



# ARS60-AAA03600

ARS60 SSI/Parallel

**ABSOLUTE ENCODERS**

**SICK**  
Sensor Intelligence.



### Ordering information

Type	Part no.
ARS60-AAA03600	1031421

Other models and accessories → [www.sick.com/ARS60\\_SSI\\_Parallel](http://www.sick.com/ARS60_SSI_Parallel)

Illustration may differ



### Detailed technical data

#### Performance

<b>Number of steps per revolution (max. resolution)</b>	3,600 Any number of steps from 00002 to 32768 possible. Always 5 characters in cleartext.
<b>Error limits G</b>	0.035° (binary number of steps) <sup>1)</sup> 0.046° (non-binary number of steps)
<b>Repeatability standard deviation <math>\sigma_r</math></b>	0.005° <sup>2)</sup>

<sup>1)</sup> In accordance with DIN ISO 1319-1, position of the upper and lower error limit depends on the installation situation, specified value refers to a symmetrical position, i.e. deviation in upper and lower direction is the same.

<sup>2)</sup> In accordance with DIN ISO 55350-13; 68.3% of the measured values are inside the specified area.

#### Interfaces

<b>Communication interface</b>	SSI
<b>Initialization time</b>	80 ms <sup>1)</sup>
<b>SSI</b>	
Code type	Gray
Code sequence parameter adjustable	CW (clockwise) increasing when viewing the clockwise rotating shaft Increasing, when turning the shaft For clockwise rotation, looking in direction "A" (see dimensional drawing)

<sup>1)</sup> Valid positional data can be read once this time has elapsed.

#### Electrical data

<b>Connection type</b>	Male connector, M23, 12-pin, radial
<b>Supply voltage</b>	10 ... 32 V DC
<b>MTTFd: mean time to dangerous failure</b>	300 years (EN ISO 13849-1) <sup>1)</sup>

<sup>1)</sup> This product is a standard product and does not constitute a safety component as defined in the Machinery Directive. Calculation based on nominal load of components, average ambient temperature 40°C, frequency of use 8760 h/a. All electronic failures are considered hazardous. For more information, see document no. 8015532.

#### Mechanical data

<b>Mechanical design</b>	Blind hollow shaft
<b>Shaft diameter</b>	15 mm <sup>1)</sup>

<sup>1)</sup> Collets for 6, 8, 10, 12, 14 mm and 1/4", 3/8" and 1/2" as accessories, separate order item. For 15 mm shaft diameter collet is not needed.

<b>Weight</b>	+ 0.3 kg
<b>Housing material</b>	Aluminum die cast
<b>Start up torque</b>	+ 0.6 Ncm
<b>Operating torque</b>	0.4 Ncm
<b>Permissible shaft movement, axial static/dynamic</b>	± 0.5 mm, ± 0.2 mm
<b>Permissible shaft movement, radial static/dynamic</b>	± 0.3 mm, ± 0.1 mm
<b>Bearing lifetime</b>	3.6 x 10 <sup>9</sup> revolutions
<b>Angular acceleration</b>	≤ 500,000 rad/s <sup>2</sup>

<sup>1)</sup> Collets for 6, 8, 10, 12, 14 mm and 1/4", 3/8" and 1/2" as accessories, separate order item. For 15 mm shaft diameter collet is not needed.

### Ambient data

<b>EMC</b>	According to EN 61000-6-2 and EN 61000-6-3 <sup>1)</sup>
<b>Enclosure rating</b>	IP65, with mating connector fitted (according to IEC 60529)
<b>Permissible relative humidity</b>	90 % (condensation of the optical scanning not permitted)
<b>Operating temperature range</b>	-20 °C ... +85 °C
<b>Storage temperature range</b>	-40 °C ... +100 °C
<b>Resistance to shocks</b>	50 g, 11 ms (according to EN 60068-2-27)
<b>Resistance to vibration</b>	20 g, 10 Hz ... 2,000 Hz (according to EN 60068-2-6)

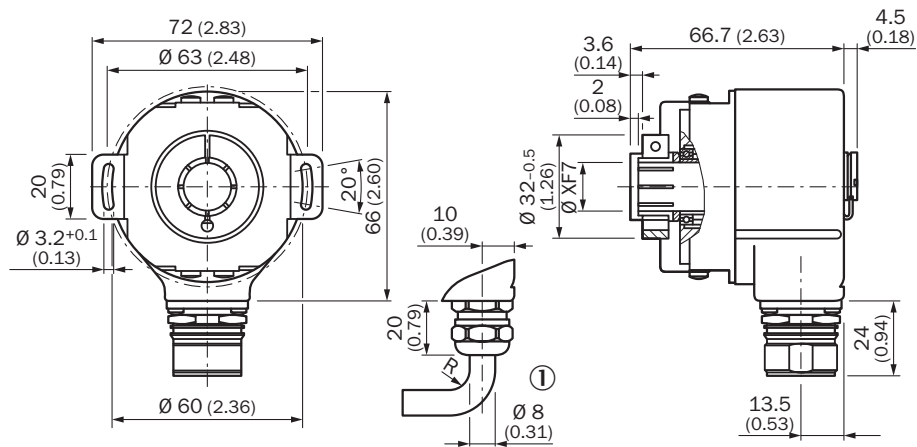
<sup>1)</sup> EMC according to the standards quoted is achieved if shielded cables are used.

### Classifications

<b>ECl@ss 5.0</b>	27270502
<b>ECl@ss 5.1.4</b>	27270502
<b>ECl@ss 6.0</b>	27270590
<b>ECl@ss 6.2</b>	27270590
<b>ECl@ss 7.0</b>	27270502
<b>ECl@ss 8.0</b>	27270502
<b>ECl@ss 8.1</b>	27270502
<b>ECl@ss 9.0</b>	27270502
<b>ETIM 5.0</b>	EC001486
<b>ETIM 6.0</b>	EC001486
<b>UNSPSC 16.0901</b>	41112113

### Dimensional drawing (Dimensions in mm (inch))

Blind hollow shaft, axial plug connection M12 and M23



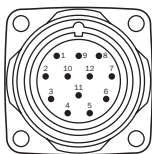
General tolerances according to DIN ISO 2768-mk

① R = min. bending radius 40 mm

### PIN assignment

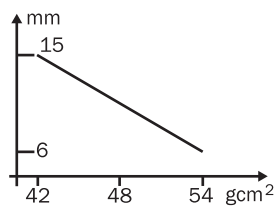
• Allocation for encoder with 12-pin connector; SSI interface

Signal	12-pin connector	11-core cable outlet
GND	1	Blue
Data (+)	2	White
Clock (+)	3	Yellow
N. C.	4	-
V/R	5	Pink
N. C.	6	-
N. C.	7	-
U <sub>s</sub>	8	Red
SET	9	Orange
Data (-)	10	Brown
Clock (-)	11	Lilac
N. C.	12	-




View of the connector M23 fitted to the encoder body SSI

### Maximum revolution range



## Recommended accessories

Other models and accessories → [www.sick.com/ARS60\\_SSI\\_Parallel](http://www.sick.com/ARS60_SSI_Parallel)

	Brief description	Type	Part no.
Shaft adaptation			
	Collet for blind hollow shaft, shaft diameter 6 mm, outer diameter 15 mm	SPZ-006-AD-A	2029174
	Collet for blind hollow shaft, shaft diameter 8 mm, outer diameter 15 mm	SPZ-008-AD-A	2029176
	Collet for blind hollow shaft, shaft diameter 10 mm, outer diameter 15 mm	SPZ-010-AD-A	2029178
	Collet for blind hollow shaft, shaft diameter 12 mm, outer diameter 15 mm	SPZ-012-AD-A	2029179
	Collet for blind hollow shaft, shaft diameter 1/2" (12.7 mm), outer diameter 15 mm	SPZ-1E2-AD-A	2029180
	Collet for blind hollow shaft, shaft diameter 1/4" (6.35 mm), outer diameter 15 mm	SPZ-1E4-AD-A	2029175
	Collet for blind hollow shaft, shaft diameter 3/8" (9.525 mm), outer diameter 15 mm	SPZ-3E8-AD-A	2029177

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We have extensive experience in a wide range of industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

Comprehensive services complete our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

For us, that is “Sensor Intelligence.”

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