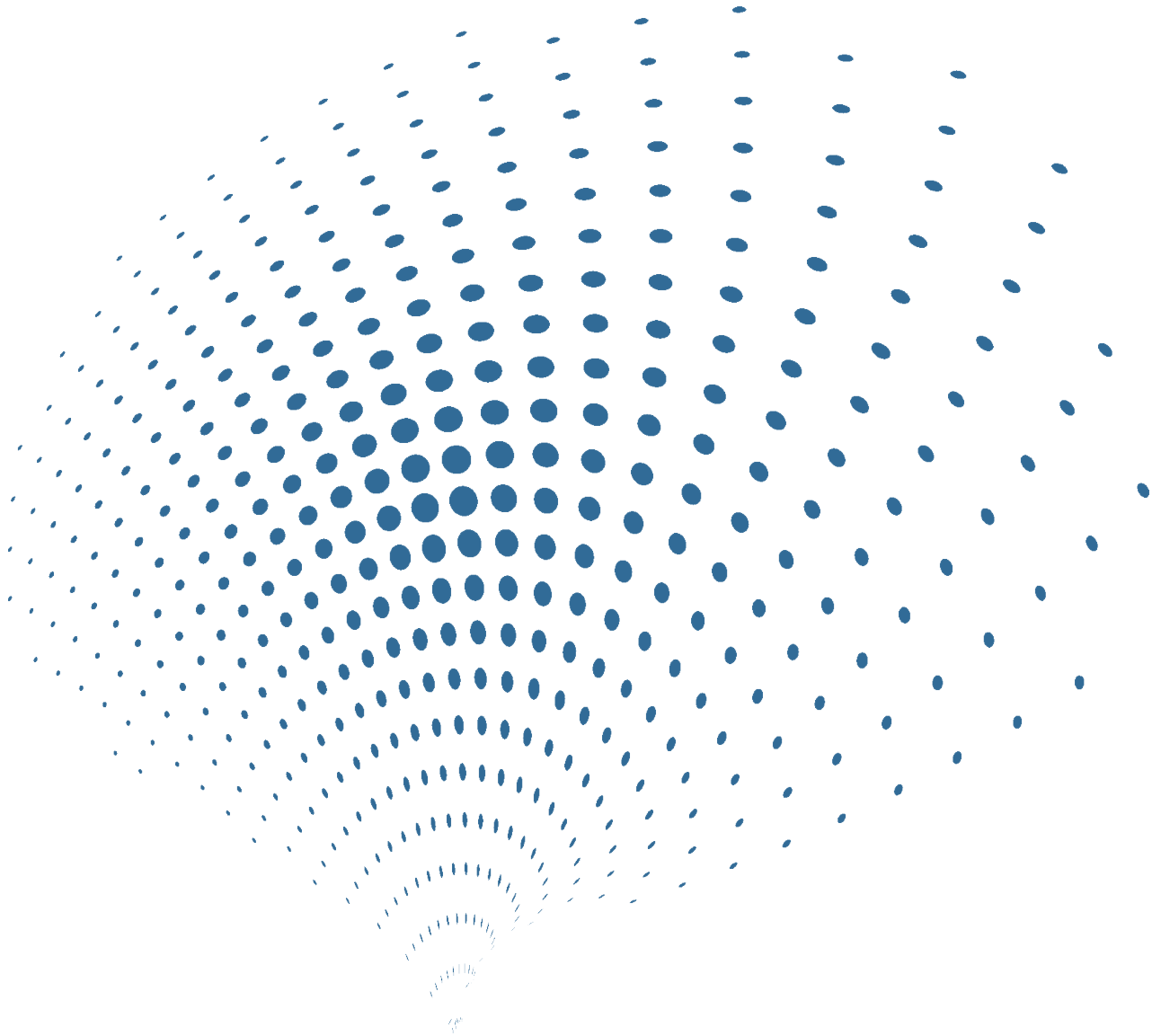# Vigor Technology

SST20 Low Cost Inclinometer

SST20 Low Cost Inclinometer

Features

- Low cost, high performance, suitable for batch application
- 50Hz refresh rate max, 10Hz response frequency max
- ±0.5% Cross-axis error, ±0.15° or ±0.07° accuracy
- Available to horizontal, vertical, headstand, etc installation
- 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 is designed on the basis of Vigor's advanced tilt measurement technology, to meet the low cost requirement, high reliability and volume application, performs high performance-cost ratio.

SST20 adopts most universal & mass-produced components, die-cast aluminum alloy casing, universal high reliability M12-5pin industrial connector, full epoxy seal with IP67 protection, auto-test/calibration equipments 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;
- Refer MIL/ EN/ ISO/IEC standards to enhance SST20 durability & reliability.

SST20 supports remote diagnosis without disassembling. MTBF more than 10 years per time and has good EMC ability.

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

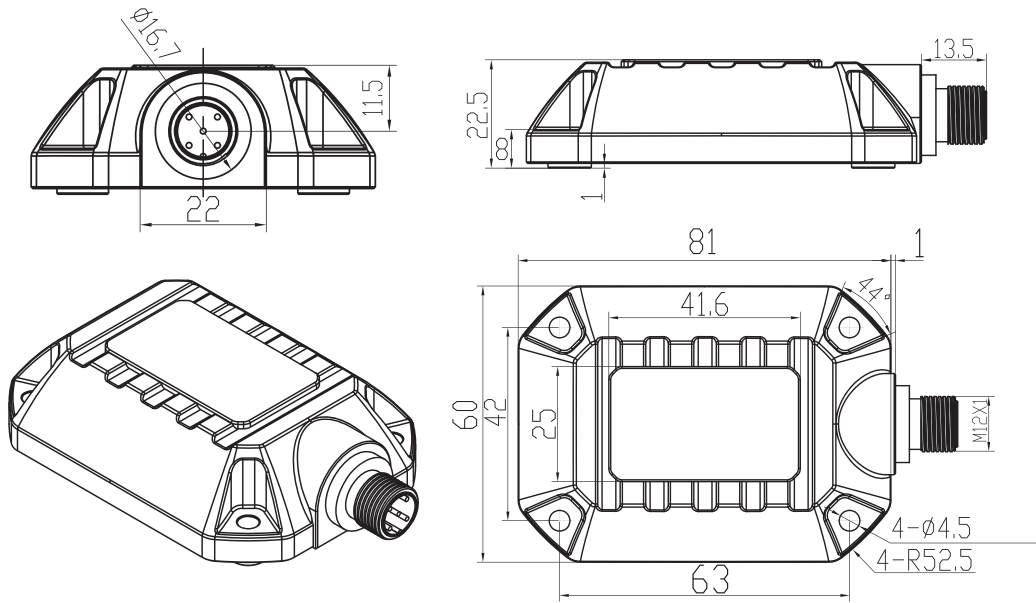OEM service is available with MIL qualified.

Applications

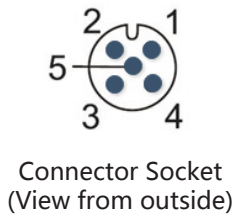|		
-Engineering machinery	-Automobile/truck/vehicle	-Shipping
-Solar/wind energy	-Radar/Antenna motion monitoring	-Civil engineering
-Landslide	-Communication/electric tower monitoring, etc	

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	3Hz, (10Hz max)	
Reponse time	0.3s@t90	
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 ＜400Ω	
	RS485 output: 9600bps（adjustable）, 8 data bits, 1 start bit, 1 stop bit, none parity	
Power supply	RS485/CAN/CANopen output : current consumption≤15mA@9~36VDC , no-load	
	Voltage/current output : current consumption≤25mA@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)	

Dimensions（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- & Signal GND	Power & Signal GND
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

| Single axis — 01 Dual axis — 02 | $\pm0.15°$ —P1 $\pm0.07°$ —P2 | $\pm5°$ —05 $\pm10°$ —10 $\pm15°$ —15 $\pm30°$ —30 $\pm45°$ —45 $\pm60°$ —60 $\pm90°$ —90 $\pm180°$ —180 $0\sim360°$ —360 | RS232—00 RS485—G1 CAN2.0B—G3 CANOpen—G4 $0.5\sim4.5V$—G20 $4\sim20mA$—G19 |
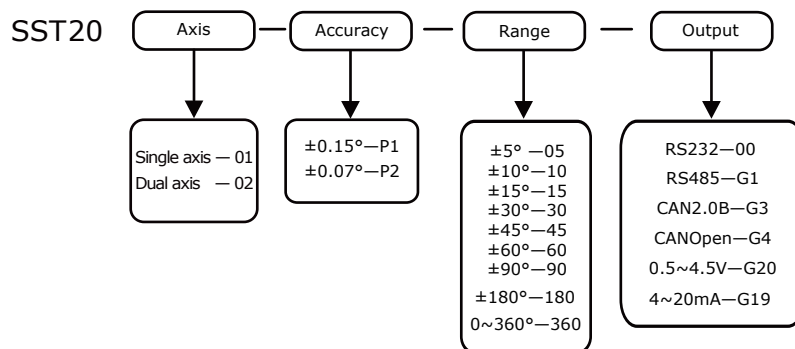
For example: if order a dual-axis SST20 inclinometer, range ±60°, ±0.07°accuracy, output CAN2.0B, the model should be chosen as : SST20-02-P2-60-G3