



## Angle sensor 424R

Angle sensor 424R has a redundant design and, as a result, is suitable for safety-critical measurement tasks. The sensor measures angles between  $30^{\circ}$  and  $120^{\circ}$ . 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.

### Product characteristics

- Long lifetime and extremely reliable from contactless measurement with Hall principle
- IP67 protection class for harsh environmental conditions
- High temperature resistance from  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$
- Resolution  $0.1^{\circ}$
- Current or voltage output signal available
- Redundant output signal
- Available with AMP plug (Micro Quadlock System) or Deutsch plug DT04-6P

Technical drawing

IMAGE 1/2

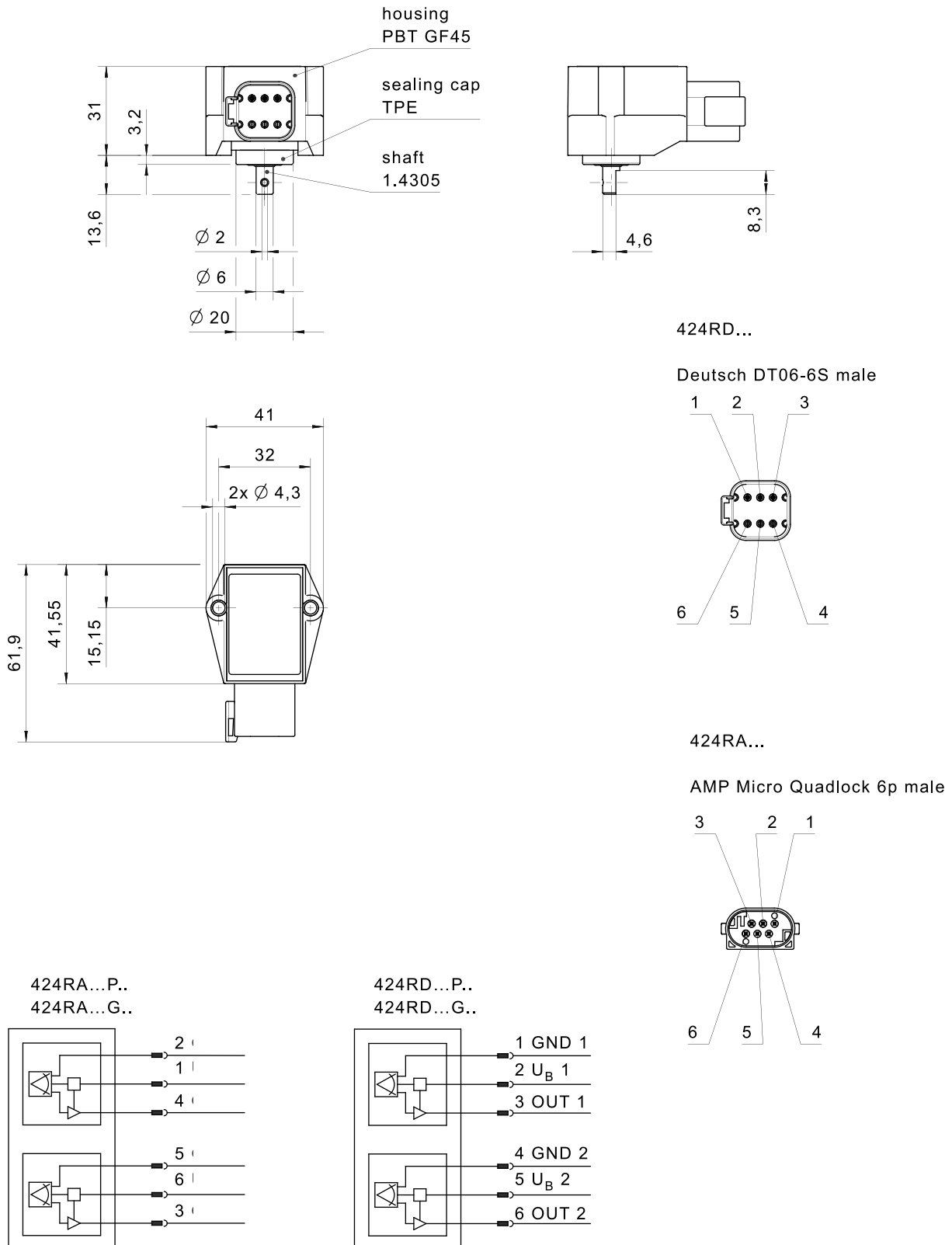
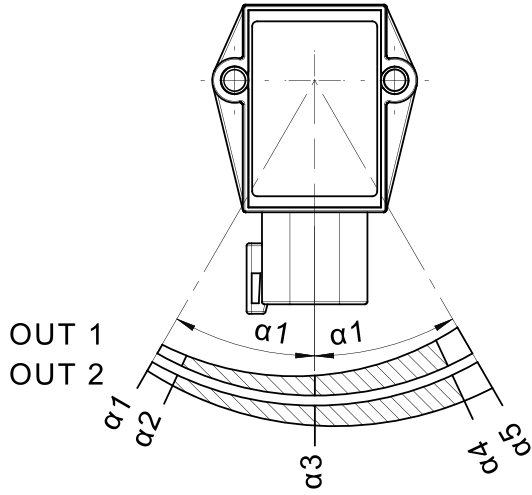
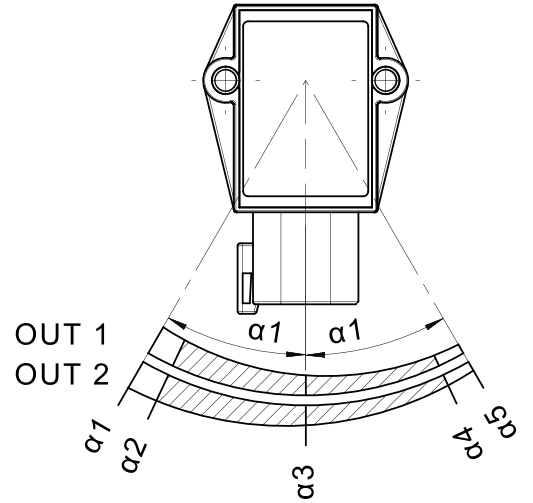


IMAGE 2/2

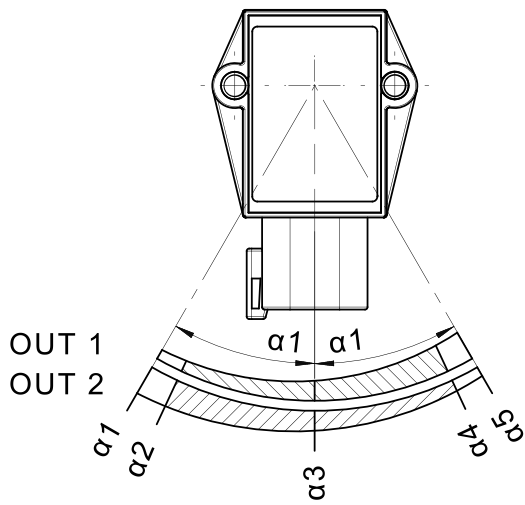
424R...CCW/CCW



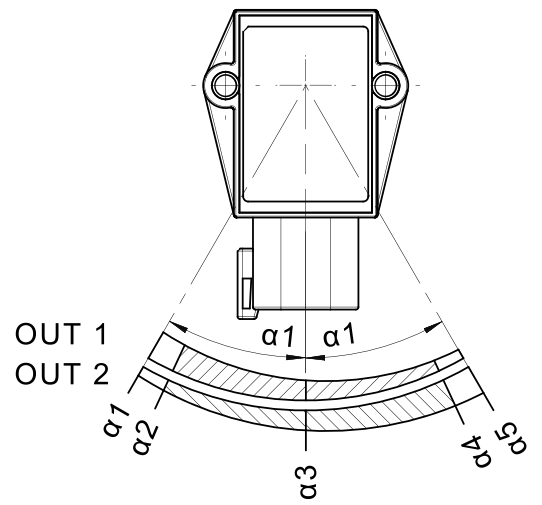
424R...CW/CW



424R...CCW/CW



424R...CW/CCW



**Product options**

IMAGE 1/1

**ORDERING KEY**

424R							Angle sensor 120°, redundant
							<b>Connection</b>
	A						AMP connector Micro Quadlock
	D						Deutsch connector DT04-6P
							<b>Bearing</b>
		1					Ball bearing
							<b>Output signal 1</b>
			1				4...20mA
			6				0.5...4.5V, ratiometric
			7				0.5...4.5V
							<b>Output signal 2</b>
				1			4...20mA
				6			0.5...4.5V, ratiometric
				7			0.5...4.5V
							<b>Output signal</b>
					G		Opposite (CCW/CW)
							<b>Angle measuring range</b>
					030		30°
					045		45°
					060		60°
					090		90°
					120		120°
							<b>Operating lever</b>
						B	Yes
						-	No (if selected without lever, this position is omitted)

**Optional**

**Connection**

**Output signal 1**

1...5V

**Output signal 2**

1...5V

**Output signal**

Parallel

Other connectors, output signals, signal sequences and angle rates on request

## Article characteristics

Attribute	424R..11...	424R..66...	424R..77...
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	0.1 °		
Operating voltage min.	10 V DC	4.5 V DC	10 V DC
Operating voltage max.	30 V DC	5.5 V DC	30 V DC
Current consumption	18 mA	8 mA	10 mA
Load resistance min.	-	20000 Ohm	
Load resistance max.	250 Ohm	-	
Temperature coefficient	typ. $\pm 250$ ppm/K		
Signal sequence	CCW/CW (opposite)		
Signal update rate	2000 Hz		
Outputs (quantity, type)	2		
Technology	Hall		
Angle measuring range	30° ... 120 °		
Outputs	4...20mA	0,5...4,5V ratiometric	0,5...4,5V
MTTF	205.9 a	237.3 a	144.5 a
Typical linearity error	$= \pm 15^\circ: \pm 0,2^\circ$ $= \pm 25^\circ: \pm 0,4^\circ$ $= \pm 35^\circ: \pm 1,0^\circ$ $= \pm 45^\circ: \pm 2,0^\circ$ $= \pm 60^\circ: \pm 5,0^\circ$		
EMC Agricultural and forestry machines (Norm)	EN ISO 14982 pulse 5b: max. voltage 56V (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 56V (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 56V (absolute)	DIN EN ISO 13766-1 conducted disturbance not applicable for 5V supply	DIN EN ISO 13766-1 pulse "load dump": max. voltage 56V (absolute)
EMC Industrial trucks (Norm)	DIN EN 12895		
Max. shaft load, axial	50 N		
Max. shaft load, radial	100 N		

Attribute	424R..11...	424R..66...	424R..77...
Bearing	Ball bearing		
Mechanical stop	Optional		
Actuating lever	Selectable		
Protection class	IP67 DIN EN 60529		
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		