

**TURCK**

**Industrial  
Automation**

**INDUCTIVE  
SENSORS  
FOR ROTARY ACTUATORS**



***Sense it! Connect it! Bus it! Solve it!***

# Inductive sensors for rotary actuators – Versatility in a compact and robust design

Position control on actuators and drives is of major importance not only in the chemical and petrochemical but also in the food industry. Thus new and open housing solutions are needed, which combine the inherent advantages of modular housings while eliminating their typical disadvantages.

With the new line of dual sensors and a full range of actuation kits, TURCK now offers made-to-measure solutions which meet the specific needs of the chemical, petrochemical and the food industry.

Use the unique performance spectrum of these sensors for effective cost reduction in your application!



## NAMUR with SIL2

The TÜV certificate SIL2 for versions with standard NAMUR output guarantees smooth operation, even in safety-related installations according to IEC 61508. It clearly proves the reliability of devices under rough application conditions.



## Compact design

Despite their robustness, TURCK dual sensors are only half the size of standard housings (black box). Systems can be designed more compactly and risks of mechanical damage are considerably reduced.



## Actuation elements

A complete product portfolio of actuation elements was developed in close co-operation with customers. Whereby priorities were set on practical experience and user-friendliness.

The so-called pucks feature several switching elements and are suited for clockwise and anticlockwise drives.

Based on local conditions the functions end position signal damped (NO) or end position signal undamped (NC) can be selected.

The local position indication is adjustable and visually simplified, local misinterpretations are thus reduced.



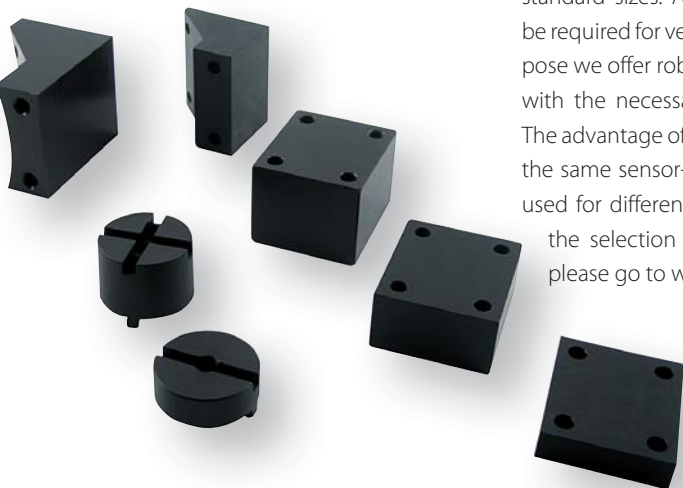
## Solutions

If approvals require the protection of the sensor against mechanical impact, TURCK offers a standard stainless steel housing. Costly design on site is no longer required, making final inspection and approval by authorized bodies easier.

We offer a kit with universal accessories for older drives, which can be adjusted flexibly to non-standard drilling holes and shaft heights. Older system parts are thus easier to automate at a later stage.

## Mounting accessories

The interfaces for position feedback are clearly defined in the certificate ISO 5211/VDE/VDI 3845. TURCK dual sensors fit on all standard sizes. Additional accessories may be required for very large drives. For this purpose we offer robust spacer plates together with the necessary mounting accessories. The advantage of this concept is that always the same sensor-puck combination can be used for different drive sizes. To download the selection guide for standard drives please go to [www.turck.com](http://www.turck.com).

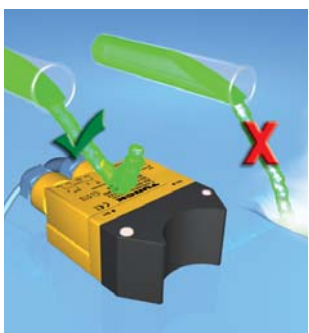


TURCK offers a combination of two different concepts with a large optical display „Dome“. Compact mounting with dual sensors and optimized local position feedback over large distances – two functions, one solution. Moreover retainers for manual valves are available.



## Resistance and tightness

Robust, resistant and stable plastics are standard. Stainless steel metal parts (e.g. plug connectors and press-fit bushes) are standard or optionally available.



## Comprehensive accessories

A complete selection of accessories guarantees perfect mounting and installation. Functionality is thus improved and mounting time is reduced.



## DSU35 version for the chemical and petrochemical industry

The sensor shape which is adapted to the shape of the puck, provides optimum protection and improves the compactness of this concept.

- Safe protection against environmental influences, especially for outdoor applications
- High resistance against chemicals
- Easily accessible terminal chamber
- Integrated valve control
- Repairs of the drive system without disconnection of wiring
- Bus compatibility with direct fieldbus connection or connection to PROFIBUS-PA or FOUNDATION™ fieldbus stations
- Robust and impact-resistant
- Absolutely maintenance-free
- ATEX II 3 G and II 3 D acc. to current standards in 24 VDC
- Customized versions



## DSC26 version for the food industry

TURCK's refined injection moulding technology is an ideal solution. Providing a void-free and completely sealed housing. The DSC26 series is thus especially suited for wet environments. The DSC26 sensor guarantees excellent system availability with the following features:

- Generous LED display for clear position indication
- Smooth and easy-to-clean plastic surfaces
- Resistant to rapid temperature changes in the range of 0...+100 °C
- Safe protection against high pressure steam jet cleaning
- Resistance to aggressive cleaning agents

## Electrical designs

Different electrical outputs enable the integration in all standard process environments

- NAMUR sensors, degree of protection EEx i (intrinsically safe)
- 3-wire pnp for 24 VDC control systems, alternatively in degree of protection EEx nA (non-sparking)
- 2-wire DC, 10...65 VDC
- 2-wire DC, 10...300 VDC/20...250 VAC
- Direct fieldbus connection to AS-interface® and DeviceNet™

## Connection possibilities

Fast and error-free connection during system set-up and after servicing. TURCK dual sensors with standard connectors M12, 1/2" or 7/8" can be integrated smoothly in existing plug-and-play concepts. Sensor with terminal chamber and integrated connection for solenoid valves, which are typically applied in process-related installations, are also available.



## Well-thought-out connection technology

Devices with terminal chamber feature a connection possibility for the magnetic valve. The terminal strip can be unplugged in energized state which saves time in the event of servicing.



## Approvals

Different approvals for the Ex area enable worldwide application, f. e.

- ATEX degree of protection intrinsically safe (Ex i)
- ATEX degree of protection non-sparking (Ex nA)
- FM and UL for the USA
- CCC and Nepsi for China
- IEC-Ex worldwide application



## Inductive sensors for rotary actuators – Overview (extract)

Type	Type code	Output	Connection	Features
	<b>Ni-DSU35TC-2Y1X2</b> 1051004	2 x NAMUR	Terminal chamber	Ex II 2 G/II 1 D SIL2
	<b>Ni-DSU35TC-2Y12/S97</b> 1051011	2 x NAMUR	Terminal chamber	Ex II 2 G/II 1 D SIL2 up to - 40 °C
	<b>Ni-DSU35TC-2Y12/S933</b> 1051011	2 x NAMUR	Terminal chamber	Ex II 2 G/II 1 D SIL2 BASF approval
	<b>Ni-DSU35TC-2AP4X2</b> 1569902	2 x NO PNP	Terminal chamber	
	<b>Ni-DSU35TC-2AP4X2/3GD</b> 1569911	2 x NO PNP	Terminal chamber	Ex II 3 G/II 3 D
	<b>Ni-DSU35TC-2AP4X2</b> 1569902	2 x NO 2-wire AC/DC	Terminal chamber	
	<b>Ni4-DSU35TC-2Y1X2-H1140</b> 1051003	2 x NAMUR	Male connector M12	
	<b>Ni4-DSU35TC-2AP4X2-H1141</b> 1569901	2 x NO PNP	Male connector M12	
	<b>Ni-4-DSU35-2ASIX4</b> 1902000	2 x NO AS-interface*	Male connector M12	ASi M12-valve-connection
	<b>Ni4-DSU35-2Y1X2-B1160-FKE4.3</b> 1051015	2 x NAMUR	Male connector 7/8"	M12 valve connection
	<b>Ni4-DSU35-2AP4X2-B1160-FKE4.3</b> 1569923	2 x NO PNP	Male connector 7/8"	M12 valve connection
	<b>Ni4-DSU35-2ADZ30X2-B1160-FKE4.5</b> 4290011	2 x NO 2-wire AC/DC	Male connector 7/8"	M12 valve connection
	<b>Ni4-DSC26-2Y1X2-H1140</b> 1051001	2 x NAMUR	Male connector M12	
	<b>Ni4-DSC26-2AP6X2-H1141</b> 1650087	2 x NO PNP	Male connector M12	
	<b>Ni-DSC26-2Y1X2</b> 1650087	2 x NAMUR	2 m cable	
	<b>Ni4-DSC26-2AP6X2</b> 1650096	2 x NO PNP	2 m cable	

Housing material: Plastic, PP

Degree of protection: IP67

Temperature range: (- 40 °C\*)  
-25...+70 °C

Repeatability: ≤ 2 %

Temperature drift: ≤ 10 % (≤ 20 %\*)

Hysteresis: 1...10 %

Display modus: 2 x LED

### Voltage range

NAMUR: nominal 8.2 V

PNP: 10...65 VDC (DSU35)

10...30 VDC (DSC26)

AC/DC: 10...300 VDC/20...250VAC

Asi: 10...33 VDC

### Maximum operating current

PNP: 200 mA Ⓜ\*\*

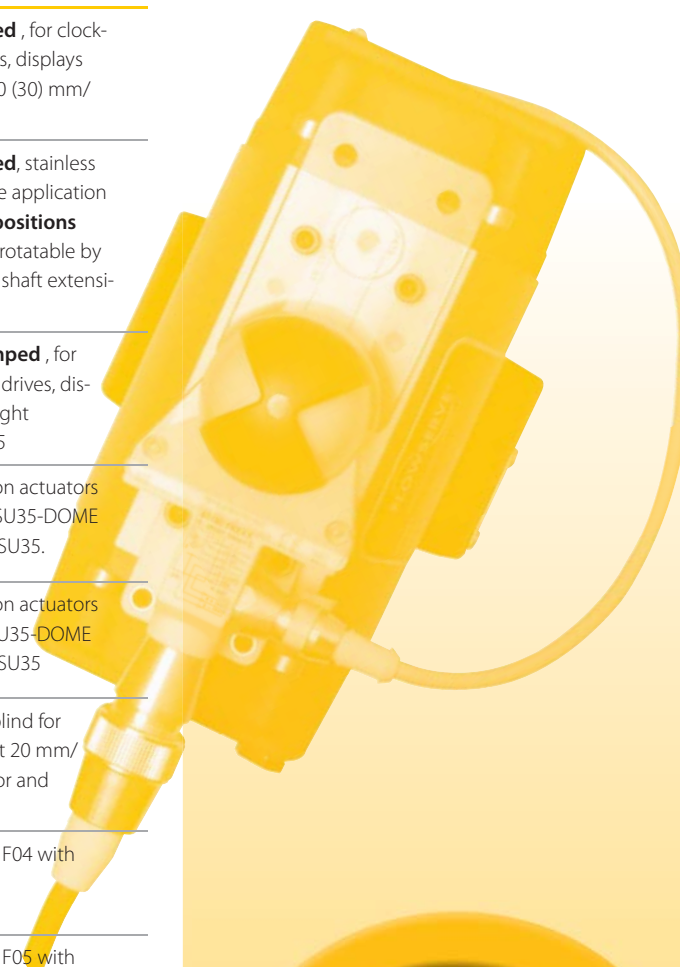
AD/DC: 400 mA AC/300 mA DC

\* Values for S97 version, \*\* Ⓜ short circuit protected



### Inductive sensors for rotary actuators – Accessories

Type	Type code	Description
<b>DSU35</b>	<b>BTS-DSU35-EB1</b> 6900225	Actuation kit (puck), <b>end position damped</b> , for clockwise and counter-clockwise rotating drives, displays rotatable by 90°, shaft extension height 20 (30) mm/Ø max. 30 mm, for DSU35
	<b>BTS-DSU35-EBE3</b> 6901070	Actuation kit (puck), <b>end position damped</b> , stainless steel target (width 6.2 mm) to compensate application related tolerances, <b>360° adjustable end positions</b> (open/closed) in increments of 4°, display rotatable by 90°, degree graduation as adjustment aid, shaft extension height 20/Ø max. 30 mm, for DSU35
	<b>BTS-DSU35-EU2</b> 6900455	Actuation kit (puck), <b>end position undamped</b> , for clockwise and counter-clockwise rotating drives, displays rotatable by 90°, shaft extension height 20 mm (30) mm/Ø max. 30 mm, for DSU35
	<b>BTS-DSU35-DOME YE/BK</b> 6901072	"Dome" indicator, for tool-free mounting on actuators "end position damped", yellow/black BTS-DSU35-DOME COVER has to be ordered separately, for DSU35.
	<b>BTS-DSU35-DOME RD/GN</b> 6901073	"Dome" indicator, for tool-free mounting on actuators "end position damped", red/green BTS-DSU35-DOME COVER has to be ordered separately, for DSU35
	<b>BTS-DSU35-DOME COVER</b> 6901074	Cover for "Dome" indicator, 90° rotatable blind for inspection window, shaft extension height 20 mm/Ø max. 30 mm, mounting screws for sensor and actuator inclusive, for DSU35
<b>General</b>	<b>BTS-DSU35-ZF04-M5</b> 6901121	Mounting kit for manual valves of the size F04 with M5 female thread
	<b>BTS-DSU35-ZF05-M6</b> 6901124	Mounting kit for manual valves of the size F05 with M6 female thread
<b>DSUC26</b>	<b>BTS-DSC26-EB1</b> 6950222	Actuation kit (puck), end position damped, for clockwise and counter-clockwise rotating drives, displays rotatable by 90°, hole pattern on flange surface 80 x 30 mm, shaft extension height 20 mm/Ø max. 35 mm, for DSC26
	<b>BTS-DSC26-EB2</b> 6950223	Actuation kit (puck), end position damped, for clockwise and counter-clockwise rotating drives, displays rotatable by 90°, hole pattern on flange surface 80 x 30 mm, shaft extension height 30 mm/Ø max. 50 mm, for DSC26
	<b>BTS-DSC26-EB3</b> 6900224	Actuation kit (puck), end position damped, for clockwise and counter-clockwise rotating drives, displays rotatable by 90°, hole pattern on flange surface 30 x 130 mm, shaft extension height 30 mm/Ø max. 85 mm, for DSC26



[www.turck.com](http://www.turck.com)



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