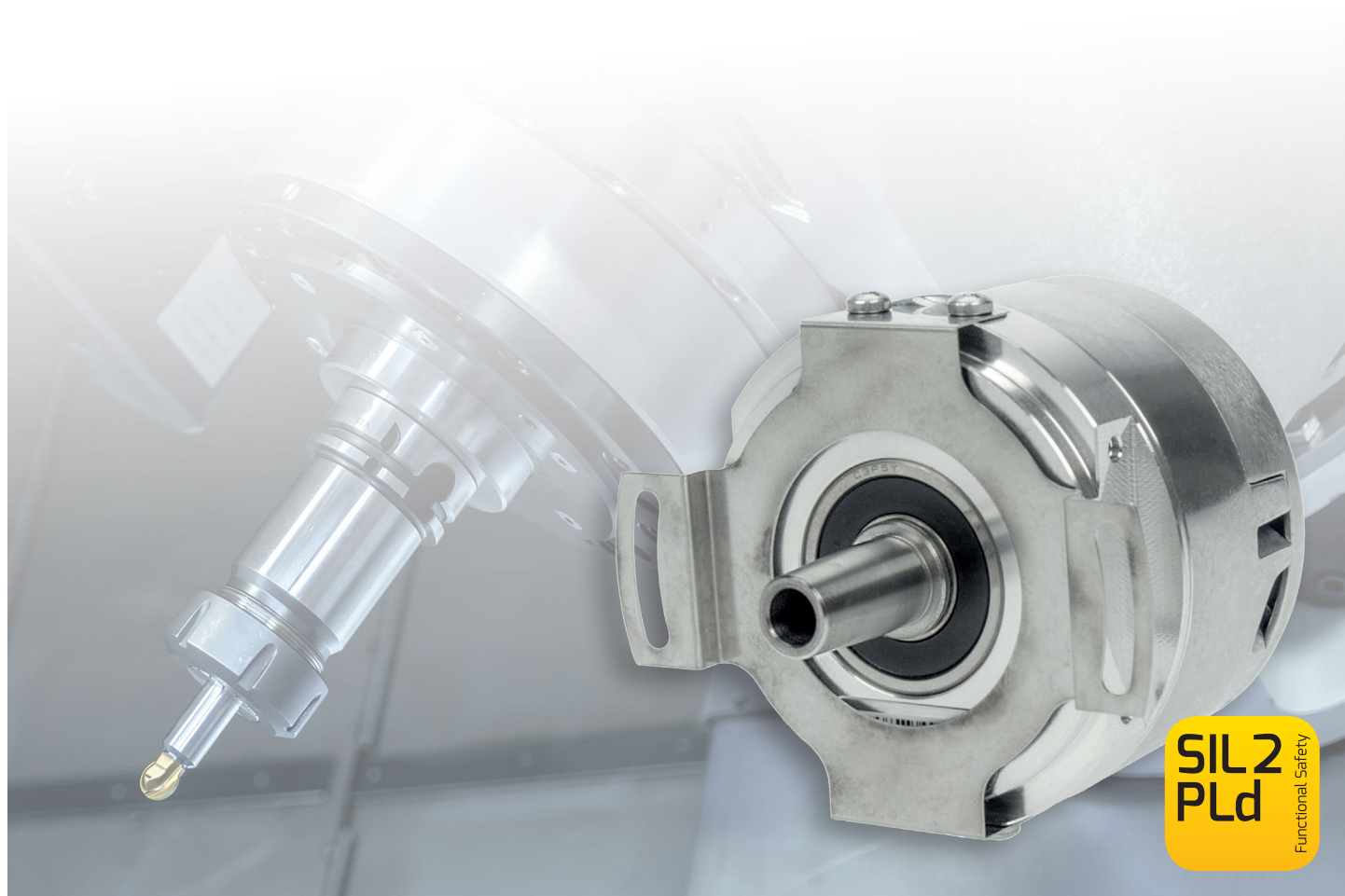


ACURO®

AD58S-DQ

DRIVE-CLiQ

our DRIVE-CLiQ solution
for demanding operating conditions



SIL2
PLd
Functional Safety

HENGSTLER

● BEYOND THE STANDARD



ACURO®- AD58S-DQ

drive



Convincing arguments

- › High-precision ACURO drive technology
- › DRIVE-CLiQ interface
- › Simplified certification of the entire system
- › Single-turn (ST) and multi-turn (MT) encoders for high-performance motion control
- › Rotary encoders for functional safety applications (SIL2 PLd, category 3)
- › Maximum precision: 24 bit ST + 12 bit MT single / multi-turn encoders
- › Wide range of working temperatures
- › IP50 degree of protection
- › Up to 10,000 rpm in continuous long-term operation
- › Motor temperature monitoring and temperature monitoring of the rotary encoder
- › Optical rotary encoder with gear-based multi-turn encoder

Applications: Servomotors for machine tools

The AD58S-DQ - our DRIVE-CLiQ solution for demanding operating conditions

The ACURO-Drive absolute rotary encoder series from Hengstler was specifically developed for installation in servo motors. A rotary encoder that has been developed for a long service life in environments with strong vibrations, shocks and mechanical stress, but which can still work with great precision.

The AD58S-DQ is a built-in motor encoder for servomotors in single-turn (ST) and multi-turn (MT) versions with a DRIVE-CLiQ interface for the SINAMICS group of drive systems from Siemens. One advantage of the DRIVE-CLiQ interface is the simplified commissioning and configuration. A complex configuration which makes disruptive adapter boxes a thing of the past.

The integrated temperature sensor is mainly used to monitor the temperature in the rotary encoder. In addition, the AD58S-DQ encoder has a separate connection for measuring the motor winding temperature and enables these data to be recorded directly in the rotary encoder and transmitted with a DRIVE-CLiQ telegram. This ensures reliable functioning and improved operation of the motor even with high temperatures in the motor winding.

The AD58S-DQ fulfils the requirements of SIL 2 / PL d / Category 3 and, together with the SINAMICS drive system, the requirements of a safety-integrated drive system.

For more information, contact us at info@hengstler.com or by telephone on +49 (0) 7424 89 0.

Technical specifications

MECHANICAL

Housing diameter	58 mm
Shaft diameter	9.25 mm conical shaft; cone diameter 1:10
Flange types (housing fastening)	Turning torque support
Protection class, shaft input (EN 60529)	IP50
Protection class, housing (EN 60529)	IP50
Permissible axial offset of the countershaft (static)	± 0.5 mm
Permissible radial offset of the countershaft (static)	± 0.05 mm
Maximum rotation speed	10,000 rpm
Typical starting torque	≤ 1.5 Ncm
Moment of inertia	3.1 x 10 ⁻⁶ kgm ²
Vibration resistance (EN 60068-2-6)	100 m/s ² (50 to 2000 Hz)
Shock resistance (EN 60068-2-27)	1000 m/s ² (for 6 milliseconds)
Operating temperature ^(measured by sensors)	-25°C to +110°C
Storage temperature ^(in its packaging)	-20°C to +80 °C
Relative air humidity (EN 60068-2-78)	≤ 90%; without condensation
Measuring input of the external temperature sensor	Type KTY84-130 PT1000 Temperature measuring range ¹ -40°C to +200°C Precision 0.2°K 0.2°K
Material of the shaft	Stainless steel
Material of the housing	Aluminium
Weight	approx. 260 g (single-turn) / 310 g (multi-turn encoder)
Connection	PCB connector, axial, 8-pin Motor temperature sensor input, axial, 2-pin

ELECTRICAL

General design layout	Based on EN IEC 61010-1, protection class III, Pollution level 2, overvoltage category II
Supply voltage	10-36 VDC
Maximum power input	2.5 W (at 24 V)
Typical current input	40 mA (at 24 V, single-turn), 60 mA (at 24 V, multi-turn encoder)
Interface / protocol	DRIVE-CLiQ
Siemens software (version: 12.2.2014)	Sinamics Simotion: ≥ V4.4 HF4 Sinumerik with safety: : ≥ V4.4 SP2
Precision of single-turn encoder	20 bit, 24 bit
Precision of multi-turn encoder	12 bit
System precision	± 35'' (with 20 bit), ± 25'' (with 24 bit)
Cable length	≤ 95 m

FUNCTIONAL SAFETY

Functional safety design	SIL 2 based on EN IEC 61508, 62061, 61800-5-2 PLd according to EN ISO 13849-1
Precision of safe position	9 bit with single-turn encoder
Probability of failures per hour (PFH)	5.26 x 10 ⁻⁸ per hour (at 85°C)
Mean time to dangerous failure (MTTFd)	169 years
Average Diagnostic Coverage (DCavg)	90%
Safe position ²	Encoder: 2° (Safety-relevant Measuring step: SM = 0.7°)

¹ Calibration temperature 100°C

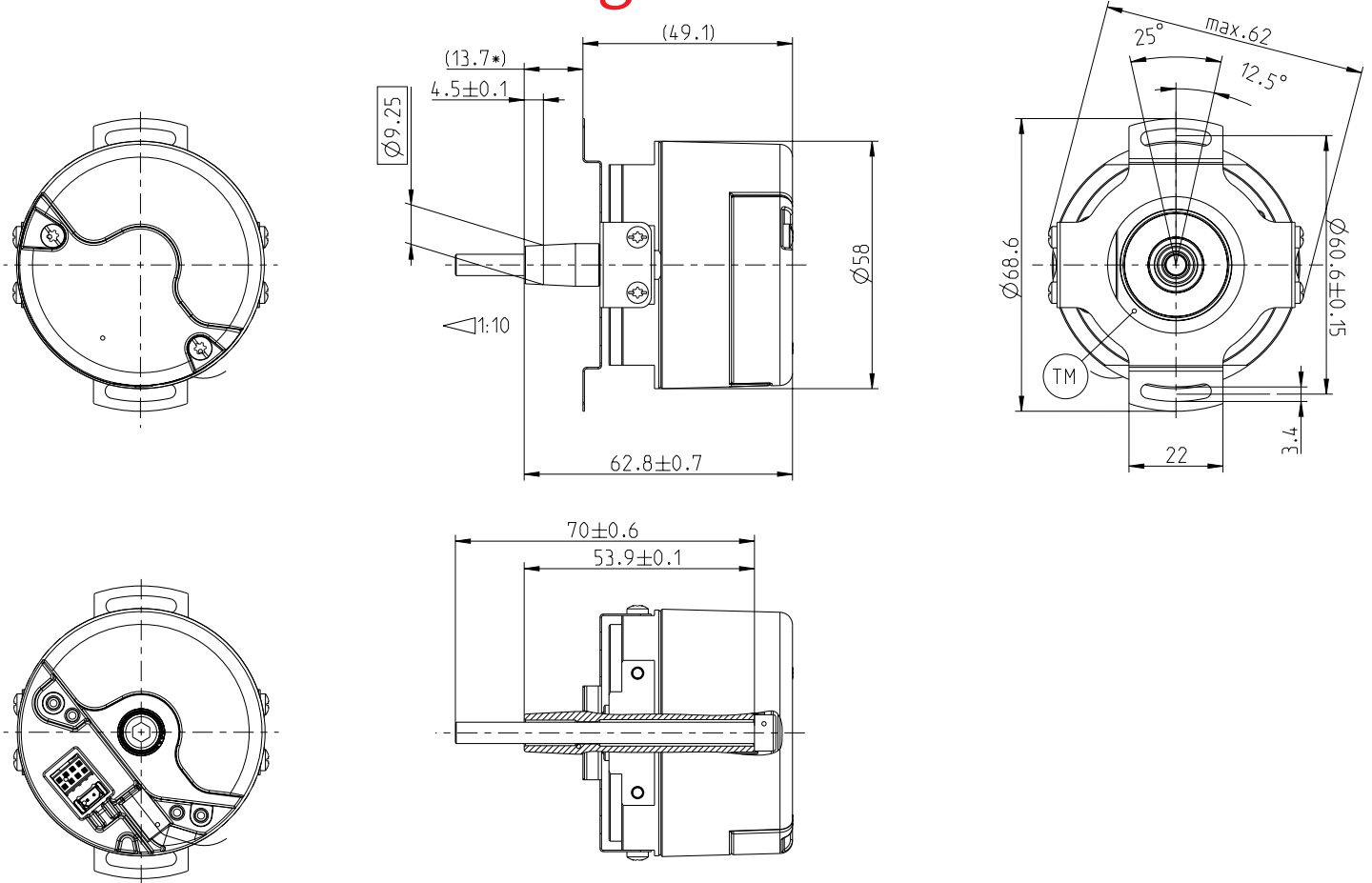
² After a comparison of position values, further tolerances can occur in the follow-on electronic systems (please contact the manufacturer of the follow-on electronic systems)

FUNCTIONAL SAFETY

Achievable safe functions based on EN 61800-5-2

SS1 (Safe Stop 1)
 SS2 (Safe Stop 2)
 SOS (Safe Operating Stop)
 SDI (Safe Direction)
 SLS (Safe Limited Speed)
 SLI (Safe Limited Increment)
 SLA (Safe Limited Acceleration)
 SSR (Safe Speed Range)
 SAR (Safe Acceleration Range)
 SLP (Safe limited position)
 SCA (Safe cam)

Dimensional drawing



All of these technical data are subject to changes without notice. DOC P3 PS2 EX AD58 DQ 2020-08-24 E

Type	Precision (single / multi-turn encoders)	Power supply	Flange, degree of protection, shaft	Interface	Connection
AD58S	0020 20 bit ST	Power DC 10 - 30 V	2.1K Spring plate, IP50 protection, cone diameter 1:10	DQ DRIVE-CLiQ	3 PCB connectors, axial
	0024 24 bit ST				
	1220 12 bit MT + 20 bit ST				
	1224 12 bit MT + 24 bit ST				

DRIVE-CLiQ is a registered trademark of Siemens AG

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