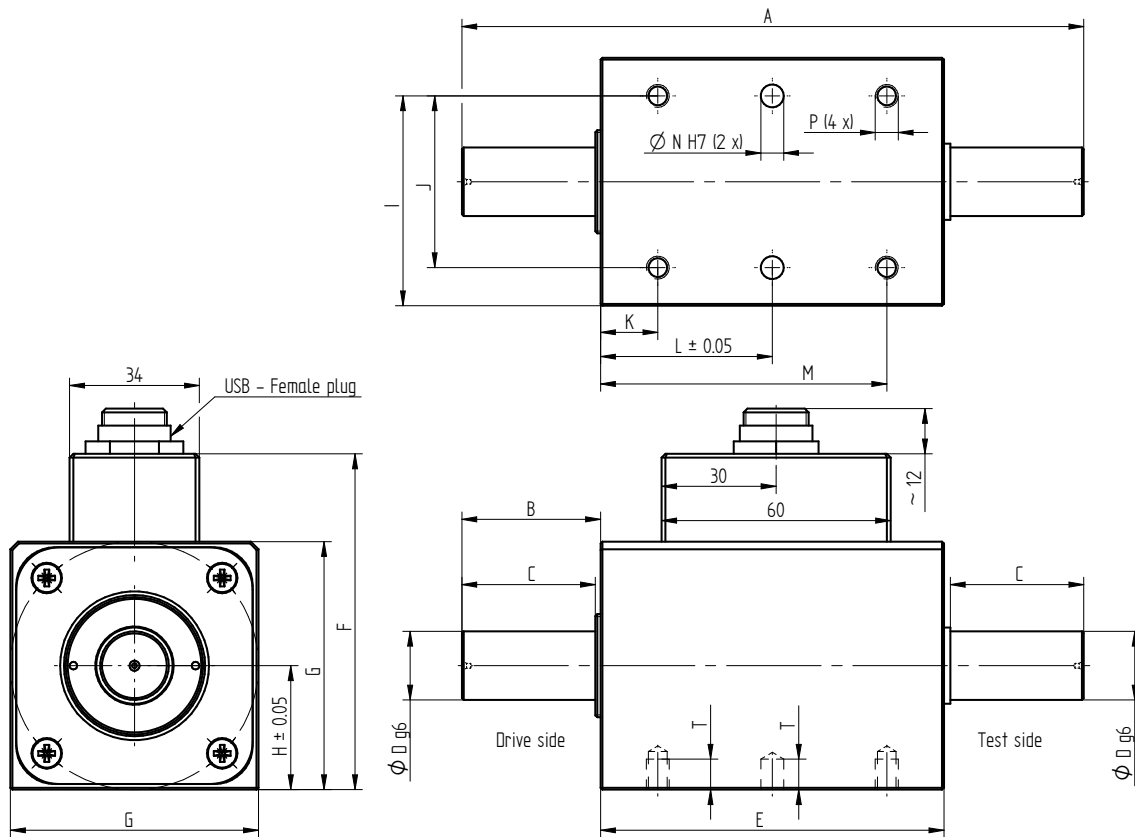
Performance Features

- 구성 및 평가 소프트웨어가 포함 된 USB 토크 센서
- 높은 정밀도
- 통합 속도 / 각도 측정
- 측정 채널당 최대 2500 회 측정 / 초
- 30000 min까지 속도⁻¹
- 매우 짧은 축 길이
- 외부 전원 공급없이 USB에서 병입
- 센서에 장착 된 교정 매개 변수
- 소프트웨어를 통한 성능 계산
- 간단한 취급 및 조립
- 요청시 특별 버전

Application

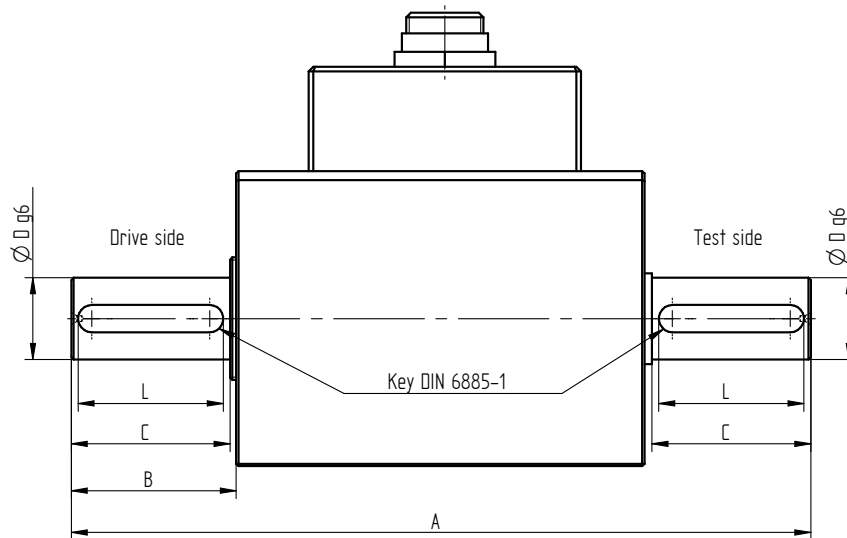
- 연구 및 개발
- 공정 측정 및 제어 기술
- 공정 측정 및 제어 기술
- 측정 및 제어 장치
- 공구 공학
- 특수 기계 공학

Dimensions of DR-3000/DR-3000-P in mm



Rated Torque [N·m]	Dimensions [mm]																Weight [kg]
	A	B	C	ØD	E	F	G	H	I	J	K	L	M	ØN	P	T	
0.1/0.2/0.5/1/2/5	110	19	16.5	8	71	63	40	20	35	30	12	35.5	59	4	M4	8	0.5
10	110	19	16.5	10	71	63	40	20	35	30	12	35.5	59	4	M4	8	0.6
20/30/50/100	163	36.5	35	18	90	88	65	32.5	55	45	15	45	75	6	M6	8	1.6
200/500	234	56.5	55	32	120	118	95	47.5	82.5	70	20	60	100	8	M8	14	4.8
1000	234	56.5	55	42	120	118	95	47.5	82.5	70	20	60	100	8	M8	14	5.6
2000/5000	372	114	110	70	144	163	140	70	120	100	25	72	119	12	M12	20	19.0

Dimensions of Version with Feather Keys in mm



Rated Torque [N·m]	Dimensions [mm]						Weight [kg]
	A	B	C	ØD	L	Feather Key ¹	
0.1/0.2/0.5/1/2/5	110	19	16.5	8	14	2 x 2 x 14	0.5
10	110	19	16.5	10	14	3 x 3 x 14	0.6
20/30/50/100	163	36.5	35	18	32	6 x 6 x 32	1.6
200/500	234	56.5	55	32	50	10 x 8 x 50	4.8
1000	234	56.5	55	42	50	12 x 8 x 50	5.6
2000/5000	372	114	110	70	100	20 x 12 x 100	19.0

Technical Data acc. to VDI/VDE/DKD 2639

Article-No. DR-3000	Article-No. DR-3000-P ²	Rated Torque [N·m]	Limit Speed [min ⁻¹]	Springrate [N·m/rad]	Mass Moment of Inertia [kg·m ²]		Axial Force Limit [N] ³	Lateral Force Limit [N] ³
					Drive Side	Test Side		
114357	115665	0.1	30000	1.8E+01	9.2E-06	2.5E-07	43	1.5
114358	115664	0.2	30000	1.8E+01	9.2E-06	2.5E-07	58	2
111231	115663	0.5	30000	9.4E+01	9.2E-06	2.5E-07	240	3
111177	115662	1	30000	9.4E+01	9.2E-06	2.5E-07	240	3
111232	115661	2	30000	3.7E+02	9.2E-06	2.5E-07	480	7
111233	112617	5	30000	7.7E+02	9.2E-06	2.6E-07	900	16.5
111234	113190	10	30000	8.8E+02	9.3E-06	3.4E-07	1050	21
111235	112618	20	20000	5.1E+03	1.2E-04	6.8E-06	2300	44
111236	112093	30	20000	5.1E+03	1.2E-04	6.8E-06	2300	44
111114	113191	50	20000	9.6E+03	1.2E-04	7.4E-06	5000	142
111237	112619	100	20000	9.6E+03	1.2E-04	7.4E-06	5000	142
111238	112620	200	15000	8.9E+04	5.4E-04	4.4E-04	10000	275
110554	112621	500	15000	1.3E+05	5.4E-04	4.4E-04	13000	400
111240	112622	1000	15000	1.7E+05	6.4E-04	5.3E-04	20000	920
112801	115791	2000	12000	6.3E+05	5.7E-03	5.1E-03	34000	1250
112803	115660	5000	12000	9.6E+05	5.8E-03	5.2E-03	64000	2900

¹ Calculated load type for feather key: single side light shocks

² Version „-P“ feather key

³ Unsupported shaft

Technical Data acc. to VDI/VDE/DKD 2639 (continued)

USB-Torque Sensor DR-3000/DR-3000-P

Rated torque M_{nom}	N·m	0.1 ... 5000
Accuracy class	% M _{nom}	0.1 (optional 0.05)
Speed resolution	min ⁻¹	1
Speed accuracy		1 % full scale ±1 digit
Angle of rotation resolution	degree	0.25
Relative repeatability error in unchanged mounting position b'	% M _{nom}	±0.02
Feed-in from USB	VDC	4 ... 6
Current consumption	mA	≤250
Output signal torque	digits	±25000
Output signal speed / angle of rotation	digits	±32511
Control signal excitation		per software
Sample rate	kSample/s	2.5
Electrical connection		Mini-USB-B-Socket IP68, incl. 3 m connection cable to PC
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 TK₀	% 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

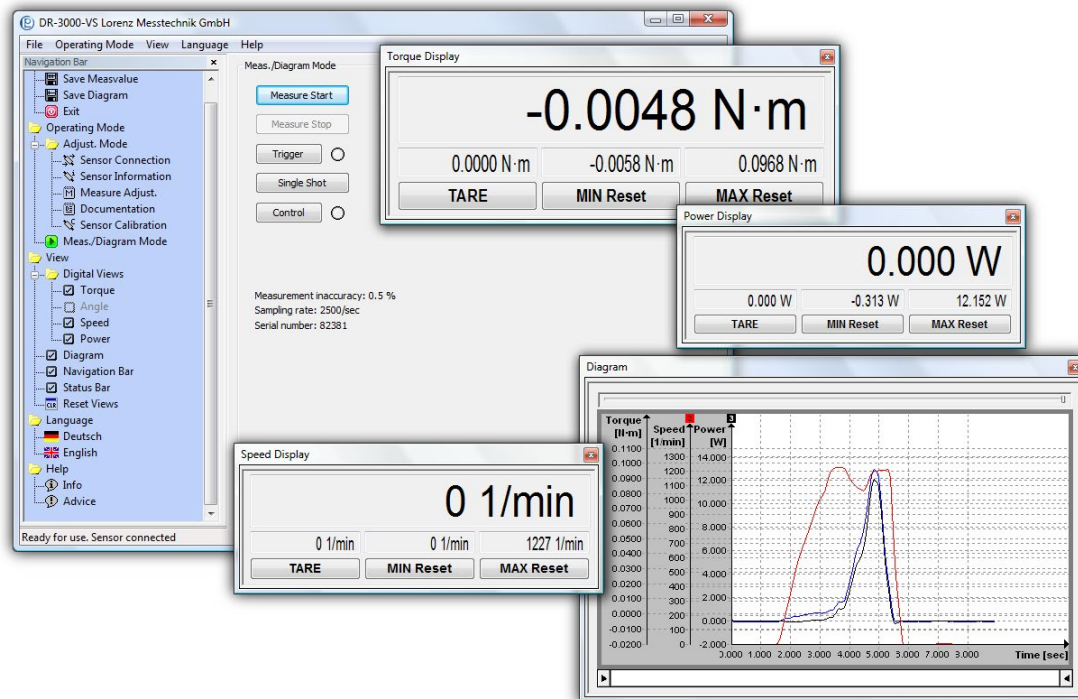
Options

Article-No.	Description	
101695	Accuracy class	0.05 % M _{nom}

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	

Configuration and Evaluation Software DR-USB-VS



The configuration and evaluation software serves for easy evaluation and graphical visualisation of torque/speed/power or torque/angle of rotation on PC.

The software allows direct read in of measured data into a text file in CSV-format through the USB-port of a PC. This enables further analyses with a commercially available spreadsheet program at any time.

Technical data

Type	DR-USB-VS
Interface	USB
Protocol	Lorenz Standard Protocol
System Requirements	Windows® 7 - 10 32/64 Bit ⁴ Dual-Core from 1.8 GHz (with diagram)

Highlights at a glance

Conversion in physical values	✓
Simultaneous storage of up to 3 physical values	✓
Simultaneous measuring	1 Sensor
Automatic scaling of y-axis	✓
Graphical visualisation of a physical value	✓
Automatic or manual storage in a CSV and BMP file	✓
Mathematical computation of the mechanical power	✓
Calibration function	✓
Resettable minimum value memory for each measured value	✓
Resettable maximum value memory for each measured value	✓
Variable average determination	✓
Tare for each measured value	✓

⁴ Windows® is a registered trademark of Microsoft Corporation in the United States and other countries.

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