SC-200
LVDT Signal Conditioner

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 communications port to facilitate remote setup and for saving a module's setup parameters to hot-swap them with another module.

Functional Features:

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

Operating Power: +15 to +30 V DC (+24 V nominal), 100 mA max. at 24 V DC;
+15 V DC and −15 V DC needed for ±10 V DC bipolar output
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)
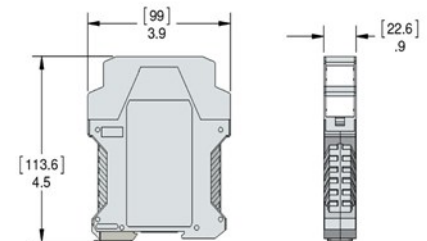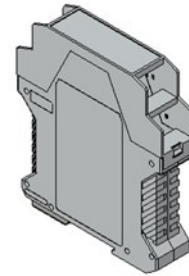Loop Resistance: 850 Ohms maximum with 24 V DC supply

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SC-200

Specifications (Cont):

Output Non-Linearity:	≤±0.025% of Full Span Output (FSO)
Operating Temperature:	-20 to 75C
Temperature coefficient:	±0.0025% of FSO/deg C (combined span and zero shift)
Excitation Frequencies:	2.5 kHz, 5 kHz, 7.5 kHz, 10 kHz (nominal)
LVDT Output Range:	50 to 5000 mVrms at LVDT's full scale position
Excitation Voltage:	3.0 Vrms (nominal) push-pull drive (factory default)
	4.5 Vrms (nominal) push-pull drive (jumper J7 removed)
	1.5 Vrms (nominal) single-ended drive for low impedance primary
-3 dB Response:	10% (minimum) of excitation frequency (normal setting);
	10 Hz (default) user adjustable (low noise setting)
Noise and Ripple:	≤1 mVrms (voltage output); ≤2 µArms (current loop output)
Fault Detection:	Open LVDT winding, shorted or grounded LVDT connection; LVDT cable disconnected;
	open or shorted analog output
Failure Indication:	Flashing LEDs; N.C. 50 mA solid state switch, user settable to N.O.
Null Detection:	Front panel LEDs; ±3 mV threshold out of about ±1.6V signal level
Zero Set:	Front panel push button or RS-485 ASCII command
Full Scale Set:	Front panel push button or RS-485 ASCII command
Digital Interface:	RS-485 2-wire half-duplex, multi-drop network, 16 individual addresses
Cybersecurity Lock:	User enabled

J1-1	Black	LVDT Primary High *or* Half-bridge High End
J1-2	Black	LVDT Primary Low *or* Half-bridge Low End
J1-3	Black	LVDT Secondary Low *(Ground if J10 is set in half-bridge mode)*
J1-4	Black	LVDT Secondary High *or* Half-bridge Mid-tap
J2-1	Blue	LVDT Secondaries Junction Point *(Shield Ground if J9 is ON)*
J2-2	Blue	Failure Warning Output *(Open Collector Switch, 50 mA max.)*
J2-3	Blue	-15 V DC input for ±10 V DC output *(Shield Ground if J8 is ON)*
J2-4	Blue	Sync Input / Output *(Master / Slave Bus)*
J3-1	Green	RS-485 Data Line (D +)
J3-2	Green	RS-485 Data Line (D -)
J3-3	Green	Analog Output Ground *(Common Ground)*
J3-4	Green	Analog Output (+) *(Voltage or Current, as selected with DS1)*
J4-1	Red	Null Indicator Differential DC Output *(floating)*
J4-2	Red	Null Indicator Differential DC Output *(floating)*
J4-3	Red	Power Ground *(Common Ground)*
J4-4	Red	Power Input (+) *(15 to 30 V DC)*

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