

Torque Sensor, rotating Series 86-2531

These sensors have a contactless and digital signal transmission from rotor to stator, which means no signal falsification and maintenance-free



86-2531

86-2531-xxxx

Dual-Range Torque Sensor
Nominal torque from 5/0.5Nm...20000/2000Nm
High accuracy 0.1% f.scale
Active output signal ± 5 V (optional ± 10 V)
Speed up to 12000min^{-1}
Integrated speed/angle measurement optional
Very short axial length
High torsional stiffness
Reliable and durable
Simple handling and assembly
Special version on request

86-2831-xxxx

Dual-Range Torque Sensor
Nominal torque from 5/0.5Nm...20000/2000Nm
High accuracy 0.1% f.scale
Digital output RS485-interface
Speed up to 12000min^{-1}
Integrated speed/angle measurement optional
Very short axial length
High torsional stiffness
Reliable and durable
Simple handling and assembly
Special version on request
Auto identification of: measuring range, serial number, date of calibration

Technical Data Model 86-2531

Order code	Article No. 86-2531	Measuring range [Nm]	M;ax Speed [min -1]	Springrate [N-m/rad]	Mass moment of inertia [kg-m ²] ¹		Limit share force [N]	Limit share force [N]
					Drive side	Test side		
86-2531-5005	107587	5 /0,5	12000	2,4E+02	9,7E-06	7,9E-06	62	3
86-2531-5010	107776	10/1	12000	7,2E+02	1,0E-05	7,9E-06	62	12
86-2531-5020	107779	20/2	12000	1,9E+03	1,1E-05	9,9E-06	62	23
86-2531-5030	107780	30/3	12000	2,9E+03	1,1E-05	9,9E-06	62	35
86-2531-5050	107781	50/5	12000	5,4E+03	1,4E-05	1,1E-05	62	45
86-2531-5100	107782	100/10	12000	8,0E+03	1,4E-05	1,2E-05	62	64
86-2531-5200	107783	200/20	7000	3,3E+04	1,3E-03	8,0E-04	770	175
86-2531-5500	107785	500/50	7000	7,7E+04	1,3E-03	8,0E-04	770	410
86-2531-6001	107786	1000/100	7000	1,9E+05	1,6·10 ⁻³	1,1E-03	770	530
86-2531-6002	107787	2000/200	5500	5,1E+05	5,4·10 ⁻³	4,2E-03	1100	720
86-2531-6005	107790	5000/500	5500	7,8E+05	5,5·10 ⁻³	4,3E-03	1100	860
86-2531-6010	108970	10000/1000	3500	2,9E+06	4,1·10 ⁻²	3,6E-02	2800	2400
86-2531-6020	109583	20000/2000	3500	3,8E+06	4,1·10 ⁻²	3,6E-02	2800	2400

Technical Data

	86-2531	86-2831
Accuracy class	0,1 % f. s.	0,1 % f. s.
Repeatability (DIN 1319)	±0,02 %	±0,02 %
Excitation voltage	12 ... 28 VDC	12...28 VDC
Current consumption	< 60 mA	< 60 mA
Output signal	±5 V	±25000 digits per Software
Control signal excitation	L <2,0; H >3,5 V	
Sample rate	5 kSample	
Sample rate channel A or B		5* kSample
Sample rate channel A and B		3,5* kSample
Reference temperature	23 °C	23 °C
Nominal temperature range	5 ... 45 °C	5 ... 45 °C
Service temperature range	0 ... 60 °C	0 ... 60 °C
Storage temperature range	-10 ... 70 °C	-10 ... 70 °C
Temp. coeff. of sensitivity	±0,01 % f. s.	±0,01 % f. s.
Temp. coeff. of zero signal	±0,02 % f. s.	±0,02 % f. s.
Service torque (static)	150 % f. s.	150 % f. s.
Limit torque (static)	200 % f.s.	200 % f. s.
Ultimate torque (static)	>300 % f. s.	>300 % f. s.
Bandwidth (DIN 50100)	70 (peak - peak) %	70 (peak - peak) %
Level of protection (DIN EN 60529)	IP50	IP50
Electrical connection	12-pin series 581 ²	12-pin series 581 ²

Pin Connection Model 86-2531

12pin		
Pin A	NC	-
Pin B	Opt. Signal angle B	5V TTL
Pin C	Signal 1 (+)	±5 V (±10V)
Pin D	Signal (GND)	0 V
Pin E	Supply (GND)	0 V
Pin F	Supply (+)	12 ... 28 VDC
Pin G	Opt.Signal angle A	5V TTL
Pin H	Signal 2 (+)	±5 V (±10V)
Pin J	NC	-
Pin K	Control signal	L <2,0 V; H >3,5 V
Pin L	NC	-
Pin M	Shield	-

Pin Connection Model 86-2831

12pin		
Pin A	NC	-
Pin B	Opt. signal angle B	5V TTL
Pin C	NC	-
Pin D	NC	-
Pin E	Supply (GND)	0 V
Pin F	Supply (+)	12 ... 28 VDC
Pin G	Opt. signal angle A	5V TTL
Pin H	NC	-
Pin J	RS485	RS485 (B)
Pin K	NC	-
Pin L	RS485	RS485 (A)
Pin M	Shield	-

Option/Accessories

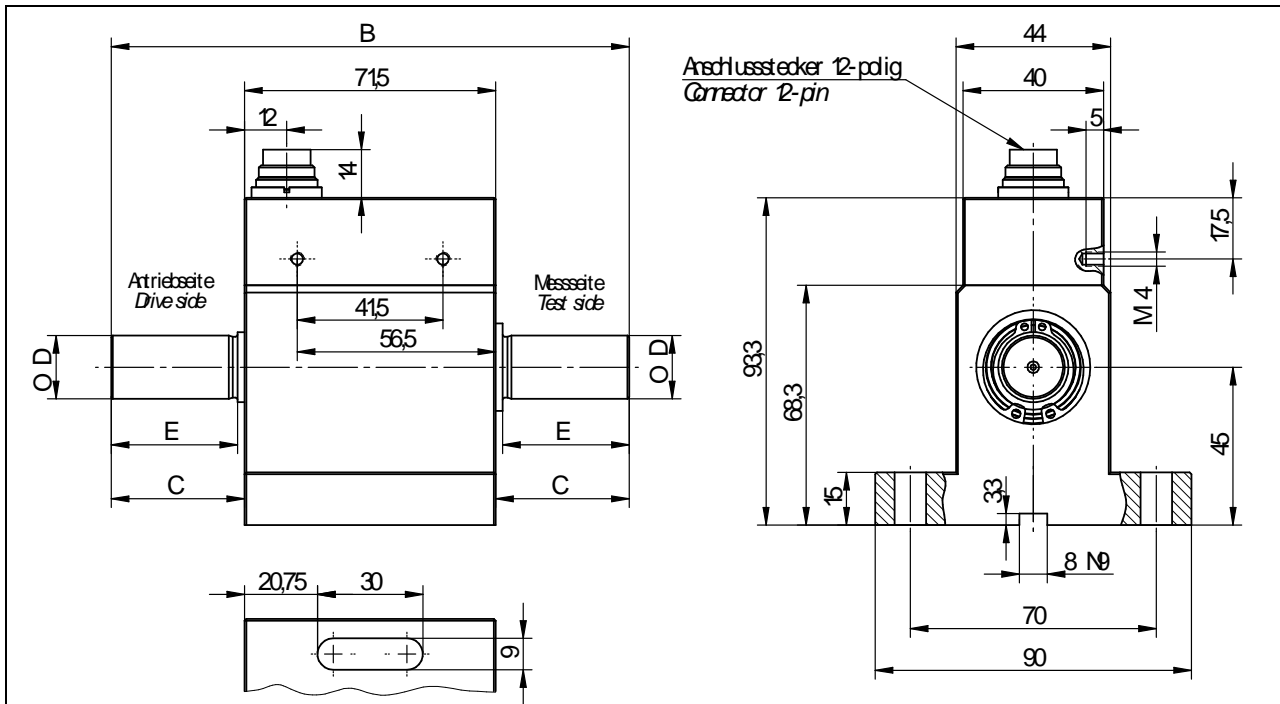
Article No.	Description	
103562	Output signal ±10 V	
101560	Angle control 360 impulses, 2 traces, 90° displaced	CW-turm
104097 ³	≥2000Nm, 60 impulses, 1 trace	
41382	Female cable connector 12-pin series 581	
45598	Female angled connector 12-pin series 682	
10270	Connection cable, 3m, 12-pin series 581, free soldered ends	
10345	Connection cable angled, 3m, 12-pin series 682, free soldered ends	
On request	Keys according DIN 6885	

[3] Nominal Torque ≥2000Nm

Option Calibrations

Article-no	Description	Steps	Norm
400676	Linearity diagram	25%	Factory standard
400664	Linearity diagram	10%	
400961	Proprietary calibration	3	VDI/VDE 2646 on request
400700	Proprietary calibration	5	
400688	Proprietary calibration DAkkS-Calibration	8	

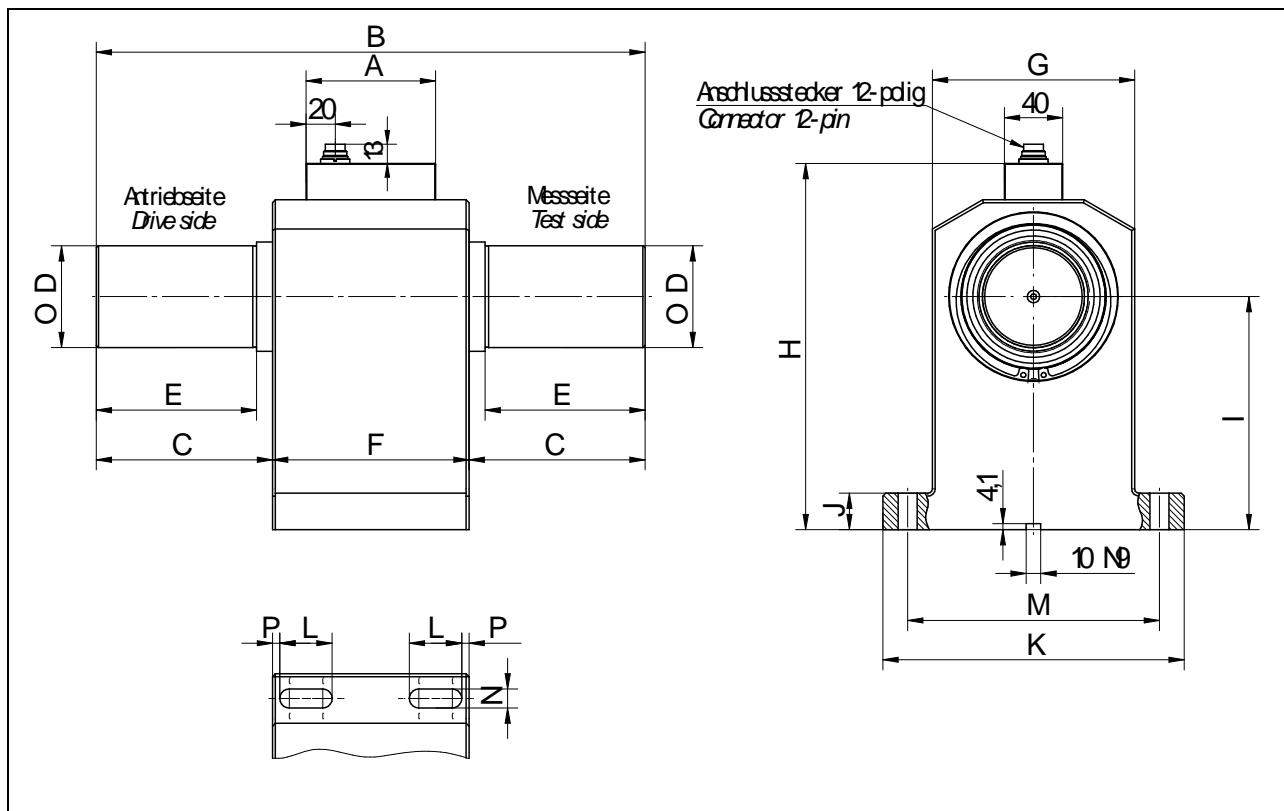
Mechanical Dimensions



86-2531

Measuring range [N·m]	Dimensions [mm]			
	B	C	ØD	E
5 / 0,5	107,5	18	8 g6	17
10 / 1	107,5	18	10 g6	17
20 / 2	111,5	20	18 h6	18
30 / 3	111,5	20	18 h6	18
50 / 5	147,5	38	18 h6	36
100 / 10	147,5	38	18 h6	36

Mechanical Dimensions



Measuring range [N·m]	Dimensions [mm]														
	A	B	C	Ø D	E	F	G	H	I	J	K	L	M	N	R
200/20	89	217	43,5	32 g6	38	130	115	190,4	112	20	175	30	145	11	5
500/50	89	217	43,5	32 g6	38	130	115	190,4	112	20	175	30	145	11	5
1000/100	89	262	66	50 g7	58	130	115	190,4	112	20	175	30	145	11	5
2000/200	89	377	121	70 g7	110	135	139	251,5	160	25	207	36	173	13	5
5000/500	89	377	121	70 g7	110	135	139	251,5	160	25	207	36	173	13	5
10000/1000	89	470	140	110 g7	120	190	210	343	215	40	300	45	260	17	15
20000/2000	89	470	140	110 g7	120	190	210	343	215	40	300	45	260	17	15