



Angle sensor 424S

Angle sensor 424S has a redundant design and, as a result, is suitable for safety-critical measurement tasks. The sensor measures angles between 30° and 120°. Angle sensor 424S is based on the contactless Hall measurement principle, which is extremely reliable and ensures a long service life. The sensor can be used for angle determination in telescopic arms of telescopic handlers and lifting platforms as well as for many other challenging off-highway applications.

- Long lifetime and extremely reliable from contactless measurement with Hall principle
- IP67 protection class for harsh environmental conditions
- High temperature resistance from -40 °C to +85 °C
- Resolution 0.1°
- Current or voltage output signal available
- Switching output (push-pull / high-side / low-side) up to 1.5A
- Available with AMP plug (Micro Quadlock System) or Deutsch plug DT04-6P

IMAGE 2/4

424S...

Deutsch DT06-6S male

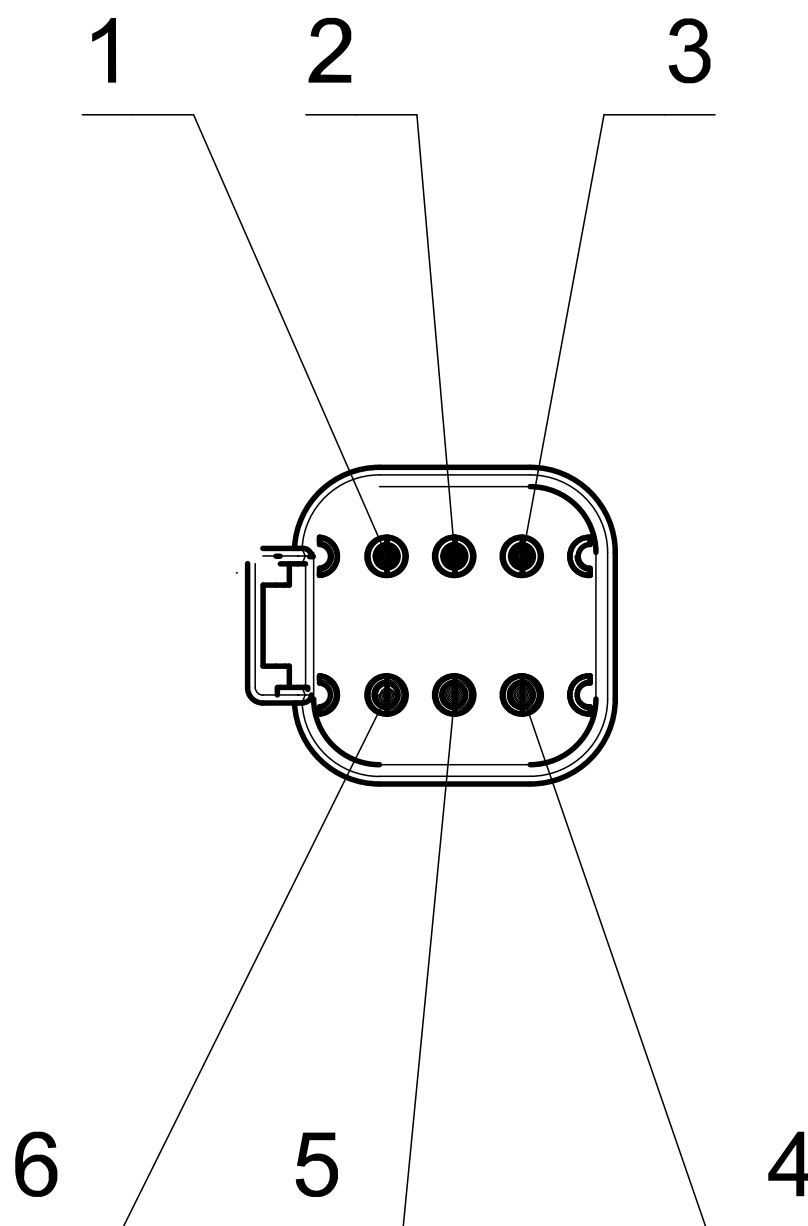


IMAGE 3/4

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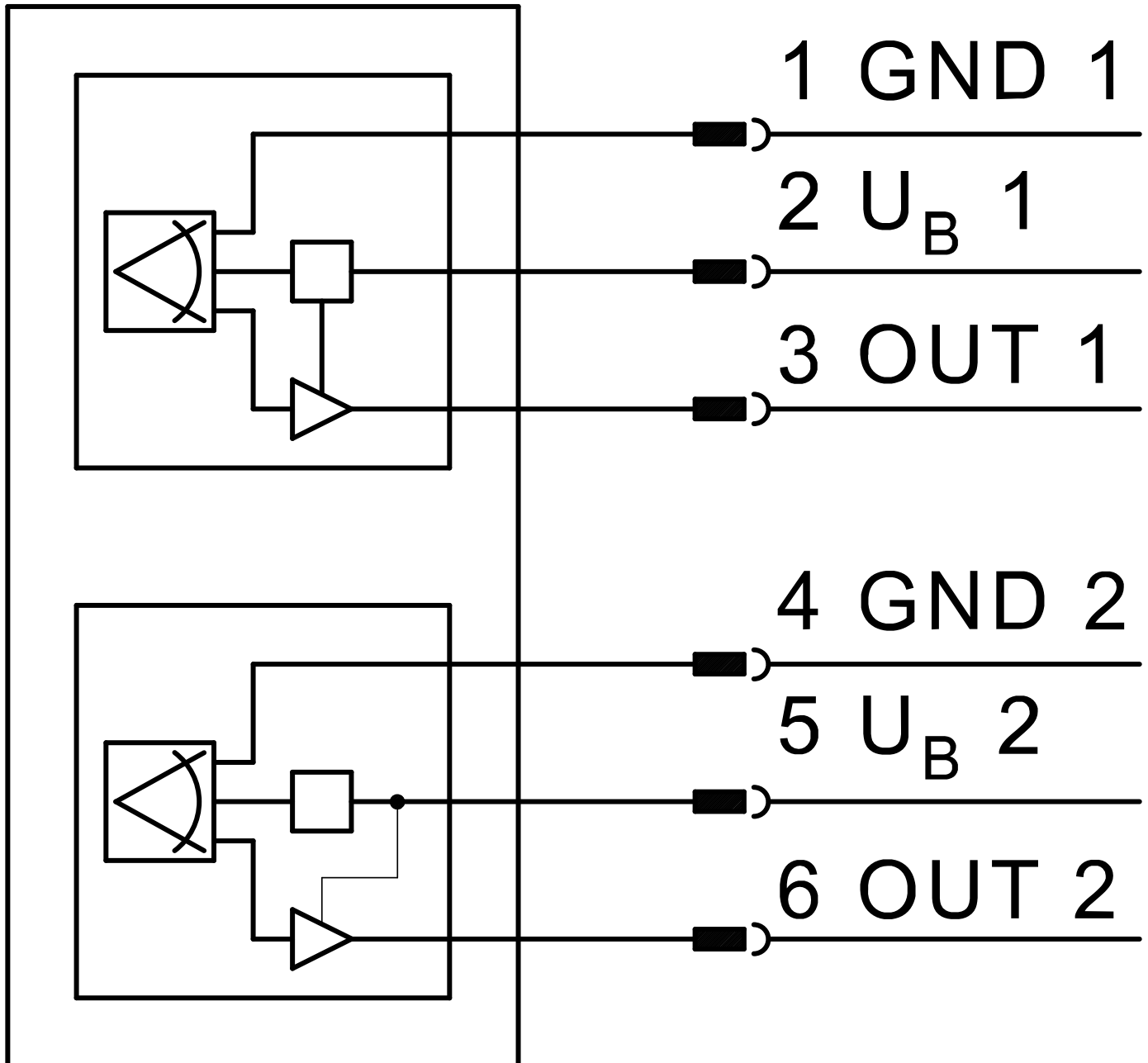
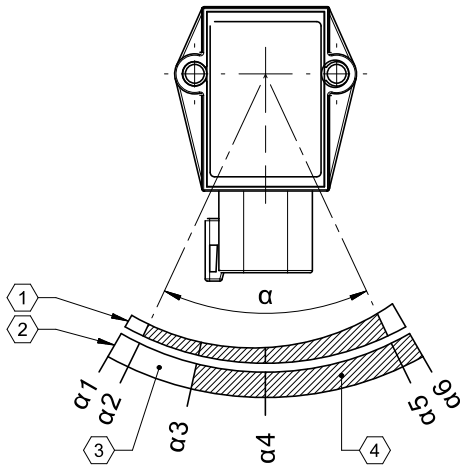


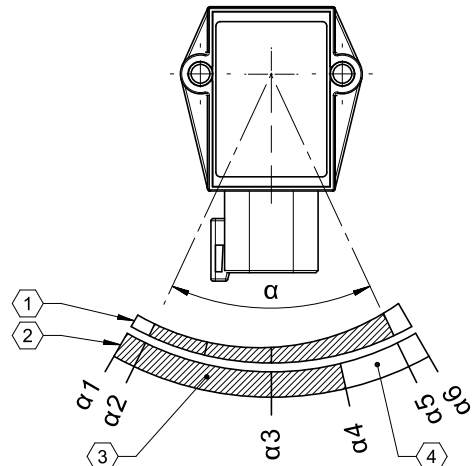
IMAGE 4/4

424S...



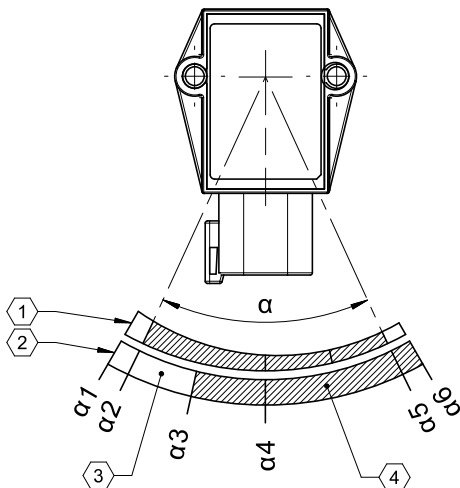
- ① OUT 1: analogue CCW (counter clock wise)
- ② OUT 2: digital output - push pull / high side
- ③ low
- ④ high

424S...



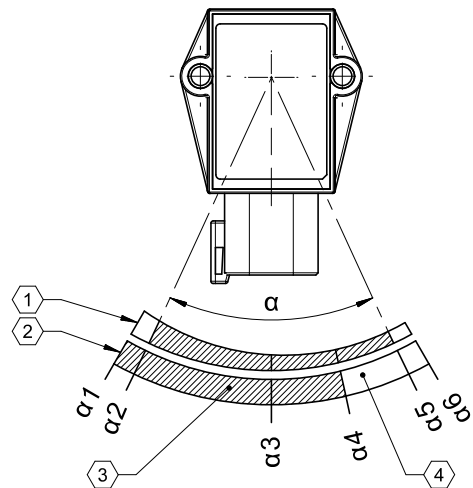
- ① OUT 1: analogue CCW (counter clock wise)
- ② OUT 2: digital output - push pull / low side
- ③ high
- ④ low

424S...



- ① OUT 1: analogue CW (clock wise)
- ② OUT 2: digital output - push pull / high side
- ③ low
- ④ high

424S...



- ① OUT 1: analogue CW (clock wise)
- ② OUT 2: digital output - push pull / low side
- ③ high
- ④ low

Product options

IMAGE 1/1

ORDERING KEY

| 424S | | | | | | | | Angle sensor 120°, analogue/switching output |
|------|---|--|----|--|----|-----|---|--|
| | | | | | | | | |
| | | | | | | | | Connection |
| | A | | | | | | | AMP connector |
| | D | | | | | | | Deutsch connector |
| | | | | | | | | Analogue output |
| | | | 10 | | | | | 1 - 5 V |
| | | | 11 | | | | | 4 - 20 mA |
| | | | 16 | | | | | 0.5 - 4.5 V ratiometric |
| | | | 17 | | | | | 0.5 - 4.5 V |
| | | | | | | | | Switching output |
| | | | | | DH | | | High-side switch |
| | | | | | DL | | | Low-side switch |
| | | | | | DS | | | Push-pull |
| | | | | | | | | Code number (specified by elobau) |
| | | | | | | 001 | | 3-digit code number |
| | | | | | | | | Accessories |
| | | | | | | | B | Operating lever mounted |
| | | | | | | | | |
| | | | | | | | | Selection of angle measuring range ¹ (selectable in 5° increments) between 30° and 120° |
| | | | | | | | | xxx° |
| | | | | | | | | Selection of switching point ¹ (selectable in 5° increments) between 0° and 120° |
| | | | | | | | | xxx° |
| | | | | | | | | |
| | | | | | | | | ¹ Please specify when ordering. |

Standard

Optional (on request)

Options (on request)

Customer-specific shaft end

Special characteristic curve for output signal

Customised connection

Selection of direction of rotation CCW/CW

Switching output without analogue output

Special angle between 30°-120° (0-120°) ex-works

Article characteristics

| Attribute | 424SD11D.... | 424SD16D.... | 424SD17D.... | ED424SD11D.... | ED424SD16D.... | ED424SD17D.... |
|---|---|--|---|----------------|----------------|----------------|
| 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 | - | | | | |
| Output signal - switching point | Selectable (Highside, Lowside, Push-Pull) | | | - | | |
| Resolution | 0.1 ° | | | - | | |
| EMC Agricultural and forestry machines (Norm) | EN ISO 14982 pulse 5b: max. voltage 54V (absolute), functional status C for pulse 1 and 4 | EN ISO 14982 conducted disturbance not applicable for 5V supply | EN ISO 14982 pulse 5b: max. voltage 54V (absolute), functional status C for pulse 1 and 4 | - | | |
| EMC Earth-moving and building construction machinery (Norm) | DIN EN ISO 13766-1 pulse "load dump": max. voltage 54V (absolute) | DIN EN ISO 13766-1 conducted disturbance not applicable for 5V supply | DIN EN ISO 13766-1 pulse "load dump": max. voltage 54V (absolute) | - | | |
| EMC Industrial trucks (Norm) | DIN EN 12895 | | | - | | |
| Operating voltage min. | 9 V DC | 4.5 V DC | 9 V DC | - | | |
| Operating voltage max. | 32 V DC | 5.5 V DC | 32 V DC | - | | |
| Max. overvoltage | (5min @ 25°C) 36 V DC | 5.5 V DC | (5min @ 25°C) 36 V DC | - | | |
| Current consumption | 424SD11D.: 17.00 mA 424SD1.DH: 9.00 mA 424SD1.DL: 15.00 mA 424SD1.DS: 15.00 mA | 424SD16D.: 9.00 mA 424SD1.DH: 9.00 mA 424SD1.DL: 15.00 mA 424SD1.DS: 15.00 mA | 424SD17D.: 17.00 mA 424SD1.DH: 9.00 mA 424SD1.DL: 15.00 mA 424SD1.DS: 15.00 mA | - | | |
| Load resistance min. | - | 20000 Ohm | 10000 Ohm | - | | |
| Load resistance max. | 9V: 150 Ohm > 12V: 350 Ohm | - | | | | |
| Temperature coefficient | typ. +- 250 ppm/K | | | - | | |

| Attribute | 424SD11D.... | 424SD16D.... | 424SD17D.... | ED424SD11D.... | ED424SD16D.... | ED424SD17D.... |
|---|--|--|---|----------------|----------------|----------------|
| Typical linearity error | = $\pm 15^\circ$: $\pm 0,2^\circ$ = $\pm 25^\circ$: $\pm 0,4^\circ$ = $\pm 35^\circ$: $\pm 1,0^\circ$ = $\pm 45^\circ$: $\pm 2,0^\circ$ = $\pm 60^\circ$: $\pm 5,0^\circ$ | | | | - | |
| Signal sequence | CCW (CW on request) | | | | - | |
| Signal update rate | 2000 Hz | | | | - | |
| Outputs (quantity, type) | 2 | | | | - | |
| Max. switching current | Highside / Lowside: 1500 mA Push-Pull: 0,25 mA | | | | - | |
| Technology | Hall | | | | - | |
| Angle measuring range - analogue output | 30° - 120° (selectable in 5° increments) | | | | - | |
| Angle range - switching output | 0° - 120° (Selectable in 5° increments) | | | | - | |
| Outputs | 4...20mA + switching output | 0,5...4,5V ratiometric + Switching output | 0,5...4,5V + Switching output | | - | |
| MTTF | 424SD11D.: 72.2 a 424SD1.DH: 78.4 a 424SD1.DL: 87.1 a 424SD1.DS: 113.0 a | 424SD16D.: 111.9 a 424SD1.DH: 78.4 a 424SD1.DL: 87.1 a 424SD1.DS: 113.0 a | 424SD17D.: 79.6 a 424SD1.DH: 78.4 a 424SD1.DL: 87.1 a 424SD1.DS: 113.0 a | | - | |
| Max. shaft load, axial | 50 N | | | | - | |
| Max. shaft load, radial | 100 N | | | | - | |
| Bearing | Ball bearing | | | | - | |
| Mechanical stop | Optional | | | | - | |
| Actuating lever | Optional (Accessories: 350210) | | | | - | |
| Protection class | IP67 DIN EN 60529 / IPX9K ISO 20653 | | | | - | |
| Operating temperature min. | -40 °C | | | | - | |
| Max. operating temperature | 85 °C | | | | - | |
| Min. storage temperature | -40 °C | | | | - | |
| Max. storage temperature | 105 °C | | | | - | |
| Torque for fastening screws | 2.5 N m | | | | - | |
| Connector type | Deutsch DT04-6P | | | | - | |