



# SC-200

## Advanced Smart Industrial AC-LVDT Signal Conditioner

Alliance Sensors Group's SC-200 DIN-rail-mounting LVDT signal conditioner for industrial measuring systems, testing laboratories, and factory automation offers push buttons for fast and easy calibration of the Full Scale and Zero outputs, differential input to minimize ground-loop noise, and color-coded screw terminal plugs for quick hook up. The SC-200 is engineered to work with a very wide range of LVDT, RVDT, and inductive half-bridge (LVRT) sensors by providing four excitation frequencies that operate most AC-LVDTs over a 50 to 5,000 mVrms range of sensor output. SC-200 modules offer a choice of 8 analog outputs and a half-duplex RS-485 digital comm port to facilitate remote setup and for saving a module's setup parameters to hot-swap them with another module.

Additional information can be found at: [www.alliancesensors.com](http://www.alliancesensors.com).



### For use in:

OEM Measurement Systems  
Steel/Aluminum/Paper Mills  
Test and Measurement  
Factory Automation

### Functional Features:

- Cybersecurity lock to prevent tampering
- Smart calibration by front panel push buttons
- Differential input for superior noise immunity
- Color-coded screw terminal plugs
- Auto-mastering
- Hot swapability

### Diagnostic Features:

- Shorted, disconnected, or open primary
- Shorted, grounded, disconnected, or open secondaries
- Output voltage shorts or current loop opens
- Errors during installation and setup

### Specifications:

<b>Operating Power :</b>	+15 to +30 V DC (+24 V nominal), 80 mA max. at 24 V DC; +15 V DC and -15 V DC needed for $\pm 10$ V DC bipolar output
<b>Excitation Voltage:</b>	3.0 Vrms (nominal) push-pull drive (factory default) 4.5 Vrms (nominal) push-pull drive (via jumper change) 1.5 Vrms (nominal) single ended drive (for low impedance primary)
<b>Excitation Frequencies:</b>	2.5 kHz, 5 kHz, 7.5 kHz, 10 kHz (nominal)
<b>Auto-Master Syncing:</b>	Master output couples up to fifteen slave units; if the master fails, a new master is automatically generated for fail-safe excitation

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## Specifications (Cont):

LVDT Output Range:	50 mVrms to 5000 mVrms at LVDT's full scale position
Analog DC Outputs:	0 - 5 V, 1 - 5 V, 0.5 - 4.5 V, 0.5 - 9.5 V, 0 -10 V, -10 to +10 V, 0 - 20 mA sourcing (3-wire), 4 - 20 mA sourcing (3-wire)
Loop Resistance:	850 Ohms maximum with 24 V DC supply
Output Non-Linearity:	$\leq \pm 0.025\%$ of Full Span Output (FSO)
-3 dB Response:	10% (minimum) of excitation frequency (normal setting); 10 Hz (default) user adjustable (low noise setting)
Noise and Ripple:	$\leq 1$ mVrms (voltage output); $\leq 4$ $\mu$ Arms (current loop output)
Fault Detection:	Open LVDT windings, shorted or grounded LVDT connections, LVDT cable disconnected, voltage output shorted or current loop open
Failure Indications:	Front panel LEDs; open-collector switch, user settable to NO or NC
Null Detection:	Front panel LEDs; $\pm 3$ V DC null output signal
Operating Temperature:	0 to 75 C
Temperature coefficient:	$\pm 0.002\%$ of FSO/C (combined zero and span shift)
Zero Set:	Front panel push button or RS-485 command
Full Scale Set:	Front panel push button or RS-485 command
Digital Interface:	RS-485 2-wire multi-drop network, 16 addresses
Cybersecurity Lock:	User enabled

<b>J1-1</b>	<b>Black</b>	LVDT Primary High <i>or</i> Half-bridge High End
<b>J1-2</b>	<b>Black</b>	LVDT Primary Low <i>or</i> Half-bridge Low End
<b>J1-3</b>	<b>Black</b>	LVDT Secondary Low ( <i>Ground if J201 is ON for SC-100 mode</i> )
<b>J1-4</b>	<b>Black</b>	LVDT Secondary High <i>or</i> Half-bridge Mid-tap
<b>J2-1</b>	<b>Blue</b>	LVDT Secondaries Junction Point ( <i>Shield Ground if J9 is ON</i> )
<b>J2-2</b>	<b>Blue</b>	Failure Warning Output ( <i>Open Collector Switch, 50 mA max.</i> )
<b>J2-3</b>	<b>Blue</b>	-15 V DC input for $\pm 10$ V DC output ( <i>Shield Ground if J8 is ON</i> )
<b>J2-4</b>	<b>Blue</b>	Sync Input / Output ( <i>Master / Slave Bus</i> )
<b>J3-1</b>	<b>Green</b>	RS-485 Data Line ( <i>D +</i> )
<b>J3-2</b>	<b>Green</b>	RS-485 Data Line ( <i>D -</i> )
<b>J3-3</b>	<b>Green</b>	Analog Output Ground ( <b>Common Ground</b> )
<b>J3-4</b>	<b>Green</b>	Analog Output (+) ( <i>Voltage or Current, as selected with DS1</i> )
<b>J4-1</b>	<b>Red</b>	Null Indicator Differential DC Output ( <i>floating</i> )
<b>J4-2</b>	<b>Red</b>	Null Indicator Differential DC Output ( <i>floating</i> )
<b>J4-3</b>	<b>Red</b>	Power Ground ( <b>Common Ground</b> )
<b>J4-4</b>	<b>Red</b>	Power Input (+) ( <i>15 to 30 V DC</i> )

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