

INSTALLATION & OPERATION MANUAL

SP711-3 REV. A 3-Wire Analog Transmitter

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LIQUID CONTROLS SPONSLE, INC.

FLOW MEASURING DEVICES AND CONTROLS

A Unit of the IDEX Corporation

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SPECIFICATIONS

Temperature:	Operating -40 to 85°C Storage -65 to 125°C
Input Voltage:	12-28VDC 50mA min. Protected against polarity reversal
Signal Input:	Frequency 0-10KHz Amplitude 20mV - 35V sine or square wave Sensitivity field adjustable Impedance 10K
Analog Output	0V @ 0Hz, 5 or 10V @ desired full scale frequency Full scale range - 75Hz-10KHz selectable Consult factory for other ranges Response time - 95% of change in 1 second Linearity - .3% F/S Tempco - < 2% of reading over entire temperature range Minimum load resistance 250 ohms
Features:	Switch selectable output range Mounts directly on flowmeter
Enclosure:	FM Approved, CSA Certified Class I Groups B, C, D Class II Groups E, F, G Weight 1.7 lbs.

The SP711-3 is a meter mounted 3-wire analog transmitter designed to linearly convert a frequency input to an equivalent voltage output whose level is switch selectable @ 0-5V/0-10V. When incorporated with a turbine flowmeter a voltage representation proportional to flow is obtainable.

A full-scale frequency range of 75Hz – 10KHz is jumper selectable. The span adjustment establishes the frequency point at which the full-scale voltage output (5V or 10V) is achieved. The sensitivity adjustment permits the SP711-3 to discriminate between a signal input or noise by increasing (CCW) or decreasing (CW) the input signal amplitude necessary to be processed as a valid signal. This in conjunction with direct meter mounting allows the SP711-3 to operate effectively in noisy environments.

BENCH TEST CALIBRATION PROCEDURE

Required Equipment: Power Supply 12-28VDC, Digital Multimeter (DMM), Frequency Generator, & Frequency Counter

Refer to Figure

Test Procedure:

- A)** Connect DMM positive & negative leads to J1-3,4 respectively & set DMM function to DC Volts
- B)** Connect power supply positive & negative leads to J1-5,4 respectively
- C)** Connect frequency generator positive & negative leads to J1-1,2; respectively. Set output to sinewave & amplitude to zero
- D)** Install jumper @ JU2-4 for desired full-scale frequency range, set S1 to 0-5V or 0- 10V for desired output level.
- E)** Set 'Sensitivity' adjust (R1) fully clockwise
- F)** Turn power supply & frequency Generator 'ON', DMM should indicate 0VDC
- G)** Adjust 'ZERO' (R10) for DMM indication of .000V
- H)** Adjust signal amplitude of frequency generator to 20mV & frequency to maximum desired point (full scale frequency)
 - I)** Adjust 'SPAN' (R8) for 5.00V or 10.00V DMM indication
- J)** Reduce signal amplitude of frequency generator to zero, adjust 'ZERO' (R10) for DMM indication of .000V if necessary
- K)** Adjust signal amplitude of frequency generator to 20mV, adjust 'SPAN' (R8) for 5.00V or 10.00V DMM indication if necessary
- L)** Adjust frequency of frequency generator to exactly 50% of maximum frequency point in step H, DMM should indicate 2.50V or 5.00V \pm .02V.

To check linearity @ any frequency point, incorporate the following formula:

$$(F/F_{\max} \times \text{full scale output}) = \text{Volts}$$

Ex. Assume maximum frequency point = 2000Hz & full scale output

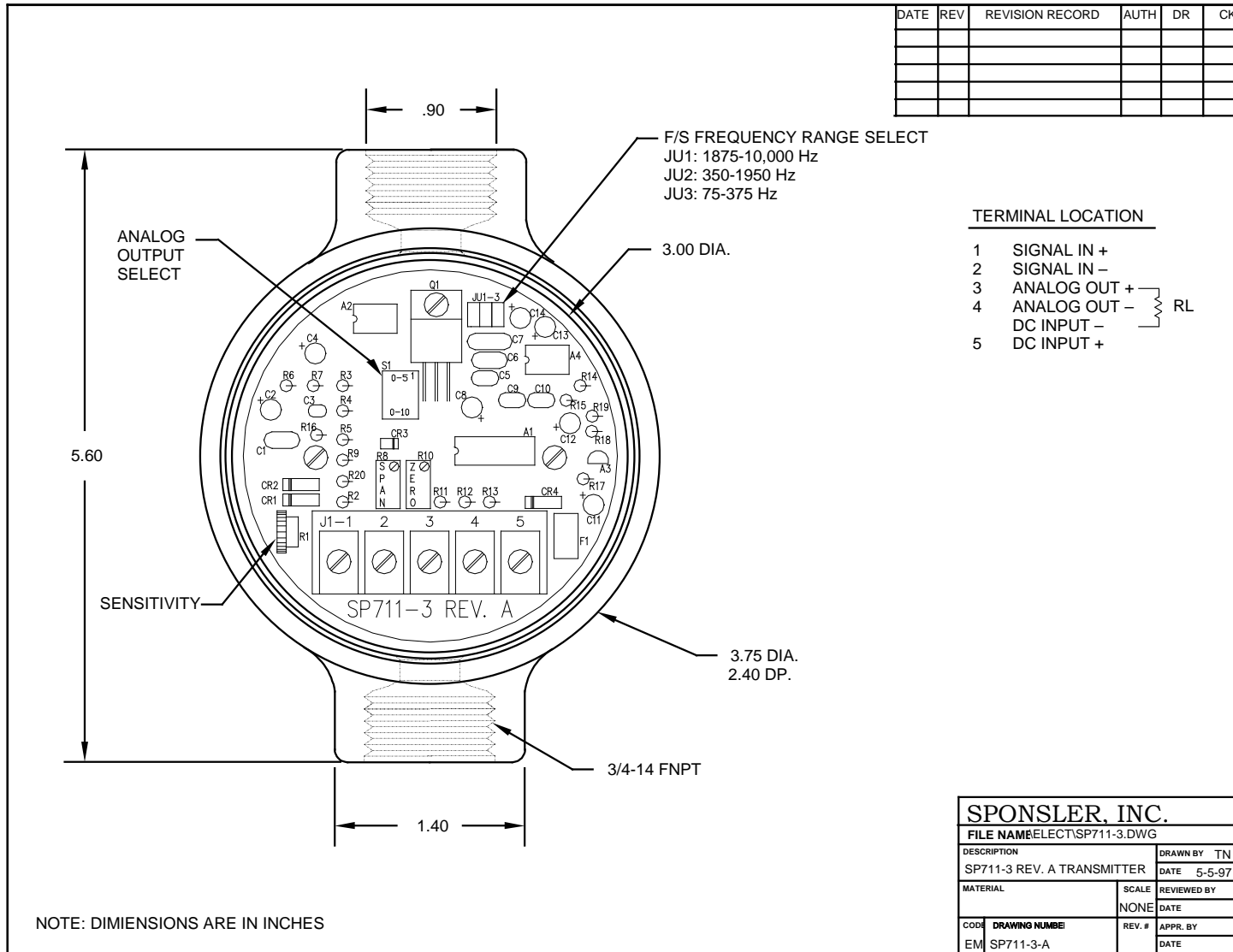
Voltage = 10V

Check for linearity @ 750Hz point

$$750/2000 = .375$$

$$10 \times .375 = 3.75 \quad \text{DMM should indicate } 3.75\text{V} \pm .03\text{V}$$

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