

# INSTALLATION & OPERATION MANUAL

## SP717 REV. A Modulated Carrier Amplifier

DOC#: MN-717-A



***LIQUID CONTROLS SPONSLE, INC.***

**FLOW MEASURING DEVICES AND CONTROLS**

**A Unit of the IDEX Corporation**

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## **SPECIFICATIONS**

<b>Temperature:</b>	Operating -40 to 85°C Storage -65 to 125°C
<b>Input Voltage:</b>	6-28 VDC; 100mA max. Protected against polarity reversal
<b>Signal Input:</b>	Frequency 0-3500 Hz with 50 KHz carrier (requires Pickup Coil 1-1.3 mh)
<b>Signal Output:</b>	6-28 VDC squarewave proportional to input voltage Minimum load 1K Short circuit protection
<b>Features:</b>	Individual LED indicators for power and signal output Mounts directly on flowmeter
<b>Enclosure:</b>	FM Approved, CSA Certified Class I Groups B, C, D Class II Groups E, F, G Weight 1.7 lbs.

The SP717 Modulated Carrier Amplifier is a meter mounted device designed to produce a carrier frequency in conjunction with an RF pickup coil, detect the shift in the carrier frequency (modulation) that occurs with the passage of magnetic material and generate a squarewave output pulse with each shift in the carrier frequency. The amplitude of the output pulse is equivalent to the input supply voltage of the SP717.

The modulated carrier principle introduces no drag on the passing magnetic device, therefore, when incorporated with a turbine flowmeter, extension of the flowmeter's nominal linear range at the low end is realized. This parameter is particularly useful when measuring a low mass gas at the low end of the flowmeter's flowrate spectrum.

LED's are provided to indicate the presence of the input supply voltage and the output pulse.

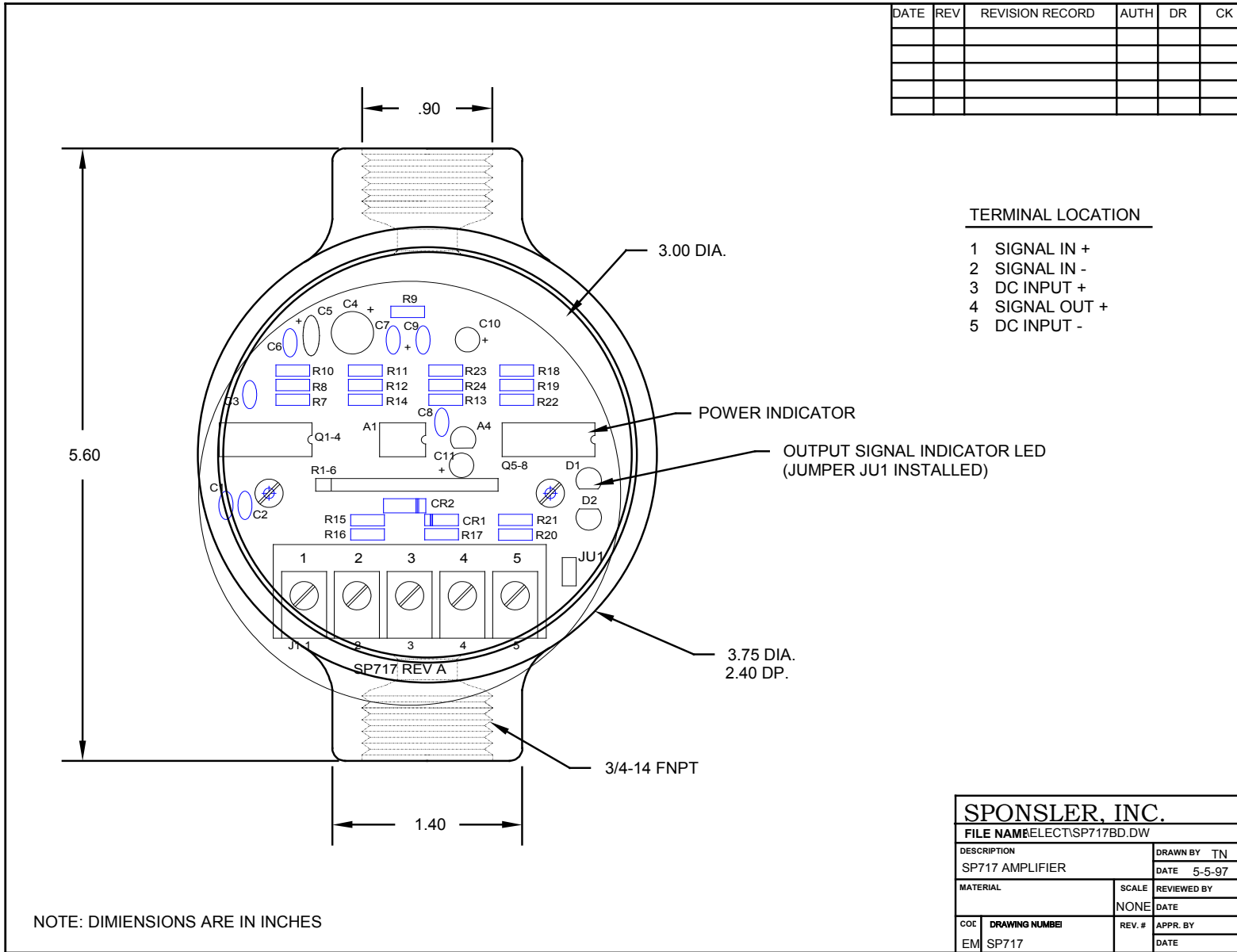
## **BENCH TEST CALIBRATION PROCEDURE**

**Required Equipment:** Power Supply 6-28 VDC, Frequency Generator, Frequency Counter, Oscilloscope

### **Test Procedure:**

- A) Connect RF pickup coil to J1-1,2
- B) Connect power supply positive & negative leads to J1-3,5 respectively
- C) Connect oscilloscope positive & negative leads to J1-1,2 respectively
- D) Install jumper @ JU1
- E) Turn power supply "ON", observe LED D1 illuminates and oscilloscope displays a 50khz + 5Khz carrier sinewave
- F) Observe carrier amplitude of 6Vp-p nominal
- G) Connect oscilloscope positive & negative leads to J1-4,5 respectively
- H) Connect frequency generator positive & negative leads to J1-1,2 respectively. Set function to squarewave, amplitude to 5Vp-p & frequency to 1-3500 Hz.
- I) LED D2 illuminates & the oscilloscope displays a squarewave whose frequency is that of step H with a positive amplitude  $.6V < \text{power supply positive potential}$  and a negative amplitude  $.6V > \text{power supply negative potential}$ .
- J) Observing oscilloscope display momentarily short pins J1-4 & 5 together. The oscilloscope will display a squarewave with an amplitude of  $.6V$  or less. When the short is removed the oscilloscope will display a normal amplitude squarewave.

DATE	REV	REVISION RECORD	AUTH	DR	CK



- TERMINAL LOCATION**
- 1 SIGNAL IN +
  - 2 SIGNAL IN -
  - 3 DC INPUT +
  - 4 SIGNAL OUT +
  - 5 DC INPUT -

NOTE: DIMIENSIONS ARE IN INCHES

<b>SPONSLER, INC.</b>	
FILE NAME: ELECT/SP717BD.DW	
DESCRIPTION SP717 AMPLIFIER	DRAWN BY TN DATE 5-5-97
MATERIAL	SCALE NONE
	REVIEWED BY DATE
COC DRAWING NUMBER EM SP717	REV.# APPR. BY DATE