











## Types and Features

Type	Ident-No.	Output	Connection	Features
	NI4-DSU35TC-2Y1X2	2 x NAMUR	Terminal chamber	Ex II 2 G/II 1 D, SIL2
	NI4-DSU35TC-2Y1X2/S97	2 x NAMUR	Terminal chamber	Ex II 2 G/II 1 D, SIL2 bis - 40 °C
	NI4-DSU35TC-2Y1X2/S933	2 x NAMUR	Terminal chamber	Ex II 2 G/II 1 D SIL2 BASF release
	NI4-DSU35TC-2AP4X2	2 x NO PNP	Terminal chamber	
	NI4-DSU35TC-2AP4X2/3GD	2 x NO PNP	Terminal chamber	Ex II 3 G/II 3 D
	NI4-DSU35TC-2ADZ30X2	2 x NO 2-wire AC/DC	Terminal chamber	
	NI4-DSU35-2Y1X2-H1140	2 x NAMUR	Male connector M12	
	NI4-DSU35-2AP4X2-H1141	2 x NO PNP	Male connector M12	
	NI4-DSU35-2ASIX4-H1140	2 x NO AS-interface*	Male connector M12	ASi M12-valve connection
	NI4-DSU35-2Y1X2-B1160-FKE4.3	2 x NAMUR	Male connector 7/8"	M12 valve connection
	NI4-DSU35-2AP4X2-B1160-FKE4.5	2 x NO PNP	Male connector 7/8"	M12 valve connection
	NI4-DSU35-2ADZ30X2-B1160-FKE4.5	2 x NO 2-wire AC/DC	Male connector 7/8"	M12 valve connection
	NI4-DSC26-2Y1X2-H1140	2 x NAMUR	Male connector M12	
	NI4-DSC26-2AP6X2-H1141	2 x NO PNP	Male connector M12	
	NI4-DSC26-2Y1X2	2 x NAMUR	2 m cable	
	NI4-DSC26-2AP6X2	2 x NO PNP	2 m cable	
	Ri360P1-DSU35TC-ELi-Exi **	4...20 mA/Loop powered	Terminal chamber	Ex II 2 G D Ex ia IIC/II 2 G/II 2 D
	Ri360P1-DSU35-ELiU5X2-H1151 **	1 x analog 0...10 VDC 4...20 mA	Male connector M12	
	Ri360P1-DSU35-2UP6X4-H1151 **	PNP, NO/NC	Male connector M12	

		Voltage range		Maximum operating current	
Housing material	Plastic, PP	Namur	nominal 8,2 V	PNP	200 mA
Degree of protection	IP67	PNP	10...65 VDC (DSU35) 10...30 VDC (DSC26)	AD/DC	400 mA AC/300 mA DC
Temperature range	(- 40 °C*) -25...+70 °C	AC/DC	10...300 VDC/20...250VAC		
Temperature drift	≤ 10 % (≤ 0,02 %/k**)	Asi	10...33 VDC		
Display modus	2 x LED	Analog	0...10 V and 4...20 mA, supply 15...30 VDC		

\* Values for S97 version, \*\*values for Ri-versions, positioning element included

## Accessories

Type	Ident-No.	Description
DSU35 	BTS-DSU35-EB1	6900225 Actuation kit (puck), end position damped, for clockwise and counter-clockwise rotating drives, displays rotatable by 90°, shaft extension height 20 (30) mm/Ø max. 30 mm, for DSU35
	BTS-DSU35-EBE3	6901070 Actuation kit (puck), end position damped, 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
	BTS-DSU35-EU2	6900455 Actuation kit (puck), end position undamped, for clockwise and counter-clockwise rotating drives, displays rotatable by 90°, shaft extension height 20 mm (30) mm/Ø max. 30 mm, for DSU35
Allg. 	P1-Ri-DSU35	6901086 Positioning element for angle sensors, included in delivery of Ri360-DSU35 sensor
	BTS-DSU35-ZF04-M5	6901121 Mounting kit for manual valves of the size F04 with M5 female thread
DSC26 	BTS-DSC26-EB1	6900222 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. 40 mm, for DSC26
	BTS-DSC26-UR10	100002103 Spacer ring to compensate the shaft height. 10 mm
	BTS-DSC26-EB3	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



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D101778 | 2018/11



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## Inductive Sensors for Rotary Actuators



# Inductive Sensors for Rotary Actuators

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.

Turck angle sensors enable the individual 0...360° degrees angle capture with analog output signal and the free programming of the switchpoints. Use the unique performance spectrum of these Turck sensors and reduce your application costs effectively!



## Actuators

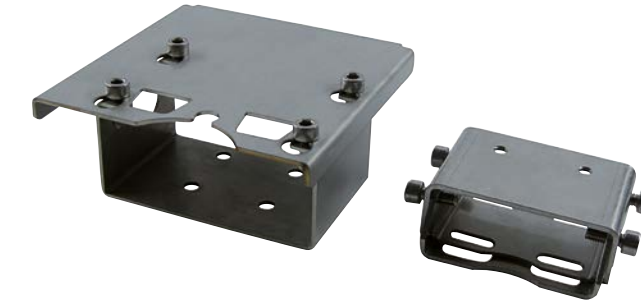
A complete product portfolio of actuators was developed in close co-operation with customers, whereby priorities were set on practical experience and user-friendliness. The so-called pucks feature several switching elements and are suited for clockwise and counterclockwise drives. Based on local conditions 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. The actuator of the angle sensor is universally usable with the full angle capture of 360° degrees.



## 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).



## Accessories for every need

Under certain conditions, an additional mechanical protection is required - even for the approval of devices. The appropriate protection enclosures are available in sturdy stainless steel. This eliminates the costly construction on site and the acceptance by audit authorities is much easier. Universal accessories are available for older drives that adapt continuously over a wide range of adjustment - drilling dimensions and wave heights, which differ from the usual standard. Older equipment can thus be automated much easier at a later time.

Often, a clearly visible optical position indicator is very important when using dual sensors. Through the Visual display by the "BTS-DSU35-Dome", both of these requirements can be combined to a simple solution: Compact design with dual sensors and improved local position feedback signals over long distances. Mounting brackets and kits for hand-operated valves complete the extensive range of accessories.



## 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-capable with direct fieldbus connection or for connection to all common fieldbus systems such as PROFIBUS-PA or Foundation™ fieldbus
- 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 Ex i (intrinsically safe)
- 3-wire pnp for 24 VDC control systems, alternatively in degree of protection Ex 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™
- 0...10 V and 4...20 mA analog output with 12 bit resolution

## Connectivity

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.



### 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.

4...20 mA



0...10 V

### Contactless angle measurement

Based on the principle of inductive resonant circuit coupling, the contactless operating RI360P1-DSU provides analog output signals, such as 0...10 V and 4...20 mA. The sensors are characterized by high linearity and high vibration immunity. The contactless measuring principle easily compensates for misalignment and vibration.



### Diverse accessories

We offer a complete range of accessories for perfect mounting and installation. This enhances the functionality and at the same time reduces the installation time.



### Sophisticated 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
- SIL2