Condition Monitoring
Energy Monitoring

- Condition Monitoring of machines and plants
- Analysis of energy consumption
- Organization of maintenance
- Quality assurance of produced products
LR SMARTOBSERVER at Planning Level

- Process optimization and process security of plants >> Reduction of downtimes
- Transparency in production
- Organization of preventive maintenance and service
- Predictable rate action of spares
- Lower repair costs
- Avoidance of costly consequential damages due to early damage detection
- Online / remote access to equipment delivered
- Quality assurance to the customer
- Organization of an energy-efficient manufacturing
- Data export for audit and certification
LR SMARTOBSERVER in Production Environment

- Visualization and evaluation of process data
- Data collection and diagnosis
- Timely recognition and prevention of unfavorable operating conditions
- Process monitoring (creation of analysis and trends)
- Avoidance of consequential damages by timely intervention
- Reduction of repair and maintenance costs
- Quality assurance of produced products
- Organization of maintenance and service
- Reduction of downtimes
- Management of favorites
- Reporting and altering
LR SMARTOBSERVER Features

Communication with intelligent sensors (IO-Link, VSE) for data analysis

- Continuous and intermittent state monitoring of process parameters (vibration, temperature, pressure, oil quality and quantity, electricity, speed (rpm), flow)
- Customized display of live status
- Management of limit value – tabular and graphical display incl. trends
- Alarm management for:
  - Maintenance
  - Warning limit / action limit
  - Alarm escalation
- Analysis of process data (correlation)
- Maintenance management
- Implementation in web server or alternative installation on machine
Application: Condition Monitoring for Fans

Customer benefits

- Organize cleaning of fans based on dirt
- Detect belt problems at an early stage
- Detect and avoid adverse operating conditions
- “Resonance Screening” – monitor and detect resonances

Typical system components:

- Fans with process sensors
- Evaluation unit with terminal box (option WLAN)
- Connectivity and data bases
- PC with LR SMARTOBSERVER
Application: Condition Monitoring for Pumps

Customer benefits:
- Detect wear of the pump
- Detect alignment errors at an early stage
- Timely maintenance via cavitation detection
- Avoid damage to the pump by trapped air
- Avoid consequential damage by timely intervention

Typical system components:
- Pump with diagnostic objects
- VSE with terminal box (option WLAN)
- Server and data bases
- PC with LR SMARTOBSERVER
Application: Condition Monitoring for Presses

Customer benefits:

- Monitoring of most important assemblies of press
- Early detection of changes towards the “good condition”
- Correlation of different measureands (press force, pressure, overload protection, ram tilting) enables conclusions to forming dies
- Recognition of mixing of lubricating and hydraulic oil
- Permanent monitoring of all oil-specific parameters
- Early recognition of bearings wear
- Visualization of forces working at retract and change of tools
System Bundles

- depending on data throughput and amount

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<th>Data quantities</th>
<th>Hard drive-requirements</th>
<th>System-requirements</th>
<th>Data-traffic maximum</th>
<th>Additional costs</th>
<th>Expert knowledge</th>
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Example Server Application Scenario

LR SMARTOBSERVER
- Condition Monitoring of machines and plants

Gateway: IO-Link Master
Datatransfer via
LR AGENT embedded

Cloud

SQL Server
LR SMARTOBSERVER

Navigate

Monitor

Analyse
Navigation
Cockpit – Display of Values and Process Diagrams
Cockpit – Grid for miniature instruments 12x12
Analysis of Values
Alarm Management with Historiography
Maintenance Management

Linked to alarm management
Maintenance

Organization by appointment

Organization by odometer
Reports

[Image of a SMARTOBSERVER interface showing data for various ports and parameters such as temperature, pressure, and alarms.]
Configuration for Data Compression

Example of individualization of the SW surface
LR SMARTOBSERVER – Connection Overview

Data transfer to the LR SMARTOBSERVER software is done via the LR AGENT CP.

PC – System requirements:
- Windows 7 SP1, Windows 8.1, Windows 10
- Graphics card 1 GB, DirectX 10.1 compatible graphic
- Web browser Chrome, Firefox, Internet Explorer 11, Microsoft Edge
## Training Concept

### LR SMARTOBSERVER Basic Training QDS 200

| 2 hours | Introduction into the LR SMARTOBSERVER user interface, configuration of user-specific views and cockpits. |

### LR SMARTOBSERVER Advanced Training - QDS 202

| 1 day | Basic Training + Usage of LR Configuration Manager, implementation of users and user groups, access right management, e-mail and SMS configuration, integration of pictures into the user interface, data export, configuration of alarms and thresholds. |

### LR SMARTOBSERVER Expert Training – QDS 205

| 1 day | Databases and database configuration, system architecture, data backup, replication of connected hardware, trouble shooting. |
Thank you for your attention!
Contact

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