

# ATA-2001 LVDT Amplifier

## True Analog Conditioner with Digital Calibration

The **ATA-2001 LVDT Amplifier** is a general purpose, AC line-powered LVDT/RVDT conditioner featuring state-of-the-art design principles. The new SMT (Surface Mount Technology) design uses an embedded microprocessor to generate a PWM-shaped sine wave and control all calibration functions. The processor is also employed in the demodulation, filtration and synchronization of the LVDT signal. All settings are stored in non-volatile memory for restoration on power up. Zero, Span and Phase adjustments are accomplished via the use of splashproof front panel pushbuttons and digital voltage dividers, eliminating the need for drift-inducing screw adjust potentiometers. All amplifier controls are accessible outside of the rugged aluminum enclosure.

The new ATA 2001 is CE certified, and is intended for the most rigorous, industrial applications. The ATA 2001 has been tested to the highest industrial standards for EMI, RFI and ESD.

The ATA 2001 is designed for universal compatibility with all 4, 5 and 6 lead LVDTs. A wide range of oscillator frequencies combined with two excitation voltages, 3.5 and 0.5 Vrms, provide maximum versatility. The high power carrier amplifier has more than twice the drive capability of previous designs. Able to power low impedance LVDTs at higher amplitudes, the ATA 2001 provides measurement resolutions beyond any product currently available.

The ATA 2001 is contained within a rugged, extruded aluminum housing. The one-piece design provides optimal amplifier performance under the most rigorous EMI and RFI conditions. An integral panel mounting system provides for convenient 1/8 DIN standard, panel installation. Pre-punched 19" rack adapters are available to accommodate up to eight amplifiers per adapter installation.



### An auto fall-back synchronization feature

allows reliable master/slave operation, for prevention of amplifier cross talk, without the worry of sync signal loss. If the internal processor in a slave amplifier detects an unstable or missing sync signal, the internal clock will take over, continuing at the pre-selected nominal frequency. Upon restoration of a normal sync pulse, the oscillator will return to the slave mode.

## FEATURES

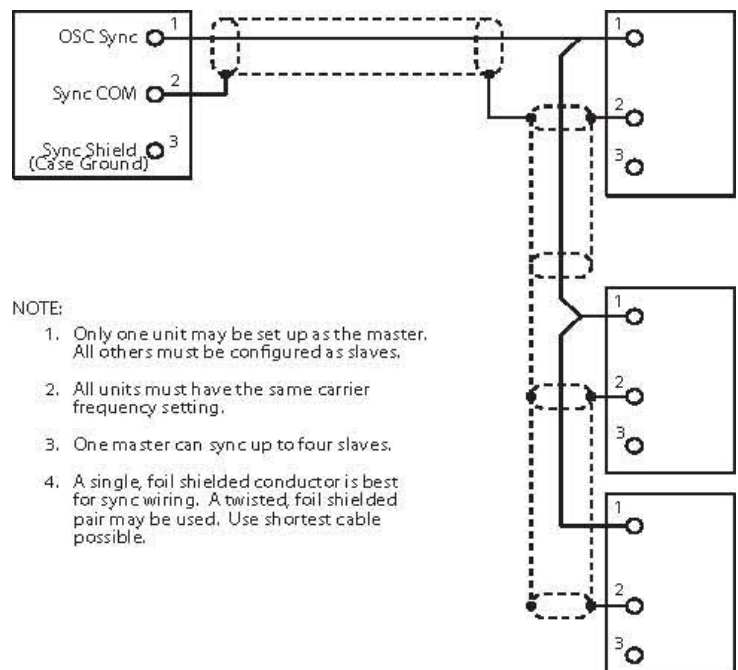
- 2.5, 5.0 and 10.0 kHz Switch Selectable Excitation
- Digital Filtering
- CE Certified
- Switch Selectable 115 or 220 VAC Operation
- Voltage and Current Outputs
- Microprocessor Controlled Calibration and Synchronization
- 1/8 DIN Standard Panel Mounting
- Splashproof Front Panel with Status LEDs

## APPLICATIONS

- Control Valve Position Control
- Head Box Slice Lip Position Control
- Precision Metrology Labs
- Roller Gap Position Feedback

## OPTIONS

- Rack adaptor holds up to 8 ATA's



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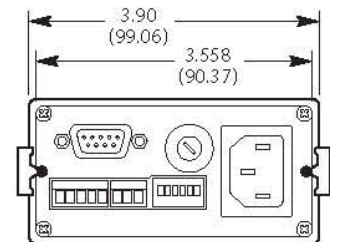
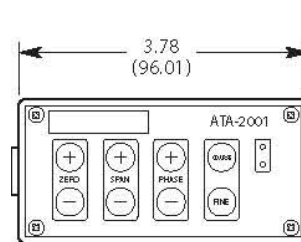
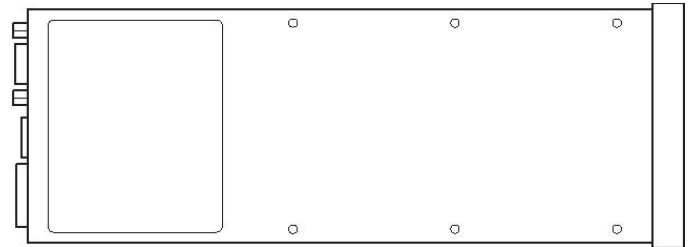
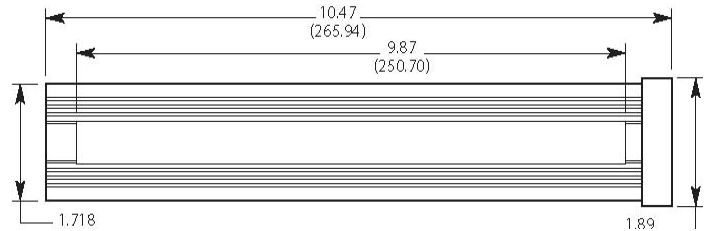
## True Analog Conditioner with Digital Calibration

### input schematics

### output schematics

#### Electrical: in (mm)

<i>Power Requirements</i>	115 VAC $\pm 10\%$ , 50-400 Hz; 220 VAC $\pm 10\%$ , 50-400 Hz (switch selectable)
<i>Line Voltage Regulation</i>	$\pm 10\%$ , no change in output
<i>Transducer Excitation Voltage</i>	3.5 V rms nominal (switch selectable for 0.5 V rms)
<i>Frequency</i>	2.5, 5.0 and 10.0 kHz
<i>Current</i>	45 mA rms (max)
<b>Analog Output</b>	
<i>Voltage Output</i>	
Bipolar	$\pm 10$ VDC max (10 mA max)
Unipolar	0-10 VDC max (10 mA max) (with 100% zero suppression)
Output Impedance	$< 1 \Omega$
Noise and Ripple	$< 3$ mV rms at 2.5 kHz excitation
<i>Current Output</i>	
Maximum Loop Resistance	700 $\Omega$ (with internal loop supply); 1000 $\Omega$ (with 24 VDC external loop supply)
Noise and Ripple	10 $\mu$ A rms (max)
<b>Frequency Response (nom)</b>	
	-3 db at 250 Hz for 2.5 kHz excitation 500 Hz for 5.0 kHz excitation 1000 Hz for 10 kHz excitation
<b>Amplifier Characteristics</b>	
<i>Sensitivity Range</i>	
High Gain	0.040 to 0.9 VAC rms in = 10 VDC output
Low Gain	0.500 to 10.0 VAC rms in = 10 VDC output Note: -5 VDC output = 4.0 mA current output; +5 VDC output = 20 mA current output; 0 VDC output = 12 mA current output
<i>Input Impedance</i>	100k $\Omega$
<i>Zero Suppression</i>	$\pm 110\%$ full scale output
<i>Phase Shift</i>	
<i>Compensation</i>	$\pm 120^\circ$ maximum
<i>Non-linearity and Hysteresis</i>	
	$< \pm 0.05\%$ of full scale output
<i>Stability</i>	Better than $\pm 0.05\%$ of full scale output (after 20 minutes)
<i>Tempco</i> (0.04%/°C)	$< \pm 0.02\%$ of full scale output/°F
<b>Operating Temp. Range</b>	
	-40° to 185°F (-40° to 85°C)
<b>Weight</b>	2.1 lbs (950 g)



### ordering information

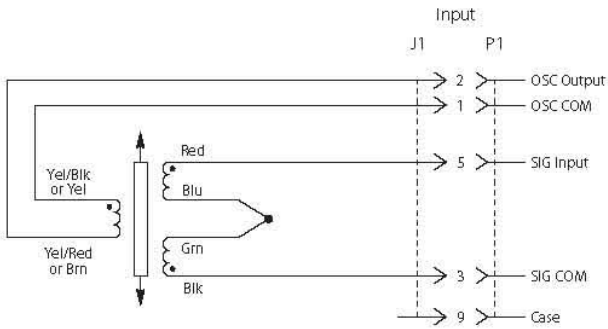
Specify ATA-2001 Model

ATA-2001  
Optional rack adaptor (holds eight ATAs)

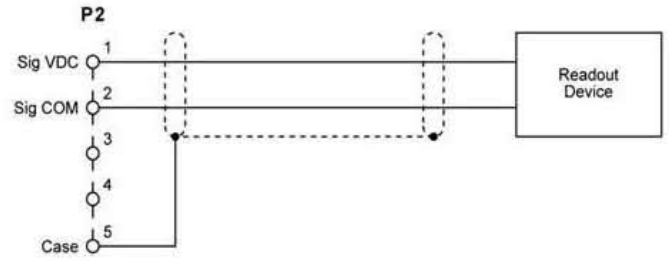
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## True Analog Conditioner with Digital Calibration

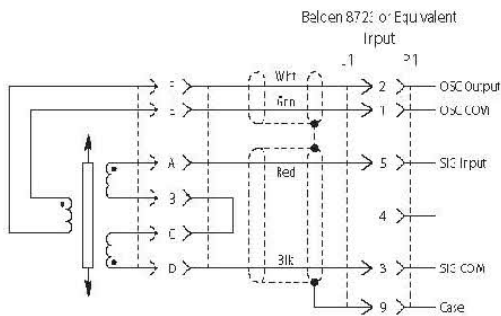
### rack adaptor option



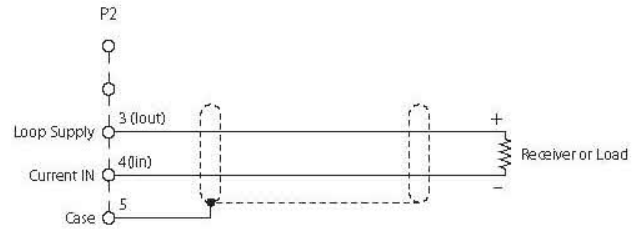
LVDT with Leads or Cable



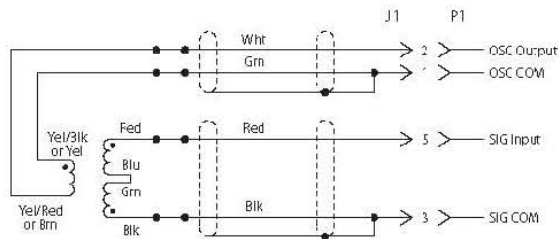
Voltage Output



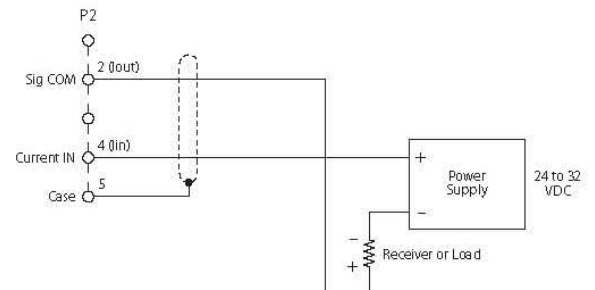
LVDT with Connector



4-20 mA Current Output Using the Internal Loop Supply



LVDT with Leads and Spliced Cable

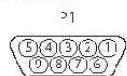


4-20 mA Current Output Using the External Loop Supply

Input Connections - LVDT with Connector

Connect to Input I1	Pin 1	Pin 2	Pin 3	Pin 5	Pin 9
LB8315PA-200 PCA-439	Blue	Red	White	Green	Shield
All other LBBs and color coded LVDT's	Yel / Blk or Yel	Yel / Red or Brn	Black	Red	Shield
Letter coded	E	F	D	A	

NOTE: Center tap must be tied at LVDT in all cases.



Input Connector  
Rear view (wiring side)  
of mating connector

Input Connections-LVDT  
with Connector

