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Vigor Technology

SST400 High-Precision Inclinometer

Features

- Continuous output or command output
- Adjustable baud rate and output refresh rate
- Filter parameters can be set according to the field environment
- Accuracy up to $\pm 20''$ @ $\pm 5^\circ \sim \pm 30^\circ$ range
- Optional max $\pm 5''$ accuracy
- Cross-axis sensitivity $\leq \pm 0.2\%$ FS
- $\pm 9''$ offset repeatability
- Refer to about 50 industry & military standards
- Military class product available



Description

SST400 inclinometer is an intelligent renewed product with comprehensive improved functions & performances.

SST400 inclinometer has been strictly tested and combined with simulation & process with advanced EDA&CAE technologies including materials collection, heat treatment, finite element analysis, modal analysis & test (include shell, sensitive apparatus, PCB board and relationship between characters of each other).

SST400 inclinometer adopts Vigor's patented automatic testing technology, not only passed general test, correct and compensate to temperature drift/non-linearity/cross-axis sensitivity error/orthogonal error/sensitive axis and so on, also made life test with different angular rate & angular acceleration impact and long time temperature cycle test for each product. More test programs, correction and compensation of parameters can be made as special request.

SST400 integrates MEMS accelerometer inside and combines with the proprietary vibration suppression technology. It can adjust the vibration suppression ability online according to the site conditions.

Applications

- Factory automation
- Precision instrument
- Vessel
- Engineering machinery
- Civil engineering
- Military project
- Aerospace, etc

Carried 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
- MIL-STD-810F-510.4
- MIL-STD-810F-507.4
- ISO 5348 IDT
- MIL-STD-810F-514.5
- EN61000-4-4 EFT
- MIL-STD-810F-501.4
- MIL-STD-810F-516.5
- EN61000-4-5 SURGE
- MIL-STD-810F-502.4
- IEC60529 IP
- EN61000-4-6 CS
- MIL-STD-810F-503.4
- EN61000 -4-2 ESD
- EN61000-4-8 PFMF
- MIL-STD-810F-506.4
- EN61000-4-3 RS
- ISTA-2A

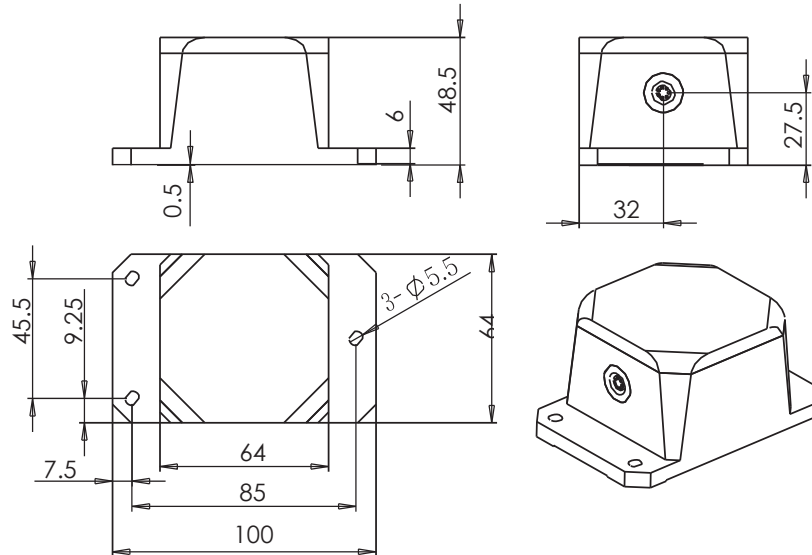
Performances

Table1 Specification

Measurement range	±5°	±10°	±15°	±30°
Accuracy(@25°C)	±20"(optional max ±5")			
Repeatability	±9"			
Resolution	2"			
Offset	±0.004°			
Response time	0.3s			
Offset temperature drift coefficient	≤0.0006°/ °C @ -20~65 °C			
Sensitivity temperature drift coefficient	≤0.005%/ °C @ -20~65 °C			
Temperature sensor	Range:-50~125°C ,Accuracy:±1°C			
Measurement axis	1axis or 2 axis			
Cross-axis sensitivity	±0.2%FS			
Output type	RS232 (optional RS422, RS485, CAN2.0, CANopen, Ethernet), 0~5VDC,4~20mA			
RS232 data format	115200bps(adjustable),8 data bits,1 start bit,1 stop bit, none parity			
Cold start warming time	60s			
Refresh rate	5Hz(optional 10Hz or 20Hz)			
Response frequency	3Hz@-3dB			
Power supply	9~36VDC			
Current consumption	≤100mA			
Power dissipation	Supply current≤50mA, power dissipation≤1.5W(25°C &24VDC)			
Output impedance	Internal resistance of voltage output: 100Ω, sink/leakage current about 10mA Internal resistance of current output: 50MΩ, load : <600Ω			
Power supply rejection ratio	>85dB			
Operation temperature range	-40~85°C			
Storage temperature range	-60~100°C			
EMC	According to EN610000 and GBT17626			
Insulation resistance	100MΩ			
MTBF	≥25000h/time			
Shock	100g@11ms,three-axis,half-sine			
Vibration	8grms, 20~2000Hz			
Protection	IP67			
Housing	6061-T6 aluminum alloy			
Cable	7-wire shielded cable with tensile reinforcement			
Connecting	Binder712 connector(optional pigtail connector)			
Weight	≤500g(without connector and cable)			

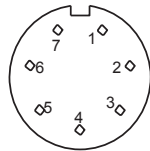


Dimensions (mm)

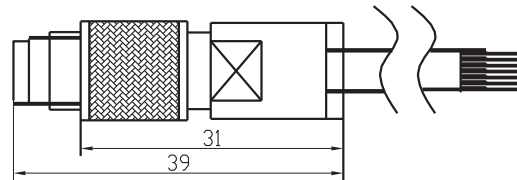


Picture1 Housing with Binder712 socket

Wiring



Picture 2 Binder712 socket
(View from outside)



Picture 3 Binder712 plug and cable

Table 2 Binder712 wiring

Binder712 socket pin	Wire colour	Output					
		4~20mA	0~5VDC	RS232	RS485	RS422	CAN
1	Red	Power +	Power +	Power +	Power +	Power +	Power +
2	Black	Power -	Power -	Power -	Power -	Power-	Power-
3	Green	Signal GND	Signal GND	Signal GND	Signal GND	Signal GND	Signal GND
4	Yellow	Ioutx	Voutx	NC	NC	RS422-RXD+	CAN-H
5	White	Iouty	Vouty	NC	NC	RS422-RXD-	CAN-L
6	Blue	NC	NC	RS232-TXD	RS485-A	RS422-TXD+	NC
7	Brown	NC	NC	RS232-RXD	RS485-B	RS422-TXD-	NC

Ordering information

Table 3 Ordering product list

Model	Axis	Output type	Range
SST410	1	4~20mA	±5° ±10° ±15° ±30°
SST420	2	4~20mA	
SST430	1	0~5VDC	
SST440	2	0~5VDC	
SST450	1	RS232(optional RS485,RS422,CAN2.0,CANopen,Ethernet)	
SST460	2	RS232(optional RS485,RS422,CAN2.0,CANopen,Ethernet)	



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