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# Angle sensor 424D

The 360° angle sensor 424D is used for the detection of rotary movements from 20° to 360°. Angle sensor 424D is based on the contactless Hall measurement principle, which is extremely reliable and ensures a long service life.

Angle sensors are used, for example, in foot pedals for controlling mobile machinery or for position determination in cranes. Additionally, the 424D is ideal for use in excavators, robots or wind turbines thanks to its robust design.

## Product characteristics

- Long lifetime and extremely reliable from contactless measurement with Hall principle
- Angle measuring range between 20° and 360°
- IP67 protection class for harsh environmental conditions
- Temperature range -40 °C to +85 °C
- Resolution 12 bit
- Current or voltage output signal
- Available with one or two outputs, PWM signal available on request

**General information**
The angle measuring range lies between 20° and 359°. The measuring principle is contactless,
based on a magnetic field rotating above the 2D Hall sensor. The system is short-circuit proof. There is no mechanical limit stop. Housing material: PBT.

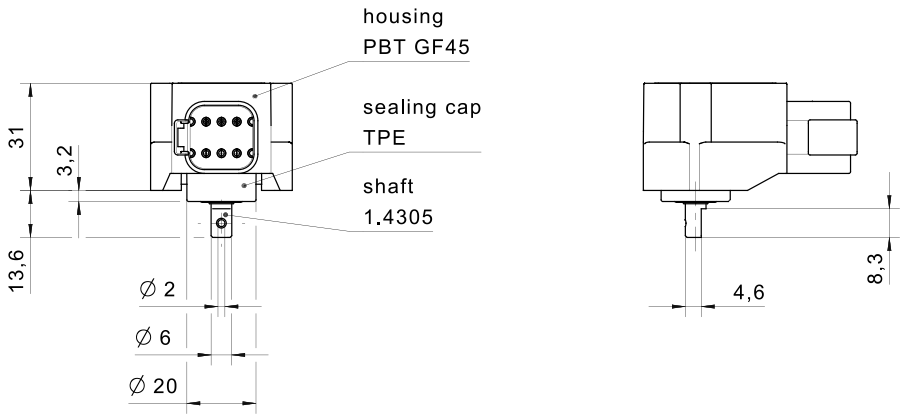
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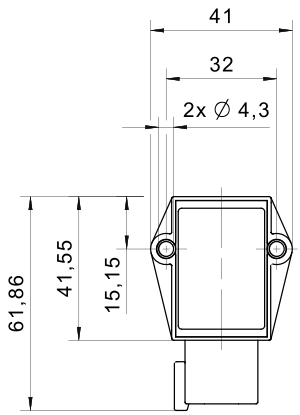
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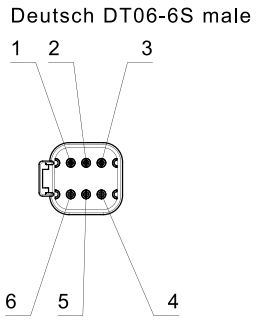


## Technical drawing

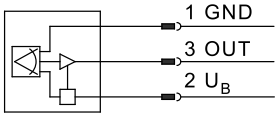
IMAGE 1/2



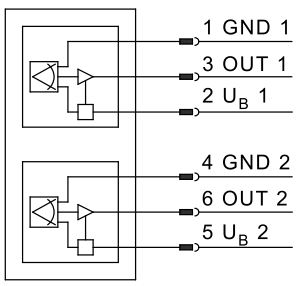




424D1...
424D3...




424D2...
434D4...
424D5...




**General information**

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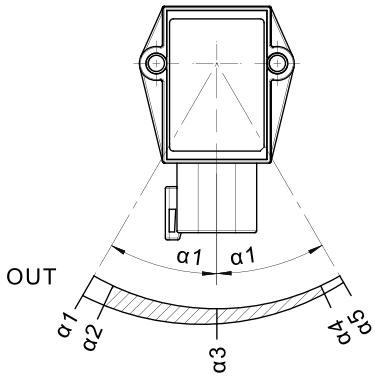
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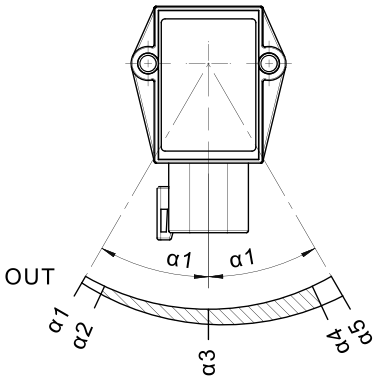


IMAGE 2/2

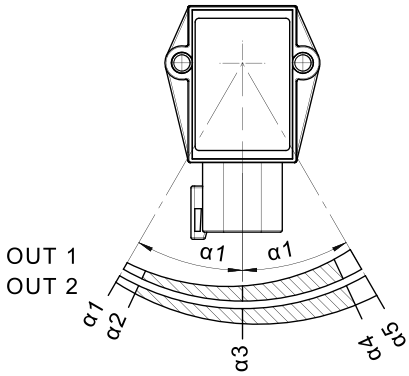
424D3... CW



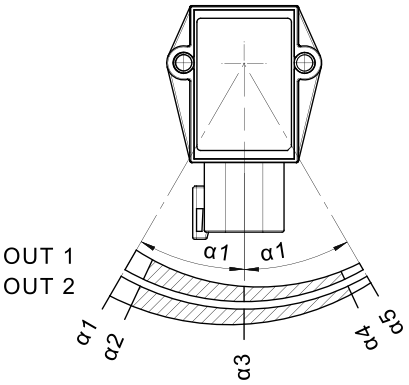

424D1... CCW



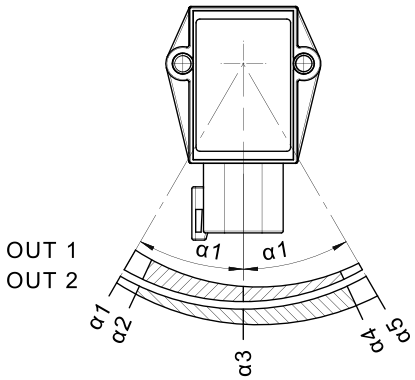

424D2... CCW / CCW




424D4... CW / CW




424D5... CW / CCW



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## Product options

IMAGE 1/1

### ORDERING KEY

| 424D… | | | | Angle sensor 360°, magnetic + redundant |
|---|---|---|---|---|
| | | | | |
| | | | | **Output signal** |
| | 11 | | | 4-20mA, one output (CCW) |
| | 17 | | | 0.5-4.5V, one output (CCW) |
| | 51 | | | 4-20mA, two outputs (opposite) |
| | 57 | | | 0.5-4.5V, two outputs (opposite) |
| | | | | |
| | | | | **Angle measuring range** |
| | | 359 | | 359° |
| | | 270 | | 270° |
| | | 240 | | 240° |
| | | 210 | | 210° |
| | | 180 | | 180° |
| | | 150 | | 150° |
| | | 120 | | 120° |
| | | 090 | | 90° |
| | | 045 | | 45° |
| | | | | |
| | | | | **Operating lever** |
| | | | B | Yes |
| | | | - | No (if selected without lever, this position is omitted) |

| Optional |
|---|
| **Output signal** |
| 1-5V |
| PWM |
| |
| Other output signals, angle rates on request |

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## Article characteristics

| Attribute | 424D.1... | 424D.7... |
|---|---|---|
| **Polarity reversal protection** | yes | |
| **Output signal min.** | - | 0.5 V DC |
| **Output signal max.** | - | 4.5 V DC |
| **Output signal min.** | 4 mA | - |
| **Output signal max.** | 20 mA | - |
| **Output signal - centre position/zero position** | - | 2.5 V DC |
| **Output signal - centre position/zero position** | 12 mA | - |
| **Resolution** | 0.09 ° | |
| **Operating voltage min.** | 10 V DC | |
| **Operating voltage max.** | 30 V DC | |
| **Current consumption** | 30 mA | |
| **Load resistance min.** | - | 100000 Ohm |
| **Load resistance max.** | 200 Ohm | - |
| **Linearity error** | ±1 % | ± 1 % |
| **Signal sequence** | CCW or CW/CCW | |
| **Signal update rate** | 1600 Hz | |
| **Outputs (quantity, type)** | 1 or 2 | |
| **Technology** | Hall | |
| **Angle measuring range** | 20°...360 ° | |
| **Outputs** | 4...20mA | 0,5...4,5V |
| **MTTF** | 79.6 a | 115.9 a |
| **Temperature coefficient** | ±1.2 % | |
| **EMC Agricultural and forestry machines (Norm)** | EN ISO 14982<br>pulse 5b: max. voltage 35V (absolute), functional status C for pulse 1 and 4 | |
| **EMC Earth-moving and building construction machinery (Norm)** | DIN EN ISO 13766-1<br>pulse "load dump": max. voltage 35V (absolute) | |
| **EMC Industrial trucks (Norm)** | DIN EN 12895 | |
| **Max. shaft load, axial** | 50 N | |
| **Max. shaft load, radial** | 100 N | |
| **Mechanical stop** | no | |
| **Actuating lever** | Selectable | |
| **Protection class** | IP67 DIN EN 60529 | |

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| Attribute | 424D.1... | 424D.7... |
|---|---|---|
| **Operating temperature min.** | -40 °C | |
| **Max. operating temperature** | 85 °C | |
| **Min. storage temperature** | -40 °C | |
| **Max. storage temperature** | 85 °C | |
| **Torque for fastening screws** | 2.5 N m | |
| **Connector type** | Deutsch DT04-6P | |