

Motor Feedback Systems for servo motors

Compact Motor-Line, optical / magnetic	Sendix S3674 (singleturn) / S3684 (multiturn)	RS485 + SinCos / BiSS + SinCos
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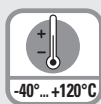


The Sendix S36 encoder with optical singleturn and magnetic multiturn gear stands out with its combination of robustness and variants diversity with compact dimensions.

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.XXX
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 bit^{2) 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	

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

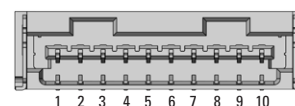
Digital interface	Incremental interface	Type of connection	PCB connector (male contact), 10-pin										
2 (RS485)	1 (SinCos)	1	Signal:	0 V	+V	D+	D-	—	—	A	$\bar{A}$	B	$\bar{B}$
			Pin:	1	2	3	4	5	6	7	8	9	10
suitable pre-assembled cordset, 8-core (8.0000.D112.0M50)			Core color:	BU	RD	GY	GN	—	—	PK	BK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

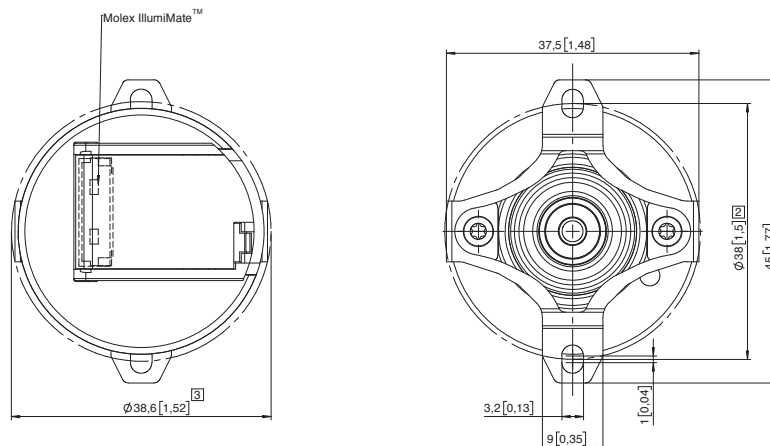
Dimensions in mm [inch]

Flange with stator coupling, $\varnothing 38$ [1.50]

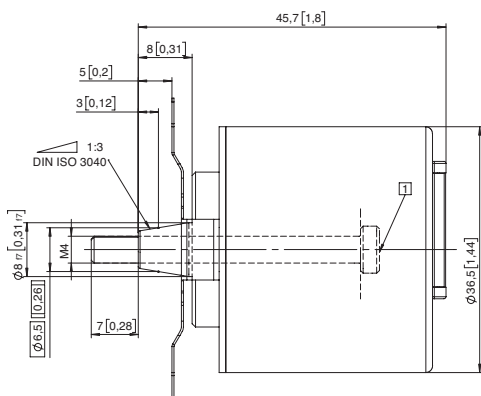
Flange type 1

(with PCB connector)

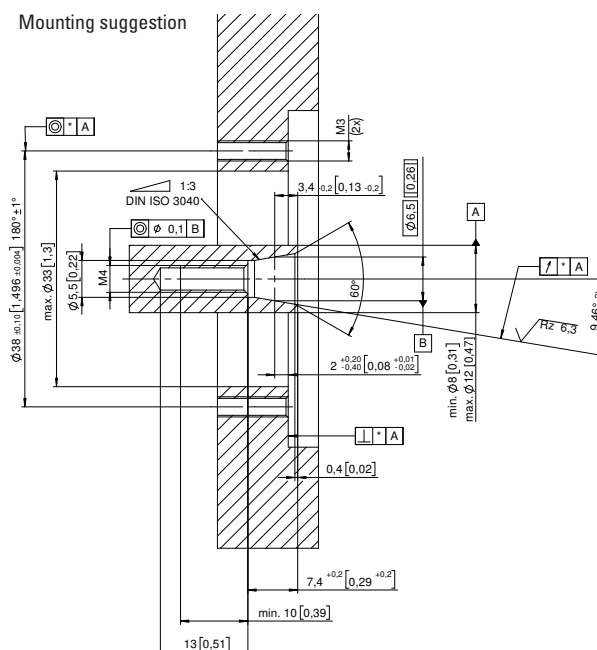
- 1 Recommended torque for central screw (SW 2.5) typ. 1 Nm (tapered shaft)
- 2 Pitch circle diameter
- 3 Envelope circle diameter



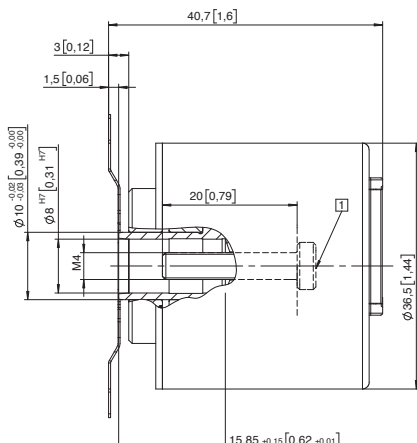
With tapered shaft 2



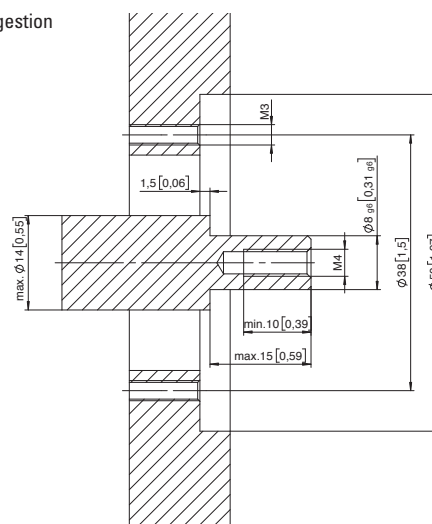
Mounting suggestion



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, ø 60 [2.36]

Flange type 4

(with PCB connector)

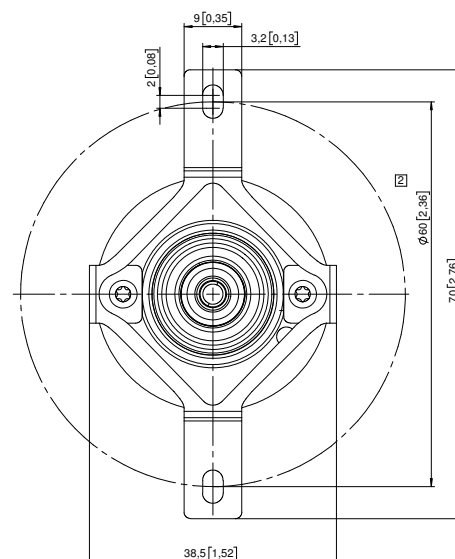
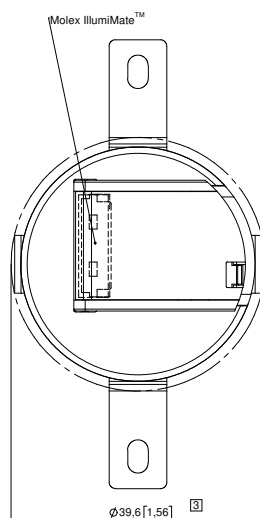
- 1 Recommended torque for central screw (SW 2.5) typ. 1 Nm (tapered shaft)
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- 3 Envelope circle diameter

Note:

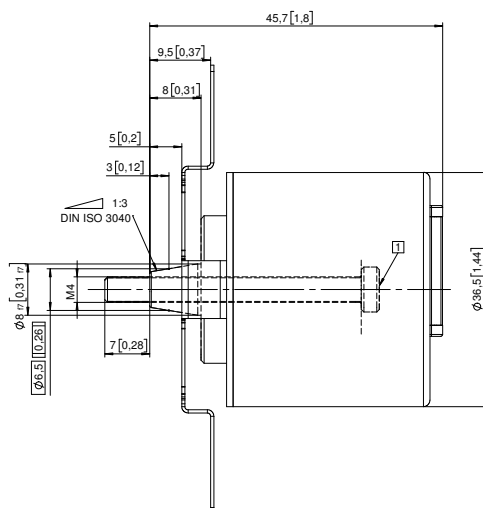
We recommend hexagon socket head screws for fastening the stator coupling.

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

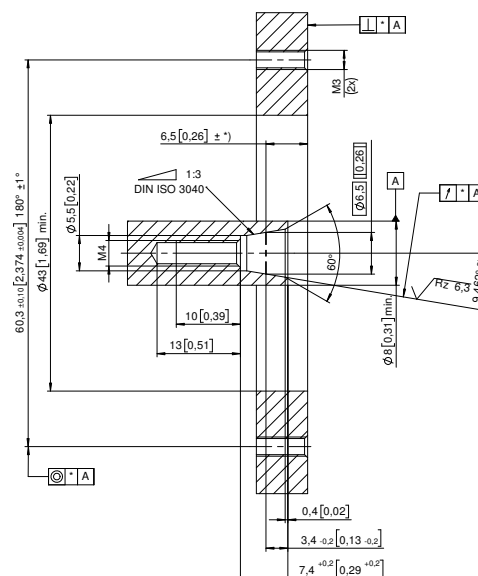
The ball head makes access easier, in particular for hardly accessible screws, and allows working up to an angle of 25°.



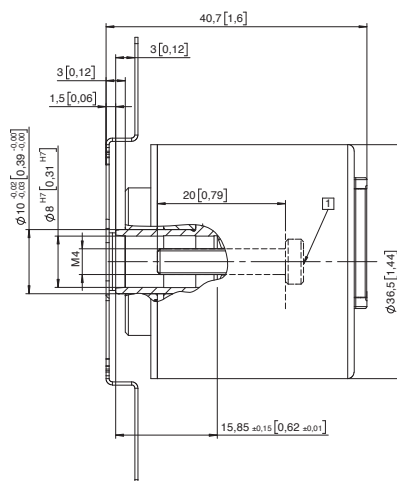
With tapered shaft 2



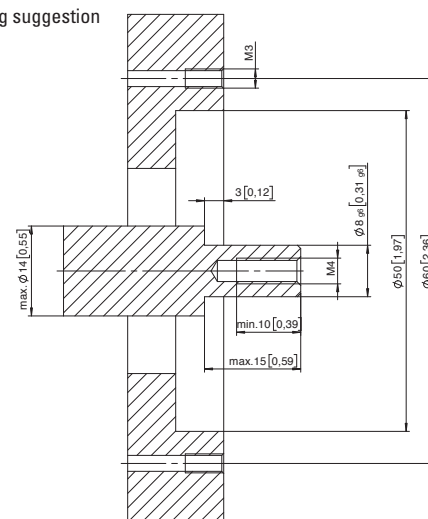
Mounting suggestion



With hub shaft 1



Mounting suggestion



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Dimensions

Dimensions in mm [inch]

Flange with stator coupling, ø 55 [2.17]

Flange type 5

With hub shaft cone 3

(with PCB connector)

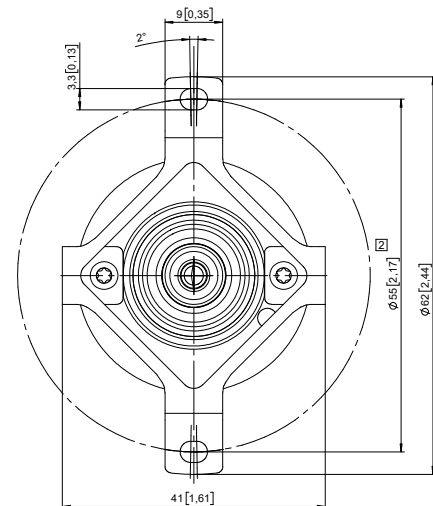
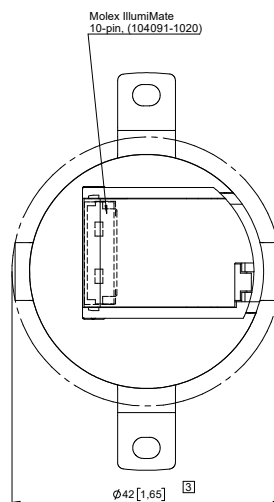
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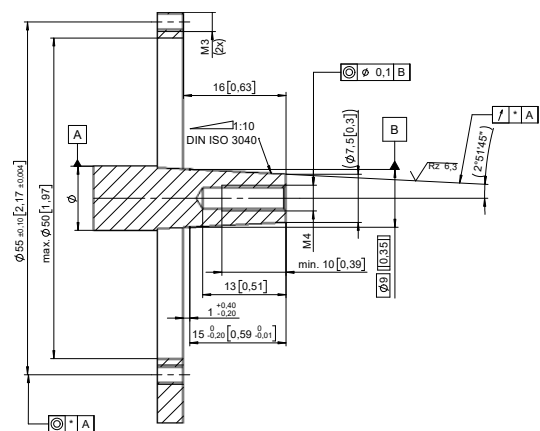
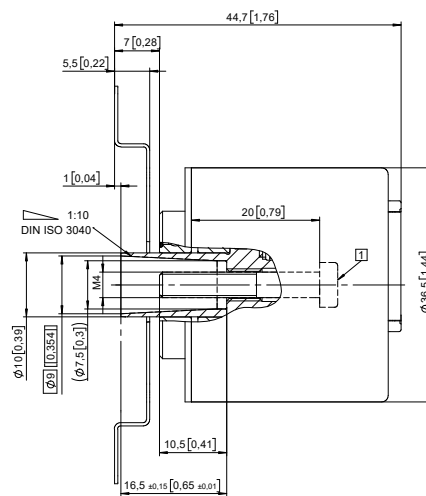
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Mounting suggestion



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