SIGNAL CONDITIONER

LVDT/RVDT
Difference Over Sum (Ratiometric)
MACRO EAZY-CAL™ LVC-4500

Overview

The EAZY-CAL™ LVC-4500 is a standalone ratiometric signal conditioner, measuring the voltage difference divided by the sum (Va-Vb)/(Va+Vb), supporting AC LVDTs and RVDTs with a constant sum of secondary voltages, (Va+Vb). Ratiometric signal conditioning minimizes the thermal error of the position sensor.

LVC-4500 provides several choices of voltage, current, and digital RS-485 outputs. Push-button calibration offers intuitive operation as compared to signal conditioners with span and offset trim pots. Fault conditions, such as a wire break on LVDT/RVDT connections, are indicated by blinking LEDs, fault condition error output, and Error Flag Open Collector signal (see manual for details). The LVC-4500 operates from a 9-30V DC power supply and is housed in a polyamide DIN rail-mounted enclosure. Calibration instructions, terminal functions, LVDT connection diagram and DIP switch functions are printed on the side panels for convenience.

Synchronization to other signal conditioners is accomplished by a daisy chain connection to a synchronization bus. One unit will assume the Master function based on DIP switch priority setting. If a fault should occur, the next highest priority unit will take over as Master.

With the use of the RS-485 port, a host computer is able to retrieve measurement data, receive operational status, perform remote calibration, and perform hot swap re-configuration where the calibration settings can be digitally uploaded.

Features

- Supports both constant sum (Va+Vb) and standard AC LVDTs, RVDTs
- Significantly reduces LVDT/RVDT temperature sensitivity
- Push-button or RS-485 command auto-calibration
- Analog voltage or 4-20 mA output
- Digital RS-485 interface
- Master/slave excitation synchronization
- DIN-rail mountable
- Color-coded removable terminal blocks

User Selectable Features

- Ratiometric (Va-Vb)/(Va+Vb) or Differential (Va-Vb) mode
- 0-10V DC, 0.5-4.5V DC, ±5V DC, or 4-20 mA output
- 1.5Vrms or 3.0Vrms sensor excitation
- 2.5, 5, 7.5, or 10 kHz excitation frequency
- Low pass filter on output

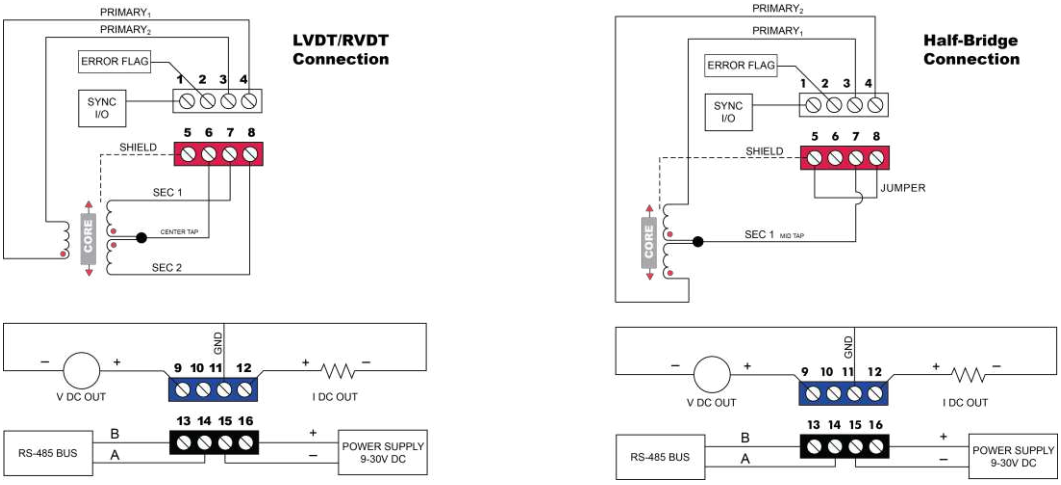
Environmental Data

Operating Temperature	-40 to 75°C (-40 to 165°F)
Temperature Sensitivity	<0.02% of FSO/°C (<0.01% of FSO/°F)
EMC Compliance	Emissions: EN55011:2007
	Immunity: EN61000-4-2:2009 EN61000-4-4:2004 EN61000-4-6:2009 EN61000-4-3:2010+A2:2010

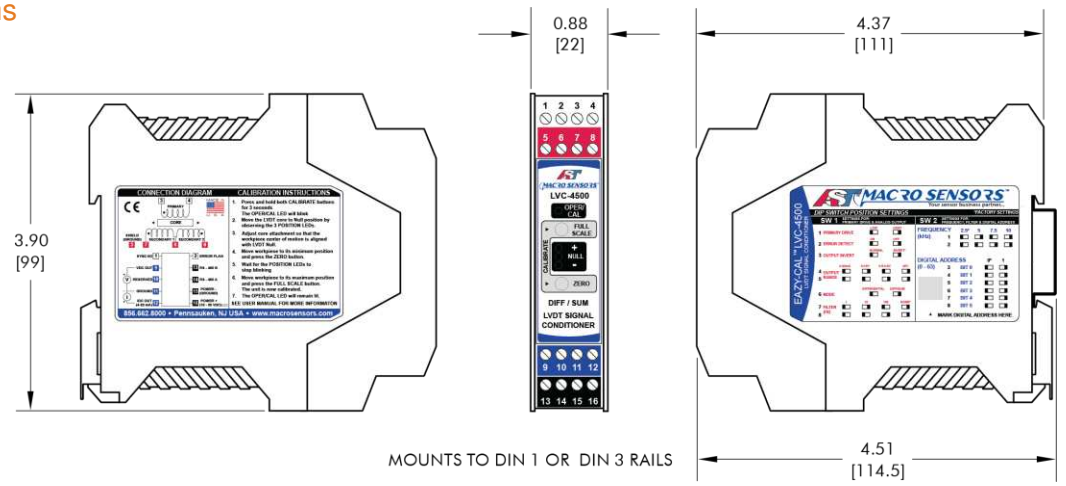
Electrical Data

Power Input	9-30V DC (80 mA max. @ 24V DC)	**Output Non-Linearity**	≤±0.1% full scale output
Sensor Excitation	3.0V_{rms} (1.5V_{rms} selectable)	**Output Voltage Ripple**	1 mV_{rms} max. (2.5 kHz excitation, no filter) 2 mV_{rms} max. (10 kHz excitation, no filter)
Sensor Excitation Frequency	2.5 kHz, 5 kHz, 7.5 kHz, or 10 kHz	**Output Current Ripple**	10 µA_{rms} max. (2.5 kHz excitation, no filter) 20 µA_{rms} max. (10 kHz excitation, no filter)
Input Sensitivity Range	55 mV_{rms} to 5.5 V_{rms} full scale input produces full scale DC output	**Frequency Response (-3dB)**	500 Hz max.

Connection Diagrams



Dimensions



All dimensions in inches [mm]

NORTH AMERICA

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