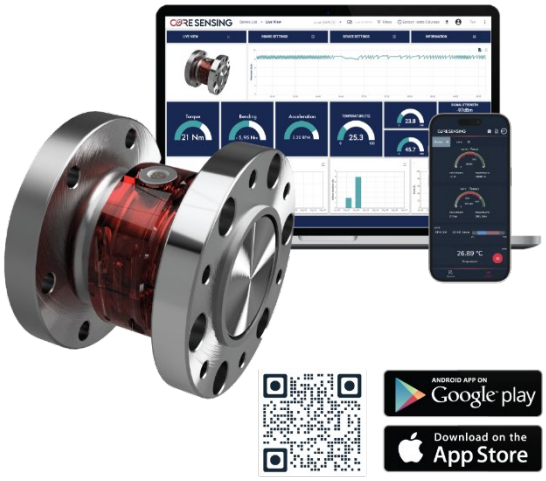
Wireless torque sensor

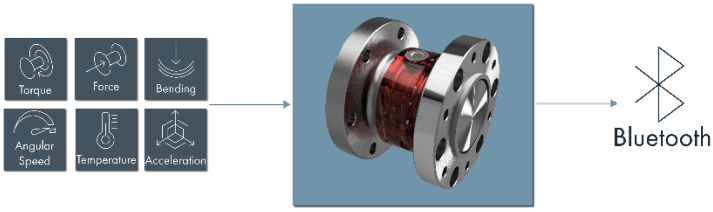
Features

- 400 Nm ... 10 kNm nominal torque
- Bending torque measurement integrated as standard
- RPM, acceleration and temperature measurement
- integrated as standard
- Event-based or continuous monitoring
- Load cycle monitoring
- Data to Automation or Cloud with additional coreGATE
- Industry standard flange mounting
- Customizable to customers' needs



Applications

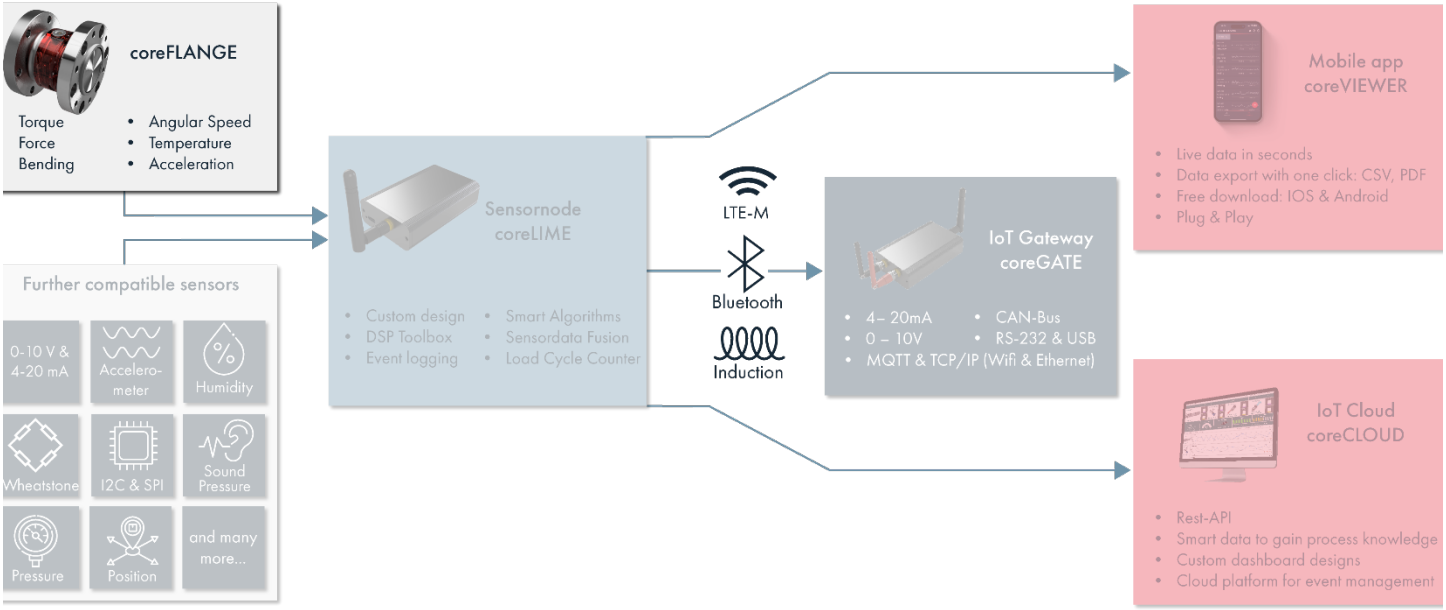
- Test & Measurement
- Industrial machine surveillance
- Engine testing, gear testing, tire testing
- Off-Highway, battery-powered testing



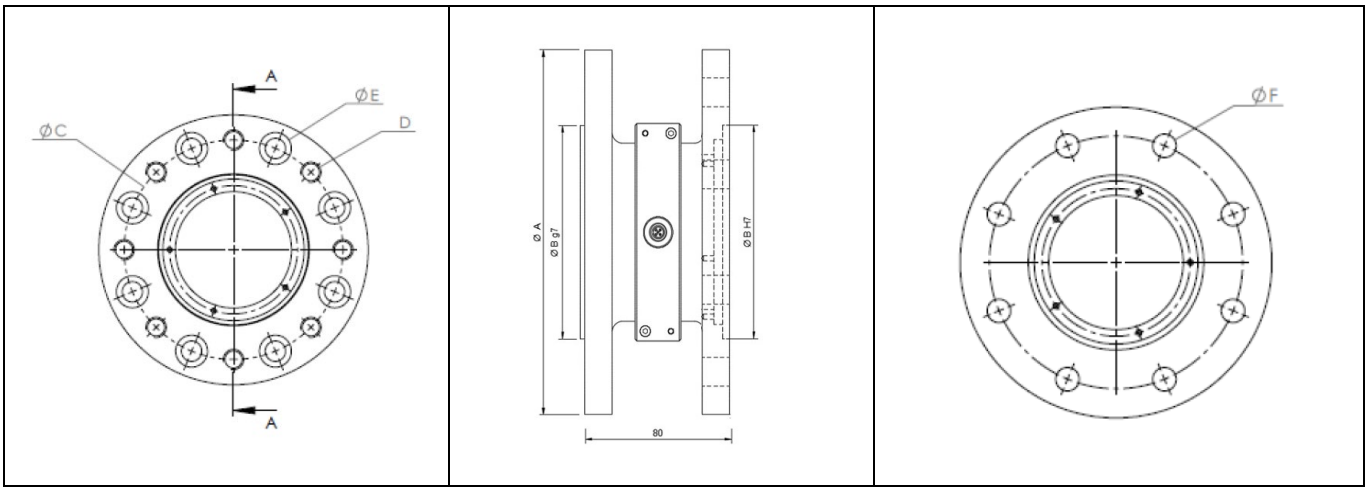
Description

coreFLANGE is a flange-mounted bearingless sensor for measuring torque and bending moment in rotating applications. With nominal torque variants from 400 Nm to 10 kNm it integrates speed, acceleration and temperature sensors for comprehensive monitoring. coreFLANGE enables both, event-based and continuous monitoring of sensor values. Load cycle monitoring is also included. Data can be logged on the device or wirelessly transmitted to automation systems or the cloud via the optional coreGATE. coreFLANGE has an industry standard flange mount for easy integration and can be customized to meet specific customer requirements.

core sensing ecosystem



Designs coreFLANGE



Size	cF400	cF1000	cF3000	cF5000	cF10000
Nominal torque (torsion) in Nm	400	1000	3000	5000	10000
Nominal torque (bending) in Nm	200	350	900	1600	2800
A (mm)	101	124	160	188	230
B (mm)	57	75	90	110	140
C (mm) (Bolt circle)	84	101,5	130	155,5	196
Quantity	6	8			
D (mm) (Thread)	M8	M10	M12	M14	M16
E (mm) (Mounting hole)	14	17	19	22	26
F (mm) (Through hole)	8,2	10,2	12,2	14,2	16,2
Weight (kg)	1,6	2,4	3,9	5,6	8,1
Max. Operating time[1] (h)	600	2040	3120		
Min. Operating time[2] (h)	47	160	245		
Permissible static overload	150%				
Maximum permissible static axial force	2000	5000	9000	14000	22000

On request, custom flange designs and/or three mechanical measurement parameters are possible
1 Runtime applies to data transmission at 1Hz with firmware version 5.4.4.
2 Runtime applies to data transmission at 500Hz with firmware version 5.4.4.

Technical data

Torque sensor		
Sampling rate	1... 500	SPS
Accuracy Torque	1	%
Cross-coupling from Bending to Torsion	0,15	Nm/Nm
Cross-coupling from Torsion to Bending	0,07	Nm/Nm

[1] *Only in battery operation*

Rotational speed sensor		
Number of axes	1	
Measurement Range	-660 ... 660	rpm
Accuracy[1]	0.5	%
Measurement Range with additional calibration	-2.500 ... -660 660 ... 2.500	rpm
Accuracy [1] > ± 660 rpm	< 2	%
Sampling rate	1 ... 500	SPS

[1] *Relative to nominal value*

Acceleration sensor		
Number of axes	3	
Resolution	16	Bit
Measurement range	-30 ... 30	g
Sampling rate (max.)	1 ... 500	SPS

Internal Temperature Sensor		
Accuracy[1]	0.2	K
Resolution	14	Bit
Measurement range	-20 ... 60	°C
Sampling rate	0.2	SPS

[1] *The temperature corresponds to the temperature of the electronics inside the flange*

Data Transmission		
Frequency band	2.45	GHz
Bluetooth Version	Bluetooth Low Energy 4.2	
Transmission rate	1 ...500	Hz
Transmit power (max.)	4	dBm
Received Signal Strength	-95 ... 4	dBm
Range (max.)	20	m

Power supply		
Energy storage	Li-Ion battery	
IP67 industrial socket, charging cable with USB port included	5	V
Standby duration [1] (typ.)	1	Year

[1] *Visible in coreVIEWER, no measurement data*

Operation		
Firmware-Version	5.4.4	
Temperature range	-20...60	°C
ESD	4	kV
Relative centrifugal acceleration	30	g
Protection class	IP6X	

Change log

Versions	Change	Release
Version 0.0	Initial release	26.06.2024