



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 $(V_a - V_b) / (V_a + V_b)$, supporting AC LVDTs and RVDTs with a constant sum of secondary voltages, $(V_a + V_b)$. 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.

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Features

- ◆ Supports both constant sum (V_a+V_b) 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 $(V_a-V_b)/(V_a+V_b)$ or Differential (V_a-V_b) mode
- ◆ 0-10V DC, 0.5-4.5V DC, $\pm 5V$ DC, or 4-20 mA output
- ◆ 1.5V_{rms} or 3.0V_{rms} 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 |

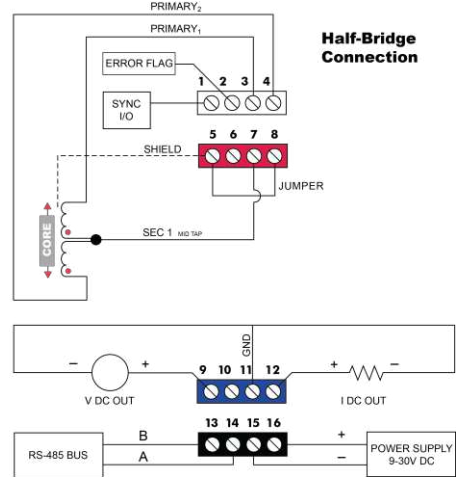
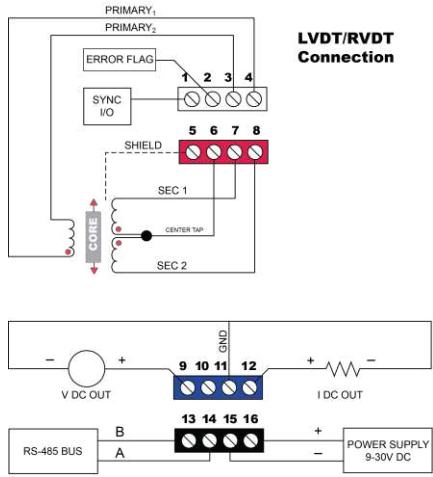
Electrical Data

| | | | |
|------------------------------------|---------------------------------------------------------------------------------------------|----------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| 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. |

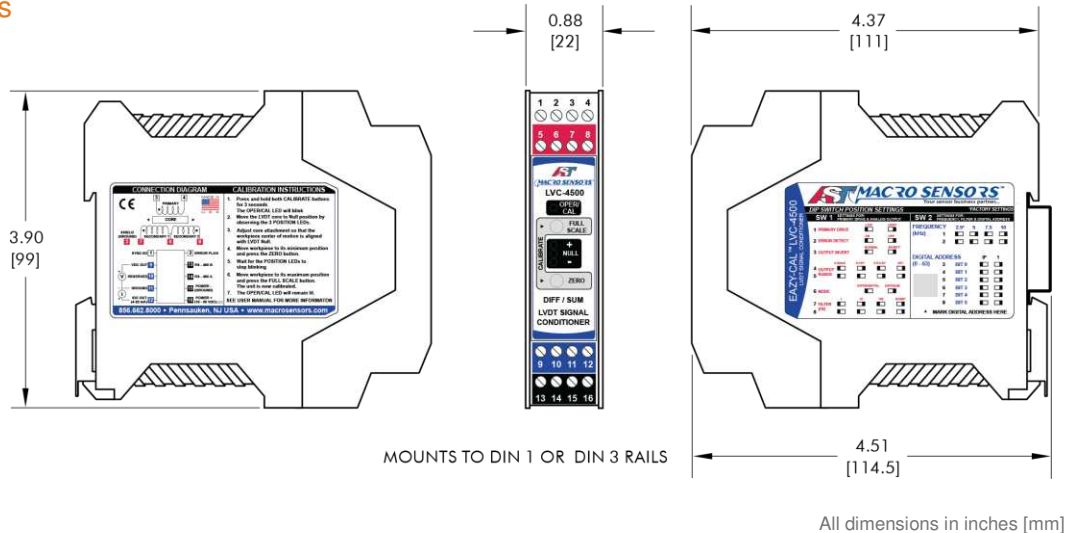
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Connection Diagrams



Dimensions



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