

# WHY ENCODER DIAGNOSTICS?

# ANALYSE AND TAKE ACTION

Leine & Linde encoders, with ADS Uptime for wireless service check-up, will make it easy to prevent production downtime.

Knowing things before they happen has never been so easy. Use the service check-up app in a mobile device, for example the industrial Toughpad, and monitor the most relevant data for all your rotary installations and motors in the production line.



Get detailed data for status, frequency, time in motion, and more!

Vibration is measured in both radial and axial directions for unsurpassed control.

Values are stored in the encoder and easily accessible at your fingertips.

Set the limits of your choice for when to receive warnings regarding temperature, vibration or other important factors.

See the trends and act before any serious faults occur.



# GET REALTIME DATA IN YOUR SYSTEM

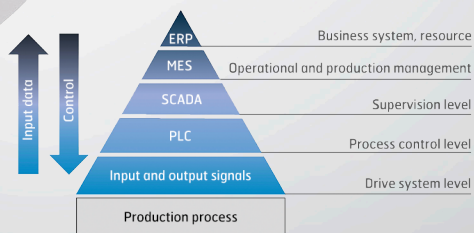
From its strategic position on a rotating shaft, the encoder provides diagnostics and data for different levels in the organisation.

ADS Online and ADS Uptime are both developments of Leine & Linde's advanced diagnostic system, which enables collecting data from the encoder application and analyzing faults. Benefit from this data in the system of your choice. Encoders with ADS Online use an Ethernet protocol connection for access

to data and diagnostics, while encoders with ADS Uptime use OPC-UA to transfer the data and communicate on different levels.



## DIAGNOSTICS WHERE IT MATTERS THE MOST



The Heavy duty 800 series with ADS Uptime for integration can deliver useful information to systems at many different levels of the organization.

# ENCODER DIAGNOSTICS IN PROCESS CONTROL

What does a stop in production cost? Today, you can receive early warnings before any serious fault in the production line occurs, thanks to encoder diagnostics. One single prevented production stop pays back the cost of all the ADS encoders at the plant.

ADS is short for advanced diagnostic system, a system which is developed by Leine & Linde, providing built-in condition monitoring of the encoders. The encoder is placed on the motor, drive shaft, or at other rotating or moving part in the machine. These parts are almost always crucial for smooth and reliable performance of the production lines. Condition monitoring data and system diagnostics from the encoder can therefore tell a lot about

the motor performance and installations in running operations.

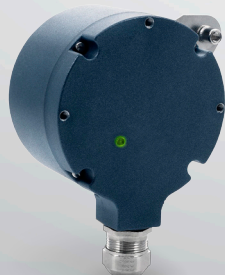
This is why diagnostics from the encoder is so well suited for securing production uptime. Data can be collected and analysed for vibration, temperature variations, frequencies and time in motion at all the encoder installations. Get warnings before any problems occur.



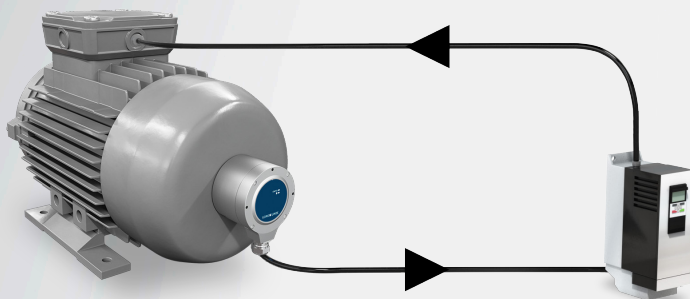
## ADS Classic – A proven and appreciated solution

Leine & Linde's advanced diagnostic system ADS was developed to permit the early detection of fault functions internally in rotary incremental encoders, already in the year 2000.

The ADS Classic encoders quickly grew popular, especially embraced by paper, pulp and process industries. The diagnostics turned out to be very useful for deducting the cause of deviation and finding the source of error, which in many cases is an installation imbalance in the motor, or bearings starting to wear out.



 **ADS CLASSIC**



The encoder sends a constant stream of accurate rotational speed feedback as part of the drive system.

Reliability matters. The encoders in the incremental Heavy duty 800 series from Leine & Linde have been beloved by engineers all around the world for decades. Many have even asked us why we include encoder diag-

nostics in our products, when our products so seldom break. The answer is simple: it is good for production uptime. Secure uptime and save money!

## ADS Online – Several sensors in one

With the second generation, ADS Online, the Leine & Linde encoder's functions were expanded to encompass several sensors in one. The encoder had become a multi-sensor.

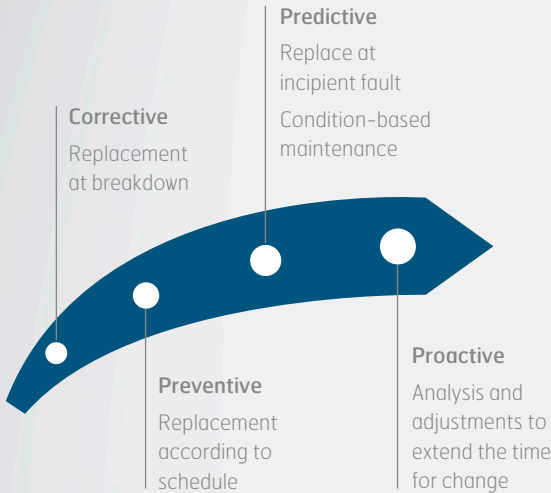
With ADS Online, the encoder constantly reads off the levels for several environmental parameters in its surroundings, including vibration, shaft speed, frequency, temperature, and supply voltage. The system conducts automatic interpretation and analysis of detected internal deviations. The encoder provides recommendations for when to check the installation.



 **ADS ONLINE**

# THE TOOL FOR PROACTIVE MAINTENANCE

ADS solutions will naturally simplify the move from preventive to predictive maintenance. Furthermore, this helps companies to start practising proactive maintenance, since data from the encoder enables adjustments of factors that otherwise would reduce lifetime of the machine as a whole. When all the motor installations are correct, a lot of unnecessary problems are avoided, and production downtime is significantly reduced.



Set alarms for the values of your choice. Analyse graphs to compare deviations or changes and react to the trends. Get reports and be able to forestall potential problems.

## ADS Uptime for wireless service check-up – Diagnostics at your fingertips

The next generation of this advanced diagnostic system is the ADS Uptime. ADS Uptime will be available for wireless service check-up via Bluetooth, as well as for system integration via OPC-UA, or both. The wireless service check-up will facilitate maintenance, but also drive system management, production planning and operation. Perform the service check-ups on the go, via the app in a mobile device.



 **ADS UPTIME**



# PROCESS MANAGEMENT AND **SYSTEM INTEGRATION**

## will benefit from IIoT components!

Industrial Internet of Things needs to be built also from the component level and up. When the component in question is an encoder, it has an undisputed function to fulfil for process control, but at the same time it proves to be very useful in providing data to systems and networks on different organizational levels. OPC-UA enables two-way communication, so the encoder is able to deliver data, but also respond to inquiries and needs from within the systems, when prompted.

More information from process critical components means more control over the plant.

The encoder can...

- store and deliver detailed operational data to access by the system of your choice.
- give the ordering system access to its serial numbers in time for replacement.
- provide time in motion and data for performance trends of all running applications.

And much more! Let it connect to the nodes of your network.

## **ADS Uptime for integration – Single cable connecting to all networks**

Keep the cables from the current encoder installation, but switch to an ADS Uptime encoder and add an ADS Link module in the control cabinet. Your new encoder can now connect to systems on other levels of your organisation via OPC-UA.

Condition monitoring, resource planning, SCADA, or maintenance management, just to name a few of the systems.

OPC-UA is a platform-independent industrial communication protocol that exchanges data between products from different manufacturers and address operating systems. Realtime data and warnings can now be used as a part of systems on all levels in the company.

This is so easy to integrate with the Leine & Linde solution!





# CONDITION MONITORING