



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 from Altheris to accommodate up to eight amplifiers per adapter installation.

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

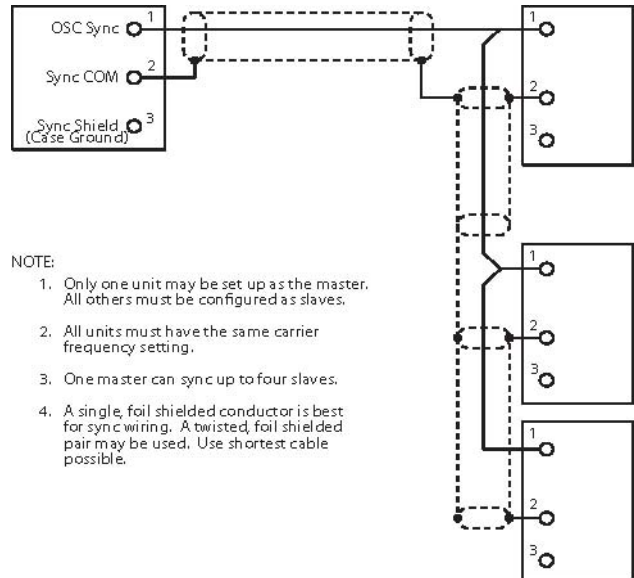
Applications

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

Options

- Rack adaptor holds up to 8 ATA's

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.



■ Input schematics

Electrical: in (mm)

Power Requirements 115 VAC $\pm 10\%$, 50-400 Hz; 220 VAC $\pm 10\%$, 50-400 Hz (switch selectable)

Line Voltage Regulation $\pm 10\%$, no change in output

Transducer Excitation Voltage 3.5 V rms nominal (switch selectable for 0.5 V rms)

Frequency 2.5, 5.0 and 10.0 kHz

Current 45 mA rms (max)

Analog Output

Voltage Output

Bipolar ± 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

Current Output

Maximum Loop Resistance 700 Ω (with internal loop supply); 1000 Ω (with 24 VDC external loop supply)

Noise and Ripple 10 μ A rms (max)

Frequency Response (nom)

-3 db at 250 Hz for 2.5 kHz excitation
500 Hz for 5.0 kHz excitation
1000 Hz for 10 kHz excitation

Amplifier Characteristics

Sensitivity Range

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

Input Impedance 100k Ω

Zero Suppression $\pm 110\%$ full scale output

Phase Shift

Compensation $\pm 120^\circ$ maximum

Non-linearity and Hysteresis

$< \pm 0.05\%$ of full scale output

Stability Better than $\pm 0.05\%$ of full scale output (after 20 minutes)

Tempco $< \pm 0.02\%$ of full scale output/ $^\circ$ F
(0.04%/ $^\circ$ C)

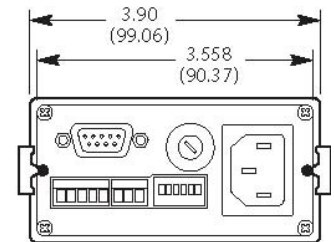
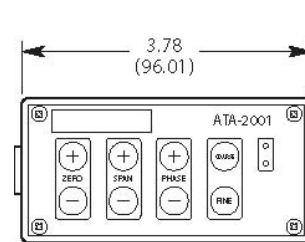
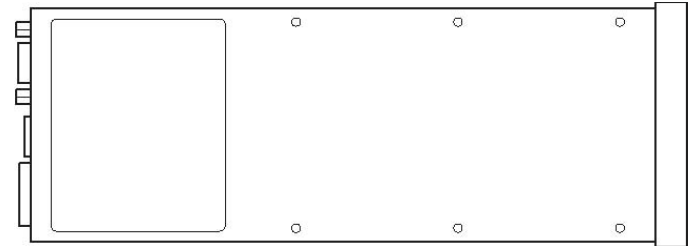
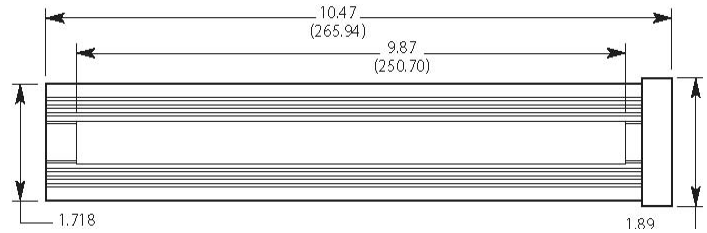
Operating Temp. Range

-40 $^\circ$ to 185 $^\circ$ F (-40 $^\circ$ to 85 $^\circ$ C)

Weight

2.1 lbs (950 g)

■ Output schematics



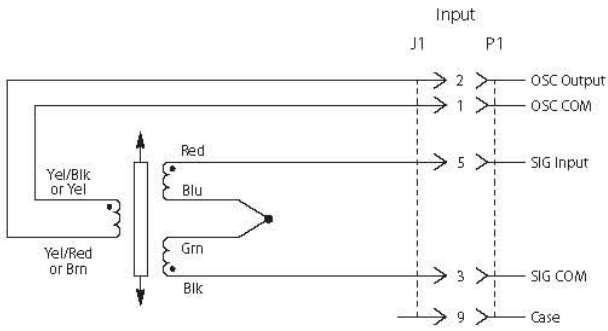
■ Ordering information

Specify ATA-2001 Model

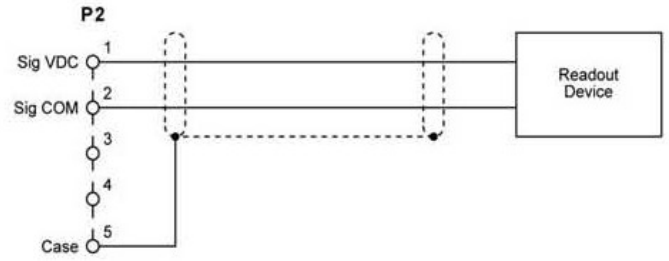
ATA-2001

Optional rack adaptor (holds eight ATAs)

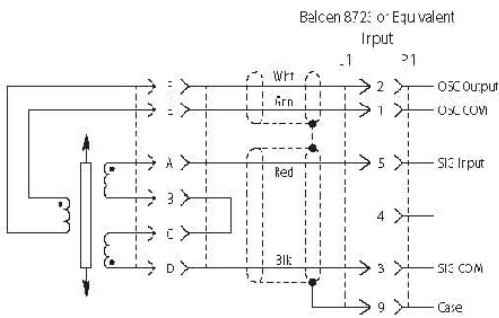
Rack adaptor option



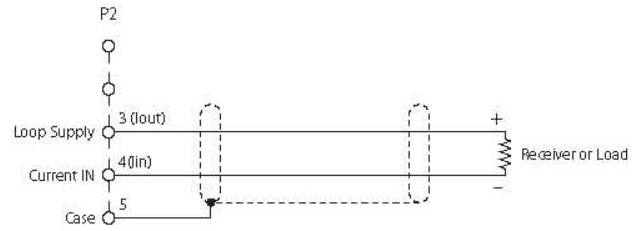
LVDT with Leads or Cable



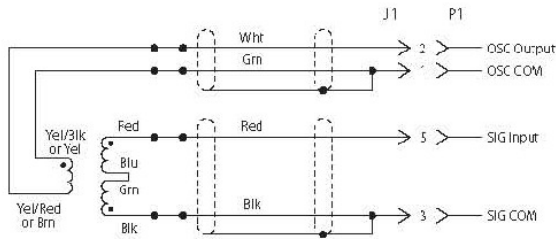
Voltage Output



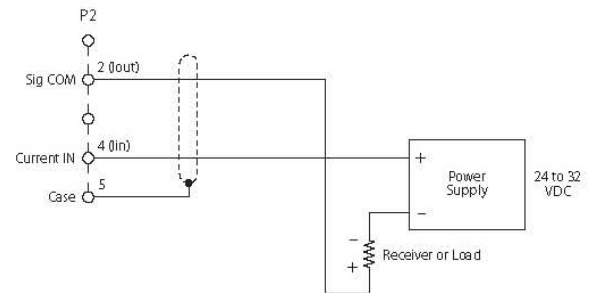
LVDT with Connector



4-20 mA Current Output Using the Internal Loop Supply



LVDT with Leads and Spliced Cable



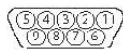
4-20 mA Current Output Using the External Loop Supply

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.

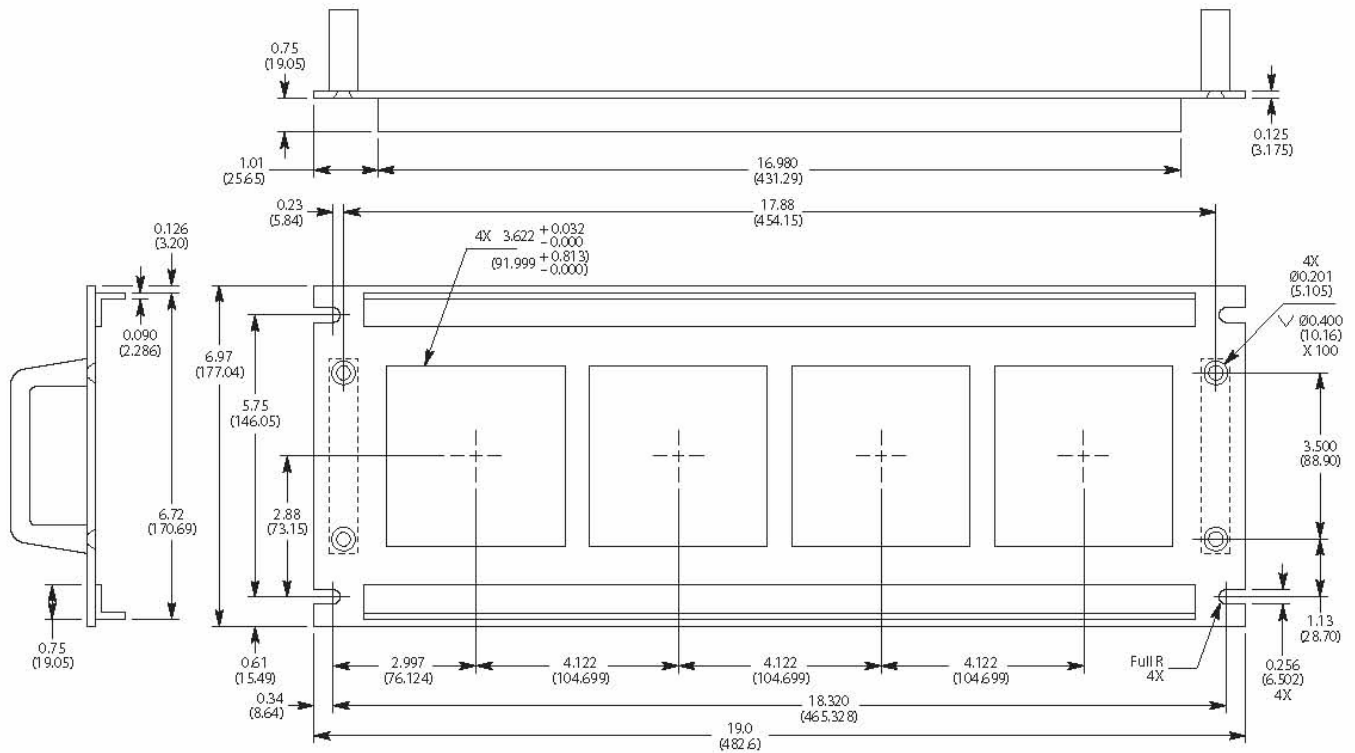
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Input Connector
Rear view (wiring side)
of mating connector

Input Connections-LVDT
with Connector

Accommodates up to eight ATA Amplifiers, eight PML 1000s, or four MP Series Readout/Controllers.



■ Ordering information

Order by model number
Model Number RACK ADAPTOR

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