

# BEARINGLESS MRI 2242/2342

Hazardous area encoders with optional condition monitoring



The explosion-proof bearingless MRI 2242 and 2342 incremental encoders come with a sturdy enclosure and a perfect fit for easy mounting directly onto large shafts. Resistant to high moisture, humidity, salt water and vibrations, and with a non-contact scanning, they are practically immune to mechanical wear. These encoders also come with an option to extract diagnostic data for condition-based maintenance.

The bearingless encoder models MRI 2242 and 2342 are built to enhance motor performance in the true heavy-duty operations in the toughest of environments, like pulp & paper, steel, oil & gas, and marine industries.

These models are mounted directly onto large shafts from 100 mm and up and can provide a resolution from 1024 to 16383 ppr. They are developed and thoroughly tested for use in hazardous environments and comes with all the right certifications.

### Compact, rugged, compatible

With the base in the well-proven technology of Leine Linde's Bearingless 2000 series, the robust electronics of these models include advanced sensing technology to ensure stable speed measurement. The sturdy enclosure in anodized aluminium covers all parts of the encoder. Without ball bearings or other contact surfaces, they are immune to mechanical wear.

### cULus with USL and CNL certificates

#### USL

Class I Division 1 Groups B,C,D T4  
Class I Zone 1 AEx db ia IIC T4 Gb X  
Class I Zone 1 AEx db ia op is IIC T4 Gb X

#### CNL

Class I Division 1 Groups B,C,D T4  
Ex db ia IIC T4 Gb X  
Ex db ia op is IIC T4 Gb X

#### ATEX

⊕ II 2G Ex db ia op is IIC T4 Gb  
⊕ II 2G Ex db ia IIC T4 Gb

#### IECEX

Ex db ia op is IIC T4 Gb  
Ex db ia IIC T4 Gb

## Flexible encoder configuration for hazardous areas

The 2242 and 2342 models can be equipped with one or several flame- and explosion-proof MRH 024 scanning heads in the same installation, depending on how many incremental signals you need. Thereby it is very easy to achieve redundancy for safety-critical systems or just have different types of output signals. The non-contact scanning permits an air gap to allow for thermal expansion or runout of the mating shaft.

Each scanning head can deliver up to six standard incremental outputs plus optional diagnostic signals.

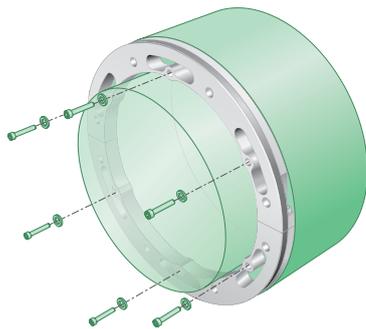
When using a certified cable gland through the housing, the unit complies with all major certifications for hazardous locations. The electrical outputs are all closed-circuit protected both to 0 V and to supply voltage. The supply lines are protected against reverse polarity.

Order the ring size and mounting type of your choice and add the number of scanning heads with the outputs needed for your application. Several robust connections and electronic options are available, to fit the needs of the user.

## Mounting options

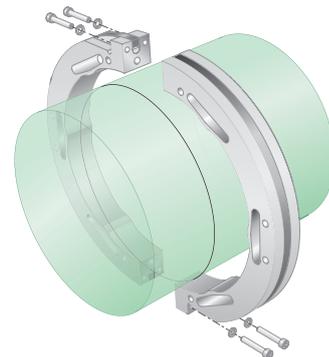
### Easy to fit - or retrofit

The ring is made for your shaft size and your tolerance requirements. The encoder fits directly on 4" (100 mm) shaft sizes and up. The scanning head should be mounted with a mounting kit and have a maximum of 5,5 mm air-gap to the ring, depending on the solution.



### ClampFit

The MRI 2342 models can be fixed to standard cylindrical shafts without flange expansions. When the ring segments are screwed together, the tethers will automatically tighten the ring to the mating shaft with sufficient radial force.



## Technical data

Power supply	9-30 Vdc (PELV or SELV required)
Current consumption	90 mA at 24 Vdc (max 110 mA)
Incremental output load (max)	+/- 40 mA
Output frequency (max)	100 kHz
Cable length (max)	350 m at 100 kHz (HC-HTL output)
Operating temperature	-40 ...+70°C, -40 ... +158°F
Ingress protection class [IEC 60529]	IP67
Vibration [IEC 60068-2-6]	<200 m/s <sup>2</sup>
Shock [IEC 60068-2-27]	<=1500 m/s <sup>2</sup>
Cover material	Anodized aluminium
Additional feature	ADS Uptime with ADS Link

## Code key



**Mounting option**

- 2 = Flange mount
- 3 = ClampFit

**Model**

- 4 = MRH 024 scanning head

**Scanning**

- 2 = Increased accuracy  
(Scanning distance 0,1-2,5 mm)

**Connection**

- 0 = M20x1,5 cable entry A
- 1 = M25x1,5 cable entry A
- 2 = M20x1,5 cable entry B

**Resolution**

1024-16383 ppr\*  
\*Max 100 kHz pulse frequency

**Dimension**

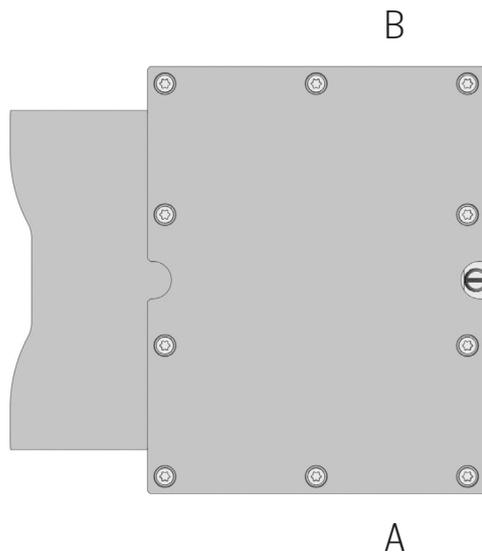
Customized (minimum inner dimension 100 mm)

**Mounting bracket**

- 0 = No bracket
- 1 = M8, c-c 170 mm (type 04)

**Electronics**

- 4 = Spring Terminal, 3ch HC-HTL  
(9-30 Vdc supply, 9-30 Vdc output)
- 5 = Spring Terminal, 6ch HC-HTL  
(9-30 Vdc supply, 9-30 Vdc output)
- 7 = Spring Terminal, RS422  
(9-30 Vdc supply, 5 Vdc output)



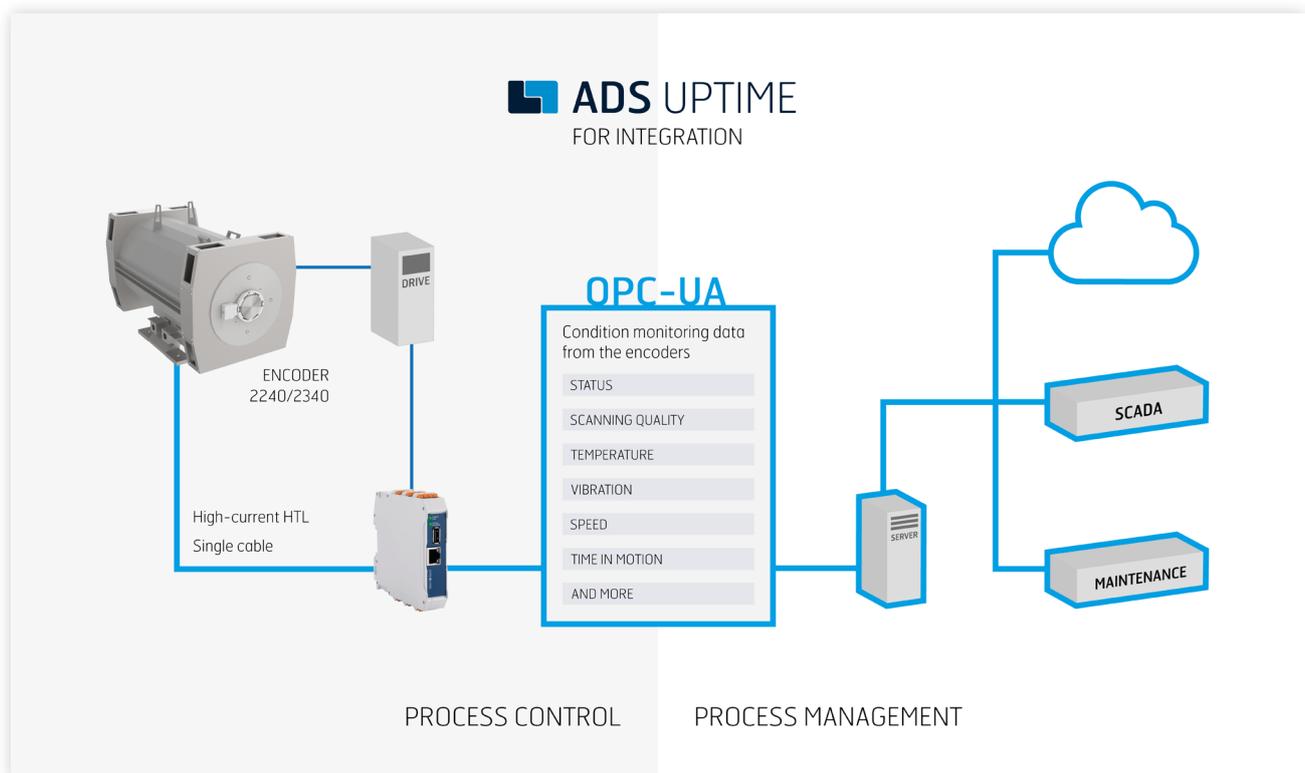
## OPTIONAL: Condition monitoring and predictive maintenance with ADS Uptime

An advanced diagnostic system, ADS, constantly monitors the encoder's key functions, fully integrated into each unit. Thereby, the user can receive a warning immediately when an impending fault is detected – automatically.

Fault interpretation determines the seriousness of the fault and categorizes it into various status levels. ADS Uptime will secure your machine uptime.

ADS Uptime is an option available for the bearingless MRI 2242/2342 encoders. When ADS Uptime functionality is enabled it can be integrated with the control or process management systems, communicating over OPC-UA. Order the ADS Link unit separately and install it in the control cabinet to get the full functionality of ADS Uptime.

Contact your Leine Linde sales contact for more information about solutions that can secure your machine uptime.



### Order number ADS Link

ADS Link for MRI 2000 series

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