

## Rotating Torque Sensor DR-2414 (contactless) with Rated Torque from 0.1 to 20 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.*

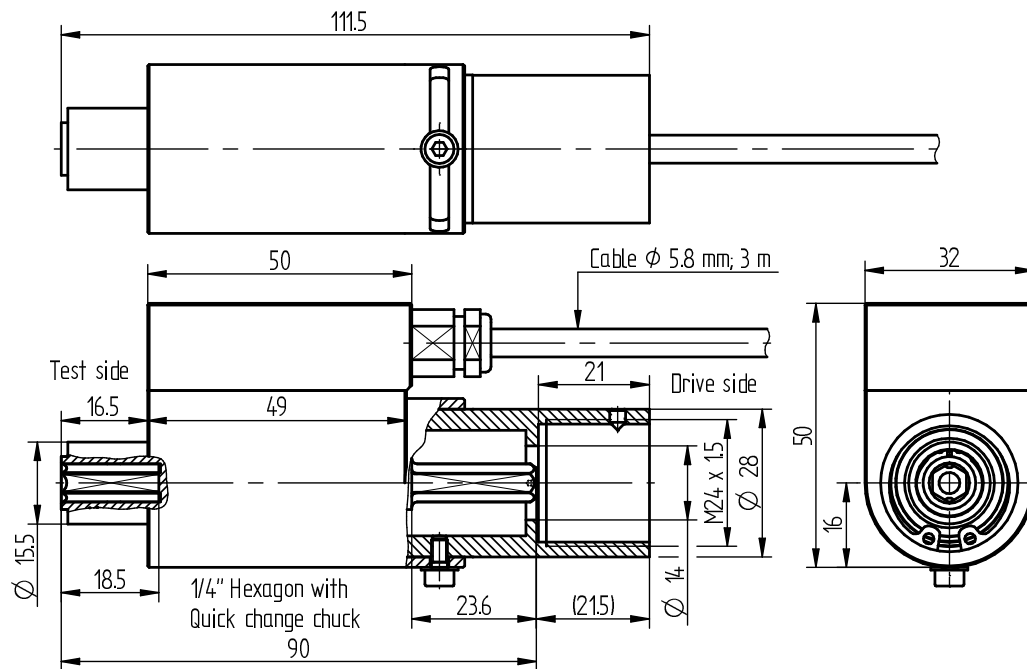
### Performance Features

- Torque sensor for screw driving systems
- High accuracy
- Digital output RS485
- Integrated speed/angle measurement (option)
- Speed up to 4000 min<sup>-1</sup>
- Very short axial length
- High torsional stiffness
- Simple handling and assembly
- Auto identification of measuring range, serial number and date of calibration
- 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-2414 in mm



Rated Torque [N·m]	Hexagon Drive	Weight [kg]
0.1/0.2/0.5/1/2/5/10/15/20	1/4"	0.4

## Connection Assignment

Electrical Connection			
Supply (+)	Brown	●	12 ... 28VDC
Supply (GND)	Green	●	0V
RS485	Yellow	●	RS485 (+)
RS485	White	○	RS485 (-)
NC	Gray	●	-
NC	Pink	●	-
NC	Blue	●	-
NC	Red	●	-
Shielding	Shield	⊕	

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

Torque Sensor DR-2414		
Rated torque $M_{nom}$	N·m	0.1 ... 20
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	digits	±25000
Control signal excitation		per software
Sample rate	kSample/s	5
Electrical connection		Cable, 3 m with free strands
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 <sup>-1</sup> ]	Spring Rate [N·m/rad]	Mass Moment of Inertia [kg·m <sup>2</sup> ] <sup>1</sup>		Axial Force Limit [N] <sup>2</sup>	Lateral Force Limit [N] <sup>2</sup>
				Drive Side	Test Side		
104156	0.1	3000	1.8E+01	2.6E-06	2.7E-07	43	0.7
104157	0.2	3000	1.8E+01	2.6E-06	2.7E-07	58	1
104158	0.5	3000	1.1E+02	2.6E-06	2.7E-07	185	1.8
104161	1	4000	1.1E+02	2.6E-06	2.7E-07	255	2.9
104162	2	4000	3.0E+02	2.6E-06	2.7E-07	480	7.6
104163	5	4000	5.1E+02	2.6E-06	2.8E-07	880	18
104164	10	4000	5.8E+02	2.6E-06	3.0E-07	1150	27
104165	15	4000	5.8E+02	2.6E-06	3.0E-07	1150	27
104166	20	4000	5.8E+02	2.6E-06	3.0E-07	1150	27

## Options

Article-No.	Description	
115391	Speed/angle measurement, RS485	
	Speed resolution	1 min <sup>-1</sup>
	Speed accuracy	1 % full scale ±1 digit
	Angle of rotation resolution	0.25 degree
	Output signal speed/angle of rotation	±32511 digits
106154	Control signal	50 % $M_{nom}$
100739	Control signal	80 % $M_{nom}$

<sup>1</sup> Without option speed/angle measurement

<sup>2</sup> Unsupported shaft (free floating assembly)

## 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
10320	Cable connector KSSH15 (15-pin) incl. sensor mounting
10337	Cable connector KS12 (12-pin) incl. sensor mounting