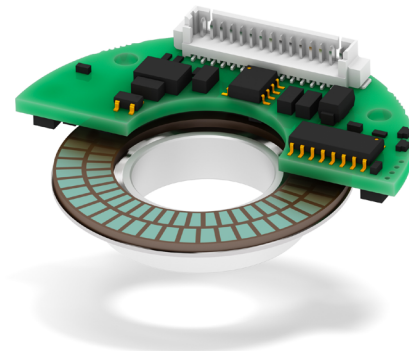


- Ultra flat Kit-encoder
- Absolute magnetic sensing
- BiSS-C, SSI, SPI, Incremental +UVW interfaces
- Resolution up to 19 bit (524288 cpr)
- Incremental resolution up to 65536 PPR
- Axial or radial connector output

Applications:

- Cobots
- Drones/UAV
- Camera/surveillance systems
- Servo motors



SMAR1

ENVIRONMENTAL SPECIFICATIONS

Shock:	250 g, 6 ms acc. to CEI EN 60068-2-27
Vibrations:	10 g, 5-2000 Hz acc. to CEI EN 60068-2-6
Protection:	IP00
Operating temperature range:	-25°C +100°C (-13°F +212°F) (-25°C +110°C, -13°F +230°F on request)
Storage temperature range:	-25°C +85°C (-13°F +185°F)

MECHANICAL SPECIFICATIONS

Dimensions:	see drawing
Hollow shaft diameter:	Ø14, 16, 18 mm (others on request)
Shaft rotational speed:	10000 rpm max. (mechanical)
Gap sensor/ring:	0,2 ÷ 0,4 mm typ.
Radial/tangential misalignment:	0,5 mm max.
Electrical connections:	PCB connector (connection cable to be ordered separately)
Weight:	<15 g (0,53 oz)

ELECTRICAL SPECIFICATIONS

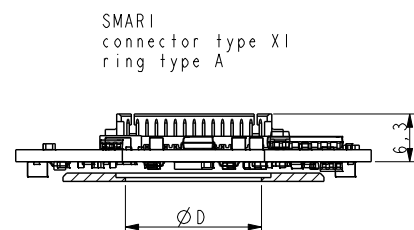
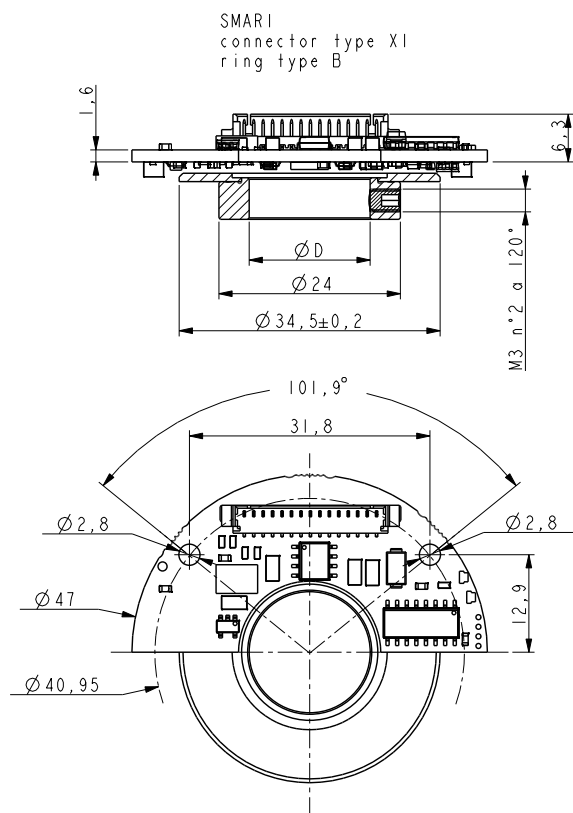
Resolution:	absolute: 19 bit (524288 cpr) max. incremental: 65536 PPR + 32 poles max.
Accuracy:	typ. ±0,05°
Output circuits:	BiSS-C (clock max. 5MHz) + AB0 /AB0 RS422 SSI (MSB aligned, clock 100 kHz ÷ 2MHz, T _p = 20µs) + AB0 /AB0 RS422 SPI (clock max. 10 MHz) TTL Line Driver (RS422) + UVW (2MHz max.)
Power supply:	+5Vdc ± 5%
Power consumption:	typ. 105 mA (max. 150 mA)

MATERIALS

Encoder:	open PCB
Ring:	metal + plastoferrite

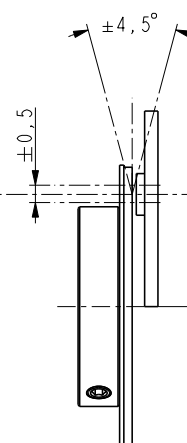
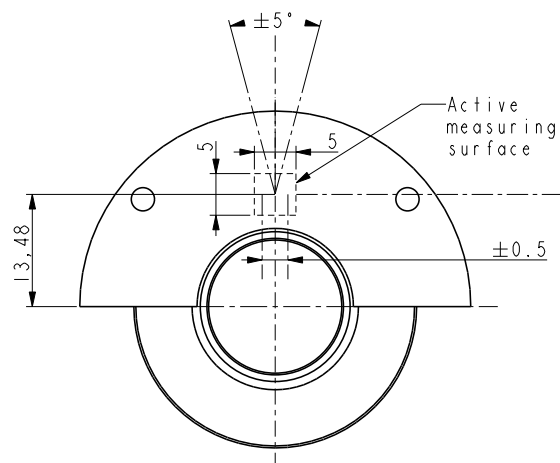
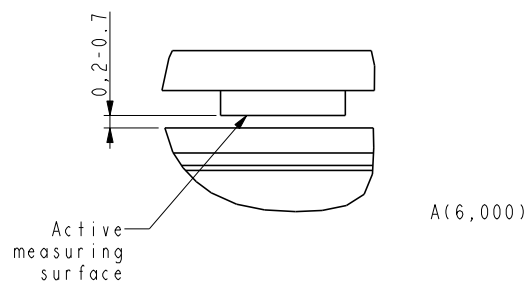
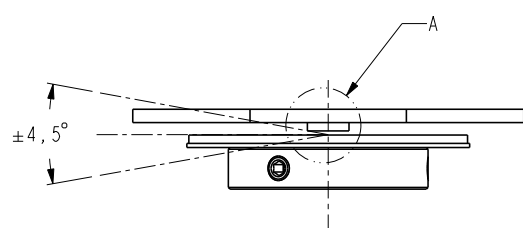
ACCESSORIES / SPARES

EC-X15-LK-KT16-xx:	Connection cable, xx m
MRA/34A-32N-18:	Spare ring type A8
MRA/34B-32N-14:	Spare ring type B4
MRA/34B-32N-16:	Spare ring type B6



RING TYPE CODE	INSIDE Ø D
A8	18 ^{+0,03} _{-0,02}
B4	14 H7
B6	16 H7

SMAR1



SMAR1- Mounting requirements

Order code – absolute version

SMAR1	-	XXX (a)	-	XXX (b)	/	XXX (c)	-	XX (d)	-	XX (e)	/XXXX (f)
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(a) INTERFACE SC1 = BiSS-C mode + AB0 (+5Vdc $\pm$ 5%) BG1 = SSI Binary + AB0 (+5Vdc $\pm$ 5%) SP1 = SPI (+5Vdc $\pm$ 5%)	(b) RESOLUTION (ABS) 17 = 17 bit 18 = 18 bit 19 = 19 bit 15M = 15 bit (*) 17M = 17 bit (*) 18M = 18 bit (*) 19M = 19 bit (*)	(c) RESOLUTION (INC) 000 = no incr. output 1KB = 1024 2KB = 2048 4KB = 4096 see complete list ① (d) CONNECTION X1 = Molex conn vertical outlet (mating type: 51021-1500) X2 = Molex conn. axial outlet (mating type: 51021-1500)	(e) RING TYPE A8 = ring type A8 B4 = ring type B4 B6 = ring type B6 see complete list (f) CUSTOM VERSION /Sxxx = special version /Pxxx = special firmware setting
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(*) M = the multiturn counter is 65536 turns (16 bit). Counting is available only with power supply ON.

Order code – incremental version

SMAR1	-	XX (a)	-	XXXXX (b)	/	XX (c)	-	XX (d)	-	XX (e)	/XXXX (f)
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(a) OUTPUT CIRCUIT L1 = Line Driver RS422 (+5Vdc $\pm$ 5%) (b) RESOLUTION 1024, 1250, 2048 2500, 4096, 5000 (others on request, see complete list) ①	(c) N° POLES 2 = 2 poles 4 = 4 poles 32 = 32 poles see complete list ②	(d) CONNECTION X1 = Molex conn vertical outlet (mating type: 51021-1500) X2 = Molex conn. axial outlet (mating type: 51021-1500) (e) RING TYPE A8 = ring type A8 B4 = ring type B4 B6 = ring type B6 see complete list	(f) CUSTOM VERSION /Sxxx = special version /Pxxx = special firmware setting
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① List of Resolution (INC) available:

14B = 16384 PPR

15B = 32768 PPR

16B = 65536 PPR

From 1 to 65536 PPR (4 to 262144 edges) any resolution possible.

Binary resolutions are preferable and have best performance.

② List of UVW nr. of poles available:

2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32 poles.
 (eg. 8 poles = 4 pole pairs).

RING TYPE CODE	MRA/34x	-	CODING XXX	-	INSIDE Ø XX	CUSTOM VERSIONS /Sxxx
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A8	MRA/34A flat ring without fixing collar	32N = standard coding	18 = Ø 18 mm	xxx = running nr.
B4	MRA/34B ring with fixing collar	32N = standard coding	14 = Ø 14 mm	xxx = running nr.
B6	MRA/34B ring with fixing collar	32N = standard coding	16 = Ø 16 mm	xxx = running nr.

Document release	Date	Description
1.1	18.05.2021	Order code revision, absolute version (RESOLUTION INC)