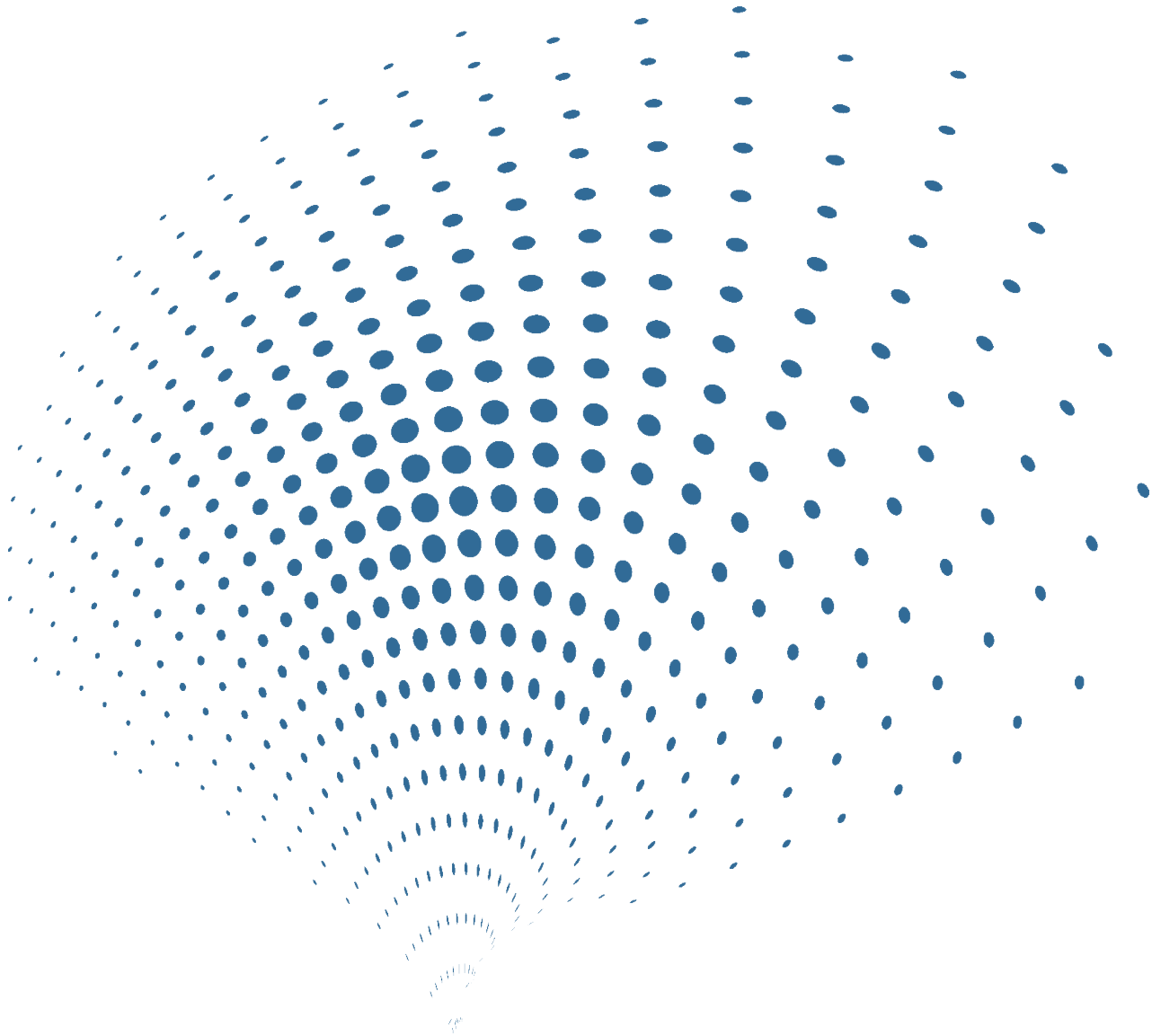




Vigor Technology



## **SST100 High-Reliability Inclinator**

# SST100 High-Reliability Inclinometer

## Features

- High stability & performance-cost ratio
- Small size, light weight, easy to integrate
- Cross-axis sensitivity  $\leq \pm 0.3\%FS$
- Full-seal, resistant to vibration and shock
- IP67 protection
- Reference nearly 50 industrial/military standards



## Description

SST100 inclinometer is a high-reliability tilt angle measurement product for construction machinery industry application. This inclinometer adopts various technologies for improving reliability & stability, including full-sealing, enhanced PCBA design, optimized power management, enhanced resistance to shock & vibration, 30kg tensile cable, motion simulation of life testing, patented automatic test technology and precision machining of aluminum alloy.

SST100 inclinometer adopts low-g MEMS acceleration sensors with 2000g shock. Through non-linearity compensation, cross-axis sensitivity error compensation, filtering etc, it directly outputs analog signals proportional to the actual tilt angle, angle ASCII data, etc.

## Applications

Mobile construction machinery, Factory automation, Solar equipment, Transportation machinery, Medical equipment, etc.

## Referenced Standards

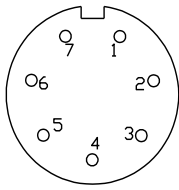
- GB/T 191 SJ 20873 General requirements for Inclinometer & levelmeter (China)
- GBT 18459 Methods for Calculating the Main static performance specifications for transducers(China)
- JJF 1059 Evaluation and Express of Uncertainty in Measurement(China)
- JJF 1094 Evaluation of the Characteristics of Measuring Instruments(China)
- JJF 1116 Calibration Specification for Linear Accelerometer used precision Centrifuger(China)
- QJ 2318 The test method of gyro & accelerometer(China)
- GJB 2786A General Requirements for Military Software Development(China)
- GJB 2884 General Specification for Three Axis angular motion simulator(China)
- EN61000-4-11 Voltage dips & Voltage variations
- MIL-HDBD-338B
- ISO 5348 IDT
- MIL-STD-810F-501.4
- MIL-STD-810F-502.4
- MIL-STD-810F-503.4
- MIL-STD-810F-506.4
- MIL-STD-810F-510.4
- MIL-STD-810F-514.5
- MIL-STD-810F-516.5
- IEC60529 IP
- EN61000 -4-2 ESD
- EN61000-4-3 RS
- MIL-STD-810F-507.4
- EN61000-4-4 EFT
- EN61000-4-5 SURGE
- EN61000-4-6 CS
- EN61000-4-8 PFMF
- ISTA-2A

# Performances

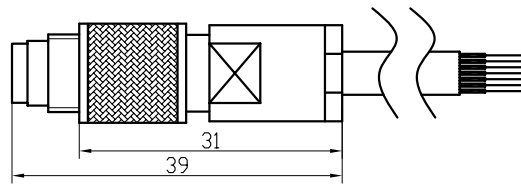
Table1 SST141/2,SST151/2,SST161/2 Inclinometer

Product type	SST141,SST142,SST151,SST152,SST161,SST162 with analog/digital output							
Measurement range	±5°	±10°	±15°	±30°	±45°	±60°	±90°	±180°
Accuracy(@25°C)	±0.05°							
Temperature drift coefficient /°C @ -20~65°C	±0.004°			±0.005°			±0.009°	
Resolution	0.01°							
Repeatability	±0.02°							
Offset repeatability	±0.02°							
Offset	±0.02°							
Measurement axis	1 axis:SST141,SST151,SST161							
	2 axis:SST142,SST152,SST162							
Response time	0.3s @ t <sub>90</sub>							
Cross-axis sensitivity	±0.3%FS							
Digital output for SST161,SST162	RS232(optional RS485、CAN、CANopen、J1939), Format: 9600bps(adjustable),8 data bits,1 start bit,1 stop bit,none parity							
Voltage output for SST141,SST142	0.5~4.5VDC Output Impedance:0.3Ω,load impedance:< 380Ω							
Current output for SST151,SST152	4~20mA Output Impedance:50MΩ,load impedance:< 380Ω							
Cold start warming time	60s							
Power supply	With digital/voltage output:9~36VDC,consumption≤20mA							
	With current output:16~36VDC,consumption≤40mA							
Power supply reject ratio	≥85dB							
Operation temperature range	-40~85°C							
Storage temperature range	-40~100°C							
EMC	According to GBT17626							
Insulation resistance	≥100MΩ							
MTBF	150000h/times							
Shock	100g@11ms,three-axis,half-sine							
Vibration	8grms,20~2000Hz							
Protection	IP67							
Housing	6061-T6 Aluminum alloy							
Connecting	Standard: Binder712 connector (optional: metal pigtail)							
Cable	7-wire shielded cable with tensile reinforcement, heavy duty up to 30Kg							
Weight	≤240g(without connector and cable)							

# Wiring



Picture 1 Binder712 socket  
(View from outside)

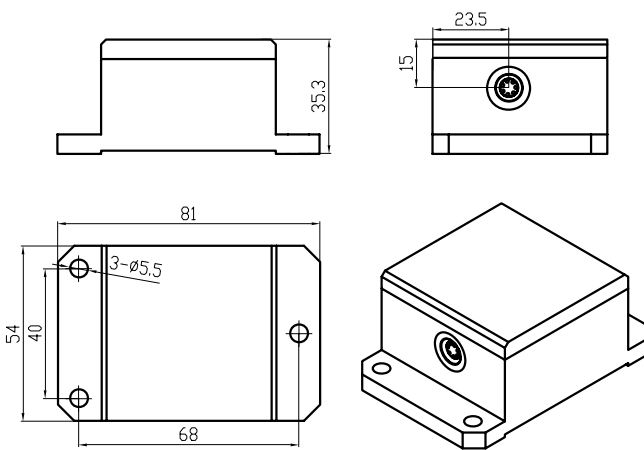


Picture 2 Binder712 plug and cable

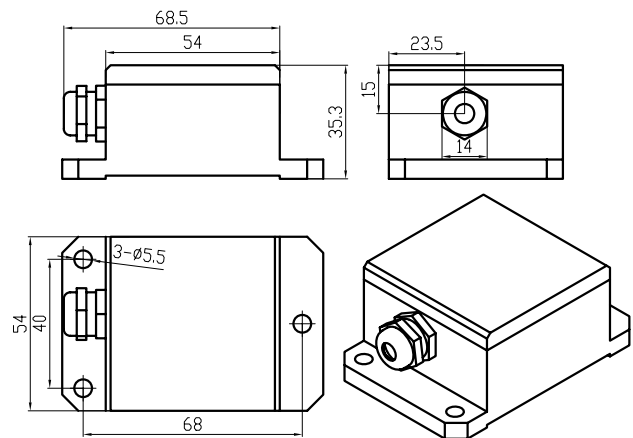
Table 2 Analog/digital output wiring

Binder712 pin	Pigtail wire color	Output							
		SST151	SST152	SST141	SST142	SST161	SST162	Option	
		4~20mA		0.5~4.5VDC		RS232		RS485	CAN
1	Red	Power+	Power+	Power+	Power+	Power+	Power+	Power+	Power+
2	Black	Power -	Power -	Power -	Power -	Power -	Power -	Power -	Power -
3	Green	Signal GND	Signal GND	Signal GND	Signal GND	Signal GND	Signal GND	Signal GND	Signal GND
4	Yellow	Iout	Ioutx	Vout	Voutx	NC	NC	NC	CAN-H
5	White	NC	Iouty	NC	Vouty	NC	NC	NC	CAN-L
6	Blue	NC	NC	NC	NC	RS232-TXD	RS232-TXD	RS485-A	NC
7	Brown	NC	NC	NC	NC	RS232-RXD	RS232-RXD	RS485-B	NC

## Dimensions (mm)



Picture 3 SST100 with Binder712 connector



Picture 4 SST100 with metal pigtail

## Ordering information

Model	Axis	Connector	Output	Range
SST141	1	Binder712(-C) ,optional Pigtail (-P)	0.5~4.5VDC	±5°,±10°, ±15°,±30°, ±45°,±60°, ±90°, ±180°
SST142	2	Binder712(-C) ,optional Pigtail (-P)	0.5~4.5VDC	
SST151	1	Binder712(-C) ,optional Pigtail (-P)	4~20mA	
SST152	2	Binder712(-C) ,optional Pigtail (-P)	4~20mA	
SST161	1	Binder712(-C) ,optional Pigtail (-P)	RS232(Optional RS485、CAN、CANopen、 J1939)	
SST162	2	Binder712(-C) ,optional Pigtail (-P)	RS232(Optional RS485、CAN、CANopen、 J1939)	

For example: if order a dual-axis SST162 inclinometer, range  $\pm 60^\circ$ , binder712 connector, output RS485,the model should be chosen as: SST162-60-G1-C

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