

PST100 High-Reliability Inclinator



PST100 High-Reliability Inclinator

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

PST100 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.

PST100 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

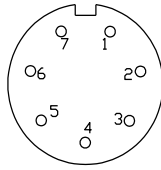
- GB/T 191 SJ 20873 General requirements for Inclinator & levelmeter (China)
- GBT 18459 Methods for Calculating the Main static performance specifications for transducers(China)
- JJF 1059 Evaluation and Express of Uncertainty in Measurement(China)
- JJF 1094 Evaluation of the Characteristics of Measuring Instruments(China)
- JJF 1116 Calibration Specification for Linear Accelerometer used precision Centrifuge(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
- MIL-STD-810F-507.4
- EN61000-4-4 EFT
- EN61000-4-5 SURGE
- EN61000-4-6 CS
- EN61000-4-8 PFMF

Performances

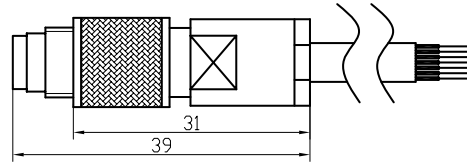
Table1 PST141/2,PST151/2,PST161/2 Inclinator

Product type	PST141,PST142,PST151,PST152,PST161,PST162 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:PST141,PST151,PST161							
	2 axis:PST142,PST152,PST162							
Response time	0.3s @ t ₉₀							
Cross-axis sensitivity	±0.3%FS							
Digital output for PST161,PST162	RS232(optional RS485、CAN、CANopen、J1939), Format: 9600bps(adjustable),8 data bits,1 start bit,1 stop bit,none parity							
Voltage output for PST141,PST142	0.5~4.5VDC Output Impedance:0.3Ω,load impedance: < 380Ω							
Current output for PST151,PST152	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)

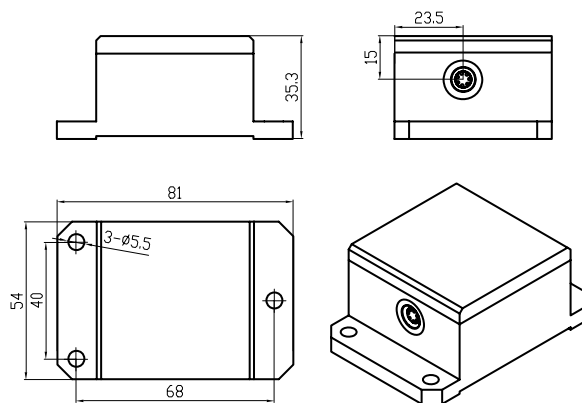


Picture 2 Binder712 plug and cable

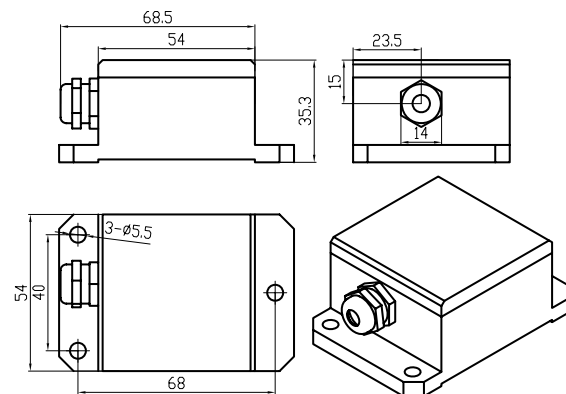
Table 2 Analog/digital output wiring

Binder712 pin	Pigtail wire color	Output							
		PST151	PST152	PST141	PST142	PST161	PST162	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 PST100 with Binder712 connector



Picture 4 PST100 with metal pigtail

Ordering information

Model	Axis	Connector	Output	Range
PST141	1	Binder712(-C) ,optional Pigtail (-P)	0.5~4.5VDC	$\pm 5^\circ, \pm 10^\circ,$ $\pm 15^\circ, \pm 30^\circ,$ $\pm 45^\circ, \pm 60^\circ,$ $\pm 90^\circ, \pm 180^\circ$
PST142	2	Binder712(-C) ,optional Pigtail (-P)	0.5~4.5VDC	
PST151	1	Binder712(-C) ,optional Pigtail (-P)	4~20mA	
PST152	2	Binder712(-C) ,optional Pigtail (-P)	4~20mA	
PST161	1	Binder712(-C) ,optional Pigtail (-P)	RS232(Optional RS485、CAN、CANopen、J1939)	
PST162	2	Binder712(-C) ,optional Pigtail (-P)	RS232(Optional RS485、CAN、CANopen、J1939)	

For example: if order a dual-axis PST162 inclinometer, range $\pm 60^\circ$, binder712 connector, output RS485,the model should be chosen as: PST162-60-G1-C



We are here for you. Addresses and Contacts.

Headquarter Switzerland:

Angst+Pfister Sensors and Power AG
Thurgauerstrasse 66
CH-8050 Zurich
Phone +41 44 877 35 00
sensorsandpower@angst-pfister.com

Office Germany:

Angst+Pfister Sensors and Power Deutschland GmbH
Edisonstraße 16
D-85716 Unterschleißheim
Phone +49 89 374 288 87 00
sensorsandpower.de@angst-pfister.com

Office North America:

Angst+Pfister North America Inc.
10391 Brecksville Rd.
US-Brecksville, OH 44141
Phone +1 440 375-5212
info.apus@angst-pfister.com

Scan here and get an overview of personal contacts!



<https://sensorsandpower.angst-pfister.com/en/>
