# SST Inclinometer

Herbertek
www.herbertek.se
info@herbertek.se
+46-18 590510

Vigor Technology

# SST20 Inclinometer

## Features


- Low cost, high performance, suitable for batch applicat
- 50Hz refresh rate, 10Hz response frequency
- ±0.5% Cross-axis error, ±0.15° or ±0.07°accuracy
- Available to horizontal, vertical, headstand, etc installation method
- Auto-correct installation error
- IP67 protection
- 9~36VDC supply, compatible to automotive application
- Survive to 1500g shock while operating
- OEM available, MIL/ EN/DIN/ISO/IEC testing standard upon request application

## Descriptions

SST20 inclinometer based on Vigor's advanced tilt measurement technology, to meet with low cost, high reliability and volume application, performs high performance-cost ratio.

SST20 employed most universal & mass-produced components, casting aluminum alloy house, universal high reliability M12-5pin industrial connector; full epoxy seal with IP69K protection, auto-test/calibration equipment which not only ensure delivery speed, also keep the consistency of goods.

Thanks for Vigor engineers, they adopt advanced technologies as:
- CAE/EDA simulation;
- Modal test for both housing and PCB to eliminate resonance due to vibration;
- Comprehensive performance & function test for component & firmware;
- Calibration technology based on SST300 high accuracy inclinometer;
- Refer MIL/ EN/ ISO/IEC standards to enhance SST20 durability & reliability.

SST20 support remote diagnosis without disassembling. MTBF more than 10 years per time. Can work in 10m submersible depth long time and has better EMC ability.

SST20 output RS232/RS485/CAN/CANOpen and Voltage/Current signals. Better power management to meet with automotive /truck/vehicle application without regulated power.

OEM service is available with calibrated PCBA or MIL qualified.

## Applications

Vessel, Engineering machinery, Solar/wind energy, Zutomobile/truck/vehicle, Communication/electric Tower monitoring, High-voltage pylon monitoring, Antenna, construction engineering, Landslide, etc



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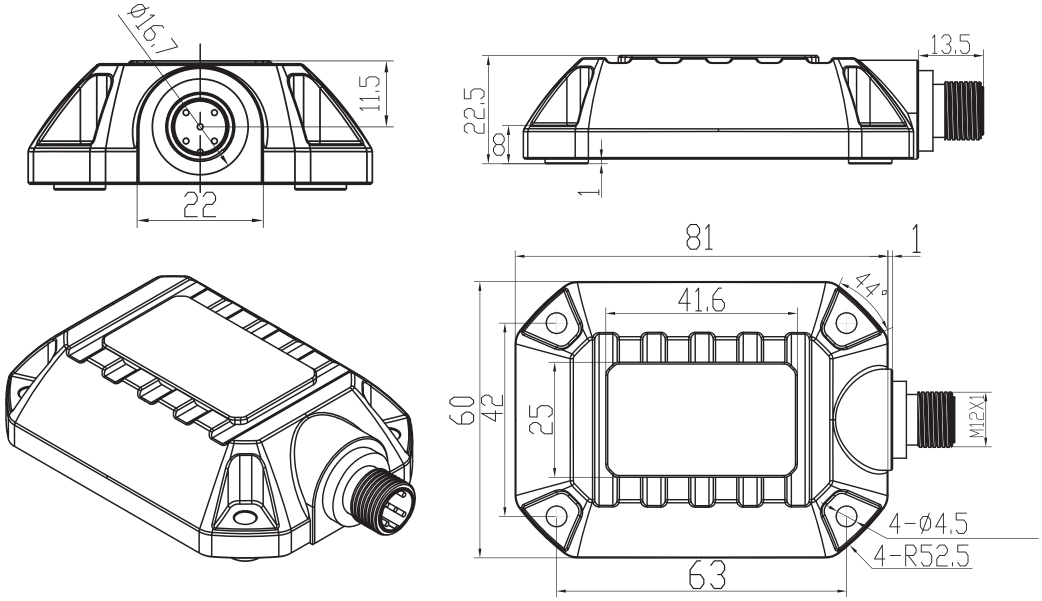
# Performances

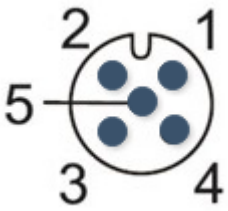
## Table1 Specifications

| | | |
|---|---|---|
| Range | ±5°、±10°、±15°、±30°、±45°、±60°、±90°、0~360°(±180°@single axis) | |
| Accuracy | Digital output：±0.07°@-15~50℃ | Analog output：±0.15°@-15~50℃ |
| Resolution | 0.01° | |
| Cross-axis sensitivity | ±0.5%FS | |
| Repeatability | ±0.02° | ±0.05° |
| Offset | ±0.02° | ±0.05° |
| Measurement axis | 1 or 2 axis | |
| Bandwidth | 10Hz(max) | |
| Reponse time | 1ms(no filtering) | |
| Refresh rate | 5Hz，(50Hz max) | |
| Cold start warming time | 60s | |
| Function | zeroing、baud rate、refresh rate、zero point correction、bandwidth、ID address | |
| Output | CAN2.0B：according to ISO11898-2 standard, twisted-pair output,5k~1Mbit/s baud rate, support 127 nodes, max cable length 10Km, built in high speed photoelectric isolator | |
| | CANOpen：according to DS301、DS303、DS305 standard，confirm to CiA 410 protocol standard, 5k~1Mbit/s baud rate support 127 nodes, max cable length 10Km, built in high speed photoelectric isolator | |
| | Voltage output：0.5～4.5VDC；output consumption 0.3Ω；load impedance<100Ω | |
| | Current output：4～20mA；output consumption 50MΩ；load impedance 150~650Ω | |
| | RS485 output：9600bps（adjustable），8 data bits，1 start bit，1 stop bit, none parity | |
| | Switch output：Darlington OC output，load with 1A @9～36VDC，alarm point can be pre-set in factory | |
| Power supply | RS485/CAN/CANopen output：current consumption≤30mA@9~36VDC，no-load | |
| | Voltage/current output：current consumption≤15mA@9~36VDC，no-load | |
| | Switch output：current consumption≤10mA@9~36VDC，no-load | |
| Operation temperature | -40～85℃ | |
| Storage temperature | -40～85℃ | |
| EMC | According to EN610000 and GBT17626 | |
| Insolation | ≥100MΩ | |
| MTBF | 10 years | |
| Shock | 100g@11ms，three-axis，half-sine | |
| Vibration | 8grms，20～2000Hz | |
| Protection | IP67 | |
| Connecting | M12-5Pin socket | |
| Weight | ≤200g (without connector and cable) | |

## Demisions（mm）




## Wiring




Connector Socket
(View from outside)

| Pin | Wire color | RS232 | RS485 | CAN | Current | Voltage |
|---|---|---|---|---|---|---|
| 1 | Red | Power+ | Power+ | Power+ | Power+ | Power+ |
| 2 | Black | Power- | Power- | Power- | Power- | Power- |
| 3 | Blue | TXD | A | CAN-H | Ix | Vx |
| 4 | Brown | RXD | B | CAN-L | Iy | Vy |
| 5 | Green | Signal GND | Signal GND | CAN-GND | Teach-in | Teach-in |

## Ordering

SST20 — Axis — Accuracy — Range — Output

- Axis: Single axis — 01; Dual axis — 02
- Accuracy: ±0.15°—P1; ±0.07°—P2
- Range: ±5° —05; ±10°—10; ±15°—15; ±30°—30; ±45°—45; ±60°—60; ±90°—90; ±180°—180; 0~360°—360
- Output: RS232—00; RS485—G1; CAN2.0B—G3; CANOpen—G4; 0.5~4.5V—G20; 4~20mA—G19; Switch alarm—G25

**Remarks:** 4~20mA and 0.5~4.5VDC output inclinometer only provide 0.15°accuracy class; RS232/485, CAN2.0, CANOpen and switch output inclinometer only provide 0.07 accuracy class.

**For example:** if order a dual-axis SST20 inclinometer, range ±30°, ±0.07°accuracy, output CAN2.0, the model should be chosen as :SST20-02-P2-30-G3

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Shanghai Vigor Technology Development Co., Ltd.
No.289-4, Bisheng Road, Pudong New District Shanghai China 201204
Hotline. +86-400-0505-021
Tel. +86-21-5840-4921
Fax. +86-21-5835-4552
Email: sales@vigordigital.com
Web: www.vigordigital.com