



Angle sensor 424S

Angle sensor 424R 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 424R 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 $+85^\circ\text{C}$
- Resolution 0.1°
- Current or voltage output signal available
- Redundant output signal for safety-critical applications
- Available with AMP plug (Micro Quadlock System) or Deutsch plug DT04-6P

Technical drawing

IMAGE 1/4

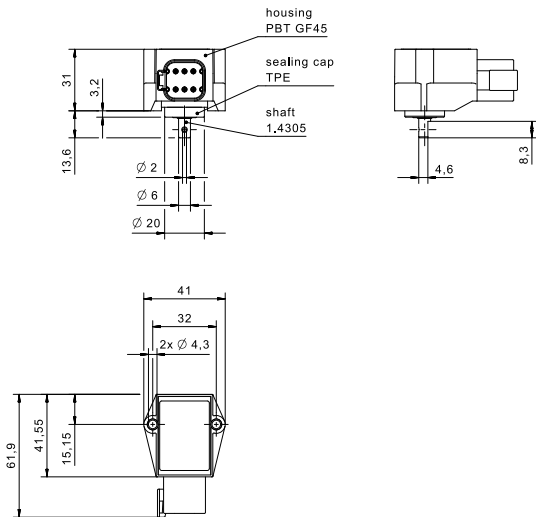


IMAGE 2/4

424S...

Deutsch DT06-6S male

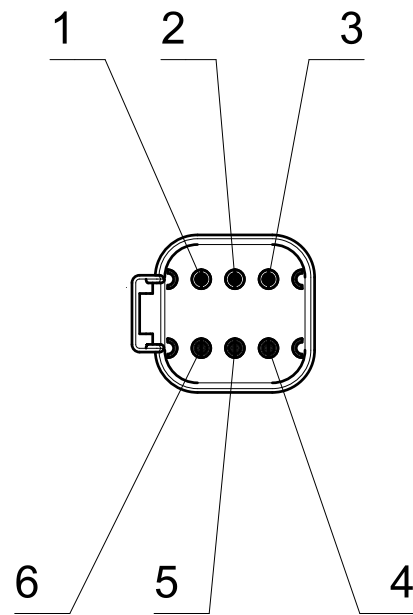


IMAGE 3/4

424S...

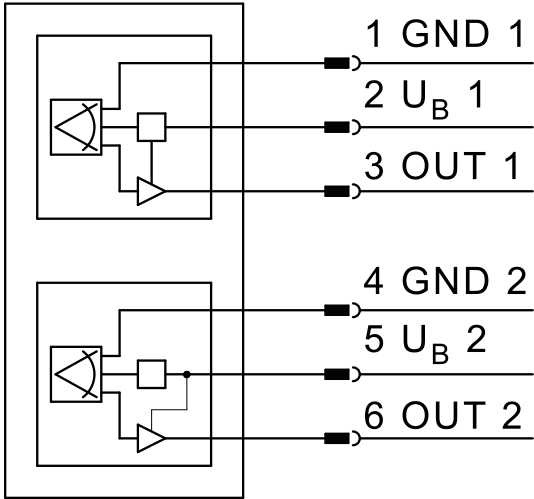
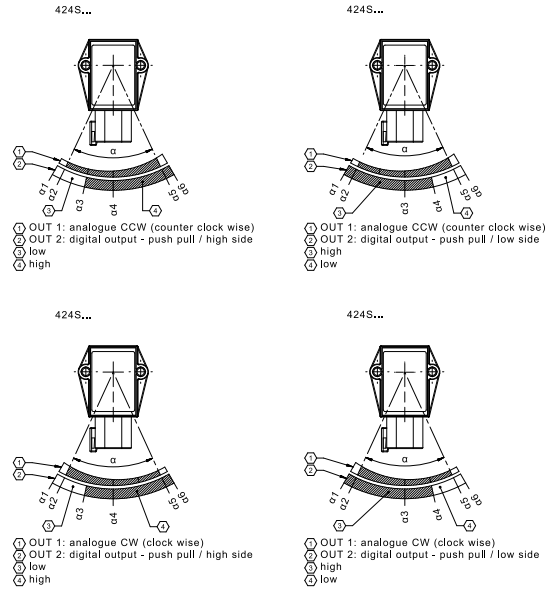


IMAGE 4/4



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
					001	Code number (specified by elobau)
						3-digit code number
						Accessories
					B	Operating lever mounted
						Selection of angle measuring range * (selectable in 5° increments) between 30° and 120° xxx°
						Selection of switching point * (selectable in 5° increments) between 0° and 120° xxx°
						* 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

Electrical data

Attribute	424SD11D....	424SD16D....	424SD17D....
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		

Electrical data

Attribute	424SD11D....	424SD16D....	424SD17D....
Typical linearity error		$\leq \pm 15^\circ: \pm 0,2^\circ$ $\leq \pm 25^\circ: \pm 0,4^\circ$ $\leq \pm 35^\circ: \pm 1,0^\circ$ $\leq \pm 45^\circ: \pm 2,0^\circ$ $\leq \pm 60^\circ: \pm 5,0^\circ$	
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

Mechanical data

Attribute	424SD11D....	424SD16D....	424SD17D....
Max. shaft load, axial	50 N		
Max. shaft load, radial	100 N		
Bearing	Ball bearing		
Mechanical stop	Optional		
Actuating lever	Optional (Accessories: 350210)		

Material information

Attribute	424SD11D....	424SD16D....	424SD17D....
Housing material	PBT		

Environmental conditions

Attribute	424SD11D....	424SD16D....	424SD17D....
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		

Installation

Attribute	424SD11D....	424SD16D....	424SD17D....
Torque for fastening screws	2.5 N m		

Connection

Attribute	424SD11D....	424SD16D....	424SD17D....
Connector type	Deutsch DT04-6P		