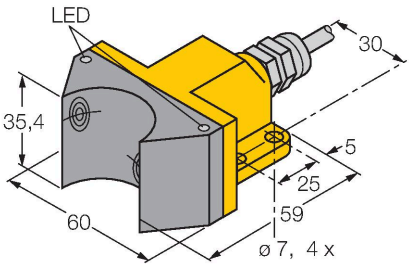
# NI4-DSU35-2Y1X2
# Inductive Sensor – For Rotary Actuators



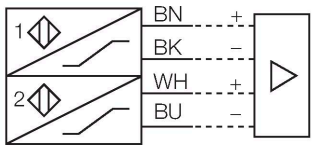

## Technical data

| | |
|---|---|
| Type | NI4-DSU35-2Y1X2 |
| ID | 1051002 |
| **General data** | |
| Rated switching distance | 4 mm |
| Mounting conditions | Non-flush |
| Correction factors | St37 = 1; Al = 0.3; stainless steel = 0.7; Ms = 0.4 |
| Repeat accuracy | ≤ 2 % of full scale |
| Temperature drift | ≤ ±10 % |
| Hysteresis | 1…10 % |
| **Electrical data** | |
| Output function | 4-wire, NAMUR |
| Switching frequency | 0.05 kHz |
| Voltage | Nom. 8.2 VDC |
| Non-actuated current consumption | ≥ 2.1 mA |
| Actuated current consumption | ≤ 1.2 mA |
| Approval acc. to | KEMA 02 ATEX 1090X |
| Internal capacitance ($C_i$)/inductance ($L_i$) | 150 nF/150 µH |
| Device marking | EX II 2 G Ex ia IIC T6 Gb/II 1 D Ex ia IIIC T135 °C Da |
| | (max. $U_i$ = 20 V, $I_i$ = 60 mA, $P_i$ = 200 mW) |
| Warning | Avoid static charging |
| **Mechanical data** | |
| Design | Dual sensor for rotary actuators, DSU35 |
| Dimensions | 59 x 60 x 35.4 mm |
| Housing material | Plastic, PP-GF30, Yellow |
| Active area material | Plastic, PP-GF30, black |
| Max. tightening torque of housing nut | 3 Nm |

## Features

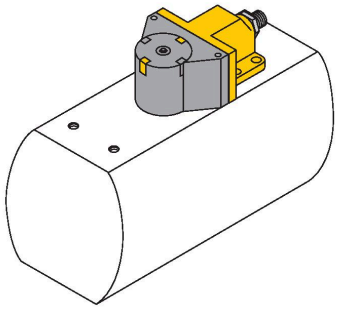
- Rectangular, housing DSU35
- Plastic, PP-GF30-VO
- Two outputs for monitoring the position of rotary actuators
- Mounting on all standard actuators
- DC 2-wire, nom. 8.2 VDC
- 2 outputs acc. to DIN EN 60947-5-6 (NAMUR)
- Cable connection
- ATEX category II 2 G, Ex Zone 1
- ATEX category II 1 D, Ex Zone 20
- SIL 2 (Low Demand Mode) acc. to IEC 61508, PL c acc. to ISO 13849-1 at HFT0
- SIL 3 (All Demand Mode) acc. to IEC 61508, PL e acc. to ISO 13849-1 with redundant configuration HFT1

## Wiring diagram




## Functional principle

Inductive sensors detect metal objects contactless and wear-free. Dual sensors are especially designed for position detection in rotary actuators. They combine the reliability of non-contact inductive sensors with the flexibility of a modular housing system.



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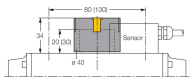
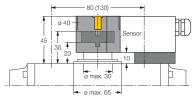
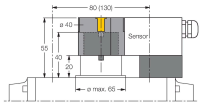
## Technical data

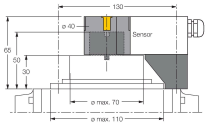
| | |
|---|---|
| Electrical connection | Cable |
| Cable quality | Ø 5.2 mm, Blue, LifYY, PVC, 2 m |
| Core cross-section | 4 x 0.34 $mm^2$ |
| **Environmental conditions** | |
| Ambient temperature | -25…+70 °C |
| Vibration resistance | 55 Hz (1 mm) |
| Shock resistance | 30 g (11 ms) |
| Protection class | IP67 |
| MTTF | 6198 years acc. to SN 29500 (Ed. 99) 40 °C |
| Switching state | 2 × LEDs, Yellow/red |

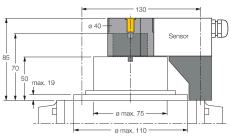
## Accessories

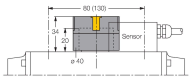
| BTS-DSU35-EB1 | 6900225 |
|---|---|
|  | Actuation kit (puck) for dual sensors; end position damped; hole pattern on receptacle surface: 80 x 30 mm and 130 x 30 mm; connection shaft (shaft extension) height: 20 mm (30 mm)/Ø: max. 30 mm |

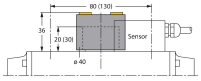
| BTS-DSU35-Z01 | 6900229 |
|---|---|
|  | Mounting kit for dual sensors for larger rotary actuators; Ø spacer plate and snap ring: max. 65 mm; hole pattern on receptacle surface: 30 x 80 mm (30 x 130 mm); connection shaft (shaft extension) height: 20 mm/ Ø: max. 30 mm |

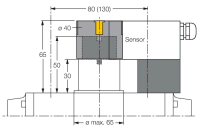
| BTS-DSU35-Z02 | 6900230 |
|---|---|
|  | Mounting kit for dual sensors for larger rotary actuators; Ø spacer plate and snap ring: max. 65 mm; hole pattern on receptacle surface: 30 x 80 mm (30 x 130 mm); connection shaft (shaft extension) height: 20 mm (30 mm)/Ø: max. 40 mm |

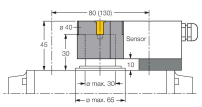
| BTS-DSU35-Z03 | 6900231 |
|---|---|
|  | Mounting kit for dual sensors for larger rotary actuators; Ø spacer plate and snap ring: max. 110 mm; hole pattern on receptacle surface: 30 x 130 mm; connection shaft (shaft extension) height: 30 mm/Ø: max. 70 mm |

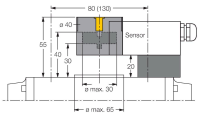
| BTS-DSU35-Z07 | 6900403 |
|---|---|
|  | Mounting kit for dual sensors for larger rotary actuators; Ø spacer plate and snap ring: max. 110 mm; hole pattern on receptacle surface: 30 x 130 mm; connection shaft (shaft extension) height: 50 mm/Ø: max. 75 mm |

| BTS-DSU35-EBE3 | 6901070 |
|---|---|
|  | Actuation kit (puck) for dual sensors; end position damped; "open" and "closed" switchpoint adjustable; hole pattern on receptacle surface: 80 x 30 mm and 130 x 30 mm; connection shaft (shaft extension) height: 20 mm/ Ø: max. 30 mm |

| BTS-DSU35-EU2 | 6900455 |
|---|---|
|  | Actuation kit (puck) for dual sensors; end position undamped for clockwise and counter-clockwise drives; hole pattern on flange surface 80 x 30 mm and 130 x 30 mm; connection shaft (shaft stud) height 20 (30) mm / Ø max. 30 mm |

| BTS-DSU35-Z06 | 6900402 |
|---|---|
|  | Mounting kit for dual sensors for larger rotary actuators; Ø spacer plate and snap ring: max. 65 mm; hole pattern on receptacle surface: 30 x 80 mm (30 x 130 mm); connection shaft (shaft extension) height: 30 mm/ Ø: max. 40 mm |

| BTS-DSU35-Z04 | 6900286 |
|---|---|
|  | Mounting kit for dual sensors for larger rotary actuators; Ø spacer plate and snap ring: max. 65 mm; hole pattern on receptacle surface: 30 x 80 mm (30 x 130 mm); connection shaft (shaft extension) height: 30 mm/ Ø: max. 30 mm |

| BTS-DSU35-Z05 | 6900287 |
|---|---|
|  | Mounting kit for dual sensors for larger rotary actuators; Ø spacer plate and snap ring: max. 65 mm; hole pattern on receptacle surface: 30 x 80 mm (30 x 130 mm); connection shaft (shaft extension) height: 30 mm/ Ø: max. 30 mm |

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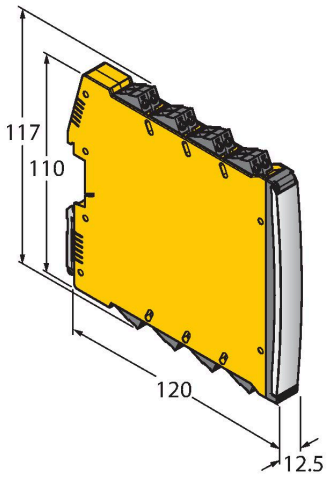
## Accessories

| Dimension drawing | Type | ID | |
|---|---|---|---|
|  | IMX12-DI01-2S-2T-0/24VDC | 7580020 | Isolating switching amplifier, 2-channel; SIL2 acc. to IEC 61508; Ex-proof version; 2 transistor outputs; input Namur signal; ON/OFF switchable monitoring of wire-break and short-circuit; toggle between NO/NC mode; signal doubling; removable screw terminals; 12.5 mm wide; 24 VDC power supply |

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## Instructions for use

| | |
|---|---|
| Intended use | This device fulfills Directive 2014/34/EC and is suited for use in areas exposed to explosion hazards according to EN 60079-0:2018 and EN 60079-11:2012.Further it is suited for use in safety-related systems, including SIL2 as per IEC 61508.In order to ensure correct operation to the intended purpose it is required to observe the national regulations and directives. |
| For use in explosion hazardous areas conform to classification | II 2 G and II 1 D (Group II, Category 2 G, electrical equipment for gaseous atmospheres and category 1 D, electrical equipment for dust atmospheres). |
| Marking (see device or technical data sheet) | Ex II 2 G and Ex ia IIC T6 Gb and Ex II 1 D Ex ia IIIC T135 °C Da acc. to EN 60079-0, -11 |
| Local admissible ambient temperature | -25…+70 °C |
| Installation/Commissioning | These devices may only be installed, connected and operated by trained and qualified staff. Qualified staff must have knowledge of protection classes, directives and regulations concerning electrical equipment designed for use in explosion hazardous areas.Please verify that the classification and the marking on the device comply with the actual application conditions. |
| | This device is only suited for connection to approved Exi circuits according to EN 60079-0 and EN 60079-11. Please observe the maximum admissible electrical values.After connection to other circuits the sensor may no longer be used in Exi installations. When interconnected to (associated) electrical equipment, it is required to perform the "Proof of intrinsic safety" (EN60079-14).Attention! When used in safety systems, all content of the security manual must be observed. |
| Installation and mounting instructions | Avoid static charging of cables and plastic devices. Please only clean the device with a damp cloth. Do not install the device in a dust flow and avoid build-up of dust deposits on the device.If the devices and the cable could be subject to mechanical damage, they must be protected accordingly. They must also be shielded against strong electro-magnetic fields.The pin configuration and the electrical specifications can be taken from the device marking or the technical data sheet. |
| Special conditions for safe operation | avoid static charging |
| Service/Maintenance | Repairs are not possible. The approval expires if the device is repaired or modified by a person other than the manufacturer. The most important data from the approval are listed. |

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