

Motor Feedback Systems for servo motors

Compact Motor-Line, optical / magnetic	Sendix S3674 (singleturn) / S3684 (multiturn)	RS485 + SinCos / BiSS + SinCos
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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 max. 24 bits. The incremental SinCos interface is available with max. 2048 ppr.



RS485



Temperature range
-40...+120°C



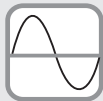
Shock / vibration resistant



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 -40 °C ... +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. 24-bit singleturn resolution and 1024 or 2048 ppr SinCos.
- Mechanically suitable for mounting on standard servo motors.

Order code

8.S36X4.XXX1.XXXX
Type **a** **b** **c** **d** **e** **f** **g** **h**

a Version

- 7** = singleturn
- 8** = multiturn (12 bits)

b Flange

- 1** = with stator coupling, ø 38 mm [1.50"]
- 4** = with stator coupling, ø 60 mm [2.36"]
- 5 = with stator coupling, ø 55 mm [2.17"]

c Shaft

- 1 = hub shaft, ø 8 mm [0.32"]
- 2** = tapered shaft, ø 8 mm [0.32"]
- 3 = hub shaft cone, ø 9 mm [0.35"]

d Supply voltage

- 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⁾ compatibel)

g Incremental interface

- A = none
- 1** = 1024 ppr SinCos
- 2 = 2048 ppr SinCos

h Resolution singleturn

- 12 = 12 bits
- 15** = 15 bits
- 16 = 16 bits
- 17 = 17 bits
- 19 = 19 bits
- 20 = 20 bit
- 21 = 21 bit²⁾
- 23 = 23 bit²⁾
- 24 = 24 bit²⁾³⁾

Optional on request
- other stator coupling

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

2) With digital interface **f** = 2 only available in singleturn version (**a** = 7), as RS485 is limited to max. 32 bits.

3) In combination with incremental interface only available with 2048 ppr.

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Connection technology			Order no.
Cordsets, pre-assembled	for BiSS + SinCos	Cordset, 10-core PCB connector (female contacts) + single-ended 0.5 m single wires	8.0000.D111.0M50
	for RS485 + SinCos	Cordset, 8-core PCB connector (female contacts) + single-ended 0.5 m single wires	8.0000.D112.0M50
	for BiSS fully digital	Cordset, 6-core PCB connector (female contacts) + single-ended 0.5 m single wires	8.0000.D113.0M50

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	-40 °C ... +120 °C [-40 °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	
Supply voltage	7 ... 30 V DC 5 V DC
Current consumption (no load)	max. 90 mA max. 150 mA
Reverse polarity protection of the supply voltage	yes
Short circuit proof outputs	yes ²⁾
Absolute accuracy	±45 arcseconds ³⁾
Repetition accuracy	±7 arcseconds ³⁾

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

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 ... 24 bit
Number of revolutions (multiturn)	12 bit
Code	binary

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

Approvals	
CE compliant in accordance with	EMC Directive 2014/30/EU RoHS Directive 2011/65/EU
UKCA compliant in accordance with	EMC Regulations S.I. 2016/1091 RoHS Regulations S.I. 2012/3032

1) Hiperface[®] is a registered trademark of Sick Stegmann GmbH.
 2) Short circuit proof to 0 V or to output when supply voltage correctly applied.
 3) Error limits for evaluation of SinCos signals (with relaxed torque stop).

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Terminal assignment

Digital interface	Incremental interface	Type of connection	PCB connector (male contact), 10-pin										
1 (BiSS)	1 (SinCos)	1	Signal:	0 V	+V	D+	D-	C+	C-	A	\bar{A}	B	\bar{B}
			Pin:	1	2	3	4	5	6	7	8	9	10
suitable pre-assembled cordset, 10-core (8.0000.D111.0M50)			Core color:	BU	RD	GY	GN	YE	VT	PK	BK	WH	BN

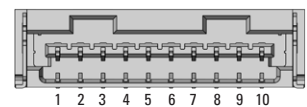
Digital interface	Incremental interface	Type of connection	PCB connector (male contact), 10-pin										
2 (RS485)	1 (SinCos)	1	Signal:	0 V	+V	D+	D-	-	-	A	\bar{A}	B	\bar{B}
			Pin:	1	2	3	4	5	6	7	8	9	10
suitable pre-assembled cordset, 8-core (8.0000.D112.0M50)			Core color:	BU	RD	GY	GN	-	-	PK	BK	WH	BN

Digital interface	Incremental interface	Type of connection	PCB connector (male contact), 10-pin										
1 (BiSS)	A (without)	1	Signal:	0 V	+V	D+	D-	C+	C-	-	-	-	-
			Pin:	1	2	3	4	5	6	7	8	9	10
suitable pre-assembled cordset, 6-core (8.0000.D113.0M50)			Core color:	BU	RD	GY	GN	YE	VT	-	-	-	-

- +V: Supply voltage encoder +V DC
- 0 V: Supply voltage encoder 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)



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Dimensions

Dimensions in mm [inch]

**Flange with stator coupling, ø 60 [2.36]
Flange type 4
(with PCB connector)**

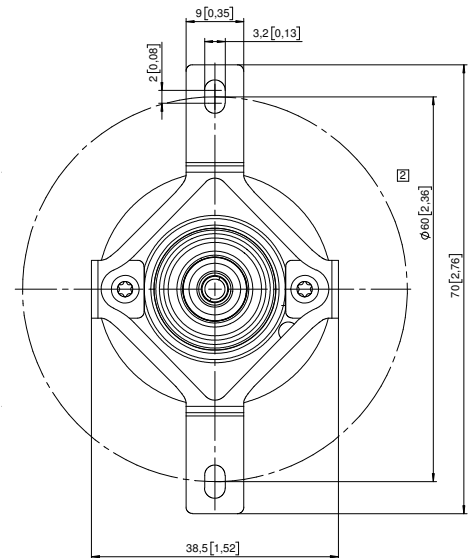
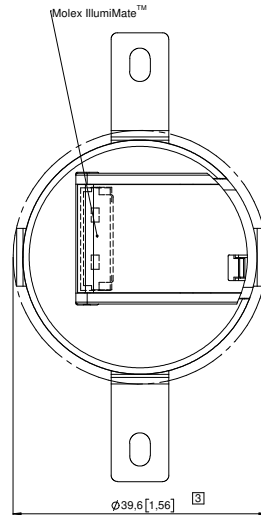
- 1 Recommended torque for central screw (SW 2.5) typ. 1 Nm (tapered shaft)
- 2 Pitch circle diameter
- 3 Envelope circle diameter

Note:

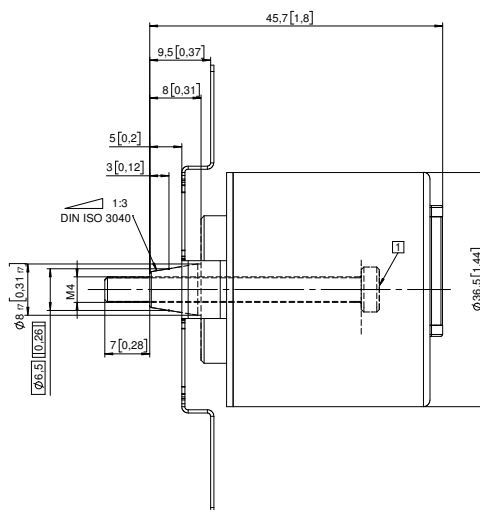
We recommend hexagon socket head screws for fastening the stator coupling.

The hexagon keys to be used must comply with DIN ISO 2936 L (index L = long version) with ball head.

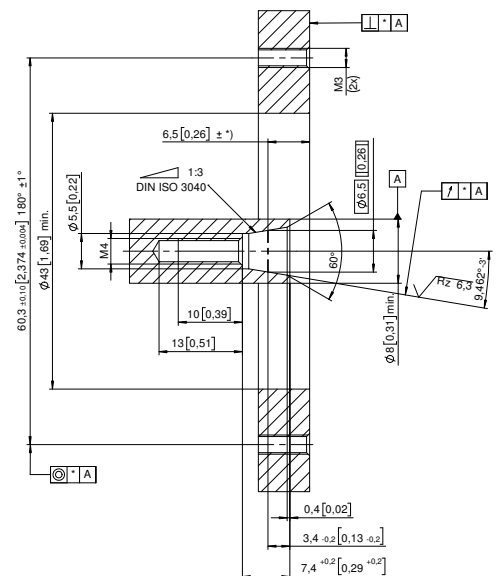
The ball head makes access easier, in particular for hardly accessible screws, and allows working up to an angle of 25°.



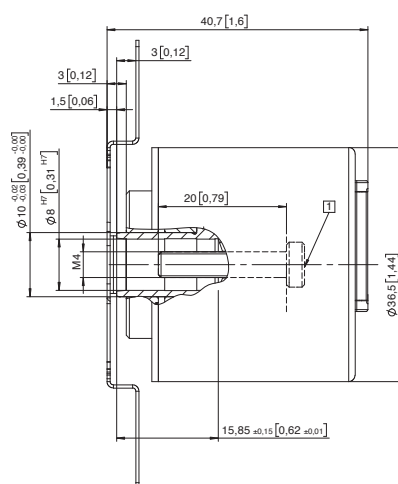
With tapered shaft 2



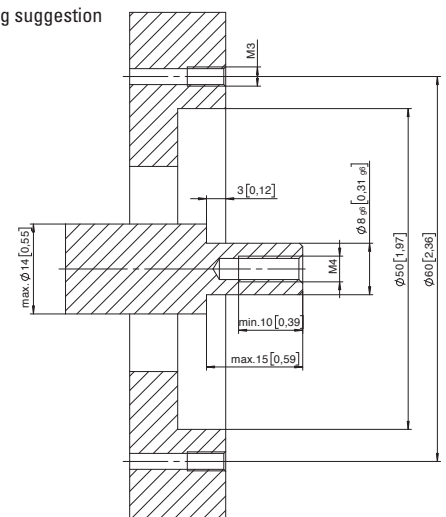
Mounting suggestion



With hub shaft 1



Mounting suggestion



* The tolerance size reduces the permissible shaft movement (see technical data).
General tolerances according to DIN ISO 2768-mk.

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Dimensions

Dimensions in mm [inch]

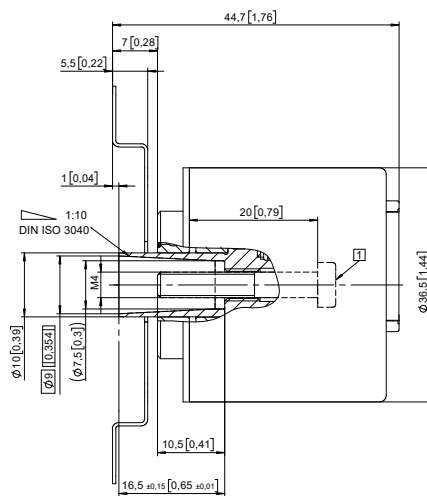
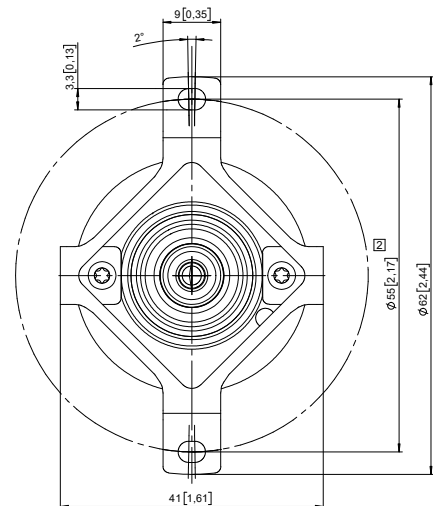
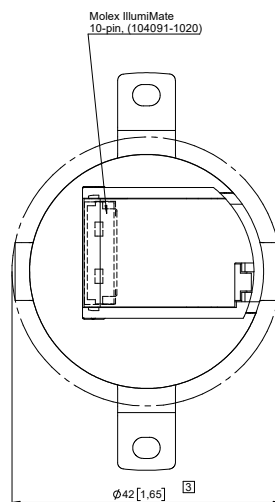
**Flange with stator coupling, $\varnothing 55$ [2.17]
Flange type 5**

**With hub shaft cone 3
(with PCB connector)**

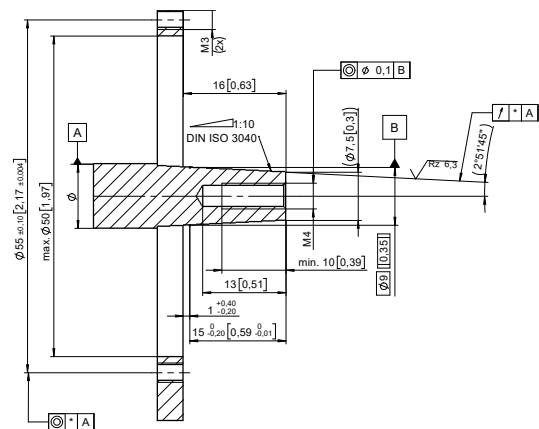
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Note:

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Mounting suggestion



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