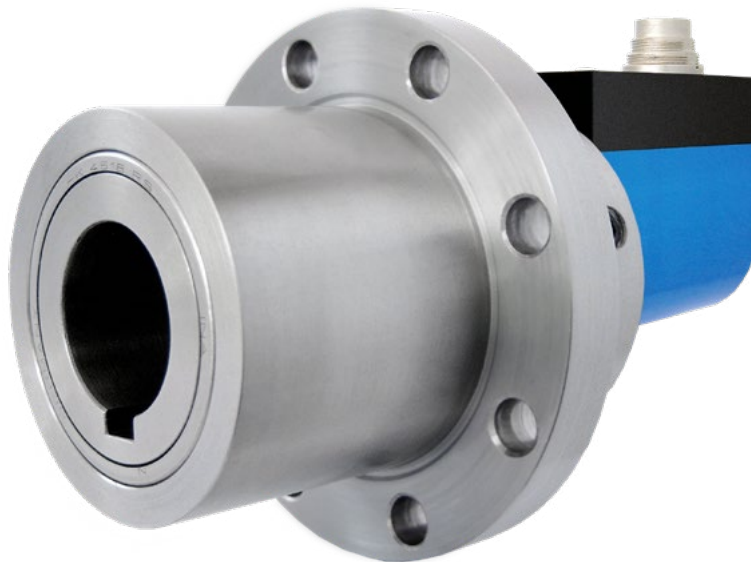


Rotating Torque Sensor MR-12 (contactless) with Nominal Torque from 20 ... 5000 N·m



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.

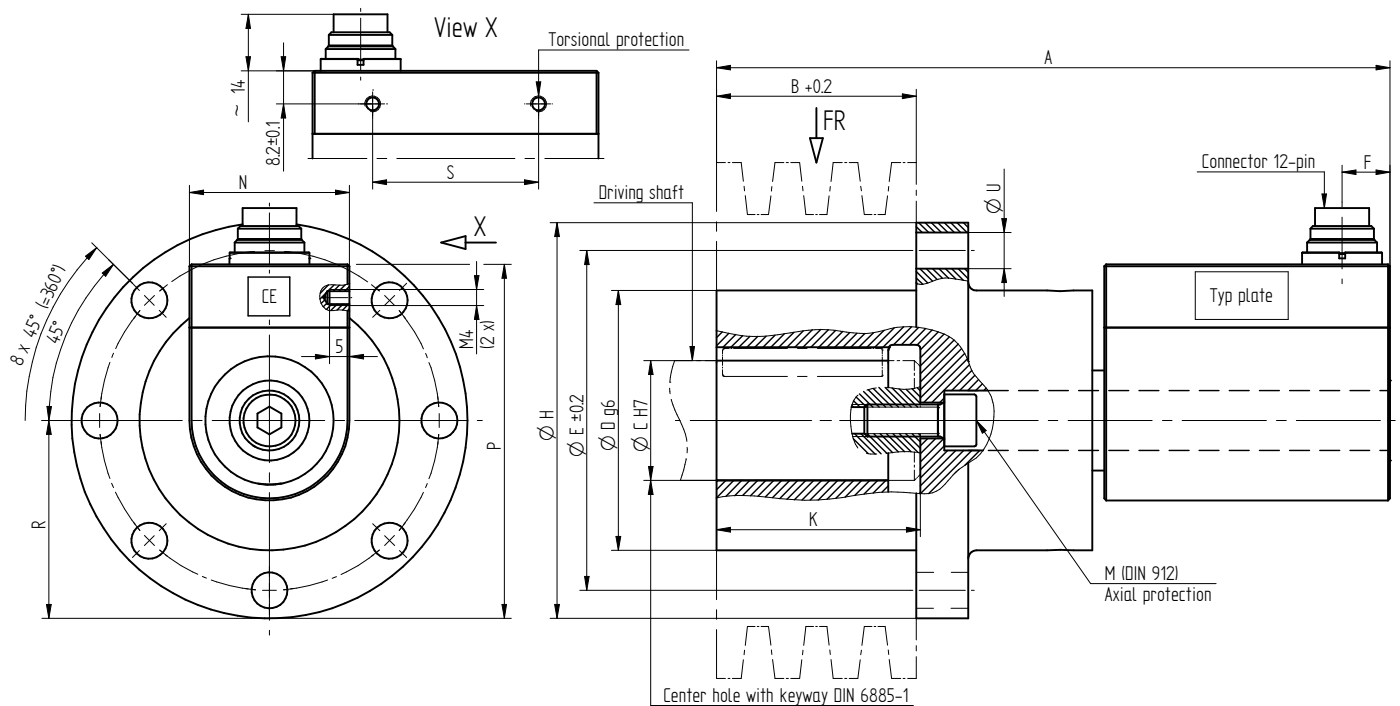
Performance Features

- Torque sensor for belt-pulleys
- High accuracy
- Active output $\pm 5V$ (optional $\pm 10V$)
- Integrated speed/angle measurement, optional
- Speed up to 12000 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

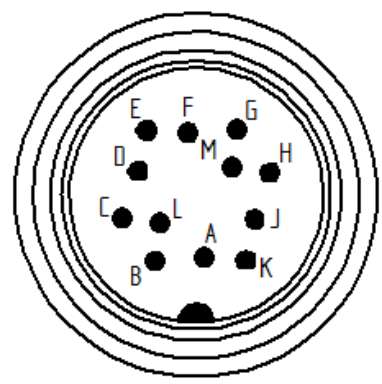
Dimensions of MR-12 in mm



Nominal Torque [N·m]	Dimensions [mm]															Weight [kg]
	A	B	$\varnothing C$		$\varnothing D$	$\varnothing E$	F	$\varnothing H$	K	M	N	P	R	S	$\varnothing U$	
			min	max												
20/50/100/200	168.5	50	15	30	65	85	12	99	51	M8	40	88.5	49.5	41.5	9	2.5
500	227.5	60	40	55	140	158	15	176	80	M12	58	135	88	29.5	11	16.3
1000	227.5	60	50	55	140	158	15	176	80	M12	58	135	88	29.5	11	16.3
2000/5000	287.5	110	60	85	170	195	15	220	130	M16	58	157	110	29.5	13	32.5

Connection Assignment

12-pin	MR-12	Series 581
Pin A	NC	-
Pin B	Signal angle B, option	5V TTL
Pin C	Signal (+)	$\pm 5V$ ($\pm 10V$)
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	NC	-
Pin J	NC	-
Pin K	Control signal	$L < 2.0V$; $H > 3.5V$
Pin L	NC	-
Pin M	Shield	-





Technical Data acc. to VDI/VDE/DKD 2639

Torque Sensor MR-12

Nominal torque M_{nom}	N·m	20 ... 5000
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	10
Electrical connection		12-pin series 581 ¹
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.	Nominal Torque [N·m]	Limit Speed [min ⁻¹]	Springrate [N·m/rad]	Mass Moment of Inertia [kg·m ²]		Axial Force Limit [N] ²	Lateral Force Limit [N] ²
				Drive Side	Test Side ³		
100716	20	12000	1.3E+04	1.6E-04	1.7E-03	950	11000
100717	50	12000	2.6E+04	1.6E-04	1.7E-03	1900	11000
100718	100	12000	5.3 E+04	1.6E-04	1.7E-03	4000	11000
100719	200	12000	1.1E+05	1.6E-04	1.7E-03	7400	11000
100720	500	10000	3.1E+05	2.4E-03	4.6E-02	12500	37000
100721	1000	10000	6.7E+05	2.4E-03	4.6E-02	21000	37000
100722	2000	5000	9.4E+05	1.8E-02	1.2E-01	24000	48000
100723	5000	5000	2.5E+06	1.8E-02	1.2E-01	39000	48000

Options

Article-No.	Description	
103562	Output signal	$\pm 10V$
101560	Speed/angle measurement, 2 x 360 impulses, 90° displaced	5V TTL, CW-turn CH A  CH B 

¹ Female cable connector in scope of delivery at first delivery

² Unsupported shaft

³ At $\emptyset C$ max. and without belt pulley

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 MR-12:



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