Product data sheet

ARS60-FZK00S04

ARS60

ABSOLUTE ENCODERS

SICK
Sensor Intelligence.

Illustration may differ

Ordering information

Type	Part no.
ARS60-FZK00S04	1081698

Other models and accessories ➜ www.sick.com/ARS60

Detailed technical data

Features

Special device	✓
Specialty	Customized flange orientation according to AG612
Standard reference device	ARS60-F4K00256, 1031549

Performance

Number of steps per revolution (max. resolution)	256 (8 bit)
Measuring step	360° /number of steps
Measuring step deviation	0.005° binary number of steps 0.016° non-binary number of steps
Error limits G	0.035° (binary number of steps) [1] 0.046° (non-binary number of steps) [1]
Repeatability standard deviation σ_r	0.005° [2]

[1] 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.
[2] In accordance with DIN ISO 55350-13; 68.3% of the measured values are inside the specified area.

Interfaces

Communication interface	Parallel data world
Initialization time	80 ms [1]
Code type	Gray
Code sequence parameter adjustable	CW (clockwise) increasing when viewing the clockwise rotating shaft
Measured value backlash	0.005°
Response threshold	0.003°

[1] Valid positional data can be read once this time has elapsed.

Electrical data

Connection type	Cable, 22-wire, radial, 1.5 m
Supply voltage	10 ... 32 V
Operating current	Typ. 90 mA

[1] 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.
[2] Only with shaft stationary (note initialisation time).

MTTFd: mean time to dangerous failure	300 years (EN ISO 13849-1) [1]
Switching level of control inputs	Logic H = 0.7 x U_S, Logic L = 0 V ... 0.3 x U_S
Actuation of set button	≥ 100 ms [2]

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[2] Only with shaft stationary (note initialisation time).

Mechanical data

Mechanical design	Solid shaft, face mount flange
Shaft diameter	10 mm
Shaft length	19 mm
Weight	Approx. 0.3 kg [1]
Housing material	Aluminum die cast
Start up torque	Typ. 0.4 Ncm
Operating torque	Typ. 0.3 Ncm
Permissible shaft loading	20 N (radial) 10 N (axial)
Operating speed	≤ 6,000 min^{-1} with shaft seal ≤ 10,000 min^{-1} without shaft seal [2]
Moment of inertia of the rotor	54 gcm^2
Bearing lifetime	3.6 x 10^9 revolutions
Angular acceleration	≤ 500,000 rad/s^2

[1] Based on devices with male connector.
[2] If the shaft seal has been removed by the customer.

Ambient data

EMC	According to EN 61000-6-2 and EN 61000-6-3 [1]
Enclosure rating	IP65, male connector (IEC 60529) [2] IP66, cable (IEC 60529)
Permissible relative humidity	90 % (Condensation not permitted)
Operating temperature range	–20 °C ... +85 °C
Storage temperature range	–40 °C ... +100 °C, without package
Resistance to shocks	50 g, 11 ms (EN 60068-2-27)
Resistance to vibration	20 g, 10 Hz ... 2,000 Hz (EN 60068-2-6)

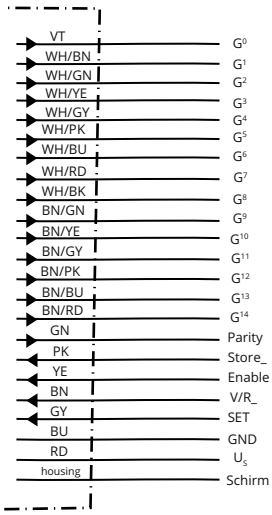
[1] EMC according to the standards quoted is achieved if shielded cables are used.
[2] With mating connector fitted.

Classifications

ECLASS 5.0	27270502
ECLASS 5.1.4	27270502
ECLASS 6.0	27270590
ECLASS 6.2	27270590
ECLASS 7.0	27270502
ECLASS 8.0	27270502

ECLASS 8.1	27270502
ECLASS 9.0	27270502
ECLASS 10.0	27270502
ECLASS 11.0	27270502
ECLASS 12.0	27270502
ETIM 5.0	EC001486
ETIM 6.0	EC001486
ETIM 7.0	EC001486
ETIM 8.0	EC001486
UNSPSC 16.0901	41112113

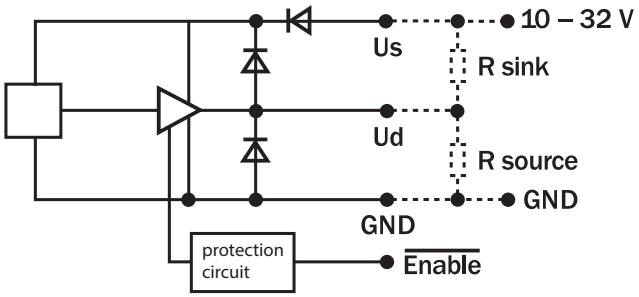
PIN assignment



PIN	Wire colors (cable connection)	Signal Binary	Signal Gray	Signal BCD	
1	Violet	2^0	G^0	2^0 v. 10^0	
2	White/brown	2^1	G^1	2^1 v. 10^0	
3	White/green	2^2	G^2	2^2 v. 10^0	
4	White/yellow	2^3	G^3	2^3 v. 10^0	
5	White/grey	2^4	G^4	2^0 v. 10^1	
6	White/pink	2^5	G^5	2^1 v. 10^1	
7	White/blue	2^6	G^6	2^2 v. 10^1	
8	White/red	2^7	G^7	2^3 v. 10^1	
9	White/black	2^8	G^8	2^0 v. 10^2	
10	Brown/green	2^9	G^9	2^1 v. 10^2	
11	Brown/yellow	2^{10}	G^{10}	2^2 v. 10^2	
12	Brown/gray	2^{11}	G^{11}	2^3 v. 10^2	

PIN	Wire colors (cable connection)	Signal Binary	Signal Gray	Signal BCD	
13	Brown/pink	2^{12}	G^{12}	2^0 v. 10^3	
14	Brown/blue	2^{13}	G^{13}	2^1 v. 10^3	
15	Brown/red	2^{14}	G^{14}	2^2 v. 10^3	
16	Green	Parity	Parity		
17	Pink	Store			
18	Yellow	Enable			
19	Brown	CW/CCW (V/R)			
*	Gray	SET			
20	Blue	GND			
21	Red	U_S			

Diagrams



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SICK is one of the leading manufacturers of intelligent sensors and sensor solutions for industrial applications. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

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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