

Schlenker Enterprises Ltd



0143/03 SD

**Rotating
Torque Sensor
Socket wrench
Models**



Technical Data

■ Mechanical, electrical specifications

Excitation	.5-15 VDC, AC
Output at rated capacity, up to 10 Nm	.1 mV/ V
Output at rated capacity, exceeding 10 Nm	.2 mV/ V
Nonlinearity	< ± 0,2 % of full scale
Operating temperature range	+5 ...+50 °C
Temperature influence on zero	< ± 0,15 % / 10 K
Temperature influence on sensitivity	< ± 0,15 % / 10 K
Mechanical overload capacity (working torque)	.150 %
Max. speed	≤ 3000 rpm
Angle measurement (option A)	.2 x 360 pulses, 90° displaced, TTL
Connection	.6/12-pole Tuchel
Calibration input	.100 % control for torque
Housing	.aluminum, hard eloxadized, red
Protection class	.IP 40

■ Example for order specification

(Measuring range 12 Nm, Square drive with angle measurement):0143 / 03 SD 12 QA, Art.No.: 5141

■ Accessories

- Mating plug, article no. 703 (12-pol.), (QA)
- Mating plug, article no. 822 (6-pol.), (Q, R, H)
- Bendix-connector on request

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■ Practical application



Power tool control

Transducer instrumentation



Torque-Analyser
Type MD 9000, Data sheet 4110

Portable torque / force monitor and data collection instrument

■ Applications

- Continuous dynamic monitoring of all torque controlled power tools.
- Fastener assembly troubleshooting.
- Testing and recalibrating of torque wrenches.
- Product quality audits.
- Control of nutrunner equipment (controlled by torque and/or rotation angle).

■ Special features

- Connection of all static or dynamic strain gauge transducers. Even load cells (traction and compression) can be connected.
- Connection of rotational brushless torque transducers acc. to data sheet 0170 and slip ring transducers acc. data sheet 0143.
- Easy to handle by menu guidance via LCD graphics display.
- Charger is part of delivery. The level of charging is indicated. An adapter for operating on power line is optionally available.

■ Functions

- Power supply
- Amplifier
- Display
- Evaluation
- Comparator



DC-Amplifier
Type DV 3101, Data sheet 4103

DC-Amplifier for 19" rack mounting

■ Features

- Simplified operation
- 19" rack mounting (10TE)
- Compact
- Analog circuit
- Quick signal rise time

■ Technical data

- Peak value: 0-10 V
- Voltage output: 10 V ($R_i = 100 \text{ Ohm}$)
- Current output: $\pm 20 \text{ mA}$
- Peak or track
- High, low and in limit LED status indicators

■ Description

The desktop model is designed for 115 VAC and 230 VAC input power. All connections are pluggable. The instrument is menu-driven and therefore very easy to configure and program, and can quickly be adjusted to the measuring task. Any functions of the device (taring, peak value storage, mean value operation, limit setting, measuring duration, pre-and posttrigger, calibration, volume of indications, unit and interface) are simply adjustable. Up to 20 sensor parameter sets can be internally stored in the non-volatile Flash-memory.



Supply and evaluation instrument
Type UMV 2000, Data sheet 4600e

Measurement of torque, speed, angle of rotation, force and mechanical power

■ Application

The instrument is ideal for applications in process measurement techniques and for the use in research and laboratory environments.

All sensors with strain gauge techniques and sensors with standardized voltage output can directly be connected. The simple programming with the software provides that the instrument can be used for the evaluation of torque-/speed measurements or torque-/angle of rotation measurements in industrial environments.

The applications are manifold: The required power can be easily determined by input torque and speed of an actuated unit. This includes generators, pump systems, gear-boxes, engines, drive shafts ect. which determine the efficiency factor when transmission components or systems are evaluated.

This type of analyzing is normally performed on couplings, brakes, gear-boxes, engines and turbines. For process control, the instrument is used to measure and test screwings, or for the verification of the breakpoint at torque wrenches. Additional use in function control in assembly procedures, where the torque is rated as function of the angle rotation. For example the test of seat adjustments is optionally available.

Torque sensor 0143/03 SD

Introduction

A reliable measurement of static and dynamic torque is required in quality control.

The larger number of applications is in assembly, development and laboratory all require a robust transducer.

Dr. Staiger Mohilo manufactures a broad range of slip ring transducer for this extensive field.

A range of digital readouts and amplifiers is available for these transducers.

General

Due to three different standardized shaft ends, the slip ring transducer SD can easily be connected for all imaginable applications.

The field of application: from bolting technics to assembly monitoring, measurement of efficiency at motors and pumps, bearing friction at gears, friction of gaskets, application in laboratories, e.g. measurement of rotation springs, determination of power demand or the limit torque of drives.

Patented hard silver brushes (P 4042270) and self-lubricating slip rings.

Special features

- Accuracy $\pm 0,2\%$ of full scale
- Shunt calibration
- Bidirectional operation
- Robust design
- Small and handy
- Resistant to high acceleration
- Measurement of rotation angle as an option 360 pulses per revolution



0143/03 SD

Pin connections

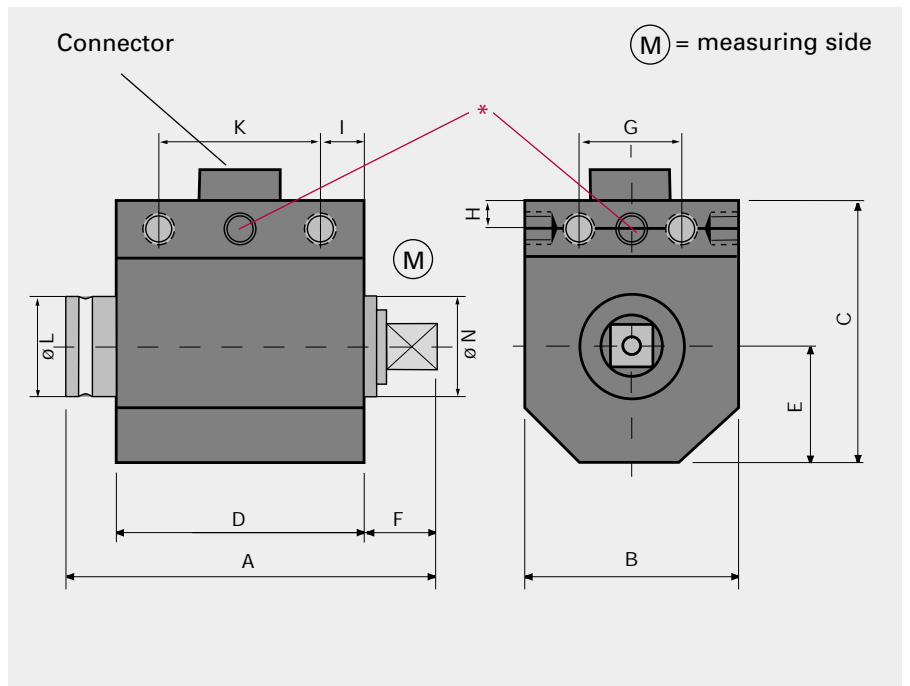
Function	Pin	Description	Pin Type QA
- Supply	A	Strain gage-bridge	
+ Supply	B		
+ Signal	C		
- Signal	D		
0 V	E	Supply 0V	
+ 5 V $\pm 10\%$	F	Supply +5V	
Impuls l, TTL	G	Output 1	
Impuls r, TTL	H	Output 2	
0 V	I	GND	
- Supply (Calibration input)	K	100% Shunt-Calibration	
Shield	M	no connection in sensor	
Function	Pin	Description	
- Supply	1	-6 VDC	
+ Supply	2	+6 VDC	
Shield	3	no connection in sensor	
+ Signal	4	2 mV/V	
- Signal	5	2 mV/V	
- Supply	6	100% Calibration	

On request available with „Bendix“-plug

Mechanical design

Torque sensor with standard square connection Q/QA

- rotating shaft
- angle encoder (type QA)



Threads for fixing M4, 6mm deep
 * for Q type only one thread aside
 also QA type 12 Nm

Socket wrench torque sensor (Q)

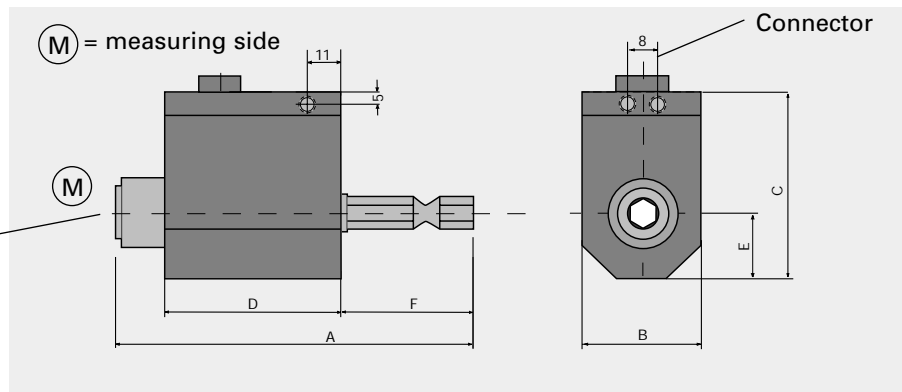
Model/Order designation	Rated torque (Nm)	Drive	A	B	C	D	E	F	H	I	L ø	N ø	max. axial load (N)	article-no.
0143/03 SD 12 Q	12	1/4"	75	28	52	58	14	8,5	5	11	13	-	150	13386
0143/03 SD 25 Q	25	3/8"	74,5	38	58	44	19	18	6	22	25	17	550	13405
0143/03 SD 63 Q	63	3/8"	74,5	38	58	44	19	18	6	22	25	17	1000	13406
0143/03 SD 160 Q	160	1/2"	79	38	58	44	19	22,5	6	22	25	17	1800	13407
0143/03 SD 500 Q	500	3/4"	97	58	76	50	29	30	5	25	40	30	4000	13408
0143/03 SD 1000 Q	1000	1"	112	73	90	57	36,5	34,5	5	28,5	50	40	6000	13409

Socket wrench torque sensor with angle encoder (QA)

Model/Order designation	Rated torque (Nm)	Drive	A	B	C	D	E	F	G	H	I	K	L ø	N ø	max. axial load (N)	article-no.
0143/03 SD 12 QA	12	1/4"	75	28	52	58	14	8,5	8	5	11	-	13	-	150	5141
0143/03 SD 30 QA	30	3/8"	101	38	58	59	19	21,5	14	5	12	35	25	17	550	13352
0143/03 SD 63 QA	63	3/8"	101	38	58	59	19	21,5	14	5	12	35	25	17	1000	13353
0143/03 SD 160 QA	160	1/2"	106	38	58	59	19	26	14	5	12	35	25	17	1800	13354
0143/03 SD 500 QA	500	3/4"	135	58	76	64	29	40	30	5	14	36	40	30	4000	13355
0143/03 SD 1000 QA	1000	1"	177	73	90	73	36,5	57,5	45	5	14	45	50	40	6000	13356

Torque sensor with standard hexagon 1/4" connection according DIN 3126 Form E/F, Type H

- with rotating shaft
- quick-change chuck for different bits for portable drivers (e.g. Philips head, slotted head)

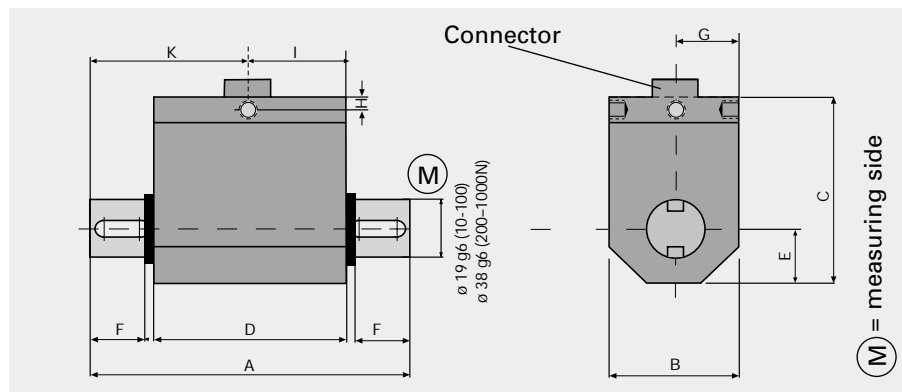


Threads for fixing M4, 6mm deep

Model/Order designation	Rated torque (Nm)	Output at rated torque mV/V	A	B	C	D	E	F	max.axial load (N)	article-no.
0143/03 SD 2 H	2	1,0	101	28	52	58	14	28	20	16169
0143/03 SD 6 H	6	2,0	101	28	52	58	14	28	50	16170
0143/03 SD 12 H	12	2,0	101	28	52	58	14	28	50	16171
0143/03 SD 20 H	20	2,0	101	28	52	58	14	28	150	16174

Torque sensor with round shaft ends and feather keyways (2 x 180°) DIN 6885, type R

- with rotating shaft



Threads for fixing M4, 6mm deep

Model/Order designation	Rated torque (Nm)	Output at rated torque mV/V	A	B	C	D	E	F	G	H	I	K	max.axial load (N)	article-no.
0143/03 SD 10 R	10	2,0	108	38	58	44	19	30	19	6	22	53	150	16200
0143/03 SD 20 R	20	2,0	108	38	58	44	19	30	19	6	22	53	550	16201
0143/03 SD 50 R	50	2,0	108	38	58	44	19	30	19	6	22	53	1000	16202
0143/03 SD 100 R	100	2,0	108	38	58	44	19	30	19	6	22	53	1800	16203
0143/03 SD 200 R	200	2,0	182	73	90	57	36,5	60	36,5	5	28,5	90,5	4000	16204
0143/03 SD 500 R	500	2,0	182	73	90	57	36,5	60	36,5	5	28,5	90,5	6000	16205
0143/03 SD 1000 R	1000	2,0	182	73	90	57	36,5	60	36,5	5	28,5	90,5	6000	16206