INCLINOMETER

Inclination Sensor with Digit and Analog Interface
2-dimensional ±90 degrees

Characteristics:

- Inclination sensor with measurement range: ±90°
- Interface: Analog 4-20mA / Analog 0.5 -4.5V / RS232 / RS485 , CAN 2.0B / CAN open / Switch
- High resolution (0.002°) and accuracy (0.05°)
- Compensated temperature coefficient
- High long-term stability
- Shockproof as without moving mechanical parts
- Programmable vibration suppression (digital filter)
- Power supply 9 - 36 Vdc
- Sensing elements survive to 1500g shock while operating
- Comfortable CANopen interface

    Meets the CiA DS-301, device profile CiA DSP-410

    Setting Node ID and baud rate via LSS Service
- Functions:

    Angle request, cyclical output, synchronized output, output on angle change

    Configurable cut-off frequency (digital filter)
- Metal housing with stainless steel base plate
- Temperature range: -40 °C to +80 °C
- Degree of protection: IP67/69K

Applications:

- Solar thermal and photo-voltaic systems
- Engineering machinery
- Agricultural and forestry machinery
- Construction machinery
- Crane and hoisting technology
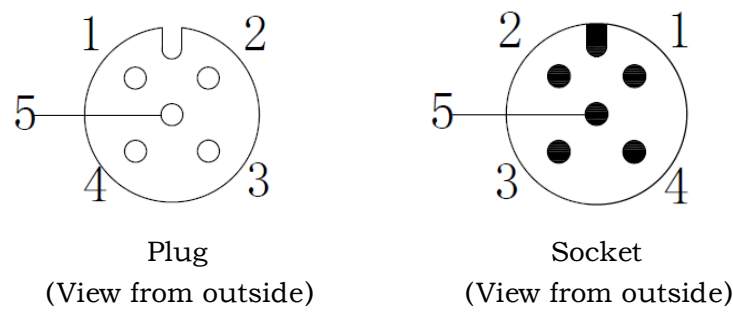- Medical equipment
- Wind energy

www.carlen-sensors.com info@carlen-sensors.com

We reserve the right to modify technical features in the interest of technological advance.

INCLINOMETER

Technical Data:* (@25°C test conditions, except other notifications)

Output Interface	RS232 /RS485 /CAN /CANOpen /Switch	0.5~4.5VDC /4~20mA
Measurement range	±5°、±10°、±15°、±30°、±45°、±60°、±90°	
Accuracy	±0.05°@-15~50℃	±0.15°@-15~50℃
Non-linearity	±0.03°	±0.05°
Resolution	0.002°	0.005°
Repeatability	±0.02°	±0.05°
Offset	±0.02°	±0.05°
Cross-axis sensitivity	±0.2%FS	±0.2%FS
Measuring axis	2 axis (X + Y axis)	
Bandwidth	Default 3Hz，5Hz、10Hz available	
Response time	5ms（no filtering）	10ms（no filtering）
Refresh rate	Default 5Hz，max. 50Hz	50Hz
Cold start warming time	Less than 60s	
Interface features	RS232: 9600bps (adjustable), 8 data bits, 1 start bit, 1 stop bit	Voltage output: 0.5~4.5VDC; Internal resistance 0.3Ω; Drive current (max.) 15mA
	RS485: 9600bps (adjustable), 8 data bits, 1 start bit, 1 stop bit No matched resistance	
	CAN2.0: according to ISO11898-2 standard, 40k~1MBit/s baud rate, adaptive standard frame and extended frame format No matched resistance	
	CANOpen: according to DS301 standard, 40k~1MBit/s baud rate No matched resistance	Current output: 4~20mA; Internal resistance 50MΩ; load impedance 150~650Ω
	Switch output: Darlington OC output, load with1A @9～36VDC, alarm point can be pre-set in factory	
Power consumption	RS232/RS485 Output: 9~36VDC, current ≤50mA@24VDC	16~36VDC current≤30mA（no-load)@24VDC.
	CAN/CANOpen Output: 9~36VDC, current≤80mA@24VDC	
	Switch output: 9~36VDC，current≤50mA（no-load)@24VDC	
Operation temperature range	-40～85℃	
Storage temperature range	-40～85℃	
EMC	According to EN 61000/GBT17626	
Insolation	≥100MΩ	
MTBF	10 years	
Shock	100g@11ms, three-axis, half- sine	
Vibration	8grms，20～2000Hz	
Protection	IP67	
Connector	Cable outlet, M12 5-Pin socket	
Weight	≤200g (no connector or cable)	

www.carlen-sensors.com   info@carlen-sensors.com

We reserve the right to modify technical features in the interest of technological advance.

INCLINOMETER

Connection:

Plug
(View from outside)

Socket
(View from outside)

Pin	Wire color	Output interface m						
		RS232	**RS485**	**CAN**	**CANOpen**	**voltage**	**Current**	**Switch alarm**
1	Red	Power+	Power+	Power+	Power+	Power+	Power+	Power+
2	Yellow	Power GND	Power GND	Power GND	Power GND	Power GND	Power GND	Power/Signal GND
3	White	TXD	RS485-A	CAN_H	CAN_H	Vx	Ix	Control power +
4	Brown	RXD	RS485-B	CAN_L	CAN_L	Vy	Iy	X axis Alarm
5	Green	Signal GND	Signal GND	CAN GND	CAN GND	Signal GND	Signal GND	Y axis Alarm

Remarks: if order switch alarm output inclinometer, only provide factory settings for alarm point. If you need set alarm point with special request, should specify all requirments when ordering. Single axis inclinometer only has X axis.

www.carlen-sensors.com   info@carlen-sensors.com

We reserve the right to modify technical features in the interest of technological advance.

CARLENsensors

INCLINOMETER

Definition-of-the-Aes

Dimensions

We reserve the right to modify technical features in the interest of technological advance.