

About us

We design, produce and supply advanced rotary and linear motion sensors to meet growing global market demands. Our experience and knowledge combined with innovative ideas enable us to offer product solutions to match customer's needs.

Over the last few decades we worked closely with partners from a broad range of industries. From heavy machinery, advanced surgical and collaborative robots, aerospace and submarine applications to one of the largest solar power plants in the world, our encoders work in diverse enviroments.

RLS is an associate company of Renishaw, a world leading metrology company which holds a 50 % share in the ownership of RLS, and which sells and supports our magnetic encoders through an extensive global network.

Our mission is to develop, manufacture and supply advanced motion sensing components.

Our vision is to become a world leader for the supply of motion sensing components and systems.



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A RENISHAW associate company

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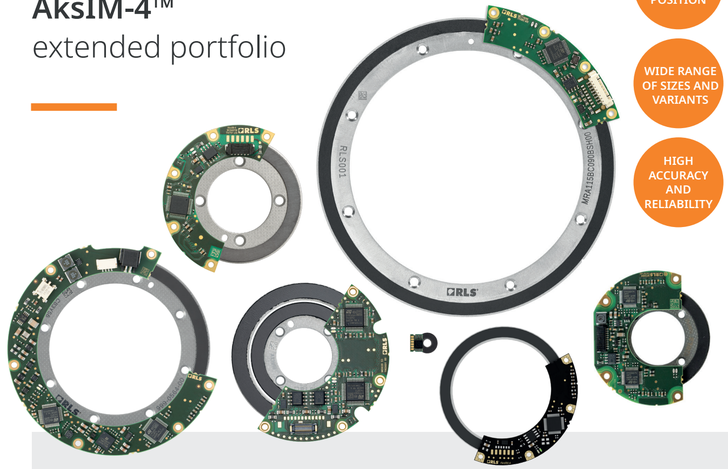
RLS®

AksIM-4™
extended portfolio

TRUE ABSOLUTE POSITION

WIDE RANGE OF SIZES AND VARIANTS

HIGH ACCURACY AND RELIABILITY



Why choose **AksIM-4**?

- Resolution up to 22 bits
- Accuracy down to ±0.004° (±15")
- High repeatability
- Robust magnetic sensing technology
- Ring sizes from Ø11 to Ø150 mm
- BiSS, BiSS Safety, SSI, SPI, HIPERFACE DSL®
- Functional safety variants: SIL 2 and SIL 3
- Dual, Space, Vector and Mini variants

COLLABORATIVE & INDUSTRIAL ROBOTS

SURGICAL ROBOTS

MOTOR FEEDBACK

GIMBALS

HUMANOID ROBOTS

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Technical overview

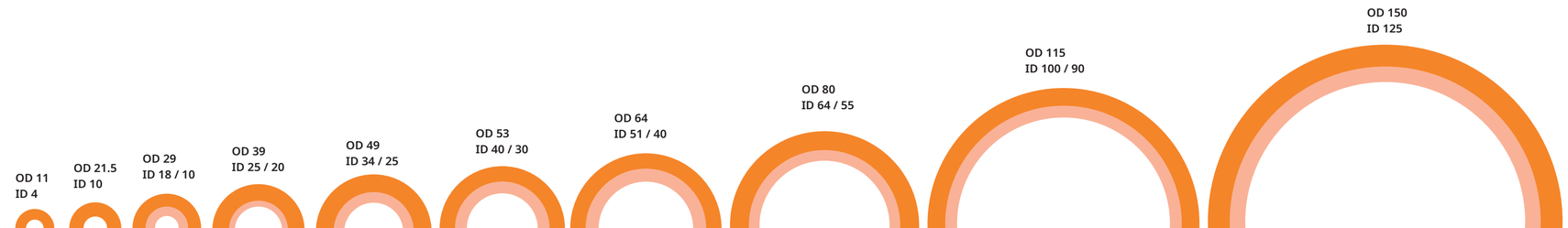
	Standard			Enhanced		Safety-rated	Dual	
Technical specifications	**Standard**	**Mini**	**HIPERFACE DSL®**	**Space**	**Vector**	**FS**	**Dual Stacked**	**Dual Concentric**
Output	1× absolute position	1× absolute position	1× absolute position	1× absolute position	1× combined absolute position	1× safe certified absolute position	2× independent absolute position	2× independent absolute position
Interfaces	BiSS / SPI / SSI	SPI	HIPERFACE DSL®	BiSS	BiSS	BiSS Safety	BiSS & BiSS, BiSS Safety and BiSS	BiSS & BiSS, SPI for dual
Maximum resolution	22 bit	16 bit	22 bit	22 bit	22 bit	22 bit	23 bit + 22 bit	19 bit + 19 bit
System accuracy	±0.004° (±15″)	±0.050° (±180″)	±0.004° (±15″)	±0.004° (±15″)	±0.004° (±15″)	±0.004° (±15″)	±0.006° & ±0.006° (±22″)	±0.006° (±22″) and ±0.012° (±44″)
Multiturn	Yes	No	Yes	Yes	Yes	Yes	No	Yes
Supply voltage	4.5 V to 5.5 V	3.2 V to 3.4 V	7 V to 12 V	4.5 V to 5.5 V	4.5 V to 5.5 V	4.5 V to 24 V	4.5 V to 5.5 V	4.5 V to 5.5 V
Current consumption	Typ. 130 mA	Typ. 130 mA	85 mA at 12 V	Typ. 130 mA	Typ. 250 mA	Typ. 250 mA	Typ. 380 mA	Typ. 250 mA
Maximum request rate	Up to 50 kHz	Up to 50 kHz	86.805 kHz	Up to 44 kHz	Up to 44 kHz	Up to 44 kHz	Up to 44 kHz	Up to 50 kHz
Operating temperature range	–40 °C to +105 °C / 125 °C	–40 °C to +85 °C	–40 °C to +115 °C	–40 °C to +105 °C / 125 °C	–40 °C to +120 °C	–40 °C to +120 °C	–40 °C to +120 °C	–40 °C to +105 °C

Size availability by product

Ring [mm]

OD	ID	Standard	Mini	HIPERFACE DSL®	Space	Vector	FS	Dual Stacked	Dual Concetric
11	4		✔						
21.5	10	✔							
29	10, 18	✔							
39	20, 25	✔							
49	25, 34	✔			✔	✔	✔		
53	30, 40	✔		✔**				✔*	✔*
64	40, 51	✔			✔	✔	✔		
80	55, 64	✔		✔	✔	✔	✔		
115	90, 100	✔			✔				
150	125	✔							

* Dual inner diameter: Ø20 or Ø30 mm (stacked); Ø20 mm (concentric).
** Available only inner diameter 30



AksIM-4 product highlights

Standard

Standard



- Wide range of sizes
- High resolution and repeatability
- Optional self-calibration available

HIPERFACE DSL®



- One cable technology HIPERFACE DSL® interface
- Compact and lightweight design
- Optimised for motor feedback systems

Mini



- Miniature readhead
- Ø11 mm ring with Ø4 mm bore
- Ideal for space-constrained designs

Enhanced

Space



- TID radiation tested
- Ultra-high-vacuum resistant without outgassing
- Component traceability

Vector



- Enhanced accuracy
- Mounting eccentricity eliminated by design
- Fail-operational architecture

Safety-rated

Functional safety



- SIL2 and SIL3 functional safety via BiSS Safety interface
- Automatic eccentricity compensation
- Designed for safety-critical applications

Dual (gear & motor)

Dual Stacked



- Motor and gear position feedback in one unit
- Compact diameter, large bore
- Standard and safety-rated configurations

Dual Concentric



- Motor and gear position feedback in one unit
- Ultra-thin, space-saving design
- Compact integration for robotic joints