

# Series AP5104

LVDT DIN-rail Amplifier



## Description

The Series AP5104 DIN-rail Amplifier is a high reliability conditioner for measurement of displacement with an LVDT (linear variable differential transformer). It can be used with 4, 5, and 6-wire LVDT's. The AP5104 provides regulated AC excitation with remote sensing for applications which may require cable lengths greater than 20 feet. The analog output of the AP5104 DIN mount signal conditioner can be switched using the front panel controls for  $\pm 5$  Vdc,  $\pm 10$  Vdc, or 4-20mA. These analog outputs are filtered using a low-pass active filter that removes unwanted high-frequency measurement-signal components and thus eliminates aliasing errors. The Series AP5104 is designed for a very wide range of signals for 16 to 1600 mV/V full scale. The AP5104 has a phase shift adjustment feature used to synchronize primary and secondary phase shift due to LVDT winding inductance and cabling. LVDT setup and calibration is simplified because configuration and all adjustments are performed through the front panel controls. There is no need for the user to open the DIN enclosure for jumper or switch settings changes. The DIN mount housing is designed with non-removable screw terminals.

## Standard Features

- Regulated, Remotely Sensed AC Excitation
- DIN Mount Construction
- Filtered Analog Outputs of  $\pm 5$  Vdc,  $\pm 10$  Vdc, 4-20 mA, 4-12-20 mA
- Switch Selectable Outputs Using Front Panel Controls
- Auto Phase and Manual Phase Selection
- $\pm 100\%$  Zero Offset Adjustment
- Noise Free Outputs
- 16 to 1600 mV/V Signals
- Phase Shift Adjustment
- Over-Range and Power Indicators

**AP5104**

# Series AP5104

## Specifications

Baseline Configuration Specs Represented.  
Modifications Encouraged - See Below  
Custom Designs Available

### Performance

#### Transducer Types

Virtually any variable transformer transducer, including 4-, 5-, and 6-wire LVDT's and 3- and 5-wire Variable Reluctance Transducers (Variable Reluctance Transducers, requires external bridge resistors 1k, 1% 25 ppm or better).

#### Input Ranges (Nominal, Full-Scale)

Low Range: 16 to 160 mV/V  
High Range: 160 to 1600 mV/V.

#### Front Panel Switch Settings

	Left	Right
<b>Output Mode</b>	Current	Voltage
<b>Voltage Level</b>	10 Vdc	5 Vdc
<b>Current Level</b>	4-12-20 mA	4-20 mA
<b>Filter Setting</b>	1 kHz	100 Hz
<b>Filter Setting</b>	10 Hz	100 Hz
<b>Sync mode</b>	Slave	Master
<b>Zero Adjust</b>	Extended	Normal
<b>Sensor mv/V</b>		
Range	Low	High
<b>Phase Mode</b>	Manual	Auto

### Mechanical Characteristics

#### Housing

DIN mount housing; non-removable screw terminals.

#### Dimensions

4.7" deep x 0.9" wide x 3.9" high.

### Electrical Characteristics

#### Power Requirements

11- 28 VDC, 2 watts max.

#### Normal-Mode Range

5 V rms.

#### Excitation Frequency

5.00 kHz .

#### Excitation Voltage

Nominal 2.77 Vac rms.

#### Input Impedance (Differential)

200 k ohm.

#### Offset

vs. temperature:  $\pm 30$  ppm/ $^{\circ}$ C

vs. time:  $\pm 10$  ppm/month

#### Gain Accuracy

Limited only by calibration accuracy.

#### Gain Stability

vs. temperature:  $\pm 30$  ppm/ $^{\circ}$ C

vs. time:  $\pm 10$  ppm/month

#### Analog Filters

Input Ranges (Nominal, Full-Scale):

Low pass; Three-pole modified butterworth selectable at 10, 100, or 1000 Hz.

### Electrical Characteristics

#### Analog Outputs

Filtered  $\pm 0$  to 5 Vdc or  $\pm 0$  to 10 Vdc or 4-20 mA Selectable via front panel - 20 % over-range in voltage mode

#### Status Indicator Lights

Power and analog over-range.

### Environmental Characteristics

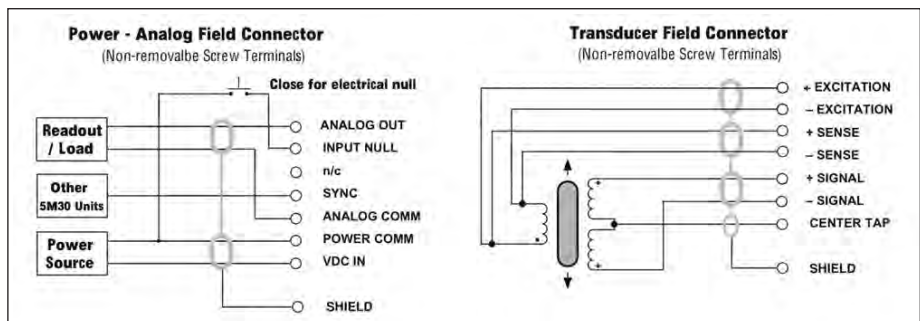
#### Operating Temperature Range

14 $^{\circ}$  F to 158 $^{\circ}$  F.

#### Operating Relative Humidity

5% to 95%, noncondensing.

### Connection and Adjustment



CE

MODIFICATIONS: We realize amplifier applications vary greatly and as such our designs are flexible. Specifications on this datasheet represent the standard configuration only. Product and company names listed are trademarks of their respective companies. Specifications subject to change without notice.

WARRANTY: Stellar Technology warrants that its product shall be free from defective workmanship and/or material for a twelve month period from the date of shipment, provided that Stellar Technology's obligation hereunder shall be limited to correcting any defective material FOB our factory. No allowance will be made for any expenses incurred for correcting any defective workmanship and/or material without written consent by Stellar Technology. This warranty is in lieu of all other warranties expressed or implied.

Find More Information at:  
[stellartech.com](http://stellartech.com)

Due to the nature of technology, changes are inevitable. For latest technical specifications, see our website.

Copyright © 2004 Stellar Technology Incorporated • All Rights Reserved  
Datasheet P/N: 234191A

237 Commerce Drive • Amherst, NY 14228 • USA

Tel: 716.250.1900 • Fax: 716.250.1909

Email: [info@stellartech.com](mailto:info@stellartech.com)

ISO 9001:2000  
**STI**  
STELLAR TECHNOLOGY  
INCORPORATED