# Ⓟ *LORENZ MESSTECHNIK GmbH*

USB - Torque Sensor with Configuration and Evaluation Software   DR-3000

- ❍ Nominal torque from 0.1 N·m ... 5000 N·m
- ❍ Accuracy class optional 0.05% f. scale
- ❍ Feed-in from USB, without ext. power supply
- ❍ Speed up to 30,000 min^{-1}
- ❍ Up to 2500 Measurements/s per Measuring Channel
- ❍ Very short axial length
- ❍ Reliable and durable
- ❍ Special versions on request

- ❍ Suited for mobile operation with a notebook
- ❍ Calibration parameter lodged in sensor
- ❍ Calibration control actuation by software
- ❍ Integrated speed/angle measurement
- ❍ Virtually no influence of the bearing friction on the measuring signal
- ❍ Power computation by software
- ❍ High torsional stiffness
- ❍ Simple handling and assembly
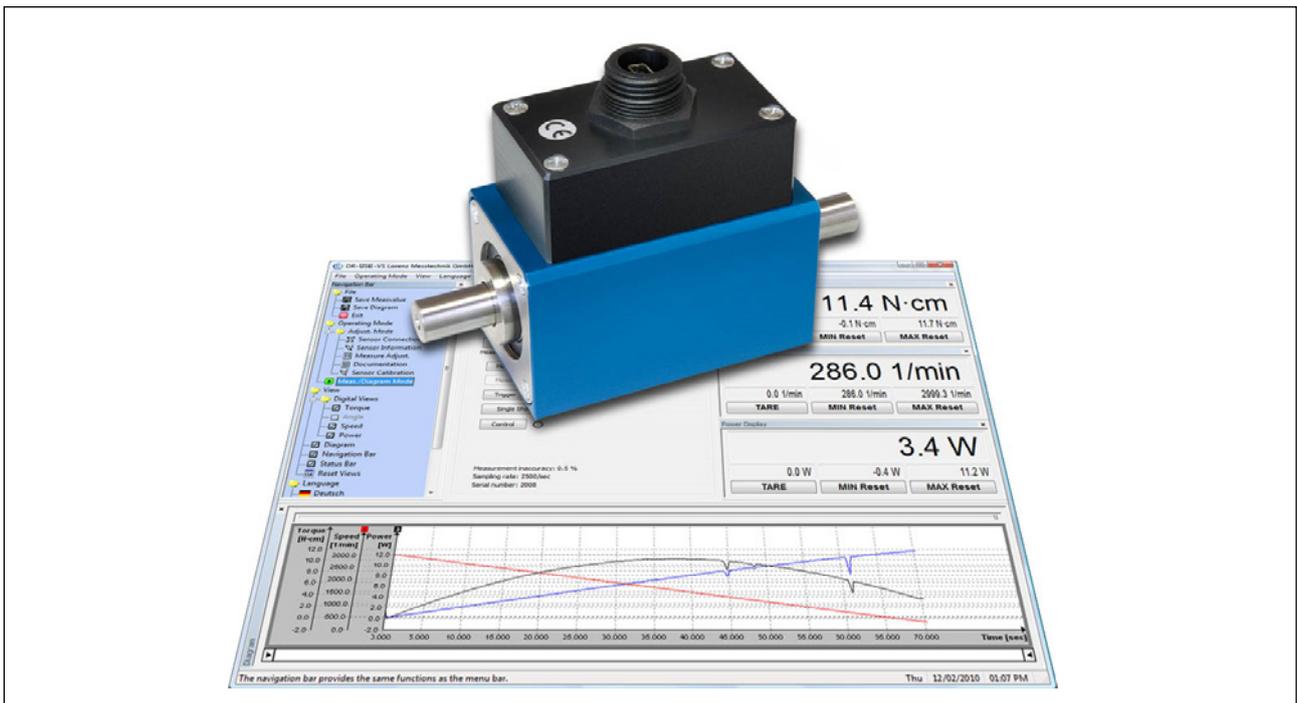
This sensor has a contactless and digital signal transmission from rotor to stator, which means no signal falsification and maintenance-free.

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Specifications

Article-No.	Nominal Torque [N·m]	Limit Speed [min⁻¹]	Springrate [N·m/rad]	Mass Moment of Inertia [kg·m²] Drive Side	Mass Moment of Inertia [kg·m²] Test Side	Limit Thrust Load [N][1]	Limit Shear Force [N][2]
114357	0.1	30000	1.8E+01	9.2E-06	2.5E-07	43	1.5
114358	0.2	30000	1.8E+01	9.2E-06	2.5E-07	58	2
111231	0.5	30000	9.4E+01	9.2E-06	2.5E-07	240	3
111177	1	30000	9.4E+01	9.2E-06	2.5E-07	240	3
111232	2	30000	3.7E+02	9.2E-06	2.5E-07	480	7
111233	5	30000	7.7E+02	9.2E-06	2.6E-07	900	16.5
111234	10	30000	8.8E+02	9.3E-06	3.4E-07	1050	21
111235	20	20000	5.1E+03	1.2E-04	6.8E-06	2300	44
111236	30	20000	5.1E+03	1.2E-04	6.8E-06	2300	44
111114	50	20000	9.6E+03	1.2E-04	7.4E-06	5000	142
111237	100	20000	9.6E+03	1.2E-04	7.4E-06	5000	142
111238	200	15000	8.9E+04	5.4E-04	4.4E-04	10000	275
110554	500	15000	1.3E+05	5.4E-04	4.4E-04	13000	400
111240	1000	15000	1.7E+05	6.4E-04	5.3E-04	20000	920
112801	2000	12000	6.3E+05	5.7E-03	5.1E-03	34000	1250
112803	5000	12000	9.6E+05	5.8E-03	5.2E-03	64000	2900

|		DR-3000
Accuracy class torque	% f. s.	0.1
Speed resolution	min⁻¹	1
Speed accuracy	% f. s.	±1
Angle of rotation resolution	degree	0.25
Repeatability (DIN 1319)	%	±0.02
Feed-in from USB	VDC	4 … 6
Current consumption	mA	≤250
Output signal torque	digits	±25,000
Output signal speed/ angle of rotation	digits	±32,511
Control signal excitation		per Software
Sample rate	kSample/s	2.5
Reference temperature	°C	23
Nominal temperature range	°C	5 ... 45
Service temperature range	°C	0 ... 60
Storage temperature range	°C	-10 ... 70
Temperature coefficient of sensitivity	% f. s./K	±0.01
Temperature coefficient of zero signal	% f. s./K	±0.02
Service torque (static)	% f. s.	150
Limit torque (static)	% f. s.	200
Ultimate torque (static)	% f. s.	>300
Bandwidth (DIN 50 100)	%	70 (peak - peak)
Level of protection (DIN EN 60529)		IP50
Electrical connection		PX0446 IP68 B Mini USB, incl. 3 m connection cable to PC

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[1] Unsupported shaft
[2] Unsupported shaft

Options/ Accessories

Article-No.	Description		
101695	Accuracy class	% f. s.	0.05
	Keys according DIN 6885		on request

Option Calibrations

Article-No.	Description	Steps	Norm
400676	Linearity diagram	25%	Factory standard
400664	Linearity diagram	10%	
400961	Proprietary calibration	3	VDI/VDE 2646
400700	Proprietary calibration	5	
400688	Proprietary calibration	8	
	DAkkS- Calibration		on request

Dimensions

USB – Buchse
USB – female plug

Ansicht X
View X

All dimensions in mm
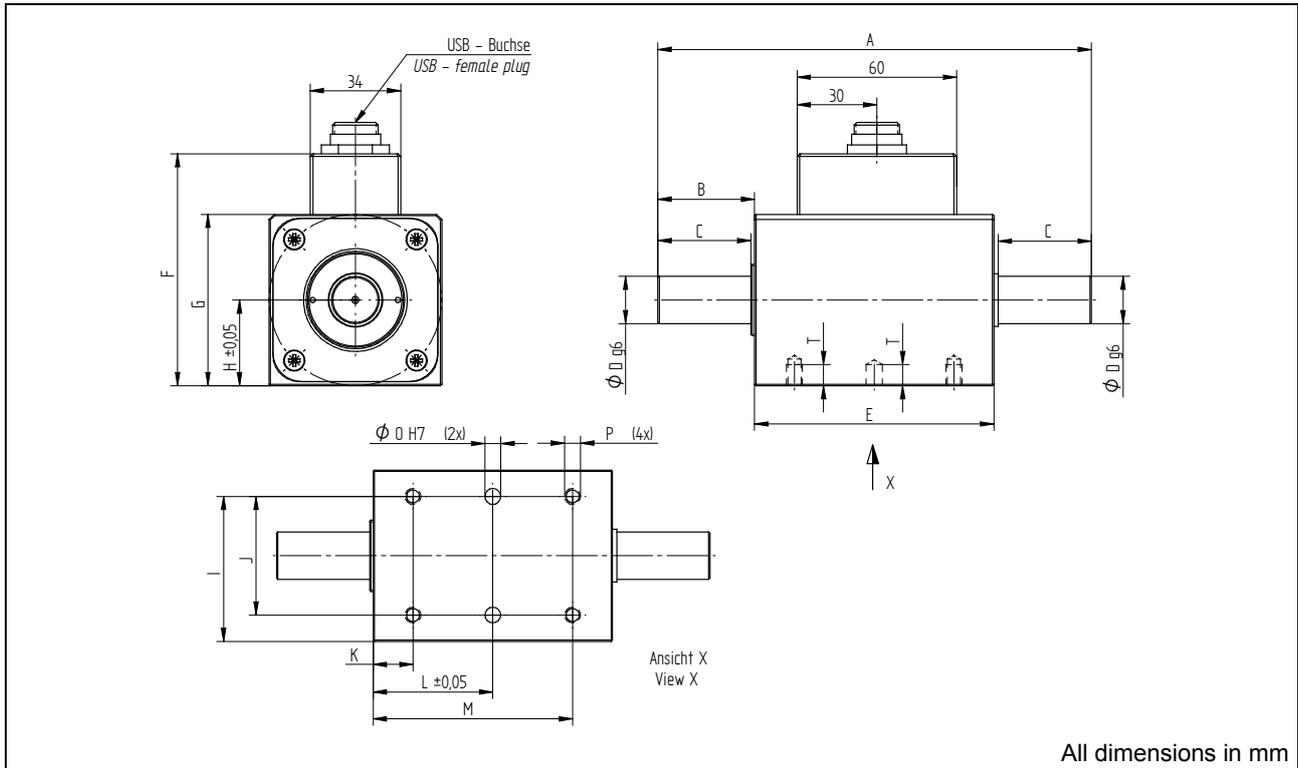
Nominal Torque [N·m]	Dimensions [mm]															
	A	B	C	Ø D	E	F	G	H	I	J	K	L	M	O	P	T
0.1 / 0.2 / 0.5 / 1 / 2 / 5	110	19	17	8	71	63	40	20	35	30	12	35.5	59	4	M4	8
10	110	19	17	10	71	63	40	20	35	30	12	35.5	59	4	M4	8
20 / 30 / 50 / 100	163	36.5	35	18	90	88	65	32.5	55	45	15	45	75	6	M6	8
200 / 500	234	56.5	55	32	120	118	95	47.5	82.5	70	20	60	100	8	M8	14
1000	234	56.5	55	42	120	118	95	47.5	82.5	70	20	60	100	8	M8	14
2000 / 5000	372	114	110	70	144	163	140	70	120	100	25	72	119	12	M12	20

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Configuration and Evaluation Software

DR-USB-VS

- ○ Convenient configuration and evaluation software
- ○ Graphic presentation of torque/ speed/ power or torque/ angle of rotation
- ○ Automatic scaling of y-axis
- ○ Simultaneous storage of up to 3 physical values
- ○ Automatic storage function of the measured values as CSV- or BMP-File
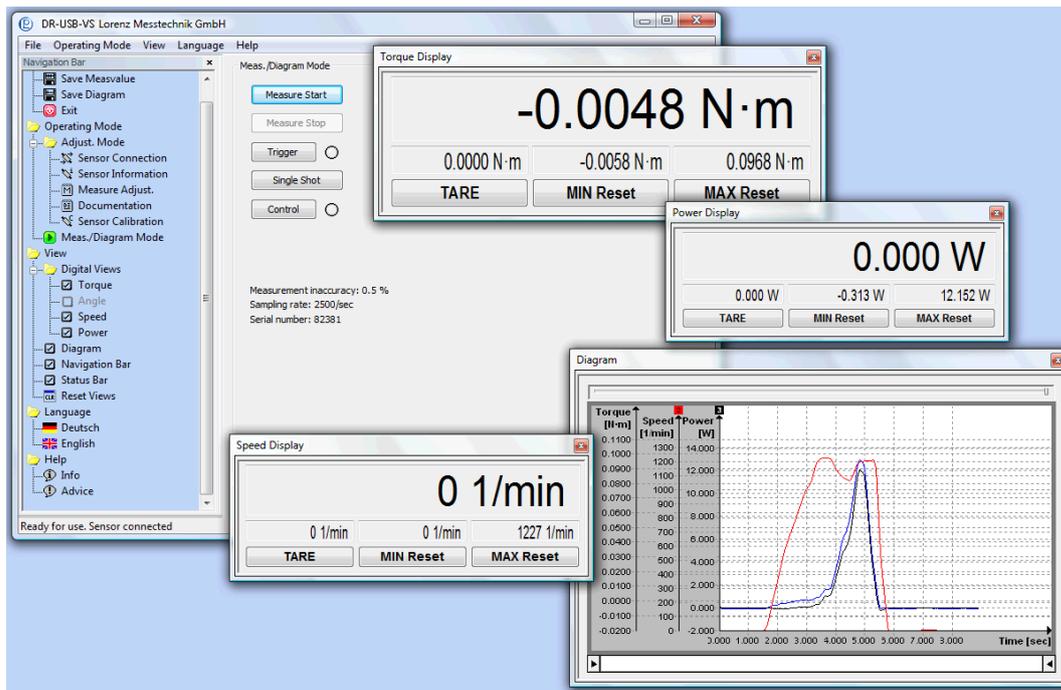
Description

Configuration and evaluation software for easy analysis and graphic presentation on a 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.

Specifications

Type	DR-USB-VS
Interface	USB
Protocol	Lorenz standard protocol
System Requirements	Windows® '03/ '08/ Vista/ 7/ 8 32/64 Bit[3] Dual-Core ex 1.8 GHz (with diagram)

Conversion in physical values	✓
Simultaneous measuring	1 Sensor
Graphic presentation 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	✓