

Motor Feedback Systems for servo motors

Compact

Motor-Line, optical / magnetic

Sendix S3674 (singleturn) / S3684 (multiturn)

RS485 + SinCos / BiSS + SinCos



The Sendix S36 encoder with optical singleturn and magnetic multiturn gear stands out with its combination of robustness and variants diversity with compact dimensions.

With a size of 36.5 x 37 mm, it features a tapered shaft or an 8 mm hub shaft. Its highly accurate optical electronics achieve a resolution of 19 bits. The incremental SinCos interface is available with 1024 or 2048 ppr.



RS485

BiSS
INTERFACE

SinCos



Temperature range



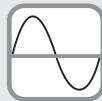
Shock / vibration resistant



Safety-Lock™



High shaft load capacity



SinCos



Short-circuit proof



Reverse polarity protection

Reliable and insensitive

- Robust construction for optimal functionality in the servo motor.
- Wide temperature range of -30...+120°C – designed specially for operation in servo motors.
- Special connector concept for fast and easy commissioning.

Performance-optimized

- Standard RS485 interface (Hiperface®¹) compatible) + SinCos for use in many standard servo motors.
- Highest performance thanks to max. 19-bit singleturn resolution and 1024 or 2048 ppr SinCos.
- Mechanically suitable for mounting on standard servo motors.

Order code

8.S36X4.XXX1.XXX.XXX
Type a b c d e f g h i²⁾

a Version

7 = singleturn
8 = multiturn (12 bit)

b Flange

1 = with stator coupling, ø 38 mm
2 = with stator coupling, ø 40.5 mm
3 = with stator coupling, ø 42 mm
4 = with stator coupling, ø 60 mm

c Shaft

1 = hub shaft, ø 8 mm
2 = tapered shaft, ø 8 mm

d Power supply

1 = 7 ... 30 V DC
2 = 5 V DC

e Type of connection

1 = PCB connector radial

f Digital interface

1 = BiSS
2 = RS485 (Hiperface®¹) compatible

g Incremental interface

1 = 1024 ppr SinCos
2 = 2048 ppr SinCos

h Resolution singleturn

12 = 12 bit
15 = 15 bit
16 = 16 bit
17 = 17 bit
19 = 19 bit

i Safety technology²⁾

FS2 = SIL2 / PLd
FS3 = SIL3 / PLe

Connection technology

Cordset, pre-assembled

PCB connector (female contacts), 10-pin
single-ended,
0,5 m single wires

Order no.

8.0000.D111.0M50

1) Hiperface® is a registered trademark of Sick Stegmann GmbH.

2) Optional.

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Technical data

Mechanical characteristics	
Maximum speed	12000 min ⁻¹ (short-term) 9000 min ⁻¹ (continuous)
Starting torque at 20°C [68°F]	< 0.004 Nm
Load capacity of shaft	radial 40 N axial 20 N
Weight	approx. 0.1 kg [35.27 oz]
Protection acc. to EN 60529	IP40
Working temperature range	-30°C ... +120°C [-22°F ... +248°F]
Materials	shaft stainless steel flange aluminum housing zinc die-cast
Shock resistance acc. EN 60068-2-27	1000 m/s ² , 6 ms
Vibration resistance acc. EN 60068-2-6	500 m/s ² , 10 ... 2000 Hz

Electrical characteristics	
Power supply	5 V DC (±5 %) or 7 ... 30 V DC
Current consumption (no load)	5 V DC max. 75 mA 7 ... 30 V DC max. 90 mA
Reverse polarity protection of the power supply	yes
Short circuit proof outputs	yes ²⁾
CE compliant acc. to	EMC guideline 2014/30/EU RoHS guideline 2011/65/EU

RS485 interface (Hiperface [®] 1) compatible)	
Output driver	RS485 transceiver type
Permissible load / channel	max. +/- 30 mA
Signal level	HIGH min. 2.4 V LOW at I _{Last} = 20 mA max. 0.4 V
Resolution singleturn	12 ... 19 bit
Number of revolutions (multiturn)	12 bit
Code	binary

BiSS interface	
Output driver	RS485 transceiver type
Permissible load / channel	max. +/- 30 mA
Signal level	HIGH min. 2.4 V LOW at I _{Last} = 20 mA max. 0.4 V
Resolution singleturn	12 ... 19 bit
Number of revolutions (multiturn)	12 bit
Code	binary
Clock rate BiSS	50 kHz ... 10 MHz
Max. update rate	< 10 µs, depends on the clock rate and the data length

Incremental outputs SinCos (A/B)	
Max. frequency -3dB	400 kHz
Signal level	1 V _{ss} (± 20%)
Short circuit proof	yes ²⁾
Pulse rate	1024 ppr 2048 ppr

For variants with safety technology:

Notes regarding "Functional Safety"	
These encoders are suitable for use in safety-related systems up to SIL2 or SIL3 acc. to EN 61800-5-2 and PLd or PLe to EN ISO 13849-1 in conjunction with controllers or evaluation units, which possess the necessary functionality. Additional functions can be found in the operating manual.	

Safety characteristics	
Classification	PLd / SIL2 or PLe / SIL3
System structure	SIL2 2 channel (Cat. 3) SIL3 2 channel (Cat. 4)
PFH_d value³⁾	SIL2 tbd SIL3 tbd
Mission time / Proof test interval	20 years
Relevant standards	EN ISO 13849-1:2008; EN ISO 13849-2:2013; EN 61800-5-2:2007

Achievable safety subfunctions	
Safe Standstill	SS1, SS2, SOS
Safe Motion	SLS, SSR, SDI, SLA, SAR
Safe Monitoring	SSM

Motor feedback systems

Preliminary data sheet

1) Hiperface[®] is a registered trademark of Sick Stegmann GmbH.
 2) Short circuit proof to 0 V or to output when power supply correctly applied..
 3) The specified value is based on a diagnostic coverage of 90 % (SIL2) / 99 % (SIL3), that must be achieved with an encoder evaluation unit. The encoder evaluation unit must meet at least the requirements for SIL2 / SIL3.

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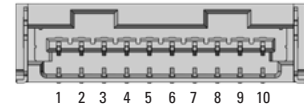
Terminal assignment

Interface	Type of connection	Features	PCB connector (male contact), 10-pin										
			Signal:	0 V	+V	D+	D-	C+	C-	A	\bar{A}	B	\bar{B}
1, 2	1	SinCos, RS485	Core color:	1	2	3	4	5	6	7	8	9	10

+V: Encoder power supply +V DC
 0 V: Encoder power supply ground GND (0 V)
 D+, D-: Data signal
 C+, C-: Clock signal
 A, \bar{A} : Incremental output channel A (cosine)
 B, \bar{B} : Incremental output channel B (sine)

Top view of mating side, male contact base

Type of connection 1
 Molex IllumiMate™ (male contact)
 single row, 10-pin (104091-1020)



Dimensions will follow