INSTALLATION & OPERATION MANUAL

SP711-3 REV. A
3-Wire Analog Transmitter

DOC#: MN-711-3-A.doc

SPONSLER CO., INC.

Precision Industrial Flow Measuring Devices and Controls

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<u>SPECIFICATIONS</u>

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:

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

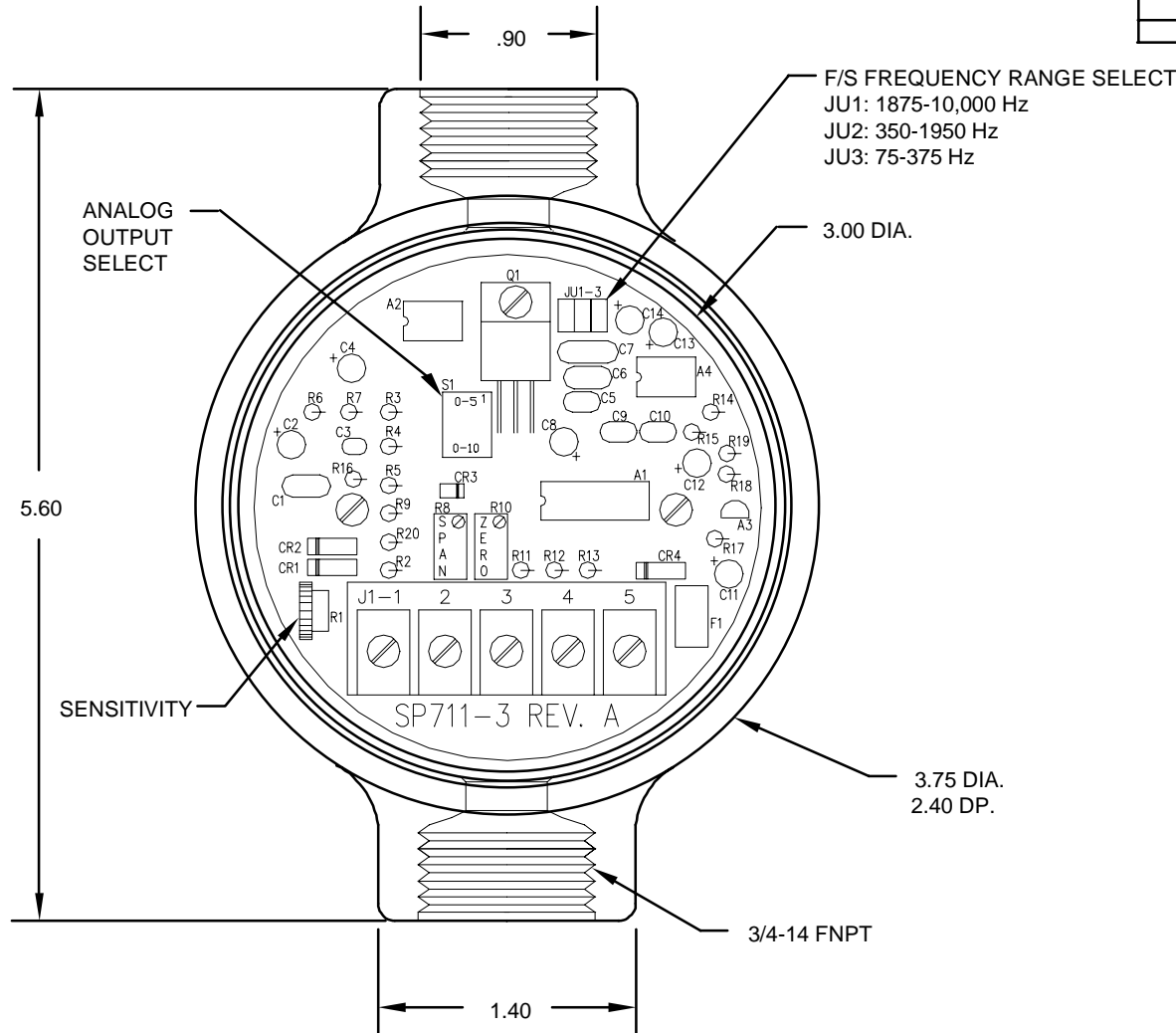Ex. Assume maximum frequency point = 2000Hz & full scale output
Voltage = 10V
Check for linearity @ 750Hz point
750/2000 = .375
10 X .375 = 3.75   DMM should indicate 3.75V $\pm$ .03V

DATE	REV	REVISION RECORD	AUTH	DR	CK

.90

F/S FREQUENCY RANGE SELECT
JU1: 1875-10,000 Hz
JU2: 350-1950 Hz
JU3: 75-375 Hz

TERMINAL LOCATION

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

RL

ANALOG OUTPUT SELECT

3.00 DIA.

5.60

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SENSITIVITY

3.75 DIA.
2.40 DP.

3/4-14 FNPT

1.40

NOTE: DIMIENSIONS ARE IN INCHES

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FILE NAME: \ELECT\SP711-3.DWG		
DESCRIPTION	DRAWN BY	TN
SP711-3 REV. A TRANSMITTER	DATE	5-5-97
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EM	SP711-3-A		DATE