RoHS

ANGLESTAR®

Electronic Clinometer

SPECIFICATIONS

- **+/-60º sensing range**
- **Ratiometric and Bipolar DC models**
- **Sturdy plastic housing**

The AngleStar® Electronic Clinometer is an angle measurement device that produces a DC voltage output signal proportional to the level and direction of angular displacement. The sensing element, which is fluid filled, produces a variable resistance as it is tilted in the sensitive axis. This change in resistance is then translated into a smooth DC output signal.

FEATURES

- ±60° total sensing range
- Internally damped
- Rugged plastic housing
- Connector or hard wire connection

APPLICATIONS

- Crawler / Blast Hole Drills
- Construction equipment
- Safe Load Indicators
- Oil well pump-off control

Also see our other models, ***AccuStar®-EA*, AccuStar® IP-66** (voltage or 2-wire current output, IP-66 rating), and the **AngleStar® Protractor System** (AngleStar® Electronic Clinometer with digital readout).

Measurement Specialties, Inc. offers many other types of sensors.

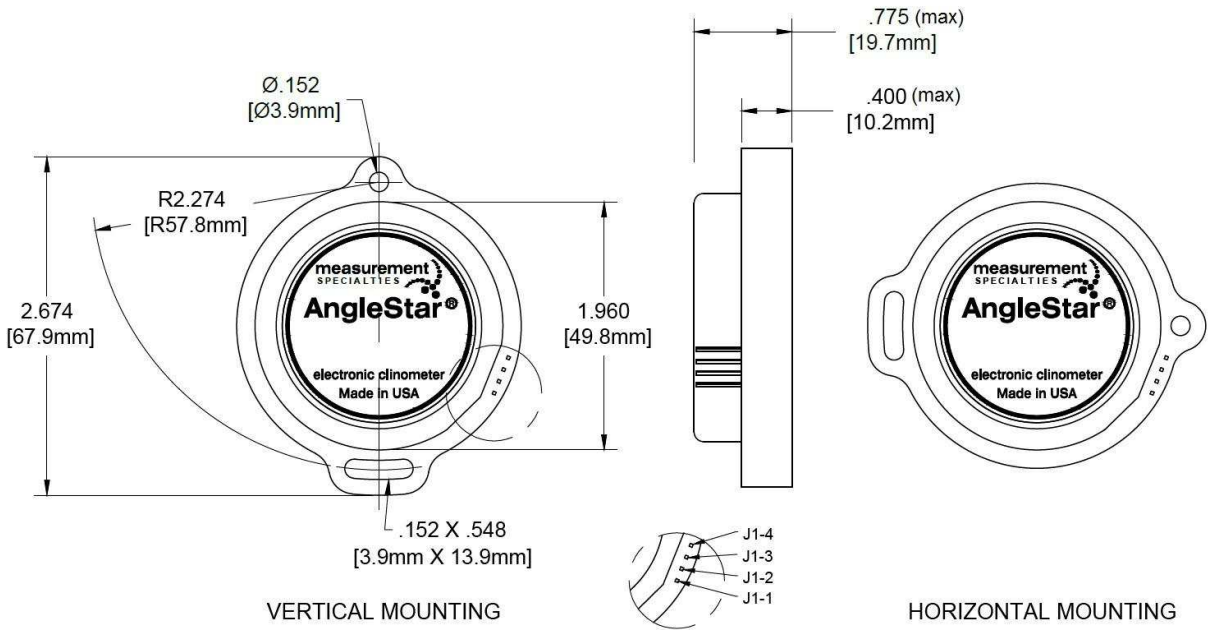
DSPM Industria sensori & trasduttori
Via Paolo Uccello 4 - 20148 Milano
Tel +39 02 48 009 757 Fax +39 02 48 002 070 info@dspmindustria.it www.dspmindustria.it

PERFORMANCE SPECIFICATIONS (COMMON)

ELECTRICAL	
Total range	±60º
Linear range	±45º
Linearity	
Null to 10º	0.1º
10º to 45º	±1% of reading
45º to 60º	Monotonic
Resolution	0.001º
Null repeatability	0.05º
Cross axis error	<1% up to 45º
Time constant	0.3 seconds
Frequency response	0.5Hz @ -3db
ENVIRONMENTAL/MECHANICAL	
Operating temperature range	-40º to +85ºC
Storage temperature range	-55º to +85ºC
Temp. coefficient of null	0.008º / º C
Temp. coefficient of scale factor	0.1% / º C
Electrical connection	Pin terminals (solderable)
Mating connector	Shell = Molex #22-01-2041
	Pins = Molex #08-50-0113

Notes:
All values are nominal unless otherwise noted!
Dimensions are in inch [mm] unless otherwise noted

DIMENSIONS AND CONNECTIONS (COMMON)



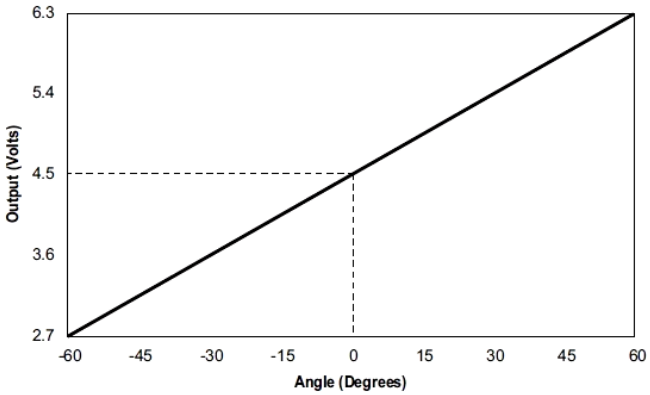
Dimensions are in inches [mm], and are nominal unless otherwise specified

DSPM Industria® sensori & trasduttori
Via Paolo Uccello 4 - 20148 Milano
Tel +39 02 48 009 757 Fax +39 02 48 002 070 info@dspmindustria.it www.dspmindustria.it

RATIOMETRIC OUTPUT MODEL

The Ratiometric clinometer is a signal conditioned sensor that has been designed to operate like a potentiometer. It is a three wire device: power; power ground; and signal. The signal is referenced to power ground. A regulated power supply is required since the output is supply dependent. The midscale output, zero degrees, is 1/2 the supply voltage, while the scale factor is also supply dependent

Output with +9VDC (nominal) input voltage

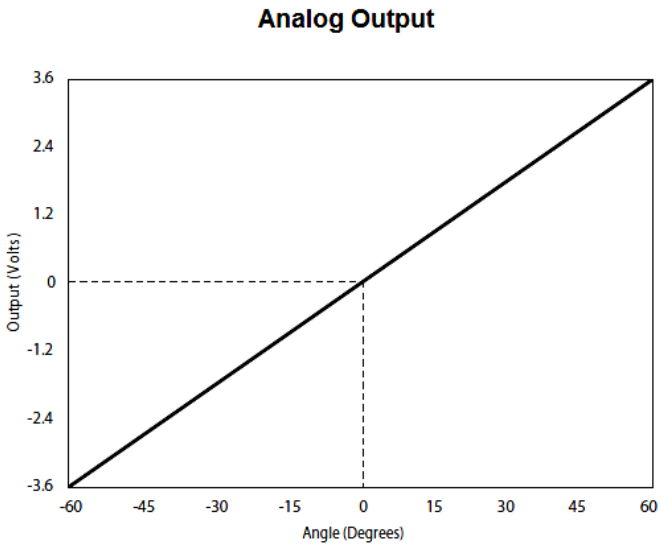


ELECTRICAL SPECIFICATIONS	
Input voltage (nominal)	+10VDC
Input voltage range	+5 to +16VDC (regulated)
Input current	3mA
Scale factor (@ +10VDC input)	33.33mV / degree, ±10%
Load resistance (min)	10kΩ
Level output (0º)	½ Vcc
ELECTRICAL CONNECTIONS	
J1-1	+ 5 to +16VDC (regulated)
J1-2	Power ground
J1-4	Signal output (referenced to power ground)

DSPM Industria® sensori & trasduttori
Via Paolo Uccello 4 - 20148 Milano
Tel +39 02 48 009 757 Fax +39 02 48 002 070 info@dspmindustria.it www.dspmindustria.it

ANALOG OUTPUT MODEL

The Analog clinometer is a signal conditioned tilt sensor designed for bipolar dc voltage operation. The clinometer requires a bipolar supply of ±8 to ±20 VDC and delivers an output of ±3.6 VDC. This device is internally regulated for various applications. The output scale factor is fixed at a nominal 60mV per degree, and is not dependent upon supply voltage level.



ELECTRICAL SPECIFICATIONS	
Input voltage (nominal)	±12VDC
Input voltage range	±8 to ±20VDC (unregulated)
Input current	3mA / supply
Scale factor (@ +9VDC input)	60mV / degree, ±10%
Load resistance (min)	10kΩ
Level output (0º)	0 VDC
ELECTRICAL CONNECTIONS	
J1-1	+ 8 to +20VDC
J1-2	- 8 to -20VDC
J1-3	Power ground
J1-4	Signal output (referenced to power ground)

DSPM Industria® sensori & trasduttori
Via Paolo Uccello 4 - 20148 Milano
Tel +39 02 48 009 757 Fax +39 02 48 002 070 info@dspmindustria.it www.dspmindustria.it

ORDERING INFORMATION

Model	Mounting Hole Orientation	Part Number
Ratiometric	Vertical	02116009-000
Ratiometric	Horizontal	02116109-000
Analog	Vertical	02117009-000
Accessories		
Mating Connector Kit (Shell and 4 pins)		04160003-000

DSPM Industria® sensori & trasduttori
Via Paolo Uccello 4 - 20148 Milano
Tel +39 02 48 009 757 Fax +39 02 48 002 070 info@dspmindustria.it www.dspmindustria.it