

General Information Brochure

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Rugged ALL-weather **Inclinometer Providing** Analog Voltage (0...5VDC) or Digital Serial (RS232) Output.



Description

The H4 Series of inclinometers provide single axis inclination sensing in a rugged environmentally protected metal housing. The sensing package incorporates a liquid capacitive sensing element and integrated temperature compensation over the industrial operating range of -40° to +85°C.

These sensors are available with a choice of two output configurations, analog voltage or digital serial outputs. These outputs are linear with respect to the input angle directly.

Digital Serial (RS232) Output

The Serial output (RS232) transmits the degree of angle in a decimal format. This output provides a continuous stream of readings - one reading per line at approximately 250msec per reading. The H4 transmits the output to a computer through its serial port, using HyperTerminal as the interface. The unit is configured for 9600 baud, 8 data bits, no parity, 1 stop bit.

Features

- Single Axis Angle Measurement
- 3 Ranges: ±30°, ±45°, ±70°
- Temperature Compensated
- Analog Voltage 0...5V Output
- Serial Digital RS232 Output
- Vibration and shock resistant
- Environmentally sealed to IP67
- Rugged die-cast Zinc housing
- **EMC** protected
- Mechanical Zero adjustment
- Common footprint for easy field install

Applications

- Platform Leveling
- Vehicle Tilt Monitoring
- Antenna Positioning
- Boom Angle Indicating
- **Process Machinery**

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Technical Specifications

INPUT PARAMETERS					
MEASURING RANGES	±30°, ±45º, ±70°				
MEASUREMENT AXIS	Single				
POWER SUPPLY	830 VDC Non-Regulated				
	optional 5VDC Regulated				
OUTPUT PARAMETERS					
NON-LINEARITY ¹	< 0.5% Full Range for ±30° model				
	< 0.2% Full Range for ±45°, ±70° models				
NULL REPEATABILITY	< 0.05°				
TRANSVERSE SENSITIVITY	< 1.0% at 30° Tilt				
SENSOR ELEMENT RESPONSE TIME	< 0.3 seconds (<300mSec)				
BANDWIDTH	3 Hz				
OPTIONAL TEMPERATURE	< ±1.0° (over full operating temperature range)				
COMPENSATION OUTPUT DRIFT					
TEMPERATURE RANGE					
OPERATING TEMPERATURE	-40°F to +185°F (-40°C to +85°C)				
STORAGE TEMPERATURE	-49ºF to +194ºF (-45°C to +90°C)				

ANALOG (05V) OUTPUT	Temperature Compensation	
ANALOG (05V) 0011 01	Over full operating temperature range	
ZERO OFFSET	2.5VDC typical	
ANALOG VOLTAGE OUTPUT (Linear Range)	0.54.5VDC	
OUTPUT VOLTAGE SENSITIVITY		
±30º	66.7mV/º	
±45º	44.4mV/º	
±70º	28.6mV/º	
ACCURACY OVER TEMPERATURE		
±30º	< ±0.5º	
±45º	< ±0.5º	
±70º	< ±1.0º	
RESOLUTION		
±30º	< 0.02º	
±45º	< 0.03º	
±70º	< 0.04º	
CURRENT CONSUMPTION	10mA typical	
OUTPUT IMPEDANCE	< 100 OHMS	
DIGITAL (RS232) OUTPUT	Temperature Compensation	
DIGITAL (N3232) COTFOT	Over full operating temperature range	
±30º	±30º < ±0.5º	
±45º	< ±0.5º	
±70º	< ±1.0º	
CURRENT CONSUMPTION	10mA typical	
RS232 OUTPUT FORMAT	ASCII Decimal	
BAUD RATE	9600	
DATA BITS	8	
PARITY	None	
STOP BITS	1	
TRANSMISSION RATE	Continuously updated every 25mSEC	

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MECHANICAL CHARACTERISTICS				
HOUSING	Die Cast Zinc			
ENVIRONMENTAL RATING	IP67			
MOUNTING HOLES	IG HOLES Two #6-32			
MOUNTING PLANE	Vertical Surface			
OUTLINE DIMENSIONS	Ø1.95" x 1.1" (Ø49.5 x 28mm) See Drawing			
ELECTRICAL CONNECTION	1ft. Teflon Cable with 3 pigtail leads			
WEIGHT	8 ounces (227 grams)			

Notes: 1. Non-linearity generated by best fit straight line using least squares regression. Output is linear with respect to the input angle directly.

Figure 1: Dimensions (inches [mm]) and Wiring Connections 0.40 [10,2]Ø 2.274 Ø 0.157 [57,76] [3,99] WHEN ORIENTED AS SHOWN IN THIS VIEW SENSOR WILL READ ZERO ANGLE 1.137 REF [28,88] 2.60 REF 0.55 [14] 0.75 0.15 [3,8] WIRING CONNECTIONS ANALOG OUTPUT RED +8 TO +30 VDC POWER BLACK POWER AND SIGNAL GROUND 1.10 GREEN [27,9] ANALOG OUTPUT WIRING CONNECTIONS RS232 OUTPUT +8 TO +30 VDC POWER RED BLACK POWER AND SIGNAL GROUND 1.95 WHITE RS232 OUTPUT [49,5]

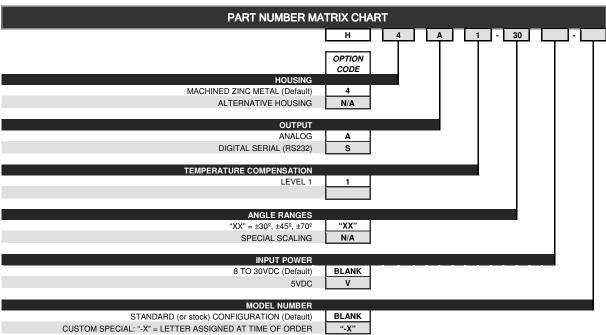
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TABLE 1: Part Number for Ordering Information



As shown above the part number H4A1-30 represents a single axis unit with a $\pm 30^{\circ}$ measuring range, Analog output, Level 1 Temperature Compensation, 8 to 30VDC supply power.