



## PTK29

Dynamic inclination sensor with robust,  
compact stainless steel housing



- **Measurement range  $\pm 180^\circ$ , 2 axes**
- **Protection class IP67**
- **Hermetically sealed stainless steel housing**
- **Longitudinal water barrier; potted electronics**
- **Wear-free MEMS technology**
- **User selectable axis orientation (optional)**

### Product versions



Digital output CAN



PTK29 - Dynamic inclination sensor  
**Version with digital output CAN**

**Specifications**

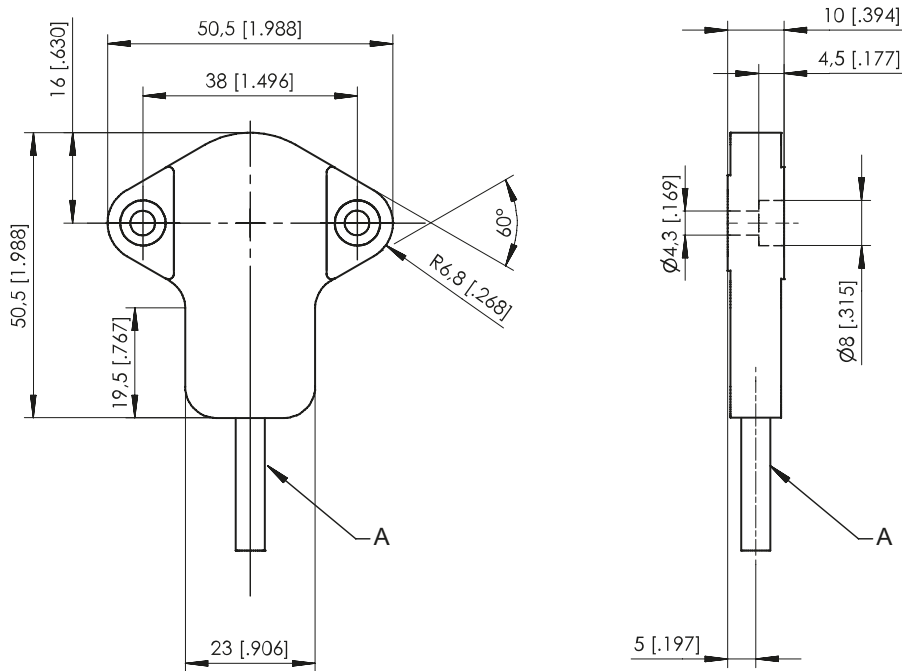
<b>Output</b>	CANopen SAE J1939	<b>1</b>	<b>Order options</b> CANOP CANJ1939
<b>Measurement range</b>	±180°, 2 axes		
<b>Resolution</b>	≥0.01° Adjustable by the user		
<b>Linearity (static)</b>	0.05° (±30°) 0.1° (±60°) 0.2° (±180°)		
<b>Repeatability</b>	<0.05°		
<b>Hysteresis</b>	<0.05°		
<b>Housing material</b>	Stainless steel EN 1.4404 (AISI 316L)		
<b>Mounting</b>	Screws M4: DIN 912, DIN 6912, DIN 7984		
<b>Protection class</b>	IP67		
<b>Connection</b>	Cable 0.3 m with connector M12, 5 pin	<b>2</b>	<b>KAB0,3M – M12/CAN</b>
<b>Shock</b>	DIN EN 60068-2-27:2010, 100 g/11 ms, 100 shocks		
<b>Vibration</b>	DIN EN 60068-2-6:2008, 20 g 10 Hz-2 kHz, 10 cycles		
<b>Temperature range</b>	-40° ... +85°C		
<b>Weight</b>	approx. 80 g (without cable)		
<b>EMC</b>	DIN EN 61326-1:2013		

**Order code**

PTK29 – **1** – **2**

**Order example:** PTK29 – CANOP – KAB0,3M – M12/CAN

## Dimensions



A – Cable


Dimensions in mm [inch].

Dimensions informative only.

For guaranteed dimensions consult factory.

## Output specification


### Digital output CANopen

<b>CANOP</b> CANopen  	Communication profile	CANopen CiA 301, Slave
	Encoder profile	CiA 410, Profile „Inclinometer“
	Configuration services	LSS, CiA Draft Standard 305 (Transmission rate, node ID)
	Error Control	Node guarding, Heartbeat, Emergency message
	Node ID	Adjustable via LSS or SDO, default: 127
	PDO	1 TxPDO, 0 RxPDO, no linking, static mapping
	PDO Modes	Event-/Time triggered, Remote-request, Sync cyclic/acyclic
	SDO	1 Server, 0 Client
	Certified	yes
	Transmission rate	125 kBit ... 1 Mbit, adjustable via LSS or SDO, default: 125 kBit
	Bus connection	M12 connector, 5 pin
	Bus, galvanic isolated	no
	Error Control Baudrate	50 kBit/s ... 1 MBit/s configurable
	Transceiver	24V-compliant, not isolated
	Internal termination resistor	120 Ohm configurable

<b>Specifications</b>	Excitation voltage	8 ... 36 V DC
	Excitation current	15 mA typical at 24 V DC 30 mA typical at 12 V DC 100 mA max.
	Measuring rate	0.5 kHz standard
	Stability (temperature)	± 0,2° (-20 ... +40 °C) ± 0,4° (-40 ... +85 °C)
	Repeatability	1 LSB
	Operating temperature	-40 ... +85 °C
	Protection	Reverse polarity, short circuit
	EMC	DIN EN 61326-1:2013

Signal wiring	Output signals	Connector pin no.
<b>Connector M12, 5 pin</b>   View to the sensor connector	Shield	1
	Excitation +	2
	GND	3
	CAN-H	4
	CAN-L	5

## Digital output SAE J1939

<b>CANJ1939</b> SAE J1939 	CAN Specification	ISO 11898, Basic and Full CAN 2.0 B extended message format with 29-bit identifier
	Transceiver	24V-compliant, not isolated
	Communication profile	SAE J1939, 29-bit identifier
	Transmission rate	250 kBit/s
	Internal termination resistor	120 Ω
	Address	Default 247d, configurable

NAME - Unique device identifier	Name Fields	Remark	Field value	Size [Bit]	Byte order	Byte value
	Arbitrary Address Capable	No	0	1	Byte 8 (MSB)	00h
	Industry Group	Global	0	3		
	Vehicle System instance		0	4		
	Vehicle System	Non specific	7Fh	7	Byte 7	FEh
	Reserved		0	1		
	Function	Non specific	FFh	8	Byte 6	FFh
	Function Instance		0	5	Byte 5	00
	ECU Instance		0	3		
	Manufacturer	Manufacturer Code	145h	11	Byte 4	28h
						Byte 3
		Identity Number	n..nh	21		
						Byte 2
					Byte 1	nnh

<b>Proprietary PGN - Manufacturer specific Parameter Group Numbers</b>	Configuration data	PGN EFddh	Proprietary-A (PDU1 peer-to-peer)
	Process data	PGN FFnnh	Proprietary-B (PDU2 broadcast); nn Group Extension (PS) configurable

Specifications		
	Excitation voltage	8 ... 36 V DC
	Excitation current	15 mA typical at 24 V DC 30 mA typical at 12 V DC, 100 mA max.
	Measuring rate	0.5 kHz (asynchronous)
	Stability (temperature)	± 0,2° (-20 ... +40 °C) ± 0,4° (-40 ... +85 °C)
	Repeatability	1 LSB
	Operating temperature	-40 ... +85 °C
	Protection	Reverse polarity, short circuit
	EMV	DIN EN 61326-1:2013

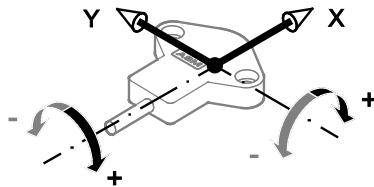
Signal wiring	Output signals	Connector pin no.
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	Excitation +	2
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	CAN-H	4
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## PTK29 – Output characteristic and axis orientation

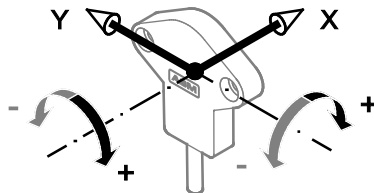
For CAN output, the axis orientation can be set by the user via software.  
Sensor position as shown equals 0°.

### 2 measuring axes

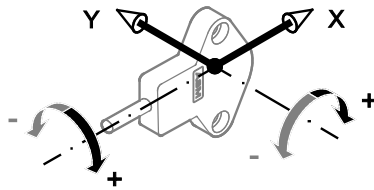
Axis orientation 2A



Axis orientation 2B



Axis orientation 2C



### Output signal

