

Multi-Component Sensor M-2371 (contactless) with Rated Force/Rated Torque from 100 N/2 N·m ... 500 N/5 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.

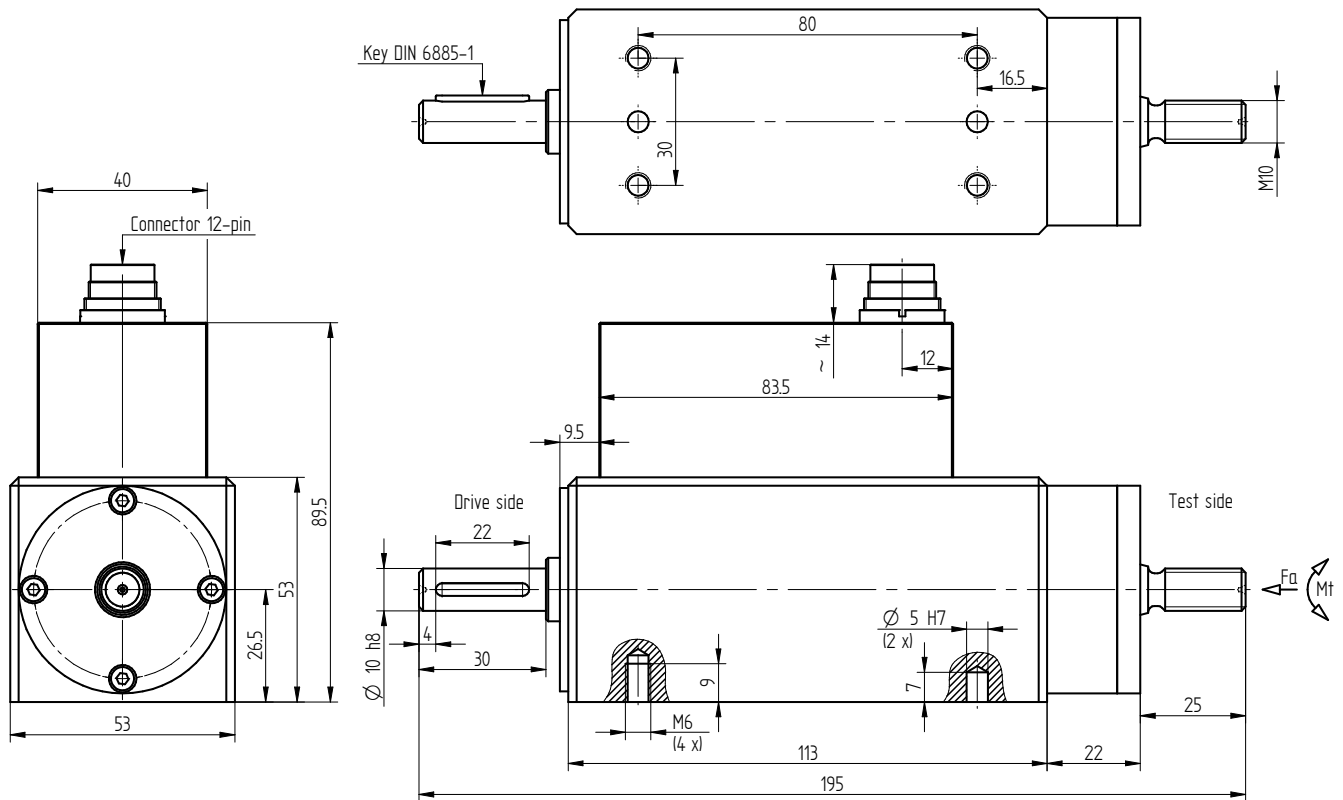
Performance Features

- Contactless torque/force sensor, rotating e.g. for continuous stress test of pumps and master key systems
- Active output $\pm 5V$ (optional $\pm 10V$)
- Speed up to 3000 min⁻¹
- TEDS (Transducer Electronic Data Sheet)
Standard IEEE 1451.4 (optional)
- Integrated speed/angle measurement optional
- Reliable and durable
- 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 M-2371 in mm



Rated Force/Torque [N/N·m]	Weight [kg]
100/2	1.3
250/5	1.3
500/5	1.3

Connection Assignment

12-pin	M-2371	Series 581
Pin A	NC	-
Pin B	Signal angle B (option)	5V TTL
Pin C	Signal (+) torque	$\pm 5V (\pm 10V)$
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	Signal (+) force	$\pm 5V (\pm 10V)$
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 2638 and VDI/VDE/DKD 2639

Multi-Component Sensor M-2371

Rated force F_{nom} /Rated torque M_{nom}	N/N·m	100/2	250/5	500/5
Accuracy class force	% F _{nom}	0.4		
Accuracy class torque	% M _{nom}	0.2		
Cross talk	% F/M _{nom}	<1		
Relative repeatability error in unchanged mounting position b'	% F/M _{nom}	±0.1		
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 B_{T, nom}	°C	5 ... 45		
Operating temperature range B_{T, G}	°C	0 ... 60		
Storage temperature range B_{T, S}	°C	-10 ... 70		
Temperature effect on zero signal TK₀	% F/M _{nom} /10 K	±0.2		
Temperature effect on characteristic value TK_C	% F/M _{nom} /10 K	±0.1		
Operating load (static)	% F/M _{nom}	150		
Limit load (static)	% F/M _{nom}	200		
Breaking load (static)	% F/M _{nom}	>300		
Permissible oscillation stress	% F/M _{nom}	70 (peak-to-peak)		
Level of protection		IP50		

Article-No.	Rated Force/ Torque [N/N·m]	Limit Speed [min ⁻¹]	Springrate [N·m/rad]	Mass Moment of Inertia [kg·m ²] ²		Lateral Force Limit [N] ³
				Drive Side	Test Side	
105122	100/2	3000	4.4E+02	8.0E-06	3.0E-05	0.9
104539	250/5	3000	7.2E+02	8.0E-06	3.0E-05	2.2
106597	500/5	3000	7.2E+02	8.0E-06	3.0E-05	5.3

Options

Article-No.	Description	
103562	Output signal	±10V
101560	Speed/angle measurement, 2 x 360 impulses, 90° displaced	5V TTL, CW-turn CH A  CH B 
100218	Control signal	100 % M _{nom}
100739	Control signal	80 % M _{nom}
106154	Control signal	50 % M _{nom}
113134	TEDS-standard IEEE 1451.4	

¹ Female cable connector in scope of delivery at first delivery

² Without option speed/angle measurement

³ Unsupported shaft

Calibrations for Torque

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	

Calibrations for Force

Article-No.	Description	
400628	Linearity diagram in accordance to factory standard	25 % steps
400170	Linearity diagram in accordance to factory standard	10 % steps
400960	Proprietary calibration acc. to DIN EN ISO 376 and DAkKS-DKD-R 3-3	3 steps
400652	Proprietary calibration acc. to DIN EN ISO 376 and DAkKS-DKD-R 3-3	5 steps
400640	Proprietary calibration acc. to DIN EN ISO 376 and DAkKS-DKD-R 3-3	8 steps
	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 multi-component sensor M-2371:

LCV-USB3	GM 78	SI-USB3	GM 80	SI
				

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