



E100 SBT - Strain Gauge Base Mounted Torque Transducer

Contents

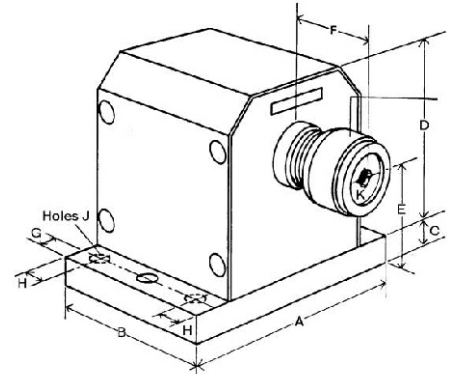
*Strain Gauge Base-Mounted Torque Transducer [SBT]:
TSE2041R*

*Strain Gauge Base-Mounted Torque Transducer [SBT]
Operating Guide: TSE2041V (Includes Introduction,
Operating Principles & Operating Instructions)*

Strain Gauge Base-Mounted Torque Transducer [SBT]

General Description

The E100 SBT (Strain Gauge Base-Mounted) Transducer has a substantial easily mounted body, which houses the shaft and strain gauge assembly. The shaft is mounted on its outer end in a ball race, ensuring accurate torque transmission. A chuck accommodates simple adapters, which can be supplied with standard square dimensions (see table), or machined to suit specific applications. Transducers can be used with customers own strain gauge amplifier system, or with our E101/2 Transducer Display interface.



Standard Specifications

Model	Full Scale Deflection (Calibration in any of the units below is possible)					Interchangeable sample disc A/F (in.)	
	S.I. units	F.P.S units		M.K.S units			
E100SBT-1	0-200	mNm	0-20	ozf.in	0-2	kgf.cm	0.250
E100SBT-2	0-500	mNm	0-50	ozf.in	0-5	kgf.cm	0.250
E100SBT-3			0-100	ozf.in			0.250
E100SBT-4	0-1	Nm	0-10	lbf.in	0-10	kgf.cm	0.250
E100SBT-5	0-2	Nm	0-20	lbf.in	0-20	kgf.cm	0.250
E100SBT-6	0-5	Nm	0-50	lbf.in	0-50	kgf.cm	0.250
E100SBT-7	0-10	Nm	0-100	lbf.in	0-100	kgf.cm	0.375
E100SBT-8	0-20	Nm	0-200	lbf.in	0-200	kgf.cm	0.375
E100SBT-9	0-50	Nm	0-500	lbf.in	0-500	kgf.cm	0.500
E100SBT-10	0-100	Nm	0-100	lbf.ft	0-10	kgf.m	0.500
E100SBT-11	0-200	Nm	0-200	lbf.ft	0-20	kgf.m	0.750
E100SBT-12	0-500	Nm	0-500	lbf.ft	0-50	kgf.m	0.750
E100SBT-13	0-1000	Nm	0-1000	lbf.ft	0-100	kgf.m	1.000
E100SBT-14	0-2000	Nm	0-2000	lbf.ft	0-200	kgf.m	1.500
E100SBT-15	0-5000	Nm	0-5000	lbf.ft	0-500	kgf.m	1.500

Mechanical Parameters

Model	Dimensions (mm)									
	A	B	C	D	E	F	G	H	J	
E100SBT-1 - E100SBT-9	127	76	13	78	51	32	10	--	8mm Ø (two holes)	
E100SBT-10 - E100SBT-13	146	124	16	106	70	51	13	24	13mm Ø (four holes)	
E100SBT-14 - E100SBT-15	307	153	25	180	127	51	13	51	19mm Ø (four holes)	

Cable length	2 metres
Outputs	See E101/2 data sheets
Power supply	From E101/2 module ($\pm 4V$)
Accuracy	$\pm 0.5\%$ FSD; $\pm 0.1\%$ to order
Linearity	$\pm 0.25\%$; $\pm 0.1\%$ to order
Temperature range	$-10^{\circ}C$ to $+50^{\circ}C$
Temperature coefficient	Less than 0.05% per $^{\circ}C$.
Hysteresis	Better than 0.1%
Safe mechanical overload	400% of rating
Memory	Embedded non-volatile memory chip contains calibration data



Strain Gauge Base-Mounted Torque Transducer [SBT] operating Guide

1. Introduction

The E100 SBT Strain Gauge Base Mounted Transducer, operates in conjunction with the E101 or E102 readout, provides a method of precisely measuring bi-directional torque in mechanical systems.

Any strain gauge transducer in the family is interchangeable with any E101 or E102 readout.

Although the system does not require routine maintenance, we recommend that, for maximum accuracy, the equipment be recalibrated annually.

2. Operating Principles

The transducer measures bi-directional torque using temperature compensated foil Strain Gauges. The outer end of the transducer shaft is mounted in a ball race, ensuring accurate torque measurement.

The accuracy obtained from the transducer is dependent on the accuracy of the $\pm 4V$ Power Source. The E101 or E102 normally provides this.

Ensure that the transducer is not subject to bending moments and the peak FSD Torque is not exceeded.

3. Operating Instructions

Plug the interconnection lead into E101 / E102 "Transducer" socket. Switch on the E101 / E102 and allow five minutes for the equipment to reach thermal equilibrium. Zero the transducer output using the E101 / E102 "Zero" control. The transducer is now ready for use.

The 25 pin "D" plug carries important calibration history and scaling information, which is reported to the E101 / E102. This ensures that the E101 / E102 displays the correct torque reading.