



## Absolute encoders ARS60 SSI/Parallel

ARS60-A1B01024



**Model Name** > [ARS60-A1B01024](#)  
**Part No.** > [1031400](#)



*Illustration may differ*

#### At a glance

- Absolute singleturn encoder
- Resolution: up to 15 bits (32,768 increments)
- Electrical interface: SSI with gray code type or gray capped
- Electrical interface: Parallel with gray, gray capped, binary, BCD code type
- Zero-set function
- Mechanical interfaces: face mount flange, servo flange, blind and through hollow shaft
- Enclosure rating: Up to IP66

#### Your benefits

- Optical and magnetic variants for the widest range of requirements
- Reduced maintenance costs thanks to magnetic, wearless scanning in single and multiturn design
- High level of productivity due to optical encoders with a high level of precision and fast calculation of positions
- Robust design for maximum system availability, even in extreme environmental conditions
- Absolutely compact - specially suited in cases where installation space is tight
- Flexible integration in all common networks



#### Performance

|                                      |                                                                          |
|--------------------------------------|--------------------------------------------------------------------------|
| Max. number of steps per revolution: | 1,024                                                                    |
| Max. number of revolutions:          | 1                                                                        |
| Resolution power:                    | 1,024 x 1                                                                |
| Error limits:                        | 0.035 ° (binary number of steps)<br>0.046 ° (non-binary number of steps) |
| Repeatability (Ta not constant):     | 0.005 °                                                                  |
| Measuring step deviation:            | 0.005 °, 0.016 °                                                         |
| Measuring step:                      | 360 ° /number of lines                                                   |
| Initialization time:                 | 80 ms <sup>1)</sup>                                                      |

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

#### Mechanical data

|                       |                           |
|-----------------------|---------------------------|
| Mechanical interface: | Solid shaft, Servo flange |
| Shaft diameter:       | 6 mm                      |
| Mass:                 | 0.3 kg                    |

|                                     |                                                                              |
|-------------------------------------|------------------------------------------------------------------------------|
| Start up torque:                    | 0.25 Ncm                                                                     |
| Operating torque:                   | 0.2 Ncm                                                                      |
| Permissible Load capacity of shaft: | 10 N (axial), 20 N (radial)                                                  |
| Maximum operating speed:            | 10,000 /min (without shaft seal), 6,000 /min (with shaft seal) <sup>1)</sup> |
| Moment of inertia of the rotor:     | 48 gcm <sup>2</sup>                                                          |
| Bearing lifetime:                   | 3.6 x 10 <sup>9</sup> revolutions                                            |
| Max. angular acceleration:          | 500,000 rad/s <sup>2</sup>                                                   |
| Operation of zero-set:              | ≥ 100 ms <sup>2)</sup>                                                       |

<sup>1)</sup> If the shaft seal has been removed by the customer <sup>2)</sup> Only with shaft stationary (note initialisation time)

## Electrical data

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|                                        |                                      |
|----------------------------------------|--------------------------------------|
| Operating voltage range:               | 10 V DC ... 32 V DC                  |
| Operating power consumption (no load): | 60 mA                                |
| MTTFd: mean time to dangerous failure: | 300 a (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.

## Interfaces

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|                       |                              |
|-----------------------|------------------------------|
| Electrical interface: | Connector M23, 12-pin, axial |
|-----------------------|------------------------------|

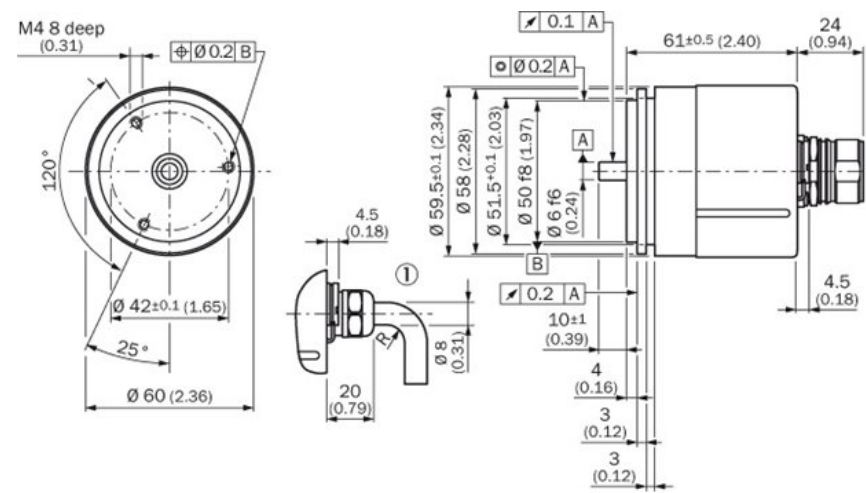
## Ambient data

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|                                |                                                              |
|--------------------------------|--------------------------------------------------------------|
| EMC:                           | (according to EN 61000-6-2 and EN 61000-6-3) <sup>1)</sup>   |
| Enclosure rating:              | IP 65 (according to IEC 60529), with mating connector fitted |
| Permissible relative humidity: | 90 % (condensation of the optical scanning not permitted)    |
| Working temperature range:     | -20 °C ... 85 °C                                             |
| Storage temperature range:     | -40 °C ... 100 °C                                            |
| Resistance to shocks:          | 50 g (according to EN 60068-2-27)                            |
| Resistance to vibration:       | 20 g, 10 Hz ... 2,000 Hz (according to EN 60068-2-6)         |

<sup>1)</sup>

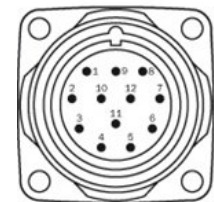
Dimensional drawing



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

**Australia**

Phone +61 3 9457 0600  
1800 334 802 – tollfree  
E-Mail sales@sick.com.au

**Belgium/Luxembourg**

Phone +32 (0)2 466 55 66  
E-Mail info@sick.be

**Brasil**

Phone +55 11 3215-4900  
E-Mail sac@sick.com.br

**Canada**

Phone +1 905 771 14 44  
E-Mail information@sick.com

**Ceská Republika**

Phone +420 2 57 91 18 50  
E-Mail sick@sick.cz

**China**

Phone +86 4000 121 000  
E-Mail info.china@sick.net.cn  
Phone +852-2153 6300  
E-Mail ghk@sick.com.hk

**Danmark**

Phone +45 45 82 64 00  
E-Mail sick@sick.dk

**Deutschland**

Phone +49 211 5301-301  
E-Mail kundenservice@sick.de

**España**

Phone +34 93 480 31 00  
E-Mail info@sick.es

**France**

Phone +33 1 64 62 35 00  
E-Mail info@sick.fr

**Great Britain**

Phone +44 (0)1727 831121  
E-Mail info@sick.co.uk

**India**

Phone +91-22-4033 8333  
E-Mail info@sick-india.com

**Israel**

Phone +972-4-6801000  
E-Mail info@sick-sensors.com

**Italia**

Phone +39 02 27 43 41  
E-Mail info@sick.it

**Japan**

Phone +81 (0)3 3358 1341  
E-Mail support@sick.jp

**Magyarország**

Phone +36 1 371 2680  
E-Mail office@sick.hu

**Nederlands**

Phone +31 (0)30 229 25 44  
E-Mail info@sick.nl

**Norge**

Phone +47 67 81 50 00  
E-Mail austefjord@sick.no

**Österreich**

Phone +43 (0)22 36 62 28 8-0  
E-Mail office@sick.at

**Polska**

Phone +48 22 837 40 50  
E-Mail info@sick.pl

**România**

Phone +40 356 171 120  
E-Mail office@sick.ro

**Russia**

Phone +7-495-775-05-30  
E-Mail info@sick.ru

**Schweiz**

Phone +41 41 619 29 39  
E-Mail contact@sick.ch

**Singapore**

Phone +65 6744 3732  
E-Mail admin@sicksgp.com.sg

**Slovenija**

Phone +386 (0)1-47 69 990  
E-Mail office@sick.si

**South Africa**

Phone +27 11 472 3733  
E-Mail info@sickautomation.co.za

**South Korea**

Phone +82 2 786 6321/4  
E-Mail info@sickkorea.net

**Suomi**

Phone +358-9-25 15 800  
E-Mail sick@sick.fi

**Sverige**

Phone +46 10 110 10 00  
E-Mail info@sick.se

**Taiwan**

Phone +886-2-2375-6288  
E-Mail sales@sick.com.tw

**Türkiye**

Phone +90 (216) 528 50 00  
E-Mail info@sick.com.tr

**United Arab Emirates**

Phone +971 (0) 4 8865 878  
E-Mail info@sick.ae

**USA/México**

Phone +1(952) 941-6780  
1 800-325-7425 – tollfree  
E-Mail info@sickusa.com

More representatives and agencies  
at [www.sick.com](http://www.sick.com)