POSICHRON®
PCST24
Rod-Style Design with Analog Output

POSICHRON® rod-style position sensor
- For hydraulic cylinders, fluid level measurement
- Protection class up to IP67/IP69K
- Measurement range 0 ... 100 to 0 ... 5750 mm
- Absolute position measurement
- Contactless
- Replaceable electronics without leakage
- Analog output

Specifications

<table>
<thead>
<tr>
<th>Output</th>
<th>Voltage</th>
<th>Current</th>
</tr>
</thead>
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<tr>
<td>Resolution</td>
<td>Refer to output specification</td>
<td></td>
</tr>
<tr>
<td>Sampling rate</td>
<td>Up to 1 kHz, depending on the measurement range</td>
<td></td>
</tr>
<tr>
<td>Linearity</td>
<td>Ranges &gt;500 mm: L10 = ±0.10 % f.s.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>L02 = ±0.02 % f.s.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ranges ≤500 mm: L10 = ±0.5 mm</td>
<td></td>
</tr>
<tr>
<td></td>
<td>L02MM = ±0.2 mm</td>
<td></td>
</tr>
<tr>
<td>Repeatability</td>
<td>±3 µm</td>
<td></td>
</tr>
<tr>
<td>Housing material</td>
<td>Sensor rod: stainless steel 1.4404, head: AlMgSi</td>
<td></td>
</tr>
<tr>
<td>Mounting</td>
<td>Thread M18x1.5 / thread ¾ inch</td>
<td></td>
</tr>
<tr>
<td>Working pressure of sensor rod</td>
<td>400 bar, other values on request</td>
<td></td>
</tr>
<tr>
<td>Protection class</td>
<td>IP67 (optional IP67/IP69K; connector version: with mating connector only)</td>
<td></td>
</tr>
<tr>
<td>Shock</td>
<td>EN 60068-2-27:2010, 50 g 11 ms, 100 shocks</td>
<td></td>
</tr>
<tr>
<td>Vibration</td>
<td>EN 60068-2-6:2008, 20 g 10 Hz-2 kHz, 10 cycles</td>
<td></td>
</tr>
<tr>
<td>Connection</td>
<td>8 pin socket M12, cable 2 m</td>
<td></td>
</tr>
<tr>
<td>EMC, temperature</td>
<td>Refer to output specification</td>
<td></td>
</tr>
</tbody>
</table>

Order code PCST24
1 channel

Model name: PCST24

Mounting
- M18 = Thread M18x1.5
- Z3/4 = Thread ¾"-16 UNF

Measurement range (in mm)
- 100 ... 5750 (in 10 mm increments)
- other lengths upon request

Output
- U1 = 0 ... 10 V signal conditioner
- U1/H = U1 with Alarm_HOLD (see page 16)
- U2 = 0.5 ... 10 V signal conditioner
- U2/U; U2/H = U2 with Alarm_LOW; U2 with Alarm_HOLD (see page 16)
- U8 = 0.5 ... 4.5 V signal conditioner
- U8/U; U8/H = U8 with Alarm_LOW; U8 with Alarm_HOLD (see page 16)
- I1 = 4 ... 20 mA signal conditioner (3 wire)
- I1/U; I1/H = I1 with Alarm_LOW; I1 with Alarm_HOLD (see page 16)

Function and characteristics output
- P1A = Position Magnet 1, increasing
- P1D = Position Magnet 1, decreasing
- PMU = Start value, direction & end value adjustable by the customer

Linearity
- L02 / L02MM / L10 (for definition see "Specifications" above)

Connection
- M12 = Connector M12, 8 pin
- KAB2M = Cable, standard length 2 m, other lengths upon request
**POSICHRON®**

PCST24

Rod-Style Design with Analog Output

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### Order code PCST24

2 channel, configurable

<table>
<thead>
<tr>
<th>Model name</th>
<th>PCST24</th>
</tr>
</thead>
</table>

### Mounting

- M18 = Thread M18 x 1.5
- Z3/4 = Thread ¼”-16UNF

### Measurement range (in mm)

100 ... 5750 (in 10 mm increments)

Other lengths upon request

### Output

- **U1** = 0 ... 10 V signal conditioner
- **U1/H** = U1 with Alarm_HOLD (see page 16)
- **U2** = 0.5 ... 10 V signal conditioner
- **U2/U; U2/H** = U2 with Alarm_LOW; U2 with Alarm_HOLD (see page 16)
- **U8** = 0.5 ... 4.5 V signal conditioner
- **U8/U; U8/H** = U8 with Alarm_LOW; U8 with Alarm_HOLD (see page 16)
- **I1** = 4 ... 20 mA signal conditioner (3 wire)
- **I1/U; I1/H** = I1 with Alarm_LOW; I1 with Alarm_HOLD (see page 16)

### Function and characteristics output 1

- **P1A** = Position magnet 1, increasing
- **P1D** = Position magnet 1, decreasing
- **DA** = Difference magnet 1/2, increasing (2 magnets required)
- **DD** = Difference magnet 1/2, decreasing (2 magnets required)

### Function and characteristics output 2

- **P2A** = Position magnet 2, increasing
- **P2D** = Position magnet 2, decreasing
- **DA** = Difference magnet 1/2, increasing
- **DD** = Difference magnet 1/2, decreasing

### VZx.x

Velocity with direction detection (with 1 magnet only)

- **Example: VZ1.5**
  - Towards start position: 1.5 m/s
  - Towards end position: 1.5 m/s

### VAx.x

Velocity without direction detection (with 1 magnet only)

- **Example: VA1.5**
  - Towards start position: 1.5 m/s
  - Towards end position: 1.5 m/s

### Linearity

L02 / L02MM / L10 (for definition see "Specifications" above)

### Connection

- **M12** = Connector M12, 8 pin
- **KAB2M** = Cable, standard length 2 m, other lengths upon request

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**Order example: PCST24 - M18 - 1000 - U2 - P1D - L10 - M12**

Rod-style design, measurement range 1000 mm, 1 voltage output 0.5 ... 10 V (U2)

Output 1: Position magnet 1, decreasing signal (P1D)

Output 2: Not used

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**Order code position magnet** (see page 9-13)

**Order code mating connecting cable** (see page 20)
**POSICHRON® rod-style position sensor**

- For hydraulic cylinders, fluid level measurement
- Protection class up to IP67/IP69K
- Measurement range 0 ... 100 to 0 ... 5750 mm
- Absolute position measurement
- Contactless
- Replaceable electronics without leakage
- Synchronous serial interface (SSI)

### Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output</td>
<td>Synchronous serial interface (SSI)</td>
</tr>
<tr>
<td>Resolution</td>
<td>5, 10, 20, 50, 100 µm</td>
</tr>
<tr>
<td>Sampling rate</td>
<td>Up to 1 kHz, depending on the measurement range</td>
</tr>
</tbody>
</table>
| Linearity                     | Ranges >500 mm: L10 = ±0.10 % f.s.  
Ranges ≤500 mm: L10 = ±0.5 mm  
L02 = ±0.02 % f.s.  
L02MM = ±0.2 mm                                                                 |
| Repeatability                 | ±3 µm                                                                                                                                   |
| Housing material              | Sensor rod: stainless steel 1.4404, head: AlMgSi                                                                                         |
| Mounting                      | Thread M18x1.5 / thread ¾ inch                                                                                                            |
| Working pressure of sensor rod| 400 bar, other values on request                                                                                                          |
| Protection class              | IP67 (optional IP67/IP69K; connector version: with mating connector only)                                                                |
| Shock                         | EN 60068-2-27:2010, 50 g/11 ms, 100 shocks                                                                                               |
| Vibration                     | EN 60068-2-6:2008, 20 g 10 Hz-2 kHz, 10 cycles                                                                                             |
| Connection                    | 8 pin socket M12, cable 2 m                                                                                                              |
| EMC, temperature              | Refer to output specification                                                                                                            |

### Order code PCST24

- **Model name**
  - M18 = Thread M18 x 1.5
  - Z3/4 = Thread ¾”-16UNF
- **Measurement range (in mm)**
  - 100 ... 5750 (in 10 mm increments)
  - other lengths upon request
- **Resolution [in µm]**
  - 5 / 10 / 20 / 50 / 100
- **Output**
  - SSI = Synchronous serial interface
- **Code**
  - G / D = Gray / Dual
- **Number of data bits**
  - 24 / 25
- **Linearity**
  - L02 / L02MM / L10 (for definition see "Specifications" above)
- **Connection**
  - M12 = Connector M12, 8 pin
  - KAB2M = Cable, standard length 2 m, other lengths upon request

**Order example:** PCQA24 - M18 - 2500 - 10 - SSI/G/24 - L10 - M12

**Order code position magnet** (see page 9-13)

**Order code mating connecting cable** (see page 20)
POSICHRON® rod-style position sensor

- Replaceable electronics without leakage
- Protection class up to IP67/IP69K
- Measurement range 0 ... 100 to 0 ... 5750 mm
- Absolute position measurement
- Contactless
- For hydraulic cylinders, fluid level measurement
- CANopen bus or CAN SAE J1939 output

Specifications

Output | CANopen bus; CAN SAE J1939
Resolution | 50 µm
Sampling rate | Up to 1 kHz, depending on the measurement range
Linearity | Ranges >500 mm: L10 = ±0.10 % f.s.
| L02 = ±0.02 % f.s.
| Ranges ≤500 mm: L10 = ±0.5 mm
| L02MM = ±0.2 mm
Repeatability | ±3 µm
Housing material | Sensor rod: stainless steel 1.4404, head: AlMgSi
Mounting | Thread M18x1.5 / thread ¾ inch
Working pressure of sensor rod | 400 bar, other values on request
Protection class | IP67 (optional IP67/IP69K; connector version: with mating connector only)
Shock | EN 60068-2-27:2010, 50 g 11 ms, 100 shocks
Vibration | EN 60068-2-6:2008, 20 g 10 Hz-2 kHz, 10 cycles
Connection | 5 pin socket M12
EMC, temperature | Refer to output specification

Order code PCST24

Model name | PCST24
Mounting | M18 = Thread M18 x 1,5
| Z3/4 = Thread ¾ "-18UNF
Measurement range (in mm) | 100 ... 5750 (in 10 mm increments)
| other lengths upon request
Output | CANOP = CANopen bus
| CANOP/R = CANopen bus with integrated terminating resistance
| CANJ1939 = CAN SAE J1939
Linearity | L02 / L02MM / L10 (for definition see "Specifications" above)
Connection | M12/CAN = Connector M12, 5 pin

Order code position magnet (see page 9-13)

Order code mating connecting cable (see page 21)

Order example: PCST24 - M18 - 2000 - CANOP - L10 - M12/CAN
Connector M12

Dimensions in mm [inch]
Dimensions informative only. For guaranteed dimensions consult factory.

Cable output

Dimensions in mm [inch]
Dimensions informative only. For guaranteed dimensions consult factory.
**Connector M12**

Dimensions in mm [inch]  Dimensions informative only. For guaranteed dimensions consult factory.

**Cable output**

Dimensions in mm [inch]  Dimensions informative only. For guaranteed dimensions consult factory.
Mounting hole

M18

Drive hole and pivot M18 x 1.5 according to ISO 6149

* Diameter of the plane area without marking ring

Dimensions in mm [inch]

Dimensions informative only. For guaranteed dimensions consult factory.

Mounting hole

3/4 Zoll

Drive hole according to ISO 11926-1
UN/UNF thread 2B according to ANSI B1.1/ISO 725

Pivot according to ISO 11926-2 and 3
UN/UNF thread 2A according to ANSI B1.1/ISO 725

Sealing by O-ring

Dimensions in mm [inch]

Dimensions informative only. For guaranteed dimensions consult factory.
POSICHRON®
PCST
O-ring sealing

O-ring sealing (M18)
for:
PCST24-M18...
PCST25-M18...
PCST27-M18...

O-ring sealing (¼ Zoll)
for:
PCST24-Z3/4...
PCST25-Z3/4...
PCST27-Z3/4...

O-ring sealing (Plug-in version)
for:
PCST25-SV...

Dimensions in mm [inch]
Dimensions informative only. For guaranteed dimensions consult factory.

O-Ring 15.3 x 2.2
[.602 x .087]

Order code O-ring M18
PCST-OR-M18

O-Ring 16.36 x 2.2
[.644 x .087]

Order code O-ring ¼ inch
PCST-OR-Z3/4

Order code O-ring Plug-in version
PCST-OR-SV

Example

DB-PCST24-E-2013-11
www.asm-sensor.com
POSICHRON®
PCST
Magnets

PCSTMAG1

PCSTMAG2
(standard)

PCSTMAG5

Dimensions in mm [inch]
Dimensions informative only. For guaranteed dimensions consult factory. Other designs can be realized on request.
**POSICHRON®**

**PCST**

Magnets

---

**PCST MAG2-MH1**

Dimensions in mm [inch]

Dimensions informative only.
For guaranteed dimensions consult factory.
Other designs can be realized on request
POSICHRON®
PCST
Magnets

PCSTMAG2-G1

PCSTMAG2-G2

Dimensions in mm [inch]
Dimensions informative only.
For guaranteed dimensions consult factory.
Other designs can be realized on request

PCSTMAG2 - G1 / G2

Sliding magnet with special self-lubricating and abrasion-resistant material. To be used if sensor is mounted in horizontal position and a mechanical support of the rod is not possible for measurement ranges >1000 mm.
PCSTMAG7

PCSTMAG4

Dimensions in mm [inch]

Dimensions informative only.
For guaranteed dimensions consult factory.
Other designs can be realized on request
**PCST MAG3**

(float, continuous pressure up to 9 bar, for media with a specific gravity of \(\geq 0.75 \text{ g/cm}^3\))

Material: 1.4404

Note: Dependent on the design the available measurement range is reduced of 25 mm on both ends!

---

**PCST MAG6**

(float, continuous pressure up to 30 bar, for media with a specific gravity of \(\geq 0.7 \text{ g/cm}^3\))

Material: 1.4571

Note: Dependent on the design the available measurement range is reduced of 25 mm on both ends!

Dimensions in mm [inch]

Dimensions informative only. For guaranteed dimensions consult factory. Other designs can be realized on request.
POSICHRON®
Output Specification U2, U8 and I1
Configurable, 1 or 2 channels

U1, U2, U8
Voltage output

Excitation voltage
U1: 18 ... 36 V DC; U2: 18 ... 36 V DC; U8: 10 ... 36 V DC
Excitation current
Typ. 35 mA, 80 mA max.
Output voltage
U1: 0 ... 10 V DC; U2: 0.5 ... 10 V DC; U8: 0.5 ... 4.5 V DC
Output current
2 mA max.
Output load
> 5 kΩ
Resolution
16 bit f.s., min. 10 µm
Stability (temperature)
±50 x 10^{-6} / °C f.s.
Protection
Reverse polarity, short circuit
Output noise
0.5 mV_{max}
Operating temperature
-40 ... +85 °C
EMC
EN 61326-1:2013

Signal diagram

I1
Current output (3 wire)

Excitation voltage
18 ... 36 V DC (10 ... 36 V for R_{L}≤250 Ω)
Excitation current
Typ. 60 mA, 80 mA max.
Load resistor
350 Ω max.
Output current
4 ... 20 mA, 30 mA max (at failure)
Resolution
16 bit f.s., min. 10 µm
Stability (temperature)
±50 x 10^{-6} / °C f.s.
Protection
Reverse polarity, short circuit
Output noise
0.5 mV_{max}
Operating temperature
-40 ... +85 °C
EMC
EN 61326-1:2013

Signal diagram
POSICHRON®
Output Specification U2, U8 and I1
Configurable, 1 or 2 channels

### Connector M12, 8-pin
Signal wiring

<table>
<thead>
<tr>
<th>Signal</th>
<th>Plug connection</th>
<th>Cable connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excitation +</td>
<td>1</td>
<td>white</td>
</tr>
<tr>
<td>Excitation GND</td>
<td>2</td>
<td>brown</td>
</tr>
<tr>
<td>Signal 1 +</td>
<td>3</td>
<td>green</td>
</tr>
<tr>
<td>Signal GND</td>
<td>4</td>
<td>yellow</td>
</tr>
<tr>
<td>Signal 2 + (optional*)</td>
<td>5</td>
<td>grey</td>
</tr>
<tr>
<td>SPAN/ZERO (PMU** only, optional)</td>
<td>6</td>
<td>pink</td>
</tr>
</tbody>
</table>

* When using multiple magnets the distance between two magnets must be min. 70 mm to identify the single magnets definitely.  ** Description page 16

### Connector M12, 5-pin
Signal wiring

<table>
<thead>
<tr>
<th>Signal</th>
<th>Plug connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excitation +</td>
<td>1</td>
</tr>
<tr>
<td>Signal 1 +</td>
<td>2</td>
</tr>
<tr>
<td>GND</td>
<td>3</td>
</tr>
<tr>
<td>Signal 2 + (optional*)</td>
<td>4</td>
</tr>
<tr>
<td>PMU** (optional)</td>
<td>5</td>
</tr>
</tbody>
</table>

* When using multiple magnets the distance between two magnets must be min. 70 mm to identify the single magnets definitely.  ** Description page 16

### Connector M8, 4-pin
Signal wiring

<table>
<thead>
<tr>
<th>Signal</th>
<th>Plug connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excitation +</td>
<td>1</td>
</tr>
<tr>
<td>Excitation GND</td>
<td>2</td>
</tr>
<tr>
<td>Signal +</td>
<td>3</td>
</tr>
<tr>
<td>PMU** (optional)</td>
<td>4</td>
</tr>
</tbody>
</table>

* When using multiple magnets the distance between two magnets must be min. 70 mm to identify the single magnets definitely.  ** Description page 16
Option - PMU for analog output U1, U2, U8 and I1

Programming of the start and end value by the customer:

The option PMU allows to program the start value and the end value of the output range by a programming signal SPAN/ZERO available at the connector. This Signal SPAN/ZERO must be connected with GND via a push button, then position magnet of the sensor must be moved to the start resp. end position. Pushing the button between 2 and 4 seconds sets the actual position as start position, pushing the button more than 5 seconds sets the actual position as end position. The values will be stored and are available after switching off the sensor.

To reset the sensor to the factory values the button must be pushed for longer than two seconds when the sensor is switched on.

Diagnostic on analog outputs

Behaviour of the analog signal output in case of error

In case of error (magnet missing or outside the measuring range) the analog output signal will assume a state according to the following options:

**Alarm_HIGH**
The output voltage resp. the output current is at HIGH level (overrange).

**Alarm_LOW**
The output voltage resp. the output current is at LOW level (underrange).

**Alarm_HOLD**
The output voltage resp. the output current will keep the last valid state.

<table>
<thead>
<tr>
<th></th>
<th>Alarm_HIGH (standard)</th>
<th>Alarm_LOW (.../U)</th>
<th>Alarm_HOLD (.../H)</th>
</tr>
</thead>
<tbody>
<tr>
<td>U1</td>
<td>U_out ≥ 10.5 V</td>
<td>—</td>
<td>keeps last valid state (Order code U1/H)</td>
</tr>
<tr>
<td>U2</td>
<td>U_out ≥ 10.5 V</td>
<td>U_out &lt; 0.25 V</td>
<td>keeps last valid state (Order code U2/H)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Order code U2/U)</td>
<td></td>
</tr>
<tr>
<td>U8</td>
<td>U_out ≥ 10 V</td>
<td>U_out &lt; 0.25 V</td>
<td>keeps last valid state (Order code U8/H)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Order code U8/U)</td>
<td></td>
</tr>
<tr>
<td>I1</td>
<td>I_out ≥ 21 mA</td>
<td>1.5 ... 2 mA</td>
<td>keeps last valid state (Order code I1/H)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Order code I1/U)</td>
<td></td>
</tr>
</tbody>
</table>

Error signal for SSI output

If the sensor cannot detect a magnet the position value will take the maximum value (0xFFFFFFFF).
POSICHRON®
Output Specification SSI

### Synchronous serial interface SSI

<table>
<thead>
<tr>
<th>Description</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>The data transmission takes place by means of the two signals CLOCK and DATA. The processing unit (PLC, microcomputer) sends pulse sequences which clock the data transmission at the required transfer rate. With the first falling edge of the pulse sequence the position of the sensor is recorded and stored. The following rising edges control the bit-by-bit transfer of the data word. After a delay time the next new position information can be transmitted.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Data format</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(Train of 26 pulses)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Signal</th>
<th>Diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLOCK</td>
<td></td>
</tr>
<tr>
<td>DATA</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Data format</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>SSI Output RS422</td>
<td></td>
</tr>
<tr>
<td>Excitation voltage</td>
<td>10 ... 36 V DC, residual ripple 10 mV&lt;sub&gt;pp&lt;/sub&gt;</td>
</tr>
<tr>
<td>Excitation current</td>
<td>Typ. 80 mA, 150 mA max.</td>
</tr>
<tr>
<td>Clock frequency</td>
<td>100 kHz ... 1 MHz</td>
</tr>
<tr>
<td>Code</td>
<td>Gray code, dual code</td>
</tr>
<tr>
<td>Resolution</td>
<td>≥ 5 µm</td>
</tr>
<tr>
<td>Delay between pulse trains</td>
<td>&gt;25 µs</td>
</tr>
<tr>
<td>Stability (temperature)</td>
<td>±50 x 10⁻⁶ / °C f.s.</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>-40 ... +85 °C</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Data format</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>EN 61326-1:2013</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Signal wiring</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Signal</td>
<td>Plug connection</td>
</tr>
<tr>
<td>Excitation +</td>
<td>1</td>
</tr>
<tr>
<td>Excitation GND</td>
<td>2</td>
</tr>
<tr>
<td>CLOCK</td>
<td>3</td>
</tr>
<tr>
<td>CLOCK</td>
<td>4</td>
</tr>
<tr>
<td>DATA</td>
<td>5</td>
</tr>
<tr>
<td>DATA</td>
<td>6</td>
</tr>
</tbody>
</table>

Error indication see page 16.
**POSICHRON®**

Output Specification CANopen

### Description

CANopen interface with process data for position and cam functions, programmable are preset, resolution, filtering and cam switching points.

<table>
<thead>
<tr>
<th>Interface CANOP</th>
<th>CANopen profile</th>
<th>CANopen CIA 301 V 4.02, Slave</th>
</tr>
</thead>
<tbody>
<tr>
<td>Encoder profile</td>
<td>Encoder CIA 406 V 3.2</td>
<td></td>
</tr>
<tr>
<td>Error Control</td>
<td>Node Guarding, Heartbeat, Emergency Message</td>
<td></td>
</tr>
<tr>
<td>Node ID</td>
<td>Adjustable via LSS or via object dictionary</td>
<td></td>
</tr>
<tr>
<td>PDO</td>
<td>4 TxPDO, 0 RxPDO, no linking, static mapping</td>
<td></td>
</tr>
<tr>
<td>PDO Modes</td>
<td>Event-/Time triggered, Remote-request, Sync cyclic/acyclic</td>
<td></td>
</tr>
<tr>
<td>SDO</td>
<td>1 server, 0 client</td>
<td></td>
</tr>
<tr>
<td>CAM</td>
<td>8 cams</td>
<td></td>
</tr>
<tr>
<td>Certified</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Transmission rates</td>
<td>50 kBaud to 1 MBaud, adjustable via LSS or via object dictionary</td>
<td></td>
</tr>
<tr>
<td>Nodes</td>
<td>127 max.</td>
<td></td>
</tr>
<tr>
<td>Bus connection</td>
<td>M12 connector, 5 pins</td>
<td></td>
</tr>
<tr>
<td>Integrated bus terminating resistor</td>
<td>120 Ω (option)</td>
<td></td>
</tr>
<tr>
<td>Bus, galvanic isolated</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

### Specifications

| Excitation voltage | 18 ... 36 V DC |
| Excitation current | Typ. 20 mA for 24 V, max. 80 mA |
| Number of position magnets | 1 ... 4 |
| Resolution         | 50 μm |
| Measuring rate      | 1 kHz (asynchronous) |
| Stability (temperature) | ±50 x 10^-6 / °C f.s. |
| Repeatability      | 1 LSB |
| Operating temperature | -40 ... +85 °C |
| Protection         | Reverse polarity, short circuit |
| Dielectric strength | 500 V (V AC, 50 Hz, 1 min.) |
| EMC                | EN 61326-1:2013 |

When using multiple magnets the distance between two magnets must be min. 70 mm to identify the single magnets definitely.

### Signal wiring

<table>
<thead>
<tr>
<th>Signal</th>
<th>Plug connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shield</td>
<td>1</td>
</tr>
<tr>
<td>Excitation +</td>
<td>2</td>
</tr>
<tr>
<td>GND</td>
<td>3</td>
</tr>
<tr>
<td>CAN-H</td>
<td>4</td>
</tr>
<tr>
<td>CAN-L</td>
<td>5</td>
</tr>
</tbody>
</table>

View to sensor connector
POSICHRON®
Output Specification CAN SAE J1939

**Interface J1939**

- **CAN specification**: ISO 11898, Basic and Full CAN 2.0 B
- **Transceiver**: 24V-compliant, not isolated
- **Communication profile**: SAE J1939
- **Baud rate**: 250 kbit/s
- **Internal termination resistor**: 120 Ω (option)
- **Address**: Default 247d, configurable

**NAME Fields**

- Arbitrary address capable: 0, No
- Industry group: 0, Global
- Vehicle system: 7Fh (127d), Non specific
- Vehicle system instance: 0
- Function: FFh (255d), Non specific
- Function instance: 0
- ECU instance: 0
- Manufacturer: 145h (325d), Manufacturer ID
- Identity number: 0nnn, Serial number 21 bit

**Parameter Group Numbers (PGN)**

- Configuration data: PGN EF00h, Proprietary-A (PDU1 peer-to-peer)
- Process data: PGN FFnnh, Proprietary-B (PDU2 broadcast); nn Group Extension (PS) configurable

**Specifications**

- **Excitation voltage**: 18 ... 36 V DC
- **Excitation current**: Typ. 20 mA for 24 V, max. 80 mA
- **Measuring rate**: 1 kHz (asynchronous)
- **Stability (temperature)**: ±50 x 10⁻⁶ / °C f.s.
- **Repeatability**: 1 LSB
- **Operating temperature**: -40 ... +85 °C
- **Protection**: Reverse polarity, short circuit
- **Dielectric strength**: 500 V (V AC, 50 Hz, 1 min.)
- **EMC**: EN 61326-1:2013

When using multiple magnets the distance between two magnets must be min. 70 mm to identify the single magnets definitely.

**Signal wiring**

<table>
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<td>CAN-L</td>
<td>5</td>
</tr>
</tbody>
</table>
**Connector Cables**

**Connector cable M12, 5-pin shielded**

The 5-lead shielded cable is supplied with a mating 5-pin 90° M12 connector at one end and 5 wires at the other end. Available lengths are 2, 5 and 10 m. Wire: cross sectional area 0.34 mm².

Order code:
- **IP69K:** KAB - XM - M12/5F/G/69K - LITZE
- **KAB - XM - M12/5F/G - LITZE**

<table>
<thead>
<tr>
<th>Length in m</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>m</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Connector cable M12, 8-pin shielded**

The 8-lead shielded cable is supplied with a mating 8-pin 90° M12 connector at one end and 8 wires at the other end. Available lengths are 2, 5 and 10 m. Wire: cross sectional area 0.25 mm².

Order code:
- **IP69K:** KAB - XM - M12/8F/W/69K - LITZE
- **KAB - XM - M12/8F/W - LITZE**

<table>
<thead>
<tr>
<th>Length in m</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>m</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Signal wiring M12, 5-pin**

<table>
<thead>
<tr>
<th>Plug connection</th>
<th>Cable connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>brown</td>
</tr>
<tr>
<td>2</td>
<td>white</td>
</tr>
<tr>
<td>3</td>
<td>blue</td>
</tr>
<tr>
<td>4</td>
<td>black</td>
</tr>
<tr>
<td>5</td>
<td>grey</td>
</tr>
</tbody>
</table>

**Signal wiring M12, 8-pin**

<table>
<thead>
<tr>
<th>Plug connection</th>
<th>Cable connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>white</td>
</tr>
<tr>
<td>2</td>
<td>brown</td>
</tr>
<tr>
<td>3</td>
<td>green</td>
</tr>
<tr>
<td>4</td>
<td>yellow</td>
</tr>
<tr>
<td>5</td>
<td>grey</td>
</tr>
<tr>
<td>6</td>
<td>pink</td>
</tr>
<tr>
<td>7</td>
<td>blue</td>
</tr>
<tr>
<td>8</td>
<td>red</td>
</tr>
</tbody>
</table>
Connector/bus cable
M12, 5-pin
CAN bus
shielded

The 5-lead shielded cable is supplied with a female 5-pin M12 connector at one end and a male 5-pin M12 connector at the other end. Available lengths are 0.3 m, 2 m, 5 m and 10 m.

Order code:

- **IP69K:** KAB - XM - M12/5F/G - M12/5M/G - CAN
- KAB - XM - M12/5F/G/69K - M12/5M/G/69K - CAN

Length in m

T-piece for bus cable
M12, 5-pin
CAN bus

Order code:

- KAB - TCONN - M12/5M - 2M12/5F - CAN

Terminating resistance
M12, 5-pin
CAN bus

Order code:

- KAB - RTERM - M12/5M/G - CAN