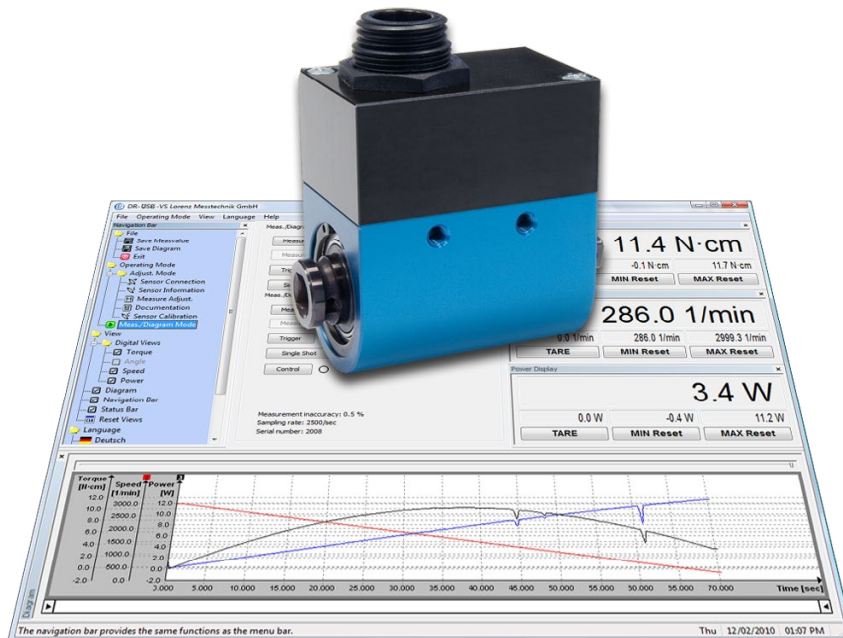


USB-Torque Sensor DR-3001 (contactless) with Rated Torque from 0.1 ... 5000 N·m



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.

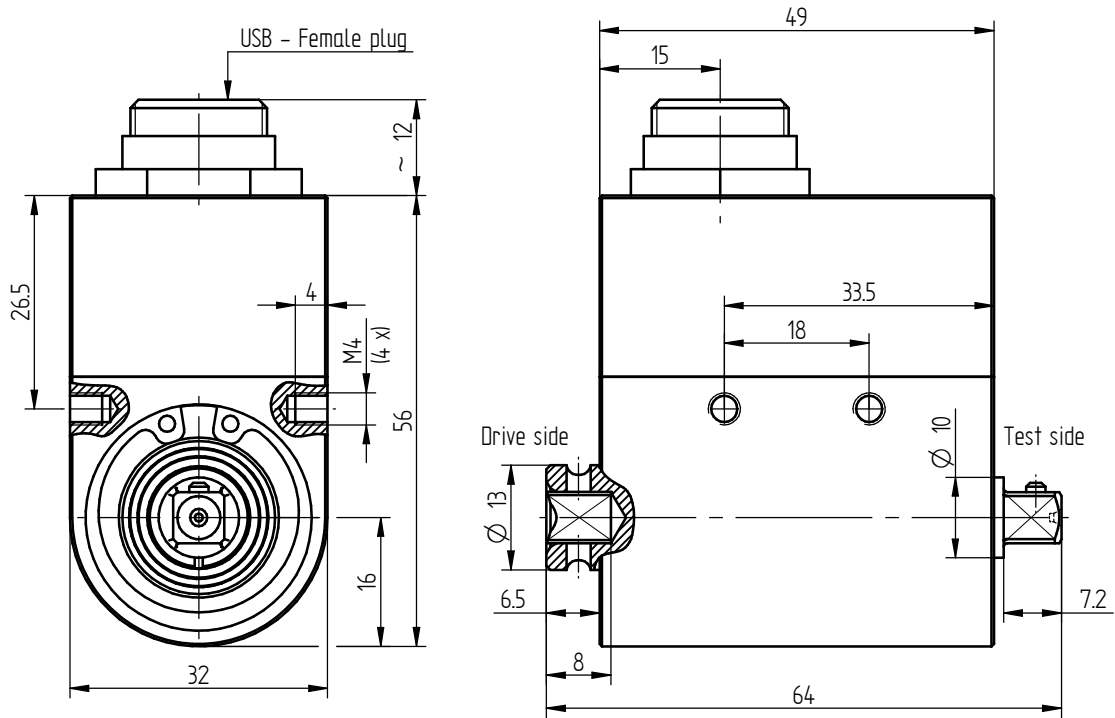
Performance Features

- USB-Torque sensor for screw driving systems with configuration and evaluation software
- High accuracy
- Integrated speed/angle measurement
- Up to 2500 measurements/s per measuring channel
- Speed up to 4000 min⁻¹
- Very short axial length
- Feed-in from USB, without external power supply
- Calibration parameter lodged in sensor
- Performance calculation via software
- Simple handling and assembly
- Special versions on request

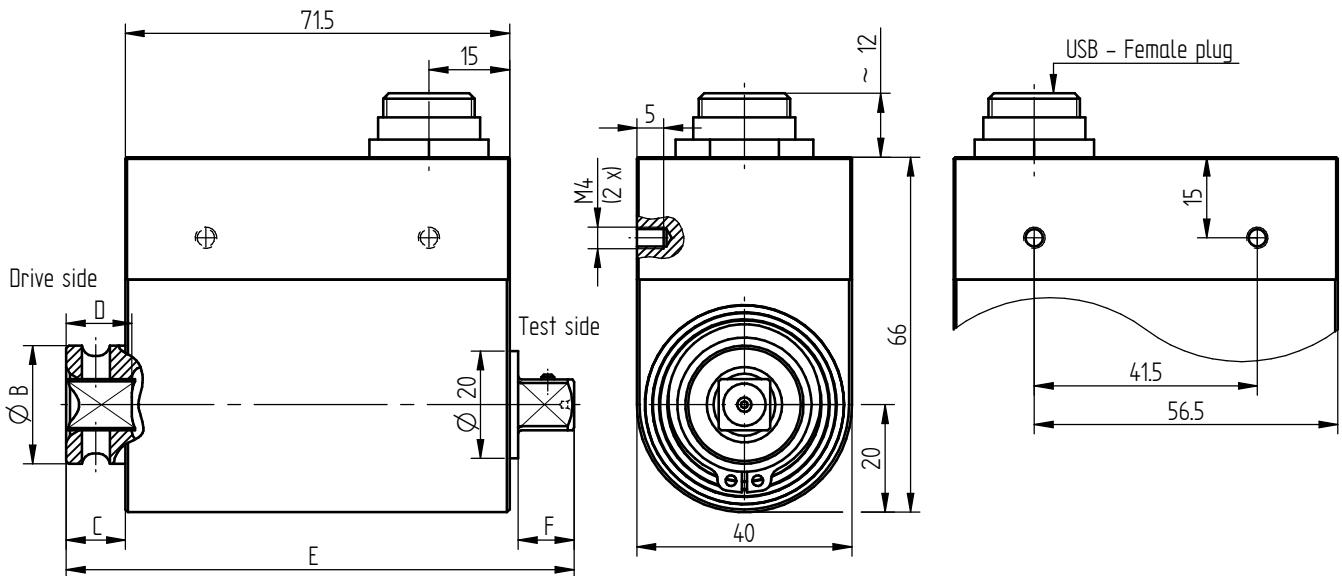
Application

- Assembly technology
- Process measuring and control technology
- Automotive industry
- Measuring and control devices
- Tool engineering
- Special mechanical engineering

Dimensions of DR-3001 in mm

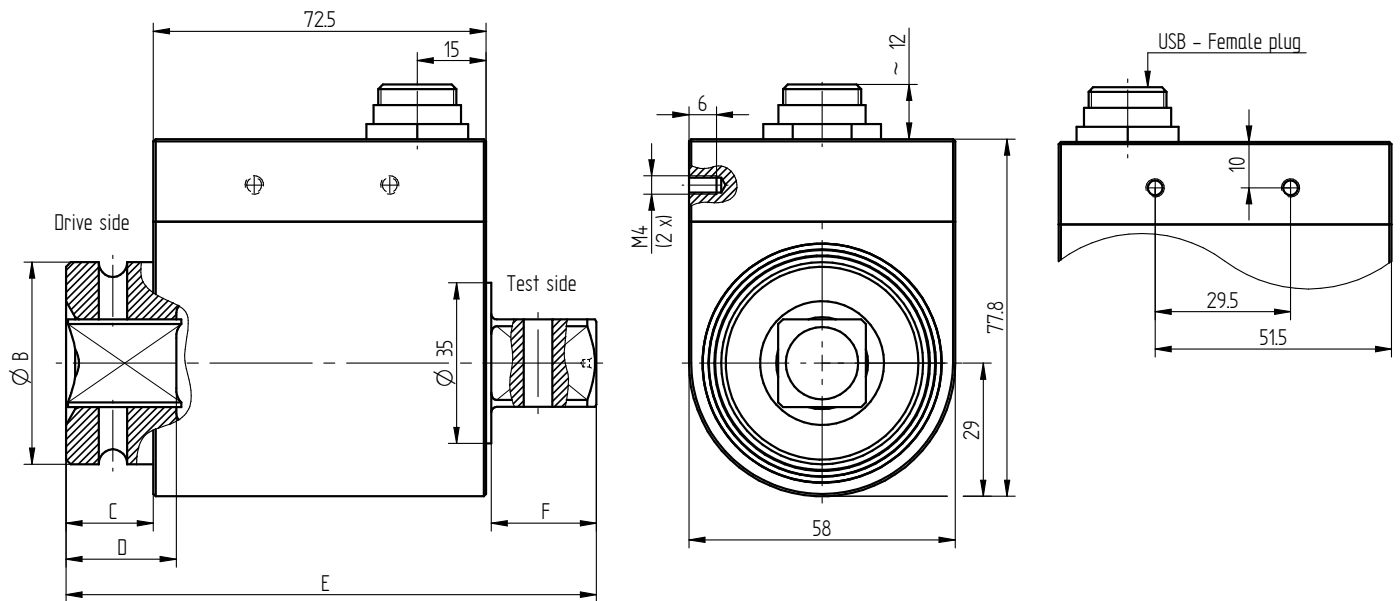


Rated Torque [N·m]	Square	Weight [kg]
0.1/0.2/0.5/1/2/5/10/15/20	1/4"	0.2

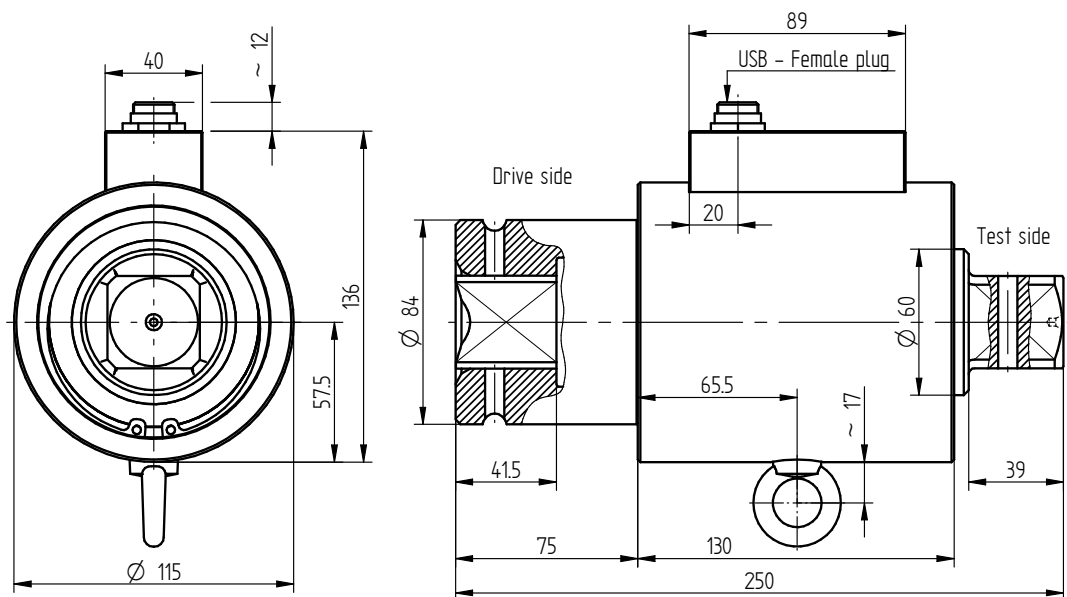


Rated Torque [N·m]	Square	Dimensions [mm]					Weight [kg]
		B	C	D	E	F	
35/50/63	3/8"	22	11	12.2	94.5	10.4	0.5
100/160/200	1/2"	29.8	13	15	100.5	15.1	0.5

Dimensions of DR-3001 in mm



Rated Torque [N·m]	Square	Dimensions [mm]					Weight [kg]
		B	C	D	E	F	
500	3/4"	44	19	24	115.5	22.9	1.2
1000	1"	54	29	26.5	130.5	27.4	1.4



Rated Torque [N·m]	Square	Weight [kg]
2000/5000	1 1/2"	8.2

Technical Data acc. to VDI/VDE/DKD 2639

USB-Torque Sensor DR-3001		
Rated torque M_{nom}	N·m	0.1 ... 5000
Accuracy class	% M_{nom}	0.1
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 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

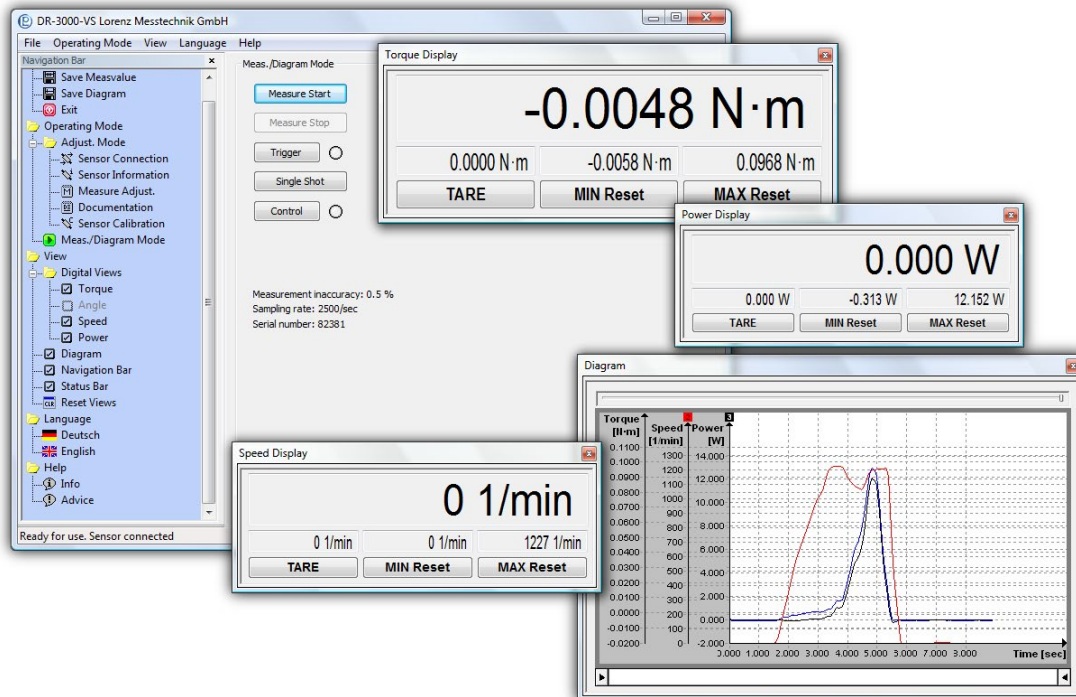
Article-No.	Rated Torque [N·m]	Limit Speed [min ⁻¹]	Springrate [N·m/rad]	Mass Moment of Inertia [kg·m ²]		Axial Force Limit [N] ¹	Lateral Force Limit [N] ¹
				Drive Side	Test Side		
112859	0.1	3000	1.8E+01	2.1E-06	3.3E-07	42	1.2
112861	0.2	3000	1.8E+01	2.1E-06	3.3E-07	42	1.2
112862	0.5	3000	1.2E+02	2.1E-06	3.3E-07	185	2.9
112863	1	4000	1.2E+02	2.1E-06	3.3E-07	260	4.7
112916	2	4000	3.0E+02	2.1E-06	3.3E-07	480	12.2
112917	5	4000	5.9E+02	2.1E-06	3.5E-07	870	30
112918	10	4000	7.3E+02	2.1E-06	3.6E-07	1150	45
112919	15	4000	7.3E+02	2.1E-06	3.6E-07	1150	45
112920	20	4000	7.3E+02	2.1E-06	3.6E-07	1150	45
112921	35	3000	8.6E+03	1.0E-05	1.1E-05	3300	110
112922	50	3000	1.0E+04	1.0E-05	1.1E-05	4200	155
112923	63	3000	1.1E+04	1.0E-05	1.1E-05	4900	190
112924	100	2500	1.2E+04	1.6E-05	1.1E-05	4000	135
112925	160	2500	1.5E+04	1.6E-05	1.2E-05	5500	215
112926	200	2500	1.5E+04	1.6E-05	1.2E-05	5500	215
112928	500	2500	8.8E+04	9.9E-05	7.7E-05	13500	840
112929	1000	1500	1.3E+05	2.1E-04	1.1E-04	16500	1000
112930	2000	1000	2.1E+05	3.5E-03	1.8E-03	27000	1650
112932	5000	1000	2.6E+05	3.5E-03	1.8E-03	51000	4000

¹ Unsupported shaft

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 ² 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	✓

²Windows® is a registered trademark of Microsoft Corporation in the United States and other countries.

All trademarks or brands used in this document refer only to the respective product or the holder of the trademark or brand.

Lorenz Messtechnik GmbH does not raise claims to other than their own trademarks or brands.