E101 - Strain Gauge Transducer Display Module

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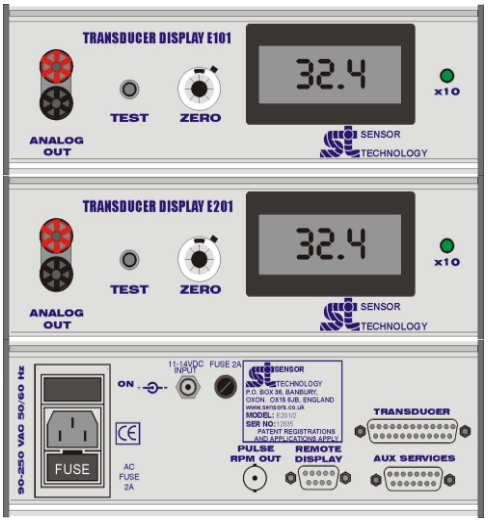
Torque Transducer Display Interface

A Transducer Interface is required with the E200 ORT Series (Optical Rotary Torque) Transducers, and is an option for the E100SIT/SBT (strain gauge) Transducers.

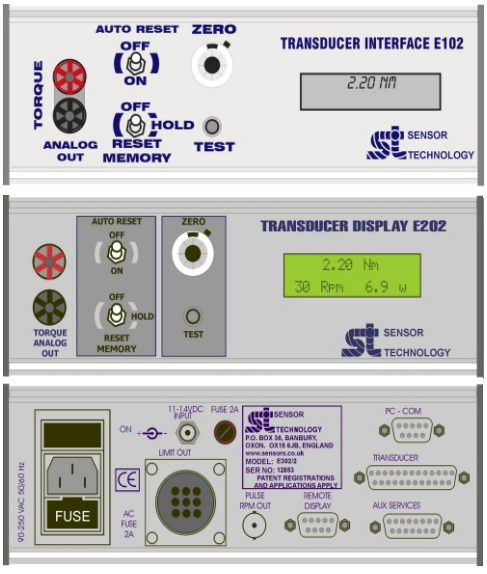
Transducer Displays E101/E102 integrate with the E100 SIT/SBT (Strain Gauge) transducers and Transducer Displays E201/E202 integrate with the E200 ORT Series (Optical Rotary Torque) Transducers.

A typical E Series Transducer Display unit. Front panel varies depending on model.



Common Features

- E101/E102 automatically detects and sets the full-scale range of any E100 transducer.
- E201/E202 automatically detects and sets the full-scale range of any E200 transducer.
- The display is automatically programmed to read the full scale of the transducer.
- ±5v analog output for Torque FSD.
- 90-250V ac or 12 v dc operation.



Additional Features for E102/E202

- Operates independently or under control from remote PC.
- Operates with TorqView to give advanced display modes (see TorqView data sheet).
- 2 external analog input channels. (**Option only**)
- Peak readings can be displayed and reset manually or automatically.
- Options menu to allow user to:
  - Set torque limits.
  - Average torque readings.
  - Set instrument display to feature other options (e.g. analog inputs).
  - Fast record facility.

Additional Features for E202 (if Optical RPM pickoff fitted to E200 transducer)

- Speed and power displayed.
- Options menu also allows user to:
  - Average speed readings.
  - Adjust speed output full scale setting.

Data parameters measured at 20ºC

Display Interface Technical Data and Option Sheet

		E101	E102	E201	E202		
Display Interface Accuracy	±0.1% Digital readout	●	●	●	●		
Resolution	0.1% Digital readout	●	●	●	●		
	0.05% Analog out	●	●	●	●		
Display	LCD (max 1999) with x10 LED indicator	●		●			
	LCD 16 x 2		●		●		
Analog Bandwith	10KHz @-3dB	●	●				
Analog Bandwith	50KHz @-3dB			●	●		
Local display update rate	10 times/sec		●		●		
Overall Size (mm)	220w x 290d x 100h (Aluminium enclosure)	●	●	●	●		
Fitted Tilt Feet		●	●	●	●		
Weight (nominal)	2.5Kg (5lb 10 oz)	●	●	●	●		
Temperature Range	-10ºC - 50ºC	●	●	●	●		
Front Panel (Lanuage)	English	●	●	●	●		
						Option	
Power Supply	90-250v AC, 50-400Hz, 20W, IEC connector. 11-14 v DC 1 A 2.1mm jack reverse polarity protected	●	●	●	●	1	-
	Power Input - 24v	◇	◇	◇	◇		a
Torque Analog Output	Analog Output ±5v FSD	●	●	●	●	2	-
	Analog Output ±1v FSD	◇	◇	◇	◇		a
	Analog Output ±10v FSD	◇	◇	◇	◇		b
	Analog Output +0.5v (fsd ccw) +2.5v(zero) +4.5(fsd cw)	◇	◇	◇	◇		c
	Analog Output 4-20 mA			◇	◇		d
Speed Analog Output (Specify RPM FSD required) (Speed pickoff on Transducer reqd)	RPM Analog +1v for FSD				◇	3	a
	RPM Analog +5v for FSD				◇		b
	RPM Analog + 10v for FSD				◇		c
	RPM Analog 4-20 mA for FSD				◇		d
Power Analog Output (Specify Power FSD required) (Speed pickoff on Transducer reqd)	Power Analog +1v for FSD				◇	4	a
	Power Analog +5v for FSD				◇		b
	Power Analog + 10v for FSD				◇		c
	Power Analog 4-20 mA for FSD				◇		d
Serial Output	TORQVIEW™		◇		◇	5	a
	RS232		◇		◇		b
	Optical Fibre Transmitter for RS232		◇		◇		c
	RS 422 Output 4800 baud		◇		◇		d
	USB Adaptor		◇		◇		e
Auxiliary Inputs	4-20mA		◇		◇	6	a
	AC RMS (50-400Hz)		◇		◇		b
	Dual Analog inputs + 1v		◇		◇		c
	Dual Analog inputs +5v		◇		◇		d
	Dual Analog inputs +10v		◇		◇		e
External Limit Outputs	Limit output (relay)		◇		◇	7	a
	Limit output (opto)		◇		◇		b
	Limit output TTL/HC +5v positive logic		◇		◇		c
Extended Cable Driver	Over 10 Metres				◇	8	a

● – Standard ◇ – Option available

Data parameters measured at 20ºC

Strain Gauge Transducer Display Interface [E101] Operating Guide

TSE2097V
Rev 1

1. Introduction

The E101 provides a stabilized power supply and display for the E100 SBT Strain Gauge Base Mounted or E100 SIT Strain Gauge In-Line torque transducer. Torque is displayed on a 3½-digit LCD display.

The E101 can be powered either from 96-250V, 50/ 60Hz AC mains supply, or from an 11-14V DC source. Power to the transducer is supplied from the E101.

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

2. Description of Controls

Front Panel

2.1 "Zero Control"

This multi-turn potentiometer is used to zero, if necessary, the torque signal output of the transducer when no torque is applied to it. A dial lock is incorporated to prevent accidental movement of the control while measurements are being made. The normal setting of this control is close to the position 5.00. This control can also be used to bias the torque reading in either direction to correct for any residual torque present.

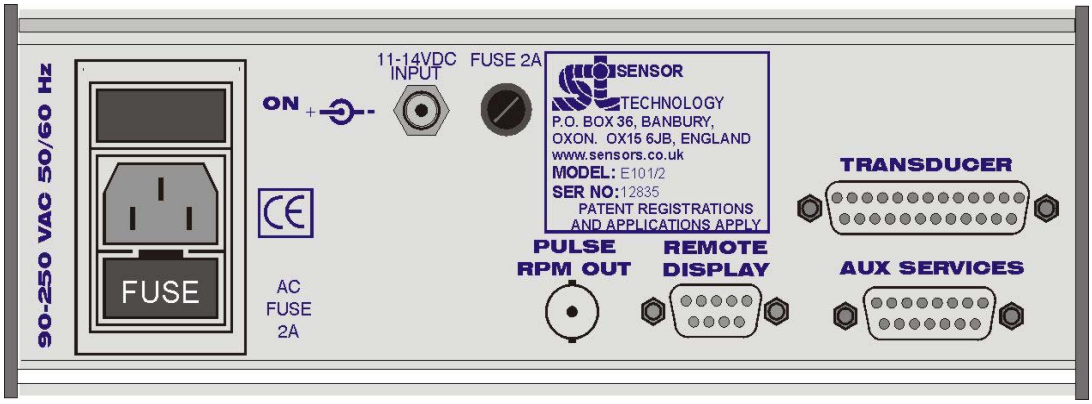
2.2 "Test" Push Button

This button is for checking the integrity of the transducer and display electronics. With the E101 on, and a Transducer connected, pressing this button will cause the E101 torque display to show the Full Scale Deflection of the transducer, indicating that the system is functioning correctly. The reading should be within ±2 digits, if not, check the zero setting, with no torque applied.

2.3 "Analog Out" 2 x 4mm Front Panel Connector

This connector outputs the torque reading from the transducer, giving (as standard) + Full Scale Deflection (FSD) = + 5.000v and –FSD = - 5.000V. The black 4mm connector is OV signal ground. This signal should not be loaded with less than 500 Ohms to maintain accuracy and is protected against accidental short circuits.

Back Panel



2.4 Power Supply Connectors

AC Mains power is connected and switched on/off through the combined switch/fuse/plug on the back panel of the E101.

DC power, not switched, is connected through the round socket marked 11-14VDC; the fuse for this supply is the round fuse on the right of the DC input connector.

DO NOT CONNECT AC AND DC SUPPLIES AT THE SAME TIME

2.5 Transducer Socket

The E100 SBT or E100 SIT should be connected to the 25 pin 'D' socket marked "TRANSDUCER" on the rear of the E101. To ensure a good connection, the locking screws should be tightened.

Gain Programming

The E101 can be used in conjunction with other types of Strain Gauge Transducers such as pressure and load. Highly accurate ±4.000V supplies are externally available to supply the bridge voltage. Gain is programmed using one resistor. Technical application notes are available on request.

2.6 Auxiliary Services Connector

Signals are available through this connector for any output options, such as ±5V or ±10V FSD, fitted to the module. See Section 4 for details of options fitted and Pin Out connections (if applicable).

3. Operating Instructions

Connect the E101 and the E100 SBT or E100 SIT using the correct lead.

IN THE CASE OF AN E100 SIT THE SERIAL NUMBER OF THE LEAD MUST MATCH THE SERIAL NUMBER OF THE TRANSDUCER

This is important because the lead carries important calibration history and scaling information, which is reported to the E101. This ensures that the E101 displays the correct torque readings.

The E101 must be connected to either a 96-250V DC, 50/60Hz, AC mains, or an 11-14V DC source to supply power for the E101 and the transducer.

DO NOT CONNECT AC AND DC SUPPLIES AT THE SAME TIME

When the system is turned on, the Transducer reports to the E101 with the scaling information. Zero the transducer using the zero control on the front panel of the E101. To check the system, press the test button, and the display will show the Full Scale Deflection of the E100 SBT or E100 SIT. If the transducer range is greater than the display can show, for example, 2000Nm, the display will show 200 and the x10 indicator will be lit.

4. E101 Serial No

Options Fitted & External Connection Details

4.1 Options Fitted

Option 2) Torque Analog Output

Standard) Analog Output ±5v Transducer FSD where:

+5v = Clockwise Transducer FSD
0v = Zero Torque
-5v = Anticlockwise Transducer FSD

See Individual Option Sheets Attached for Detailed Specifications

15 Way Auxiliary Services Connector					
Option	PIN	SERVICE	FITTED	RANGE	LEVEL
	1&9	ANALOG GND	✓	N/A	N/A
	8&15	DIGITAL GND			
	2	SPEED OUT			
	3	TORQUE OUT	✓	0 - FSD	±5v
	4	POWER OUT			
	10	ANALOGUE AUX A			
	11	ANALOGUE AUX B			
	5	LIMIT A OUT (TTL)			
	6	LIMIT B OUT (TTL)			
	7	LIMIT C OUT (TTL)			
	12	A (TTL)			
	13	B (TTL)			
	14	+5v OUTPUT			

Mating Connector is 15Way Male “D” Series