

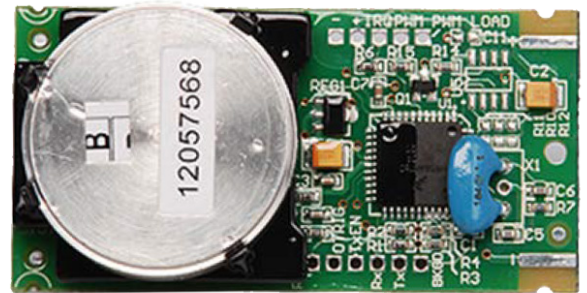


ISU
Inclination sensor

- Full 360 range
- Three versions with maximum accuracy of +/- 0.05°
- Maximum resolution of 0.00549°

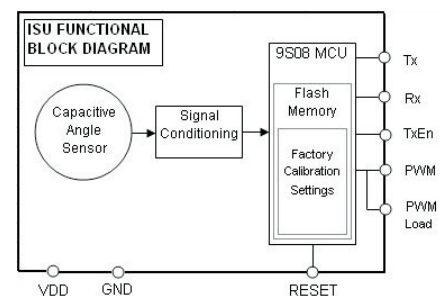
The ISU series of Single-Axis Digital Inclinerometers are self-contained, ready-to-use circuit modules which provide real-time digital measurements of angular displacement through a full 360 degree range. The ruggedized, non-contact capacitive sensor is combined with precision measurement circuitry to provide a cost-effective combination of accuracy, range, and operating temperature in an easy to use footprint. The units can be used in a wide variety of applications, accept a standard 5 VoltDCsupply, and provide both RS-232 and Pulse Width Modulated (PWM) outputs.

Programmable options include power auto-shutoff and 4-bit addressability allowing up to six ISUs to be ,party-lined' together for applications requiring multiple sensors.



ELECTRICAL SPECIFICATION

Parameter	ISU-S Std Accuracy Full 360°	ISU-H High Accuracy	ISU-L Low Accuracy
Range	Full 360°		
Accuracy			
0° +/- 10°	+/- 0.1°	+/- 0.05°	+/- 0.2°
90° +/- 10°	+/- 0.1°	+/- 0.05°	+/- 0.2°
Other angles	+/- 0.2°	+/- 0.2°	+/- 0.4°
Resolution			
RS-232 Output	0.00549° Binary, 0.01° Ascii		
PWM Output	0.09°		
Temperature Coefficient			
At 0° or 90° +/- 1°	0.006° per °C		
Other angles	0.012° per °C		
Repeatability	+/- 0.1°	+/- 0.05°	+/- 0.2°
Hysteresis ²	0.10°	0.10°	0.2°
Noise	+/- 0.2°	+/- 0.01°	+/- 0.04°
Time Constant	0.4 seconds typical		
Frequency Response	0.4 Hz, typical (-3dB)		
Angle Output Rate	Every 8/15 second (533msec)		
Power Input			
Voltage	5.0 Volts, DC		
Current, Operating	2 mA		
Current, Sleeping	10 uA		
Serial Port			
Protocol	RS-232 (Except for Voltage Levels)		
Voltage	5 Volts		
Band Rate	9600 Baud		
Output Impedance	10KΩ		
PWM Output			
Voltage	5 Volts		
Frequency	30 Hz, Free Running		
Pulse Width	Varies 49.4usec per degree of angular displacement		



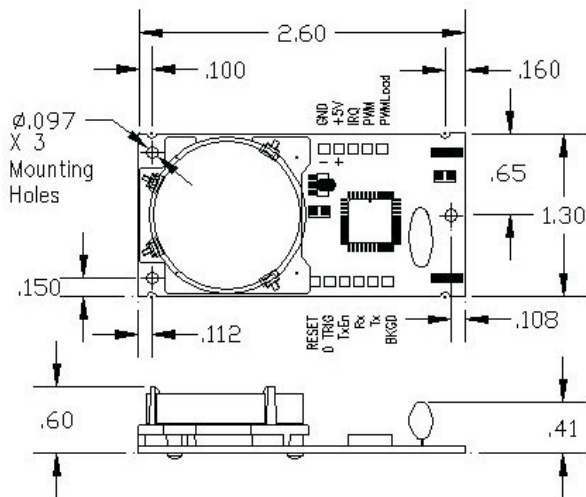
Note

1) Specifications subject to change without notice. Specifications are at 77°F (25°C) unless otherwise stated.

2) Average over 360 degrees



PHYSICAL SPECIFICATIONS



Notes:

- 1) BKGD (Background) pin is for internal programming only. Customer use of this pin may damage the ISU.
- 2) Customer may utilize either the existing PWM output directly driven by the MCU, or new optional PWMLoad, which is the same source but with SMBT3906 transistor driven output.
- 3) Legacy half moon shaped indents remain for customer's existing mounting technique.
- 4) Three new mounting through holes offered as optional mounting method.

Parameter

Weight 0.8oz (23 grams)
 Temperature Range
 Operating 22 to +131°F (-30 to +55°C)
 Storage -67 to +149°F (-55 to +65°C)
 Humidity Sensitivity Conformal Coated

NEW FEATURES

Row	Pin	Existing H C 05	New 9S08
Top Row 5 pins	1 closest to sensor	5V Ground	5V Ground
Top Row 5 pins	2	5V +	5V +
Top Row 5 pins	3		
Top Row 5 pins	4	PWM	PWM
Top Row 5 pins	New pin 5	Not available	PWM Load Same as PWM except the PWM signal is fed through a SMBT3906 PNP transistor. Not for use if using PWM. Customer can only use one at a time, either PWM or PWM Load
Bottom Row 6 Pins	1 closest to sensor	RESET	RESET
Bottom Row 6 Pins	2	O Trig	O Trig
Bottom Row 6 Pins	3	TxEn	TxEn
Bottom Row 6 Pins	4	Rx	Rx
Bottom Row 6 Pins	4	Tx	Tx
Bottom Row 6 Pins	New pin 6	Not available	Not for customer use. This is for factory programming use only.

ORDER INFORMATION

Description	Model #	Order Part Number
Standard Accuracy Version	ISU-S	90104001
High Accuracy Version	ISU-H	90104020
Low Accuracy	ISU-L	90104019