# *Quick Start Guide for SC-200 LVDT Signal Conditioner*

**1. Default Settings:** The factory default LVDT excitation frequency is 2.5 kHz, which works for most LVDTs, and the default DC output is 0 to 10 Volts. If you can utilize the default settings for excitation frequency and DC output, skip to Step 3. If not, open the SC-200 module's case by pushing the locking tab inward on both of the thin sides and sliding the case rearward to expose the two circuit-board-mounted DIP switches, DS1 (lower) and DS2 (upper).

**2. Set the pcb-mounted DIP switches:** LVDT excitation frequency can be changed by setting DS2-1 and DS2-2 according to the left side label or to Table 1 on SC-200 manual page 3. The DC output can be changed by setting DS1 on the pc board according to the left side label or to Table 2 on SC-200 manual page 3. When DIP switch changes are finished, slide the pc board back into the module's case on its internal tracks and snap the two sections of the case back together.

**3. Mount the module:** Remove the color-coded plugs from the SC-200 module and install the module on the DIN rail by hooking the bottom of the module's rear edge under the bottom edge of the rail, and then pressing the module back against the rail until the spring-loaded rail catch engages the top edge of the rail. To remove the module from the DIN rail, insert a flat-bladed screwdriver into the slot in the metal catch at the top rear of the module, lift the catch upward, and disengage the module from the rail.

**4. Make the I/O connections:** Following the connections on the right side label or in Table 3 on SC-200 manual page 3, and the schematics on the reverse side of this sheet or in Figure 4 on SC-200 manual page 4, connect the color-coded screw-terminal plugs at least to the LVDT's primary and secondaries (and the secondaries' junction point if needed), to DC power, and to the input of the PLC, control system, or analog output indicator. Connections to a failure alarm or the master/slave bus can also be made at this time. When finished, insert the colored plugs completely back into the corresponding colored jacks on the module.

**5. Calibrate the LVDT's core positions:** Turn on the DC power and allow the module to warm up for at least 15 minutes before beginning the calibration procedure. The red **POWER** LED should glow steadily and the green LEDs should be off, except the **P** LED will be steady on if the module is a master (manual page 6) or is operating stand-alone. If any of the green LEDs are flashing, check the LVDT's connections: flashing **P** indicates open primary and flashing **S** indicates open secondary. With power applied and the red **POWER** LED on, calibration can proceed. **Note:** *The LVDT's core must not protrude from the LVDT at any point during the calibration process or erroneous calibration will result.*

► Shift the module into *CALIBRATION* mode by depressing both the **FULL SCALE** and **ZERO** buttons simultaneously until the red **POWER** LED begins flashing. The module is now in *CALIBRATION* mode

► One of the green LEDs will be illuminated, indicating that the LVDT's core is on one side or the other of null, or at null. As the LVDT's core is moved inward, that LED will go out and the middle LED will come on (showing the LVDT is at null), then the middle LED will go out and the LED on the opposite end (compared to the first green LED that was on) will come on. Adjust the LVDT core's position until the middle green LED is on. The LVDT's core is now approximately at its null or mid-range position.

► Move the workpiece whose position is being measured so that it is located at the middle of its range of motion when the LVDT's core is at its null position. Mechanically couple the LVDT core to the workpiece in this position. Now, move the workpiece to the desired Full Scale (maximum travel) position and depress the **FULL SCALE** pushbutton until the green (+) LED flashes once and the (-) LED lights up.

► Next, move the workpiece, still coupled to the LVDT's core, to the Zero (start of travel) position at the other end of its range of motion and depress the **ZERO** pushbutton until the green (-) LED flashes once.

► If one (or both) of the green LEDs is still flashing, rerun the calibration procedure by moving the workpiece and the coupled core to the end position indicated by the flashing LED and depressing its nearby button. The red LED should be flashing, showing that the module is in *CALIBRATION* mode. To return to *RUN* mode, depress both the **FULL SCALE** and the **ZERO** buttons simultaneously for about 3 seconds until the green LEDs go out and the red **POWER** LED turns on steady. Verify that the analog output and its directional sense (slope) is that which was desired. If the output slope is reversed, switch DS2-3 to *ON.*

*The complete SC-200 Instruction Manual may be downloaded from: www.alliancesensors.com*

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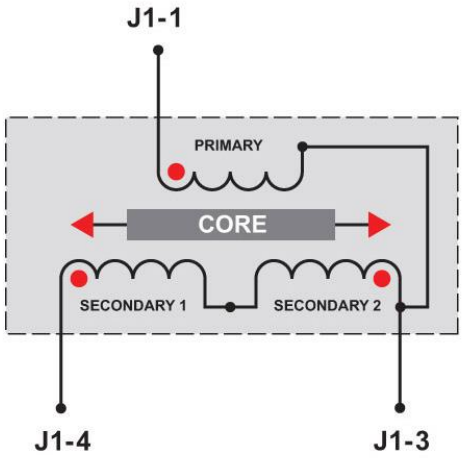
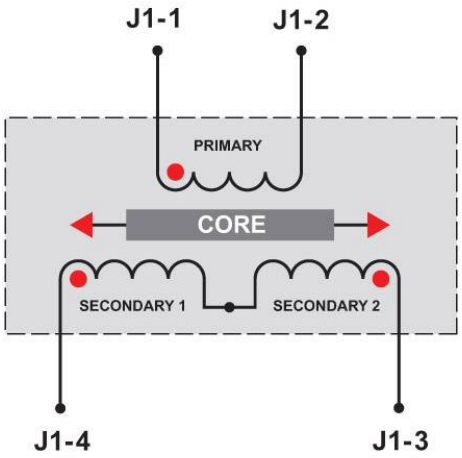
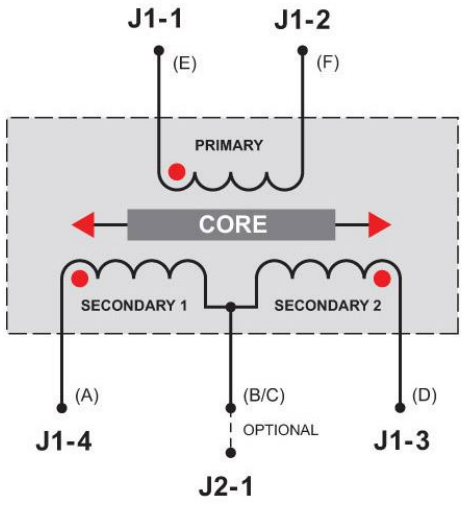


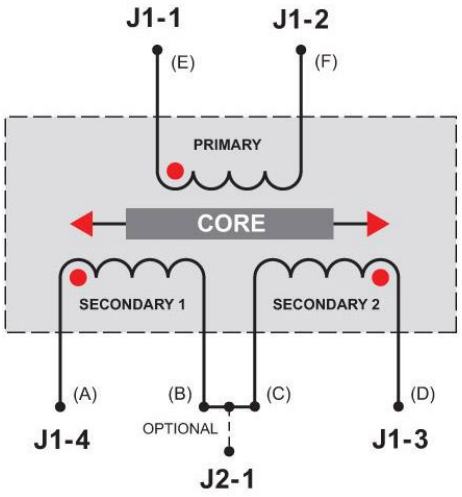

**a) 3-Wire LVDTs/RVDTs (see note 4)**



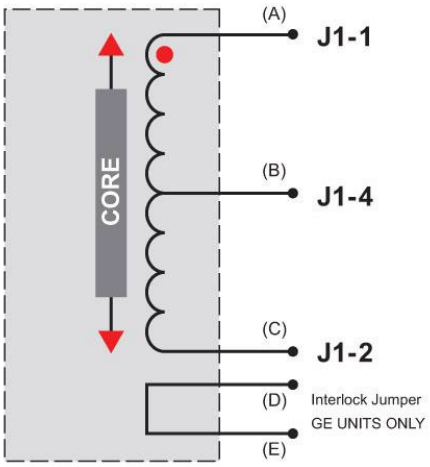

**b) 4-Wire LVDTs/RVDTs**




**c) 5-Wire LVDTs/RVDTs**




**d) 6-Wire LVDTs/RVDTs (see note 5)**




**e) Half-Bridges and GE LVRTs**
**(see note 4)**

**Notes:**

1. J1-1 through J1-4 and J2-1 are connections to signal conditioner's screw terminal plugs.
2. LVDT/RVDT secondary windings are shown connected in series-opposition, where ● indicates the windings' magnetic polarization.
3. Letters in parentheses are connector pinouts for typical 5- and 6-wire LVDTs or RVDTs and for GE half-bridge-style LVRTs.
4. Both a 3-wire LVDT/RVDT and a half-bridge (LVRT) connection require moving J7 to the high output position and moving J10 to the half-bridge position.
5. 6-wire LVDTs or RVDTs require the secondaries to be connected externally in series-opposition, preferably as close to the sensor as practical.

LVDT or RVDT and Half-Bridge (LVRT) Wiring Connections to SC-200 Signal Conditioner

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