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## CPS Smart Sensing

Continuous Position Sensing Using Analog Signal  
or IO-Link Communication for Linear Cylinders

PDE2815TCUK



ENGINEERING YOUR SUCCESS.



**Important**

Before attempting any external or internal work on the cylinder or any connected components, make sure the cylinder is vented and disconnect the air supply in order to ensure isolation of the air supply.



**Note**

All technical data in this catalogue are typical data only.  
Air quality is essential for maximum cylinder service life (see ISO 8573).



**WARNING**

**FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.**

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## P8S Continuous Position Sensors

Many applications require more than just end of stroke sensing of an actuator, but traditional methods of continuous sensing are expensive to implement. Parker's CPS (Continuous Position Sensing) series of the P8S sensor family enables quick, precise and contactless continuous position sensing of a piston in standard actuators. This offers an outstanding price/performance ratio.

### Product Overview

P8S Continuous Position Sensors detect continuously the position of the piston of pneumatic actuators using a direct, non-contact technology along the length of the sensors, measuring ranges from 32 to 256 mm. They can be mounted in T-slots without the need for additional accessories for cylinders built with common T-slot dimensions. Mounting on other cylinder types ie round cylinders type is possible with adaptors. The sensor settings can be adjusted during installation and during operation later on, using a teach button or, depending on the variant, using IO-Link. The sensors continuously supply data via analogue outputs or IO-Link. Analogue position sensors, for current or voltage, have a voltage output of 0 V ... 10 V as well as a current output of 4 mA ... 20 mA. It enables flexible machine concepts making it possible to solve tasks in areas such as quality monitoring and process control in conjunction with pneumatic cylinders. This continuous transfer of position data upgrades the functionality of the pneumatic cylinders by making them more intelligent and as a result, more versatile.

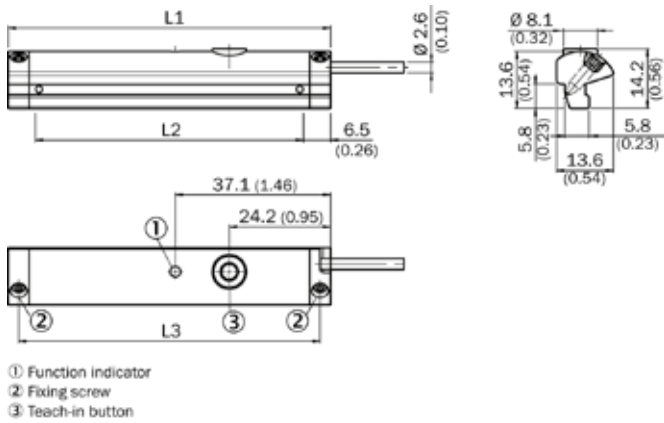
### Technical Data

<b>Cylinder type :</b>	Profile with T-slot
<b>Installation :</b>	Drop in, fixed by allen key 1.5 mm
<b>Measuring range :</b>	32 to 256 mm depending on type <sup>1)</sup>
<b>Housing length :</b>	45 to 269 mm depending on type
<b>Output Function :</b>	Analogue   IO-Link
<b>Analogue output (voltage) :</b>	0 to 10 V   -
<b>Analogue output (current) :</b>	4 to 20 mA   -
<b>Teach-in :</b>	Yes
<b>Enclosure rating :</b>	IP 67 (according to EN 60529)
<b>Supply Voltage : <sup>2)</sup></b>	15 to 30 V DC
<b>Power consumption : <sup>3)</sup></b>	<= 22 mA (analogue)   <= 25 ma (IO-Link)
<b>Max load resistance : <sup>4)</sup></b>	<= 500 Ω
<b>Min load resistance : <sup>5)</sup></b>	<= 2 kΩ
<b>Protection class :</b>	III
<b>Time delay before availability :</b>	1.5 s
<b>Required magnetic field sensitivity :</b>	3 mT (Analogue)   3 mT (IO-Link)
<b>Resolution : <sup>6)</sup></b>	0.03% full scale range (max >=0.05 mm)
<b>Linearity error : <sup>7)</sup></b>	0.3 mm
<b>Repeat accuracy : <sup>8)</sup></b>	0.06% full scale range (>= 0.1 mm)
<b>Sampling rate : <sup>9)</sup></b>	1 ms
<b>Indication LED colour :</b>	Yellow (Analogue)
<b>Reserve polarity protection :</b>	Yes (Analogue)
<b>Short circuit protection :</b>	Yes (Analogue)
<b>Ambiant operating temperature range :</b>	-20 to +70 °C (PUR cable)
<b>Shock and vibration resistance :</b>	30 g 11 ms / 10 ... 55 Hz, 1 mm
<b>EMC : <sup>10)</sup></b>	According to EN 60947-5-2
<b>International standard :</b>	CE   C UL US   CCC (not applicable)   RoHs   IO-Link
<b>UL file No :</b>	On request
<b>Housing material :</b>	Plastic polyamid PA12
<b>Screw material :</b>	Stainless steel
<b>Cable material :</b>	PUR (Polyurethane)
<b>Conductor cross-section :</b>	0.08 mm <sup>2</sup>
<b>Connector :</b>	M12 (IO-Link) or M8 (Analogue)



- <sup>1)</sup> ± 1 mm
- <sup>2)</sup> Reverse-polarity protected, operation in short-circuit protected network: max. 8 A.
- <sup>3)</sup> Without load
- <sup>4)</sup> Power output, at 24 V
- <sup>5)</sup> Voltage output
- <sup>6)</sup> FSR: Full Scale Range; max. measuring range.
- <sup>7)</sup> At 25 °C, linearity error (maximum deviation) depending on response curve and minimal deviation function.
- <sup>8)</sup> At 25 °C, repeatability magnet movement in one direction.
- <sup>9)</sup> Only in standard mode, not in IO-Link mode.
- <sup>10)</sup> The analogue measured value can deviate under transient conditions.

**Dimensions in mm (inch)**



Order Code				
L1	L2 *	L3	Analogue	IO-Link
45	32	40	<b>P8SAGACHA</b>	<b>P8SAGHMHA</b>
77	64	72	<b>P8SAGACHB</b>	<b>P8SAGHMHB</b>
141	128	136	<b>P8SAGACHD</b>	<b>P8SAGHMHD</b>
205	192	200	<b>P8SAGACHF</b>	<b>P8SAGMHMF</b>
269	256	264	<b>P8SAGACHH</b>	<b>P8SAGMHMH</b>

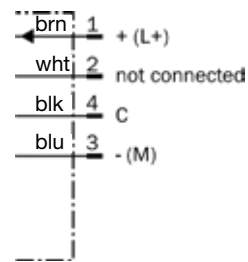
\*L2 equal to the measuring range

**Note:**

PUR cable with M12 (IO-Link) or M8 (Analogue) male connector knurled nut, 4-pin, 0,3 meter length. Please consult for measuring range 96, 160 & 224 mm.

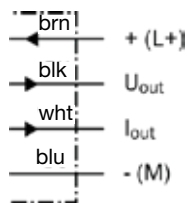
**Connection type and diagram**

**IO Link version**



PUR 0.3 meter length with M12 male connector knurled nut, 4-pin

**Analogue version**

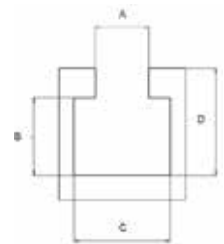


PUR 0.3 meter length with M8 male connector knurled nut, 4-pin

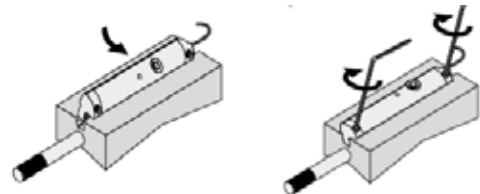
**Without Adaptor**

Direct drop-in T-slot  
 T-slot dimensions [mm ± 0.1]

- A 5.55
- B 3.40
- C 6.80
- D 4.80



- 1) Pivot sensor into the slot
- 2) Teach the CPS unit the desired measuring range
- 3) Tighten set screws



**Ordering Data**

Drop in in T-slot, Turn, Screw, it's done

Output	Measuring length	Configuration Option	Order Code	Weight [g]	For product series
Analogue	32 mm	Teach Button	<b>P8SAGACHA</b>	16	With T-slot groove *
	64 mm		<b>P8SAGACHB</b>	26	
	128 mm		<b>P8SAGACHD</b>	46	
	192 mm		<b>P8SAGACHF</b>	66	
	256 mm		<b>P8SAGACHH</b>	86	
IO-Link	32 mm	Teach Button or IO-Link parameter	<b>P8SAGHMHA</b>	20	With T-slot groove *
	64 mm		<b>P8SAGHMHB</b>	30	
	128 mm		<b>P8SAGHMHD</b>	50	
	192 mm		<b>P8SAGMHMF</b>	70	
	256 mm		<b>P8SAGMHMH</b>	90	

\* Required magnetic field sensitivity: 3mT / -2 mT (Analogue) / 3mT (IO-Link)

**Note:**

PUR cable with M12 (IO-Link) or M8 (Analogue) male connector knurled nut, 4-pin, 0,3 meter length. Please consult for measuring range 96, 160 & 224 mm.

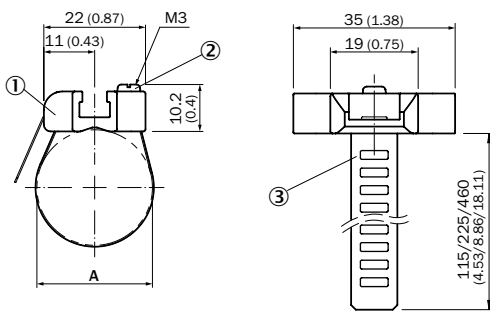
For products series	Order code	Weight [g]
Tie rods, P1D-T Ø32-100	<b>PD48955</b>	10
Tie rods, P1D-T Ø125-320	<b>PD48956</b>	32
S-Slot OSP Ø16-80	<b>Not compatible with OSP (please consult factory)</b>	2
Round cylinder Ø10-25	<b>P8S-TMC01</b>	27
Round cylinder Ø32-63	<b>P8S-TMC02</b>	29
Round cylinder Ø80-125	<b>P8S-TMC03</b>	32

for length above 96 mm use two adaptors

All mountings can be moved on the cylinder body before screwing in place and then putting sensors in the slots.

**Dimensions in mm (inch)**

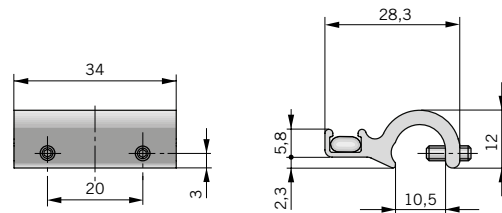
**P8S-TMC01, 02 & 03**



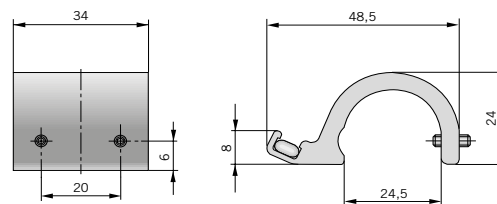
- ① Sensor adapter with T-Slot
- ② Fixing screw
- ③ Strap

Order code	D [mm]	
<b>P8S-TMC01</b>	8 to 25	Clamping ring in nickel silver,
<b>P8S-TMC02</b>	32 to 63	screw in stainless steel,
<b>P8S-TMC03</b>	80 to 130	sensor mounting zinc diecast

**PD48955** (anodised aluminium, zingued screws)  
P1D-T Ø 32 to 100 mm



**PD48956** (anodised aluminium, zingued screws)  
P1D-T Ø 125 to 320 mm





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