

Thread Friction Sensor M-2230 with Rated Thread Friction Torque of 100 N·m / Rated Screw Head Friction Torque of 100 N·m and Rated Pre-Load of 100 kN



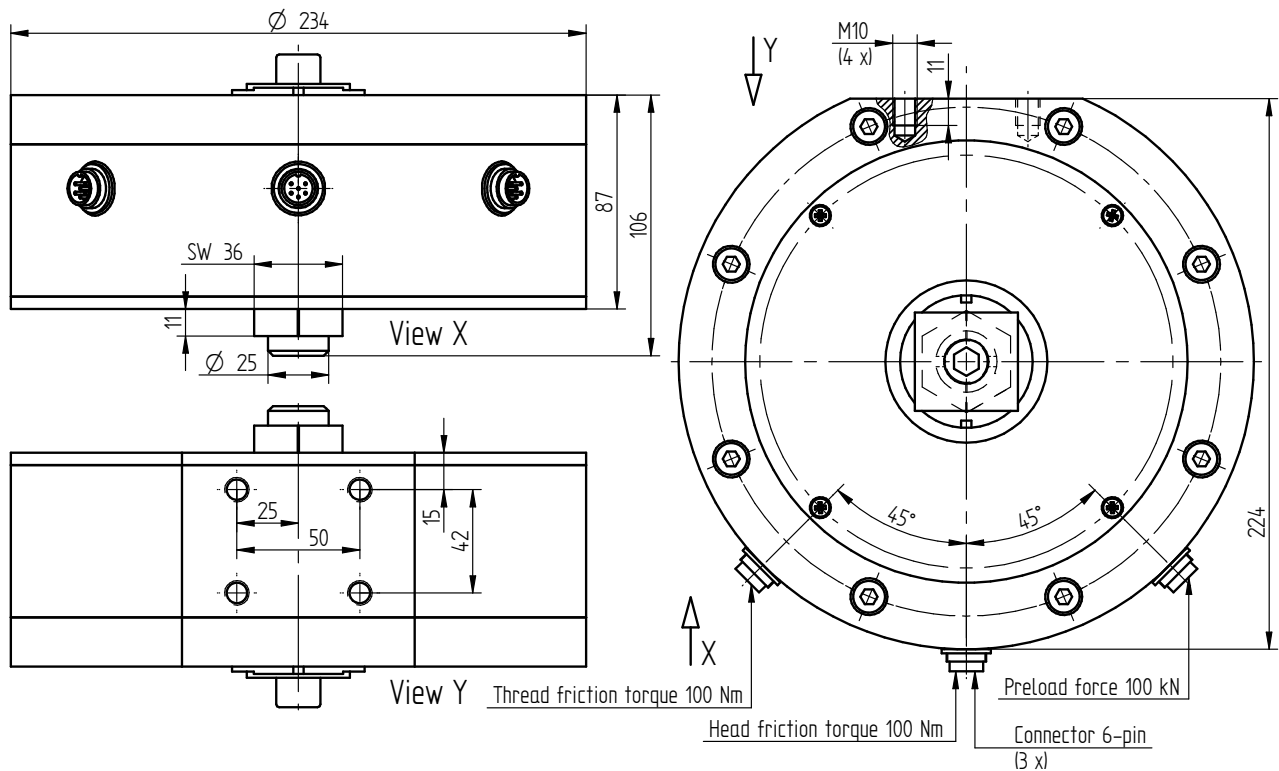
Performance Features

- Thread friction sensor for measuring of pre-load, friction torque underneath the screw head and thread friction torque
- High torsional stiffness
- 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 in mm



Article-No.	Rated Thread Friction Torque [Nm]	Rated Screw Head Friction Torque [Nm]	Rated Pre-Load [kN]	Weight [kg]
103214	100	100	100	17.0

Connection Assignment

6-pin	M-2230	Series 723
Pin 1	Excitation (-)	
Pin 2	Excitation (+)	
Pin 3	Shield	
Pin 4	Signal (+)	
Pin 5	Signal (-)	
Pin 6	Control signal (option)	

Technical Data acc. to VDI/VDE/DKD 2638 and VDI/VDE/DKD 2639

Thread Friction Sensor M-2230

Rated thread friction torque / Rated screw head friction torque M_{nom}	Nm	100
Rated pre-load F_{nom}	kN	100
Accuracy class	% F/ M_{nom}	0.2
Relative repeatability error in unchanged mounting position b'	% F/ M_{nom}	±0.1
Rated range of excitation voltage B_U, nom	VDC	2 ... 12
Bridge resistance R_{Br} (torque)	Ω	700
Input/output resistance R_e/R_a (force)	Ω	700
Rated characteristic value C_{nom}	mV/V	0.5 ±0.2 %
Electrical connection		6-pin series 723 ¹
Reference temperature T_{ref}	°C	23
Rated temperature range B_T, nom	°C	0 ... 60
Operating temperature range B_T, G	°C	-10 ... 70
Storage temperature range B_T, S	°C	-30 ... 95
Temperature effect on zero signal TK_0	% F/ M_{nom} /10 K	±0.4
Temperature effect on characteristic value TK_C	% F/ M_{nom} /10 K	±0.2
Operating load (static)	% F/ M_{nom}	130
Limit load (static)	% F/ M_{nom}	200
Breaking load (static)	% F/ M_{nom}	>400
Permissible oscillation stress	% F/ M_{nom}	70 (peak-to-peak)
Material		Stainless steel
Level of protection		IP50

Area of Application

- Hexagonal screws DIN 931
- Screws with hexagon socket DIN 912
- Cheese head screws with slot DIN 84

Thread	Lengths of screw min. [mm]	Lengths of screw max. [mm]
M6	18	depending on thrust washer
M8	20	depending on thrust washer
M10	20	depending on thrust washer
M12	25	depending on thrust washer
M14	25	depending on thrust washer
M16	25	depending on thrust washer

Other thread sizes, kinds and lengths on request

Options

Article-No.	Description	
100218	Control signal	100 % M_{nom}

¹ Female cable connector in scope of delivery at first delivery

Calibrations for Thread Friction Torque or Screw Head Friction 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
	DAkkS-Calibration/Standard on request	

Calibrations for Pre-Load

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
10301	Female cable connector 6-pin series 581
10315	Female angled connector 6-pin series 682
10266	Connection cable, 3 m, with 6-pin female cable connector series 581 and free strands
10387	Connection cable angled, 3 m, with 6-pin female angled connector series 682 and free strands

Amplifiers

Examples of suitable amplifiers for the thread friction sensor M-2230:



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