

# Model 83162 Signal Conditioning Card

(Dual-Channel Sensor)

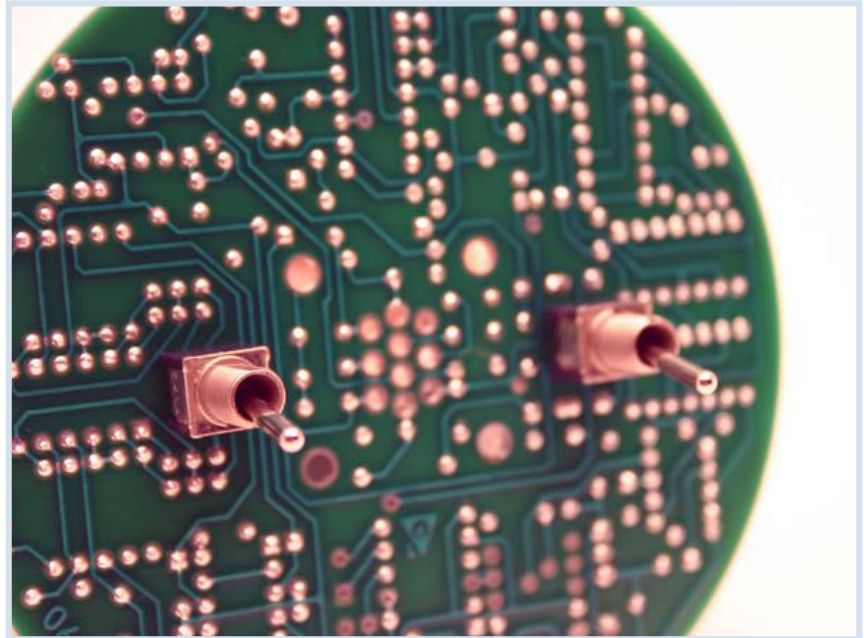
Model 83162 is a precision two-channel circuit for use with all electrolytic tilt sensors. It has switchable gain and filter settings and

will produce peak performance from your Applied Geomechanics 755-, 756, 757- and 758-Series Miniature Tilt Sensors.



## A PRECISION TWO-CHANNEL CIRCUIT

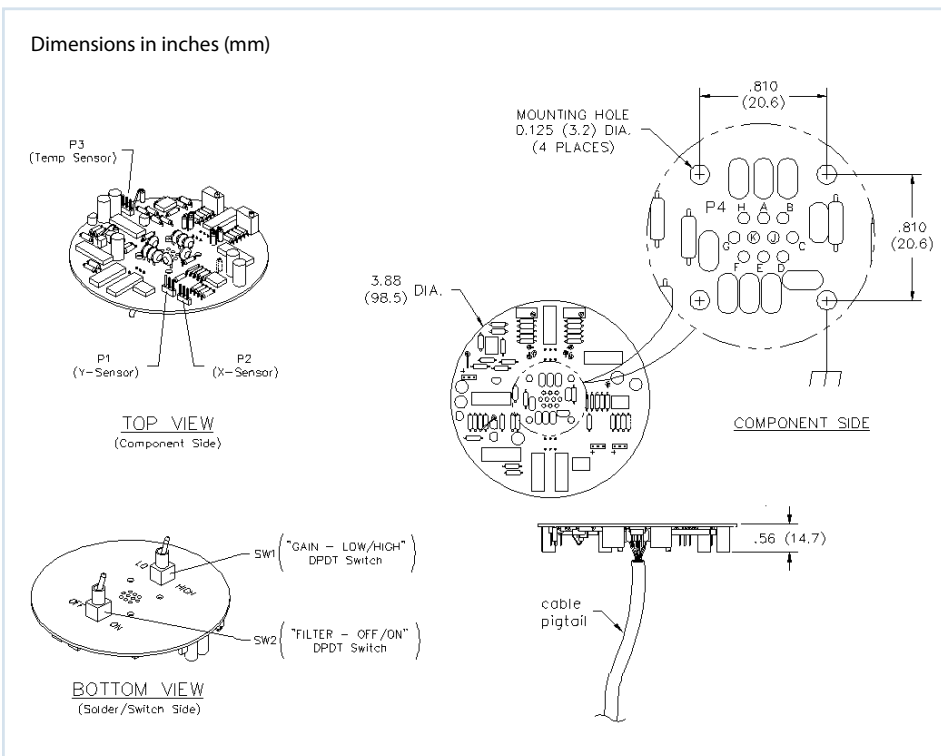
Model 83162 generates a balanced AC sensor excitation, then amplifies, rectifies and filters the sensor outputs to produce high-level DC signals proportional to the tilt angle. It includes an amplifier for an LM35 temperature sensor and will drive cable lengths over 1000m. Distances between card and tilt sensors can be up to 100m. Four mounting holes allow for easy packaging in OEM and end-user applications.



## 83162 DUAL CHANNEL SIGNAL CONDITIONING CARD

<b>INPUT CHANNELS</b>	Two electrolytic tilt sensors, one LM-35 temperature sensor (included)			
<b>TILT OUTPUT</b>	Two single-ended and two differential analog outputs, proportional to tilt: Output voltage range: $\pm 8$ VDC (single-ended), $\pm 16$ VDC (differential)			
<b>OUTPUT GAINS</b>	Two switchable gains, 10:1 ratio standard, other ratios on request. Toggle switch on board.			
<b>SCALE FACTORS†</b>	WHEN USED WITH:	HIGH-GAIN	LOW-GAIN	RANGE
	755-Series Sensors:	0.1 $\mu$ radian/mV*	1.0 $\mu$ radian/mV	$\pm 8000$ $\mu$ radians
	756-Series Sensors:	0.1 degree/V	1.0 degree/V	$\pm 8$ degrees
	757 & 758-Series Sensors:	1.0 degree/V	10 degrees/V	$\pm 60$ & $\pm 80$ degrees
<b>OUTPUT FILTERS</b>	Two switchable low-pass integrators, roll-off = 6 dB/octave. Time constants = 0.05 and 7.5 seconds, other settings on request.			
<b>TEMPERATURE OUTPUT</b>	0.1°C/mV (single-ended), -40° to +100°C, $\pm 0.75$ °C accuracy, 0°C = 0 mV			
<b>OUTPUT IMPEDANCE</b>	270 ohms, short circuit and surge protected			
<b>POWER REQUIREMENTS</b>	$\pm 11$ to $\pm 15$ VDC @ +11 and -6 mA typical; 250 mV peak-to-peak ripple max.; reverse polarity protected			
<b>CONNECTIONS</b>	Sensor: Gold-plated 100 mil header pins; Power & Signal: 3 ft (0.8 m) pigtail, tinned ends			
<b>ENVIRONMENTAL</b>	-25° to +70°C operational, -30° to +100°C storage; 0 to 90% humidity, noncondensing			
<b>MATERIALS</b>	Fiberglass printed circuit board with thru-hole soldered components			
<b>SIZE &amp; WEIGHT</b>	3.85-inch (98 mm) diameter round board, 1.12 inches (28 mm) high at switches; 30 g			

\* 1 degree = 3600 arc seconds = 17453  $\mu$ radians (microradians) † Single-ended outputs; divide by 2 for differential scale factors.



P4 PIN #	FUNCTION	WIRE COLOR
A	Power Ground	Black
B	-12 VDC in	Purple
C	+ X out	Green
D	Temperature Out	Yellow
E	Signal Ground	White
F	Case/Earth Ground Drain Wire	
G	+ Y out	Blue
H	+ 12 VDC in	Red
J	- X out	Grey
K	- Y out	Brown

### USEFUL ACCESSORIES:

70308	Sensor hook-up cable, specify length
70304	Additional power & signal cable, specify length



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