



**Digital Advanced Sensors**

Sensing Control Leading | Sensor Specialized Company

## Compact Inclinometer

# SA1N/SA2

**High performance MEMS based compact  
Inclinometer**

**Micro-Processor mounted for stable sensing  
and data processing**

**High strength PC and ABS housing**

**Compact size and economical price**

# Compact Inclinometer

## SA1N / SA2

Compact inclinometer SA1N / SA2 performs angular measurement as a part of controlling and tracking systems such as solar-panels, machineries, closing and opening systems and other various applications.



### ● Specifications

Item	Specifications		Remarks
Measuring Axis	Uniaxial	X-axis fixed	SA1N
	Biaxial	X+Y axis	SA2
Range	±30°, ±60°, ±90° (deg)		
Resolution	0.1° (deg)		
Non-Linearity	3%FS		
Temp. Drift	±0.15mg/°C		
Response	<0.3sec		
Output	10 ~90% of power source		RATIO
Power Source	5.0Vdc		4.5~5.5Vdc
Current Consumption	10mA		@5Vdc
Operating Temp.	-20°C ~ +85°C		
Waterproof	IP65		
Dimensions	W14.8 x H11.8 x D19.9mm		Without pins
Weight	10g		

- For the ±90° (deg) specification, the error range increases at angles exceeding ±85° (deg).

### ● Sensing direction

X-axis	Y-axis (SA2)

### ● Data Descriptions

$$\text{Angle} = \left( \frac{\text{Measuring Range}}{\text{Output V Range}} \right) \times (\text{Output V} - \text{Zero offset})$$

- Measuring Range = max range – min range
- Output V Range  
= maximum output V – minimum output V  
= 4.5V – 0.5V = 4V
- Zero offset = 2.5V

e.g. Measuring range ±90 deg, Output 3.5V

$$\text{Angle} = \left( \frac{+90 - (-90)}{4} \right) \times (3.5 - 2.5) = +45^\circ$$

### ● Wiring Connections

	+5	V+
	X	X-axis output
	Y	Y-axis output
	G	GND (COM)

- SA1N / SA2 has no wiring connections and can be inserted by standard IMT pins.
- Unused pin will be deleted when released.

# Compact Inclinometer

## SA1N / SA2

### ● Ordering Code

①	Axis	SA1N	Uniaxial
		SA2	Biaxial
②	Range	30	$\pm 30^\circ$
		60	$\pm 60^\circ$
		90	$\pm 90^\circ$
③	Measuring	X	X-axis (Uniaxial)
	Axis	Y	Y-axis (SA2)

- Code format : [①]-[②]-[③]  
e.g. **SA1N-60-X / SA2-90**

- Measuring Axis is selected only for Uniaxial.

### ● Notes

- 1) SA1N / SA2 has not been applied any stabilizing circuit or protection circuit. To stable using, stabilizing and protection circuit on the systems are necessary.
- 2) Specification changes after shipment will be charged for a fee, so be sure to order with the correct specifications.
- 3) SA1N / SA2 is a RATIO-type output sensor, and the output value can fluctuate depending on the power, so it is recommended to use a constant voltage.
- 4) MEMS based inclinometer (tilt sensor) measure tilt (degree) by gravity. Check sensing directions before use.
- 5) 12 months warranty is provided after released.  
Warranty provided only in case of using for designed purpose correctly.
- 6) Specifications, design and components can be changed without prior notice to improve its performances.

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