INSTALLATION & OPERATION MANUAL

SP711-3 REV. A
3-Wire Analog Transmitter

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LIQUID CONTROLS SPONSLER, INC.

FLOW MEASURING DEVICES AND CONTROLS

A Unit of the IDEX Corporation

105 Albrecht Drive • Lake Bluff, IL 60044

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IDEX LIQUID CONTROLS GROUP

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:

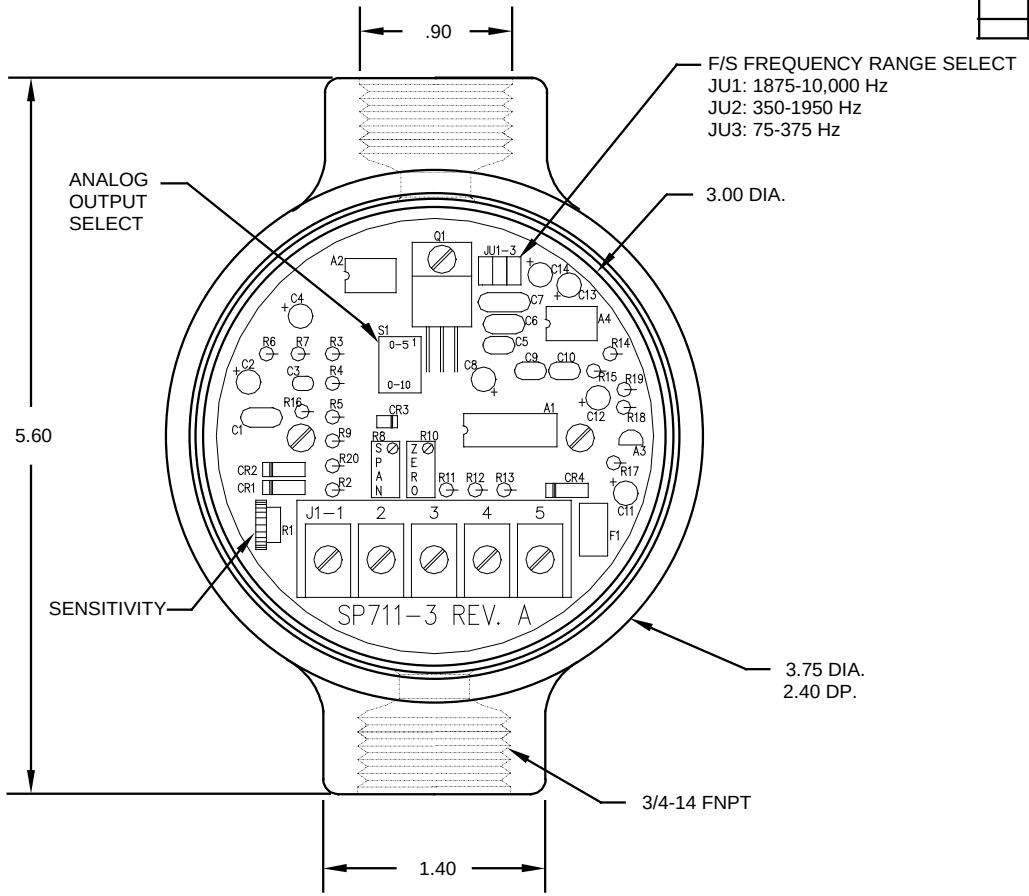
- **A)** Connect DMM positive & negative leads to J1-3,4 respectively & set DMM function to DC Volts
- **B)** Connect power supply positive & negative leads to J1-5,4 respectively
- **C)** Connect frequency generator positive & negative leads to J1-1,2; respectively. Set output to sinewave & amplitude 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:

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

Ex. Assume maximum frequency point = 2000Hz & full scale output Voltage = 10V
Check for linearity @ 750Hz point
750/2000 = .375
10 X .375 = 3.75 DMM should indicate 3.75V $\pm$ .03V

DATE	REV	REVISION RECORD	AUTH	DR	CK



TERMINAL LOCATION

1	SIGNAL IN +	
2	SIGNAL IN –	
3	ANALOG OUT +	RL
4	ANALOG OUT –	RL
	DC INPUT –	
5	DC INPUT +	

NOTE: DIMIENSIONS ARE IN INCHES

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