

# 2-AXIS INCLINOMETER SENSOR

## Dual Axis Inclinometer Sensor

AngleStar DAI-20 combines the function of two clinometers in one package. The unique dome shaped design features a capacitance based sensor which produces output signals directly proportional to the relative tilt in two axes.

Designed for high volume applications, AngleStar DAI-20 is priced to compete with much less capable mercury switches and other low cost level sensors.

There are four output connections providing a choice of ratiometric, pulse width modulation (PWM) digital output. A mating connector (sold separately) provides the user with an easy plug-in connection. Null and scale factor are adjustable.



### Features

- New microprocessor-based electronics**
- Two clinometers in one package**
- Adaptable design DC powered**
- Ratiometric and PW digital output in one model**
- Trimmable outputs**

### Applications

- Platform leveling**
- Measure pitch and roll**
- Tip over protection for manlifts**
- Automatic leveling systems**
- Wheel alignment**

### Performance Specifications

Range .....	±20°
Threshold / Resolution .....	0.01
Linearity	
Null to 10° .....	±0.2°
10° to 12° .....	±2.5%
12° to 15° .....	±3.0%
15 to 20° .....	Monotonic
Null Repeatability .....	±0.1
Frequency Response (-3db) .....	0.25 Hz (0.50 Hz available, consult factory)

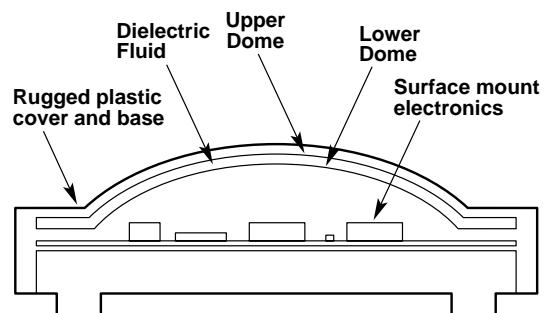
### Environmental

Temperature Range	
Operating .....	-20° to 65°C
Storage .....	-55° to 65°C
Temperature Coefficient of Null .....	0.01%/°C
Temperature Coefficient of Scale Factor .....	0.10%/°C

### Electrical

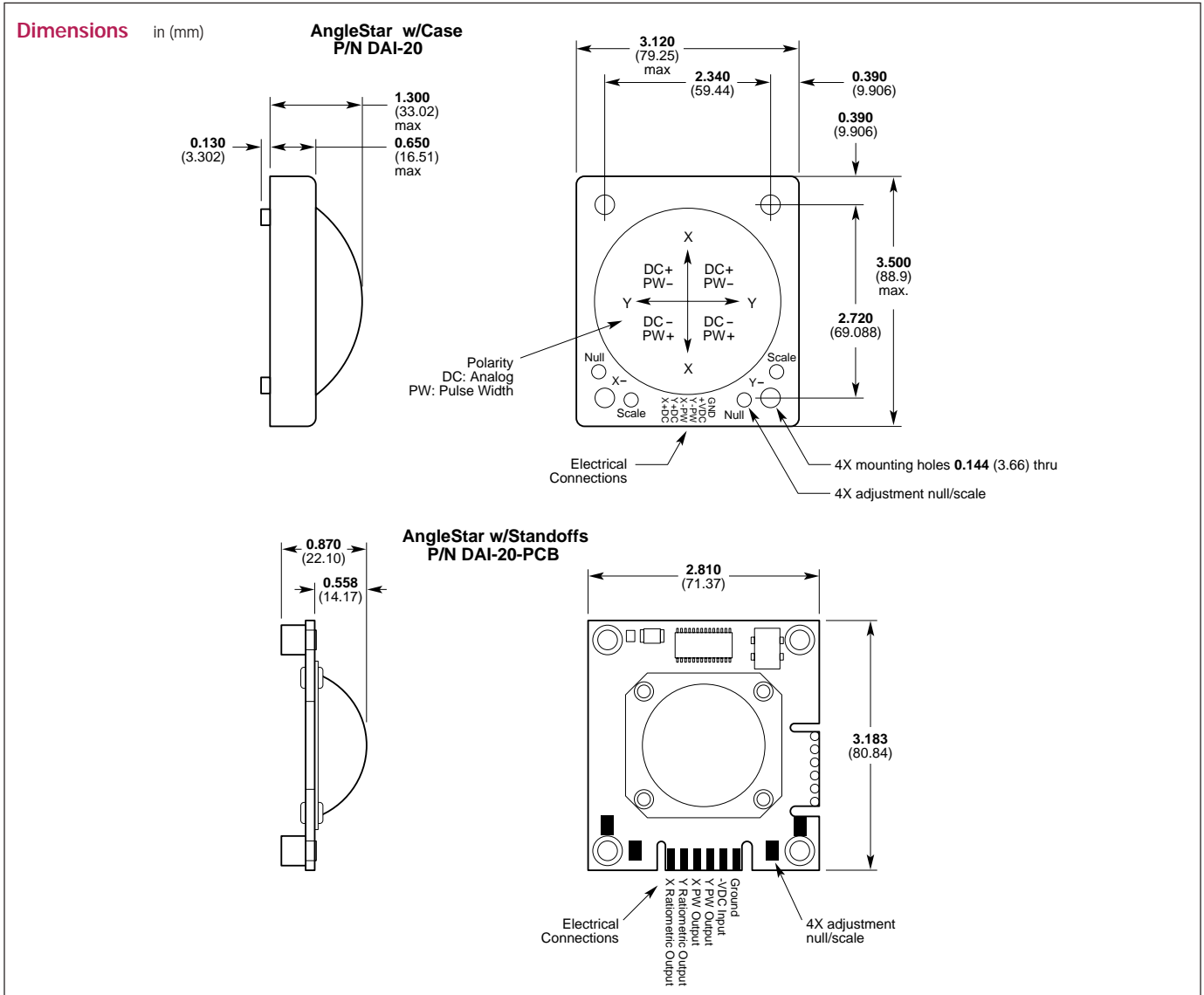
Voltage Supply (nominal)	9 VDC
Voltage Supply Range .....	Regulated 5.0 to 15.0 VDC
Current .....	10 mA
Analog Output	
Scale Factor* @ 9 VDC	100 mV/degree ±10%
Load Resistance (min) ..	10K Ohms
Null Output .....	1/2 supply voltage ±10%
Pulse Width Output	
Null .....	50% (duty cycle)
Scale Factor .....	0.7% / degree (nominal)
Duty Cycle .....	$t_2 / (t_1 + t_2)$ $t_1$ and $t_2$ varies from 0.2 to 0.7 msec
Frequency .....	100 Hz nominal

Physically the sensor is composed of two hermetically sealed domes spaced about 1/8" apart. The lower, polyester plastic dome has 4 capacitive plates while the aluminum, upper dome acts as a ground. A fluid with a high dielectric constant is sealed within the dome sandwich, leaving an air bubble space about the size of a quarter. The bubble is centered at level position and will move from one side to the other as the device is tilted.

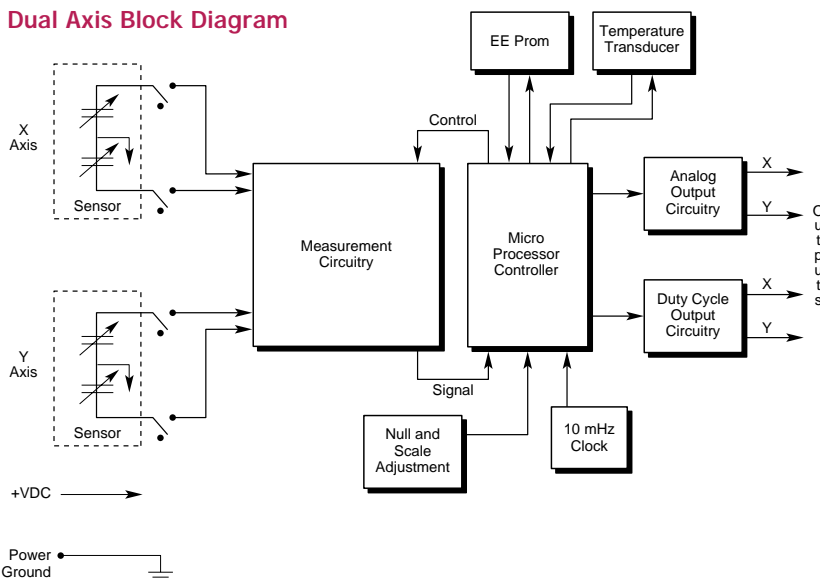


# ELECTRONIC INCLINOMETER SENSOR

## Technical Specifications Cont...



### Dual Axis Block Diagram



### How to Order

Part Number	Description
<b>DAI-20</b>	Clinometer w/case
<b>DAI-20-PCB</b>	Clinometer w/standoffs
<b>DAI-20-CON</b>	Mating Molex connector

Note: Connector is recommended for model DAI-20 (Clinometer w/case).