

**Brief Description**

The SSC Sensor Replacement Board is included in IDT’s modular SSC Evaluation Kits, which provide a very simple and intuitive method for evaluating both hardware and software for IDT’s resistive sensor signal conditioner (SSC) IC products. SSC Evaluation Kit components include the SSC Evaluation Software, the SSC Communication Board, and the SSC Evaluation Board designed for the SSC product under test. Simply interchanging the SSC Evaluation Boards for different SSC ICs and changing software settings allows comparison of the advantages of each product. The Sensor Replacement Board (SRB) can be used with the kit to evaluate any IDT SSC IC product for resistive sensors by providing an artificial replacement for the bridge sensor and an external diode for external temperature measurement if applicable to the SSC IC.

The SSC Sensor Replacement Board can expedite the design process because the SSC IC can be calibrated and tested even before the actual sensor element has been selected. A simple “test-on-the-desk” is possible without expensive equipment.

The SSC Sensor Replacement Board connects to the SSC Evaluation Board via a 50-pin connector that allows “plug & play” connectivity. Test points provide access to all signal lines for the replacement sensor enabling a simple system check.

An on-board potentiometer creates an adjustable voltage divider for simulating the differential bridge sensor voltage  $V_{BR\_DIFF}$  to be conditioned by the SSC IC (VINN and VINP signals on the SRB) for an output that is ratiometric to the bridge supply voltage  $V_{BR}$  (voltage divider supply voltage). An on-board 1N4148 diode can be used as an external temperature sensor depending on the SSC IC.

**Features**

- Simple installation via “Plug & Play” connectivity
- Power supplied by the SSC Evaluation Board
- Access to all sensor signal lines of the replacement sensor on board

**Benefits**

- Basic system evaluation using the replacement sensor
- External temperature sensing via on-board diode for SSC ICs with an external temperature sensor input
- Modular kit design allows reusing SSC Sensor Replacement Board with different SSC Evaluation Boards for comparing IDT’s SSC ICs

**Related Products**

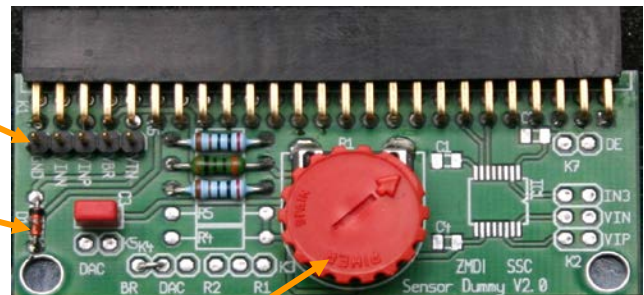
- SSC Communication Board – provides an interface to user’s computer for communicating commands, reading measurement results, and calibration
- SSC Evaluation Board for SSC IC under test
- SSC Evaluation Software for SSC IC under test

**SSC Sensor Replacement Board Features**

Test points for easy access to bridge and temperature signals (VTN=IR\_Temp)

External temperature diode (1N4148)

Potentiometer for simulating bridge



(L x W x H = 67mm x 34mm x 15 mm)

**Important Note**

**Restrictions in Use**

**The software and the hardware for the ZSC31xxx / ZSSC3xxx SSC Evaluation Kits, including the SSC Sensor Replacement Board, are designed for IC evaluation, laboratory setup and module development only.**

**The ZSC31xxx / ZSSC3xxx Evaluation Kit hardware and software must not be used for module production or production test setups.**

**Disclaimer**

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- (ii) non-observance of instructions contained in this manual, or
- (iii) misuse, abuse, use under abnormal conditions or alteration by anyone other than IDT.

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# 1 Electrical Specifications

| PARAMETER                                | SYMBOL           | CONDITIONS | MIN   | TYP   | MAX   | UNITS |
|--|------------------|------------|-------|-------|-------|-------|
| Ambient temperature range <sup>1)</sup>  | T <sub>AMB</sub> |            | +10   |       | +45   | °C    |
| External Bridge Supply Voltage           | V <sub>BR</sub>  |            |       | 5     | 15    | VDC   |
| Simulated Sensor Bridge Resistance       | R <sub>BR</sub>  |            | 3.800 | 4.050 | 4.205 | kΩ    |
| Typical Adjustable R <sub>BR</sub> Range |                  |            | 3.950 |       | 4.050 | kΩ    |

1. Important: The SSC Communication Board is designed for operation at room temperature only. Do not place this board in temperature chambers during calibration.

# 2 SSC Sensor Replacement Board Overview

The SSC Sensor Replacement Board (SRB) is a component of IDT's SSC Evaluation Kits for IDT sensor signal conditioner (SSC) ICs for resistive sensor bridges. It functions with the SSC Communication Board and the SSC Evaluation Board for the SSC IC under test to enable evaluation and calibration of the IC. An example of the SRB being used in the Evaluation Kit is given in Figure 2.1.

Figure 2.1 SSC Evaluation Kit Example—ZSC31014 SSC Evaluation Kit with Communication Board V3.3

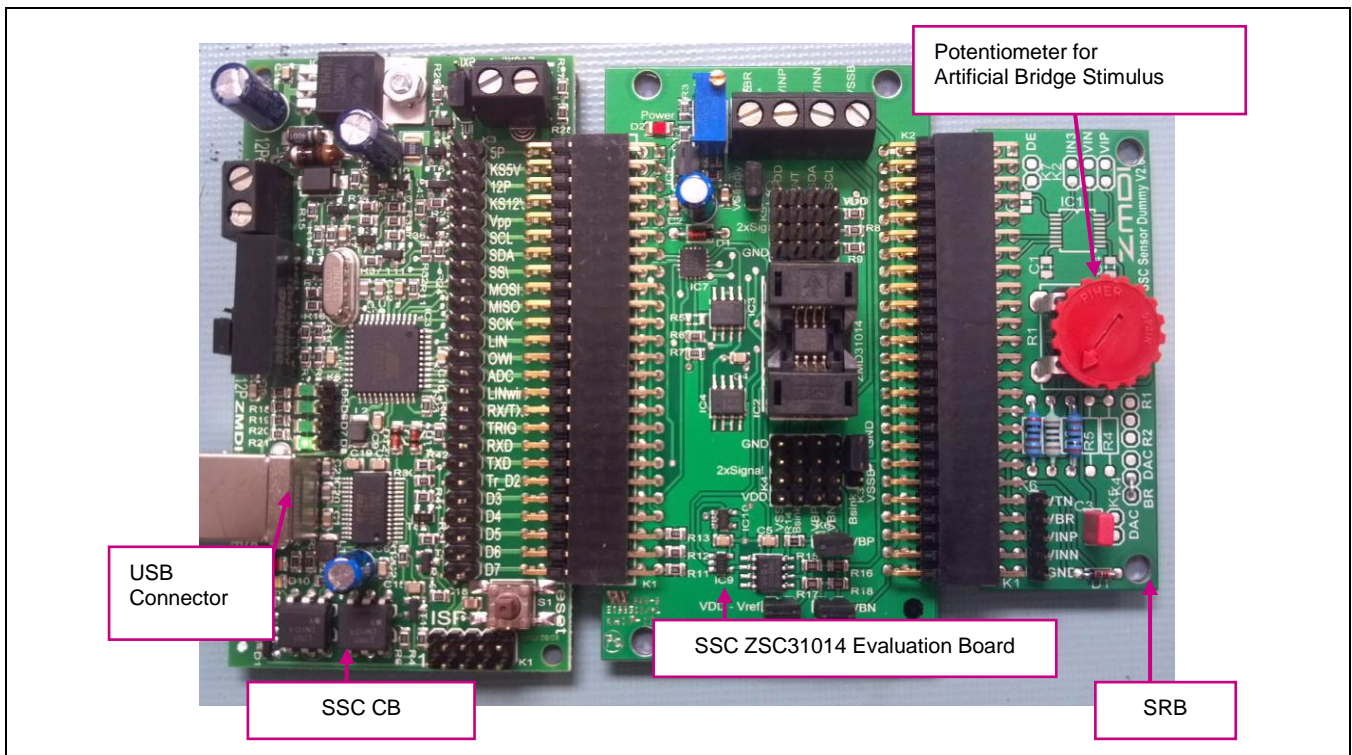
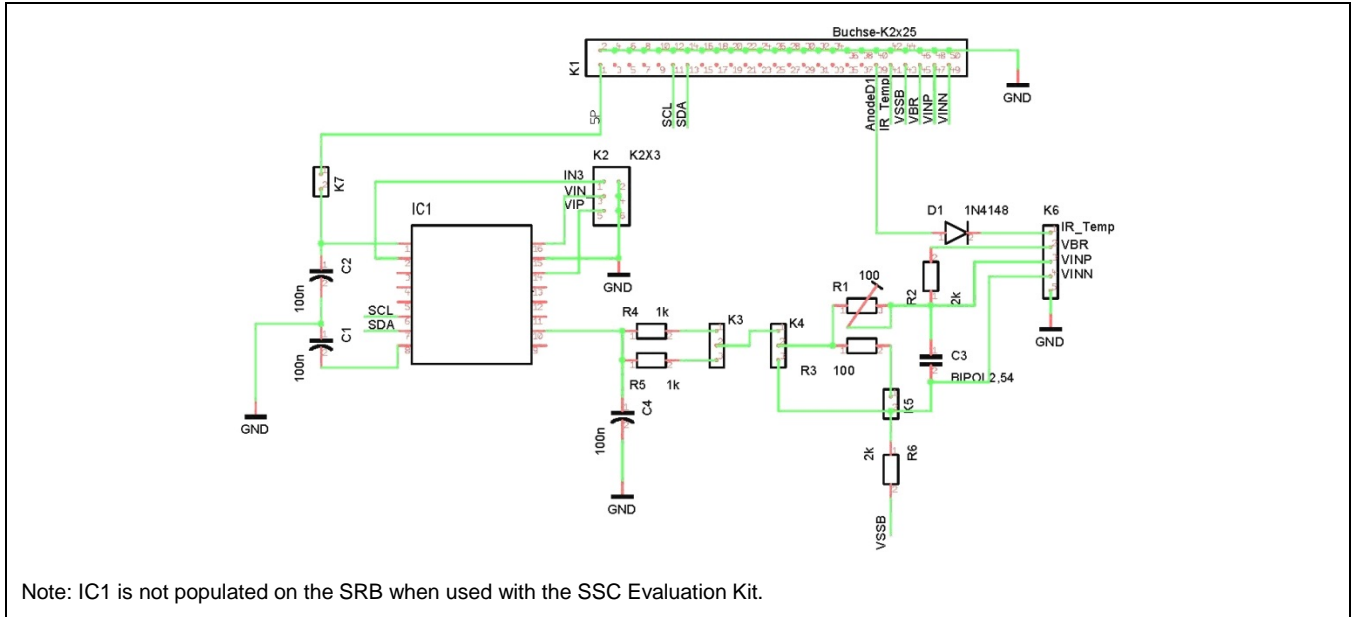


Figure 2.2 SSC Sensor Replacement Board (SRB) Schematic



### 3 Ordering Information

| Product Sales Code   | Description                       | Package       |
|--|-----------------------------------|---------------|
| SSC Sensor Replacement Board V2.0  | SSC Sensor Replacement Board V2.0 | Circuit Board |
| Note: Refer to the <i>SSC Evaluation Kit Feature Sheet</i> for part order numbers and content descriptions for the Evaluation Kits |                                   |               |

### 4 Related Documents

| Document                           |
|------------------------------------|
| SSC Communication Board Data Sheet |
| SSC Evaluation Kit Feature Sheet   |

Visit IDT's website at [www.IDT.com](http://www.IDT.com) or contact your nearest sales office for the latest version of these documents.

## 5 Document Revision History

| Revision | Date              | Description  |
|----------|-------------------|--|
| 1.04     | November 15, 2013 | Addition of temperature specifications and warnings.<br>Clarification that U1 is not populated when SRB is used in SSC Evaluation Kits.<br>Addition of kit example illustration.<br>Addition of "Related Products" section on page 2.<br>Update for contact information and imagery for cover and headers. |
|          | March 29, 2016    | Changed to IDT branding.   |

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