Universal In-Line Amplifiers

Models UBP, UV, UV-10, U3W, And U2W

COMPATIBLE WITH ANY STRAIN GAGE SENSOR

USER PROGRAMMABLE

NEMA-4 & IP-66 WATER RESISTANCE

SELECTABLE EXCITATION VOLTAGES



Applications

Applications that may require an in-line amplifier:

- In some applications, a transducer must be located in a hostile environment or one which
 is some distance from the display. If the environment at the sensing site is subject to high
 temperatures, humidity, or corrosive conditions, it may be necessary to place the amplifier
 in-line and away from the transducer.
- 2. In-Line Amplifiers can be shipped from stock for quick delivery.
- 3. Can be used with miniature transducers or when space is limited.
- An In-Line Amplifier may be more accessible than the transducer itself, therefore
 potentiometer adjustments which are located in the amplifier are more convenient.

The SENSOTEC Universal In-Line Amplifier is a highly serviceable, user-programmable unit which meets NEMA-4 and IP-66 ratings for water resistance.

The SENSOTEC Universal In-Line Amplifier is housed in a rugged plastic package, which is connected between the transducer and a readout instrument. The amplifier supplies a highly regulated bridge excitation voltage for the transducer and converts the milivolt signal of the transducer to 0-5, 0-10 VDC or 4-20 mA. The In-Line features include three selectable excitation voltages, programmable gain setting, a wide adjustment range on zero and a buffered solid state shunt cal for quick calibration.

Advantages

Using SENSOTEC's In-Line Amplifier with a strain gage transducer has many advantages:

- 1. Signal-to-noise ratio is increased.
- 2. Effects of voltage drops in excitation sources are eliminated.
- 3. Signals can be sent to the data systems from low-impedance sources.

MODEL UV, UV-10

Connect with power pack or vehicle battery power for field use. This amplifier has a high degree of regulation to accept battery voltage changes plus transient protection. It can drive loads of up to 5 milliamperes at full output. Model UV provides \pm 5 VDC output, Model UV-10 provides \pm 10 VDC output. New optional metal cable glands are now available.

MODEL U3W, U2W

Model U3W provides 4-20 mA (3-wire) output, and is ideal for applications requiring long signal transmission with minimal signal loss. The U3W is inherently protected against incorrect wiring. Maximum load resistance is 1000 ohms. Model U2W provides 4-20 mA (2-wire) output. New optional metal cable glands are now available.

MODEL UBP

Connect ±15VDC power input to get non-floating output. Model UBP is used when both positive and negative output (±5VDC) or positive only output (0-5VDC) are required.

NEW METAL CASE OPTION

New optional metal case and electrical connections for all universal in-line amplifiers $(2^{1}/2 \text{ high x } 5^{*} \text{ long x } 3^{*} \text{ wide})$.

Frequency Response

Environment

Linearity.....

PANEL MOUNTING HOLES USE #6 OR #8 SCREWS ໄດ້ດໍດໍດໍດໍດໍດໍດໍດໍດໍດໍດໍໄ COARSE ZERO NOTE: (-) OUTPUT AND RETURN ARE TIED TOGETHER INTERNALLY

Universal Vehicle Powered

Model UV

± 5 VDC Output (Order Code BE124)

Operating Voltage 11 - 28 VDC Output Voltage Range...... ±5 VDC @ 2.5 mA Zero Adjustment Range ±50% coarse ±15% fine Span Adjustment Range75 mV/V to 10 mV/V Shunt Calibration*

Solid state relay on-board DC - 5000 Hz. IP-66 or NEMA-4 .02% F.S.

Model UV-10

±10 VDC Output (Order Code BE127)

18 - 32 VDC -20° to 158° F (-30° to 70° C) 3, 5 or 10 VDC @ 50 mA ± 10 VDC @ 2.5 mA ± 25% Coarse ± 10% Fine 1 mV/V to 20 mV/V Solid State Relay On-Board DC - 5000 Hz IP-66 or NEMA-4

.02% F.S.

Dimensions: L; 3.75" x W; 2.50" x H; 2.10"

PANEL MOUNTING HOLES USE #6 OR #8 SCREWS ەەۋە ۋە ۋە ۋە COARSE GAIN COARSE ZERO

Dimensions: L; 3.75" x W; 2.50" x H; 2.10"

Universal Bi-Polar

Model UBP ± 5 VDC Output (Order Code BE123)

Operating Voltage ±15 VDC -20° to 158° F (-30° to 70° C) Operating Temperature 3, 5 or 10 VDC @ 70 mA Excitation Voltage..... ±5VDC @ 2mA with ±15VDC Output Voltage Range...... ±5VDC @ .2mA with 28VDC ±50% coarse ±15% fine Zero Adjustment Range5 mV/V to 10 mV/V Span Adjustment Range Solid state relay on-board Shunt Calibration* DC - 5000 Hz. Frequency Response IP-66 or NEMA-4 Environment

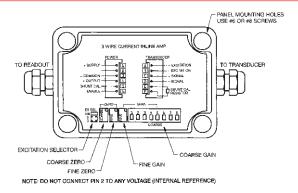
NOTE: This model is for replacement only, not to be used in new designs

Linearity.....

Linearity.....

and Resistance

Constant Voltage Mode



Dimensions: L; 3.75" x W; 2.50" x H; 2.10"

Universal 3-Wire

.01% F.S.

Model U3W (Order Code BE125)

Operating Voltage 18 - 32 VDC Output Voltage Range...... 4 - 20 mA Zero Adjustment Range ± 70% coarse ± 25% fine Span Adjustment Range5 mV/V to 6.6 mV/V Shunt Calibration* Solid state relay on-board Frequency Response DC - 5000 Hz. Environment IP-66 or NEMA-4

.04 VOLTS = 4 MA TEST POINTS .20 VOLTS = 20 MA. EXCITATION TYPE SELECT SPAN AND ZERO FINE ADJUST -0-3 Operating Voltage OUTPUT (4-20 MA) POWER SUPPLY (8 - 32 VOLTS) Operating Temperature..... EXCITATION (BLACK) Transducer Bridge Excitation EXCITATION (RED) INPUT (GREEN) + INPUT (WHITE) EARTH GROUND Frequency Response..... Environment..... Lightning Protection COARSE GAIN JUMPER

Universal 2-Wire Model U2W

.02% F.S.

(Order Code BE128)

8 - 32 VDC -20° to 158° F (-30° to 70° C)

5 VDC @ 2 mA max.; 3K to 10 K ohms

Constant Current Mode...... 0.5 mA w/3 volts compliance; 2K to 6 K ohms 4-20 mA 2-wire ± 15% fine Jumper selectable and ± 20% fine adjustment 1 KHz @ 2 mV/V IP-66 or NEMA-4 Yes

New-Package size available. Same configuration as above models UV or U3W Dimensions: L; 3.77" x W; 3.7" x H; 2.24"

New Metal Case option: enclosure size: 5" long, 3" wide, 21/2" high. Electrical connection options: 51k Metal Case, 59e Turck output connector 15 ft. cable and Turck molded connector assembly order code AA128

^{*}Standard Shunt Calibration resistor is 59k.

DIN Rail Mount In-Line Amplifiers

Models DV-05, DA-05, DV-10, DLD-VH, DLD-CH

CONVENIENT DIN RAIL MOUNT

FOR STRAIN GAGE TRANSDUCERS AND AC LVDTS

RFI, ESD PROTECTED



These In-line Amplifiers feature DIN Rail Mount enclosures with front accessible electrical connections and adjustments. Amplifiers are available for Strain Gage Transducers and AC Type LVDTs with outputs in both VDC and milliamps.

The STRAIN GAGE TRANSDUCER AMPLIFIER provides a selectable, regulated DC excitation voltage for the strain gage bridge. The transducer millivolt output signal is amplified to a high level, 0-5 or 0-10 VDC, with a frequency response of DC to 5000 Hz. Calibration and set up are made easy with a "relay buffered" shunt calibration circuit that allows span adjustment without applying a known input to the strain gage transducer. All models include RFI and ESD protection.

For Strain Gage Transducers

For Strain Gage Transducers			
	Model DV-05 0±5 VDC output (3-wire) with 11-28 VDC power Order Code BE151	Model DA-05 4-20mA output (3-wire) with 13-28 VDC power Order Code BE153	Model DV-10* 0±10VDC output (3-wire) with 15-28 VDC power Order Code BE155
Current Draw Bridge Excitation (@ 30mA)	60mA 3 or 5 VDC	60mA 3 or 5 VDC	60mA 5.4 or 9 VDC
Frequency Response Zero Adjustment Range	DC - 5000Hz DV-05 & DA-05: ±60% coarse & ±10% fine		
Span Adjustment Range:	DV-10: ±30% coarse & ±5% fine DV-05 & DA-05: Switch selectable 0.5 to 13.3 mV/V, ±20% fine adjustment		
Operating Temperature: Linearity: Mounting: Dimensions	DV-10: Switch selectable 1.75 to 13.3 mV/V, -8 to +20 fine adjustment -20° to 180°F ±0.01% 35mm DIN Rail 0.9" wide x 4.3" deep x 2.9" high 22.5mm wide x 110mm deep x 75mm high		

For AC LVDTs

	Model DLD-VH 0±5 or 0±10 VDC output with 18-36 VDC power Order Code BE152	Model DLD-CH 4-20mA output with 18-36 VDC power Order Code BE154	
Power Requirements	18-36VDC @ 150mA max.		
LVDT Excitation:	3 volts RMS @ 5 KHz		
Outputs	DLD-VH: 0±5 or 0±10	OVDC, field selectable	
	DLD-CH	: 4-20mA	
Frequency Response	DC to 300 Hz ±100% coarse & ±20% fine		
Zero Adjustment Range:			
Span Or Gain Adjustment	±10% fine adjustment over input range form 0.1 to 15 VRMS		
Linearity	±0.05% F.S.		
Operating Temperature	-20° to 140°F		
Mounting	35mm DIN Rail		
Dimensions	0.9" wide x 4.3"	deep by 2.9" high	
		nm deep x 75mm high	
Power Supply Isolation	500V		

^{*} Bridge excitation is 5.4 or 9.0 VDC @ 30mA