



TRANSDUCER PRODUCT GUIDE

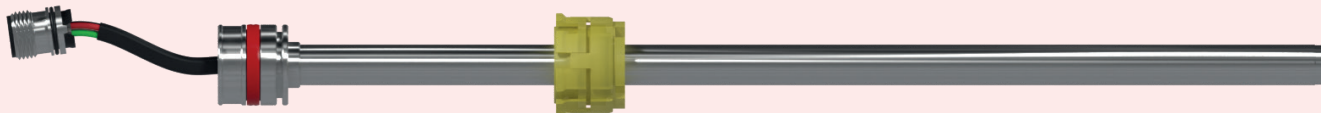
NEW SENSORS SPOTLIGHT

RO & RA SERIES - Rota's new angular position sensors!
Full 360° measurement capable, 0.4° resolution

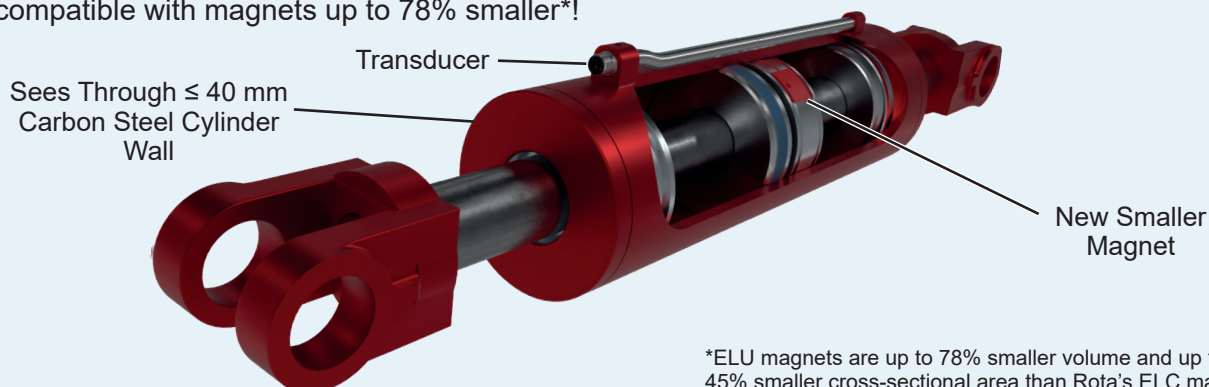


HA SERIES - Functional safety sensors
ISO 13849 PLd (and SIL 2 coming later), CANbus Safety or Analogue outputs

Coming Soon!



ELU SERIES - Rota's new externally-mounted transducers.
Now compatible with magnets up to 78% smaller*!



*ELU magnets are up to 78% smaller volume and up to 45% smaller cross-sectional area than Rota's ELC magnets

Rota is dedicated to providing its customers with highly reliable linear transducers, tank level sensors, and now rotary sensors!



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Rotational Measurement Transducers



RO Series

RA Series

Absolute non-contacting signal

0.4° resolution

Exceeds ECE R10 Automotive EMC Ratings

Full 360° measurement capable

RO & RA SERIES

Coming Soon!

- Analogue Voltage/Current/PWM options
- CANbus SAE J1939, CANopen, and ISOBUS options
- Sizes available to fit around $\leq 3"$ or $\leq 5"$ shafts
- 316 Stainless steel subsea version available
- Two-piece retrofittable design:



Opens to fit around existing assembly!



For Monitoring Tank Level



TL Series

Capable of monitoring position, velocity, and temperature

Up to 6 metres in length

UN ECE R10 Automotive EMC specification

High accuracy

TL SERIES

Now Available

with temperature indication!

- Suitable for Diesel, Oils, Adblue, and Agri Chemicals etc.
- High resolution 0.3 mm design.
- IP69K unmated connectors!

TLT SERIES

- TLT CANbus version can also monitor temperature - great for hydraulic tanks.
- Very cost-effective, eliminating a separate temperature sensor and mounting/assembly costs.
- -40 to 105°C operating temperature.

TLH SERIES

- Larger tube design for harsher applications.



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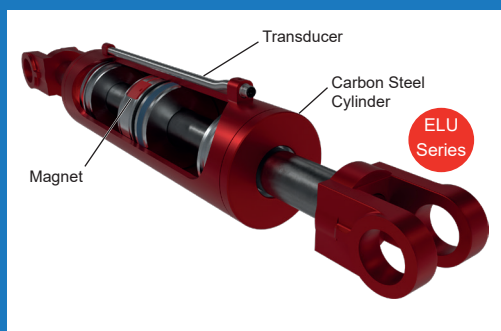
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Externally-Mounted Transducers



Easily field-replacable for maximum machine uptime

The easiest, lowest-cost solution for a smart cylinder

No gun drilling cost

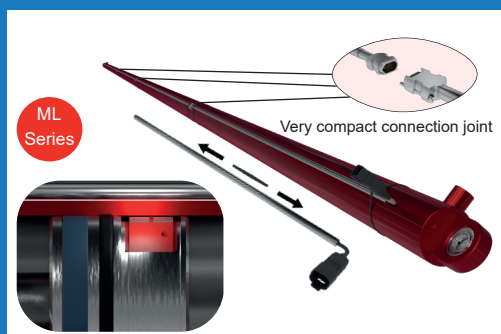
Ideal for steering and long cylinders

ELU SERIES

- Great serviceability
- Sees through ≤ 40 mm thick carbon steel cylinder wall.
- Up to 0.3 mm resolution.
- Can mount two sensors with one magnet to achieve redundancy.
- -40°C to $+115^{\circ}\text{C}$ operating oil temperature.
- Tested up to 20g RMS, with resonant frequencies held at 1g for 1 hour!
- Tested to and exceeds the following EMC ratings:
 - UN ECE Reg. 10.05: October 2014 (Automotive)
 - EN ISO 14982:2009 (Agricultural and Forestry Machinery)
 - ISO 13766:2018 (Earth-Moving and Building Construction Machinery)

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Modular Transducers



Easy transportation in small sections

Solid state, only the magnet moves

Easy maintenance

Ideal for long cylinders up to 30 m

ML SERIES

- Very compact connection joint, ideal for telescopic booms.
- Modular version simply bolts together.
- Short sections, easier to transport, stock and assemble.
- Available with an EL type magnet or an 'R' remote magnet.
- Absolute signal.



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Safety-Related Transducers



HA Series

LV Series

Exceeds UN ECE R10 Automotive EMC Specification

Very compact

Up to 5.8 m stroke length

Very robust, high vibration capability

HA SERIES - Functional Safety

- ISO 13849 PLd (and SIL2 coming later)
- CANbus Safety or Analogue output
- Built-in self diagnostics
- The same dimensions as the well-established LA series
- IP69K rated unmated connectors!

Coming Soon!

HM SERIES - Functional Safety

- 430 bar working pressure
- Up to 5.8 m stroke

Coming Soon!

LV SERIES

- Verification transducer has a second array of Hall-effect sensors for checking and verifying the primary circuit.
- 0.3 mm resolution.
- Exceedingly reliable - over 150,000 supplied!



Redundant Transducers



LR Series

Dual or triple outputs

Separate sensor circuits

Separate power supplies

Separate connectors and cables

LR SERIES

- Redundant transducer houses two entirely separate sensing circuits.
- Two separate connectors and cables.
- Up to 20 metre stroke.
- Independently pin-mounted LUR option available - see independently pin-mounted transducer section overleaf.

LQ SERIES

- Triple redundant transducer houses three entirely separate sensing circuits.
- Three separate connectors and cables.
- Up to 20 metre stroke.



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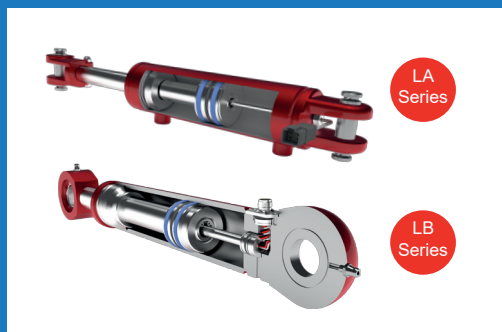


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Now Available
with temperature indication!

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Mobile Cylinder Transducers



Maintains pin-to-pin dimension

OEM or field installable/re-calibratable

Very robust, high vibration capability
Up to 25g RMS, resonant frequency found and held for 1 hour!

IP69K unmated connectors!

LA SERIES

- 350 bar working pressure.
- Miniature M12 screw-in head for mounting between clevis eyes.
- UN ECE R10 Automotive EMC specification.
- IP69K unmated connectors!
- Aluminium build.

LB SERIES

- 375 bar working pressure.
- Stainless steel build.

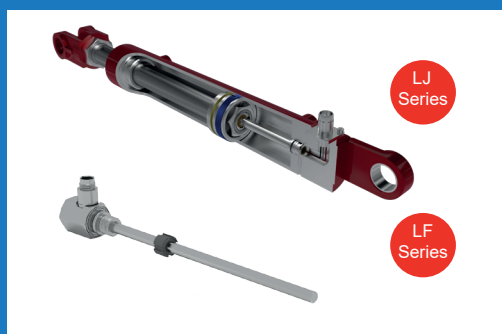
LM SERIES 3

New!

- Now 430 bar working pressure!
- Welded high-pressure stainless steel build.

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Industrial Cylinder Transducers



CANbus and SSI Asynchronous output options

Very rugged design
Three different tube sizes available for different applications

Up to 0.05 mm resolution

High vibration capability
including resonant frequencies

LJ SERIES

- 500 bar working pressure.
- SSI Asynchronous option.
- Up to 20 metre stroke.
- High speed - up to 8m/s.
- Very compact.

LJW SERIES

- Subsea transducers.
- Compatible with a large variety of subsea connectors.
- 316 stainless steel build.
- 5000 metre depth rating.

LF SERIES

- 720 bar working pressure, 1035 bar max. pressure test.



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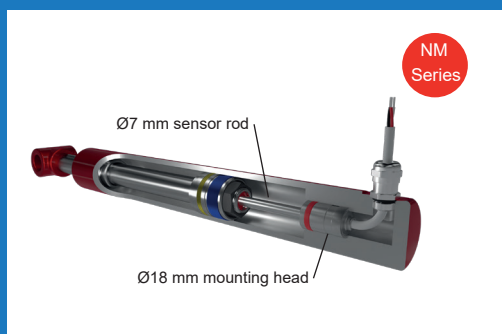
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For Small-Diameter Cylinders



Ø7 mm sensor rod reduces gundrill hole diameter

Suitable for some $\geq \text{Ø}20$ mm bore cylinders

Multiple mounting and electrical termination options

Welded stainless steel construction

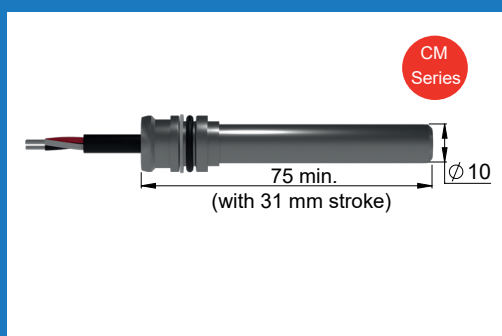
NM SERIES

Coming Soon!

- Rota's narrowest sensor designs for some $\geq \text{Ø}16$ mm piston rods.
- Small-diameter mounting head options.
- M12 and M18 threaded mounting head options.
- 470 bar operating pressure.
- Approx. 735 mm max. stroke.
- IP69K unmated connector options!
- High vibration ratings and EMC ratings expected.



For Short Cylinders



Improved stroke to length ratio

UN ECE R10 automotive EMC approval

Very robust, high vibration capability

IP69K unmated connectors!

CM SERIES

- Rota's shortest sensor designs for the most compact cylinders.
- Up to 430 bar working pressure.
- Suitable for some $\geq \text{Ø}20$ mm piston rods.
- Absolute signal - Analogue low voltage outputs available, with other analogue and CANbus outputs in development.
- Tested up to 25g RMS, with resonant frequencies held at 1g for 1 hour.
- Tested to the following EMC ratings:
 - UN ECE Reg. 10.05: October 2014 (Automotive)
 - EN ISO 14982:2009 (Agricultural and Forestry Machinery)
 - ISO 13766:2018 (Earth-Moving and Building Construction Machinery)



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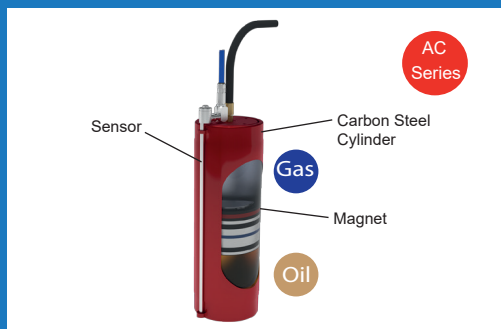
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For Piston Accumulators



Externally-mounted sensor

Up to 20 metre stroke

No additional seals required

No end cap modification required

AC SERIES

- Suitable for thick-wall carbon steel piston accumulators.
- Sees through 25 mm carbon steel wall.
- Solid-state design.
- Installed 360° magnet can rotate with modified piston.
- Versions for Subsea or Ex atmospheres.
- Resolution up to 4 mm.
- Suitable for thick-wall carbon steel hydraulic cylinders with limited crush load, pumps, or intensifiers with large diameter spigot.



Independently Pin-Mounted Transducers



Short pin-to-pin length

Very robust, high vibration capacity

Highly customisable

UN ECE R10 Automotive EMC specification

LL/LN/LU SERIES

- LL - Light duty - aluminium build.
- LL - Ideal for high-volume, low-cost OEM applications.
- IP69K unmated connectors!
- LN - Normal duty - stainless steel build.
- LU - Ultra-heavy duty - stainless steel build.
- LU & LN - Subsea & Ex. I.S. versions.
- LUR - Two entirely separate sensing circuits for redundancy.



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For Explosive Atmospheres



AEx, IECEx and ATEX approved

Absolute, non-contact technology

High shock capability

High vibration capability

LK SERIES

- 2 wire 4-20 mA absolute signal option.
- Suitable for Zones 0/1/2, ATEX Categories 1/2/3.
- Intrinsically safe design.
- Very compact mounting head options.
- Max. stroke of 10 metres.

LD SERIES

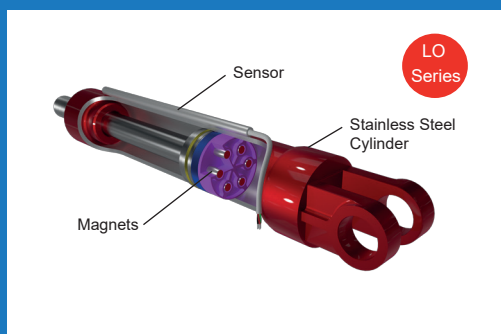
- 2 wire 4-20 mA absolute signal option.
- Explosive atmosphere transducer for Zones 1/2, ATEX Categories 2/3.
- No I.S. barrier or galvanic isolator needed.
- Very compact.

LZ SERIES

- Linear transducer with enclosed limit switches.
- Resistive output.
- Rotatable junction box for easy cable lay.
- No I.S. barrier or galvanic isolator needed.



For Ocean Yachts With Stainless Steel Cylinders



Extensively used by America's Cup teams

316 Stainless Steel or Titanium enclosure

IP68 Rated to a depth of 3 metres for 28 days

Redundant options available

LO SERIES

- Multiple magnet installation options.
- -30° to +70°C operating temperature range.
- Non-contact, zero-wear design with absolute signal.
- Industry leading random and sinusoidal vibration ratings - including resonant frequencies.
- Common applications include:
 - Traveller car position monitoring
 - Jib inhaul/outhall position monitoring
 - Rudder rake angle monitoring
 - Daggerboard position monitoring
 - Foil poision monitoring



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