



## Electrolytic Biaxial Tiltmeter Model 2710-AG-900 Series

### FEATURES

- **Low Cost**
- **Easy to Install**
- **Rugged, weather-proof enclosure**
- **High Resolution**
- **Automatic Readings Using Datalogger**
- **Manual Readings Using Portable Readout**

### APPLICATIONS

- **Monitoring structural displacements and rotation**
- **Performance Assessment of bridges, space frame structures, beams, columns, etc**
- **Early warning system**



### General

The "Clinometer Pak" is a low-cost, analogue output, biaxial clinometer for a wide variety of test and measurement applications.

### Description

A liquid-filled electrolytic transducer comprises the sensing element. The transducer is excited and read by stable, low-noise electronics.

The clinometer is housed in a weatherproof NEMA 4X (IP65) enclosure and provides analogue voltage signals for X tilt, Y tilt and temperature. Each "Clinometer Pak" comes standard with a 10 ft (3m) cable. Cable lengths to 1650 ft (500 m) are available.

### Models

- **Additional cable**
- **6-pin male connector for tiltmeter cable**
- **6-socket in-line plug**
- **Readout module**
- **Digital multimeter display unit**
- **Mounting bracket for vertical surfaces**
- **Mounting plate for horizontal surfaces**
- **0-5 Volt output**
- **Critically damped viscous sensor**

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## Specifications

<b>OUTPUT CHANNELS</b>	Two orthogonal tilt angles, ± VDC per channel (single ended); one temperature channel(optional), -0.4 to +1.0 VDC
<b>ANGULAR RANGE</b>	Standard: ±20 degrees (40 deg. span). Optional: ±45 degrees (90 degrees span)
<b>RESOLUTION</b>	0.01 degree of arc
<b>REPEATABILITY</b>	<0.02 degree of arc at constant temperature
<b>HYSTERESIS</b>	<0.02 degree of arc
<b>LINEARITY</b>	±20 degree unit: 1% over half span; 2.5% over full span. Use of factory supplied polynomials can improve linearity by factor of 10
<b>TEMPERATURE COEF.</b>	Span: -0.05% of voltage reading per °C typical
<b>SCALE FACTORS</b>	Tilt (±20 degree unit): 10 degrees/volt ±20%. Temperature: 0.1°C/mV, ±0.75° accuracy
<b>TIME CONSTANT</b>	T0.25 second; output is proportional to $1 - e^{-t/T} - 0.001e^{-t/5000T}$ where t is time in seconds
<b>NATURAL FREQUENCY</b>	10 Hz
<b>OUTPUT IMPEDANCE</b>	270 ohms, short circuit protected
<b>POWER REQUIREMENTS</b>	+8 to +24 VDC @ 7 mA, 250 mV peak-to-peak ripple max., reverse polarity protected
<b>ENVIRONMENTAL</b>	-10° to +50°C operating and storage, 0-80% humidity
<b>SIZE &amp; WEIGHT</b>	2 x 2 x 0.64 inches (51x51x17 mm), 0.5 oz (15 grams); 18 inch (450 mm) cable with connector
<b>MOUNTING</b>	Four 0.125 inch (3.2 mm) no.4 mounting holes, one in each corner
<b>MATERIALS</b>	Liquid filled glass sensor, fibreglass PC board, unpotted assembly

## Angle Conversion Chart

	radians	degrees	Arc minutes	Arc seconds	Micro radians
radians	1	57.30	3438	206265	10 <sup>6</sup>
degrees	0.01745	1	60	3600	17453
Arc minutes	2.909 x 10 <sup>-4</sup>	0.01667	1	30	290.9
Arc seconds	4.848 x 10 <sup>-6</sup>	2.778 x 10 <sup>-4</sup>	0.01667	1	4.848
µ radians	10 <sup>-6</sup>	5.730 x 10 <sup>-5</sup>	3.438 x 10 <sup>-3</sup>	0.2063	1

## Ordering Information

Model 900	±20° range
Model 900T	Adds temperature sensor
Model 900-45	±45° range
Model 900-45T	Adds temperature sensor

Due to on-going design improvements and reviews, we reserve the



### FOR FURTHER INFORMATION

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