

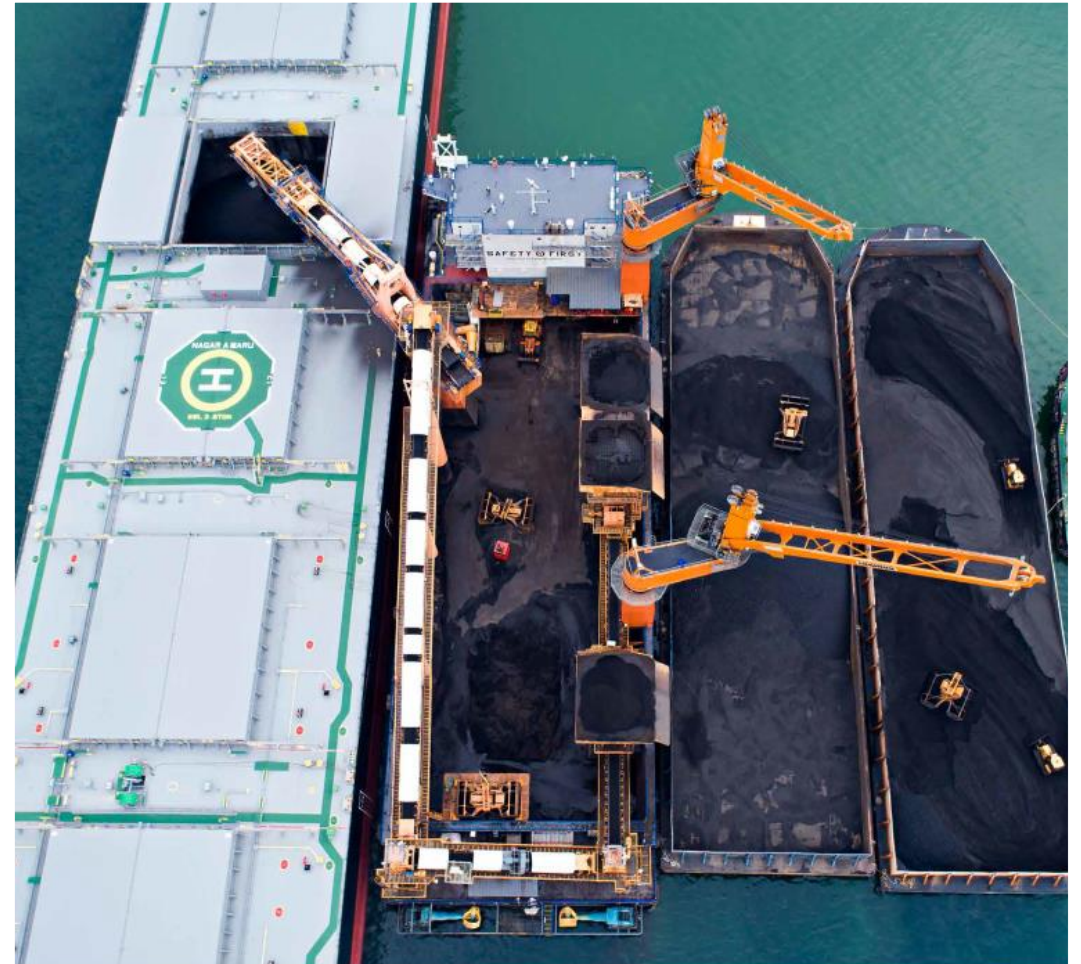
LiDAT[®] smartApp

smart up your performance

LIEBHERR

Content

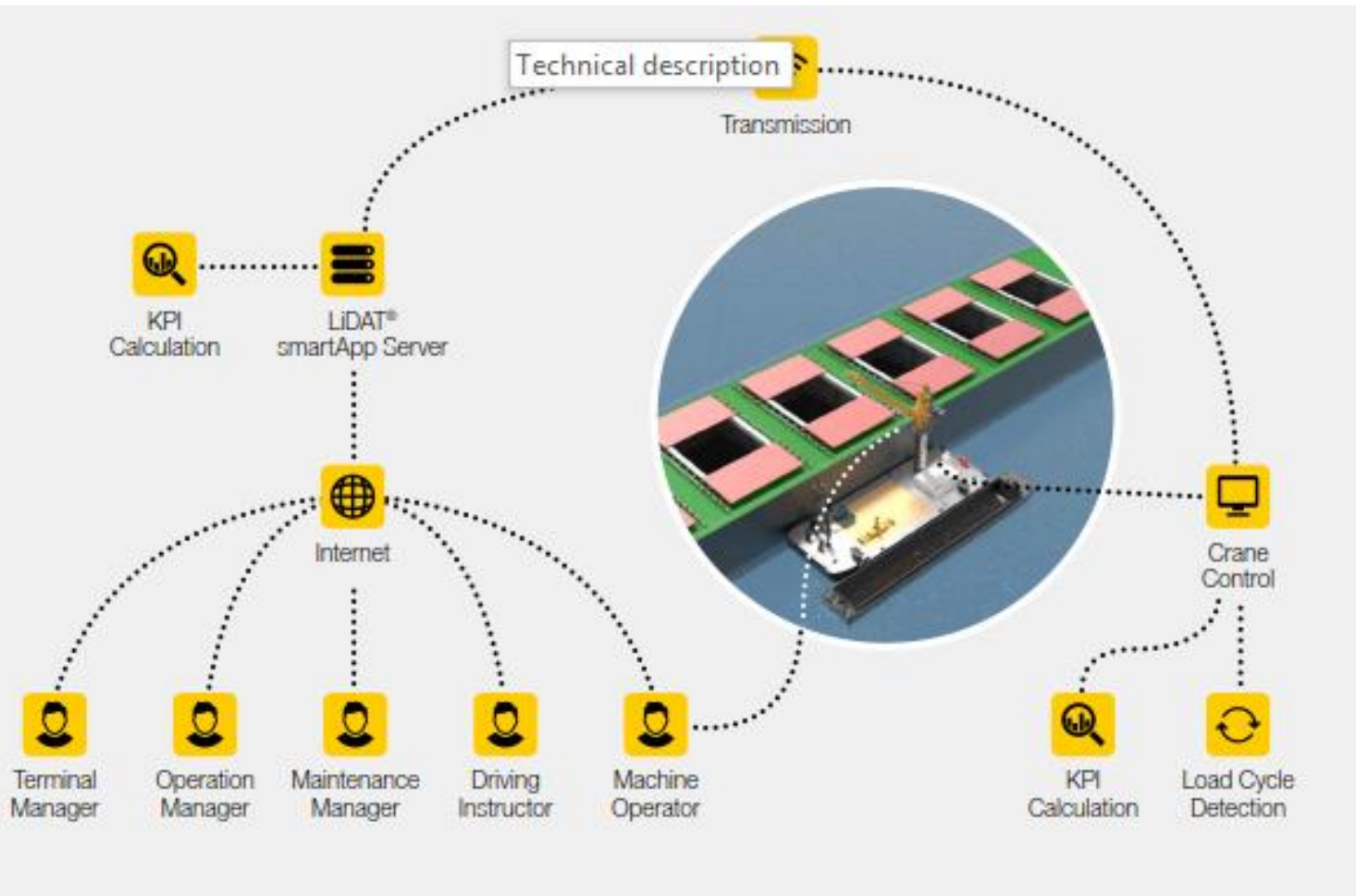
- What it is
- Technical description
- Packages
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- Upgrade and Retrofit
- Demo Version



What it is

- IT-solution for analysing and optimising cargo handling processes
- Makes the processes faster, more environmentally friendly and more cost effective
- Real-time overview of the equipment status and the progress
- The Optimization Package additionally shows potential to increase performance.

Technical description



- The relevant data transmitted to the LiDAT® smartApp server
- Authorised users can access and download the processed data via LiDAT® smartApp
- Liebherr handles the setup and support of the transmission link, hosts the data and maintains the software during the active user subscription

Different packages available

BASIC

- Worldwide data recording and transmission in real-time
- Significant reports in PDF-format available as download
- Integrated user manual
- Transparency of processes by figures and charts
- Comparability of cranes and processes across locations

Maintenance

- Display of important operating data (e.g. operation hours, fluid levels)
- Crane control display visible via user interface
- Enables Teleservice

Different packages available

Optimisation

- Turnover and optimisation orientated figure spectrum
- Detailed graphic representation
- Load Recorder turnover analysis
- Detection of optimisation potential by additional figures and charts
- Automatic load cycle detection
- Performance comparison inside the fleet

In detail – Scenarios

Scenarios are a powerful tool in the optimization package to analyse and to compare crane operations. Scenarios are easy to create by determining just the time frame and the machines to be in the scenario:

The screenshot shows the 'Create Scenario' interface in the LiDAT smartApp. The top navigation bar is yellow with the LiDAT logo and the text 'for demonstration purpose only'. A left sidebar contains menu items: 'Scenarios', 'Machines', 'Reports', and 'Manual'. The main content area is titled 'Scenarios > Create' and contains the following fields and options:

- Scenario name:** A text input field containing the word 'Comparison'.
- Timeframe:** A dropdown menu set to 'Custom timeframe for scenario'. Below it, a table defines the time frame:

from *	time *	to *	time *
2019-03-07	10:00	2019-03-07	18:00
- Please select the machines *:** A list of machine models and their associated units with checkboxes and action icons.
 - CBG 350:**
 - 999006 (Peez, Rostock, Germany)
 - 999007 (Peez, Rostock, Germany)
 - LHM 550:**
 - 999001 (Gemeinde Nenzing, Austria)
 - 999002 (Gemeinde Nenzing, Austria)
 - 999003 (Gemeinde Nenzing, Austria)
 - 999005 (Gemeinde Nenzing, Austria)
 - LHM 600:**
 - 999004 (Peez, Rostock, Germany)

Optimisation : Scenarios - overview

LiDAT® smartApp
for demonstration purpose only

Scenarios

- Machines
- Reports
- Manual

Scenarios > Comparison

General Information 'Comparison'

Machine Type	<i>f *</i>	LHM 550
	<i>f *</i>	LHM 600
Time Range	<i>from</i>	2019-03-07 10:00
	<i>to</i>	2019-03-07 18:00
Data Coverage	<i>exact</i>	100 %
Operating Hours	<i>sum</i>	11 h
Handled Cargo	<i>sum</i>	7,918 t
	<i>count</i>	249 cycles

Operation

Cycle Time	<i>avg</i>	155 s
Waiting Time	<i>avg</i>	14 s
Wind Speed	<i>avg</i>	2.8 m/s
Performance	<i>avg</i>	737 t/h
Performance	<i>avg</i>	23 cycles/h
Fuel Consumption	<i>avg</i>	62 l/h
Operation Mode	<i>main</i>	Four Rope Grab

Optimization

Waiting Time	<i>avg</i>	8.8 %
Crane Utilization	<i>avg</i>	81 %
Hoisting Gear Speed	<i>avg</i>	54 %
Load Path	<i>avg</i>	74 m
Slewing Angle Path	<i>avg</i>	149 °
Luffing Path	<i>avg</i>	18 m

Location

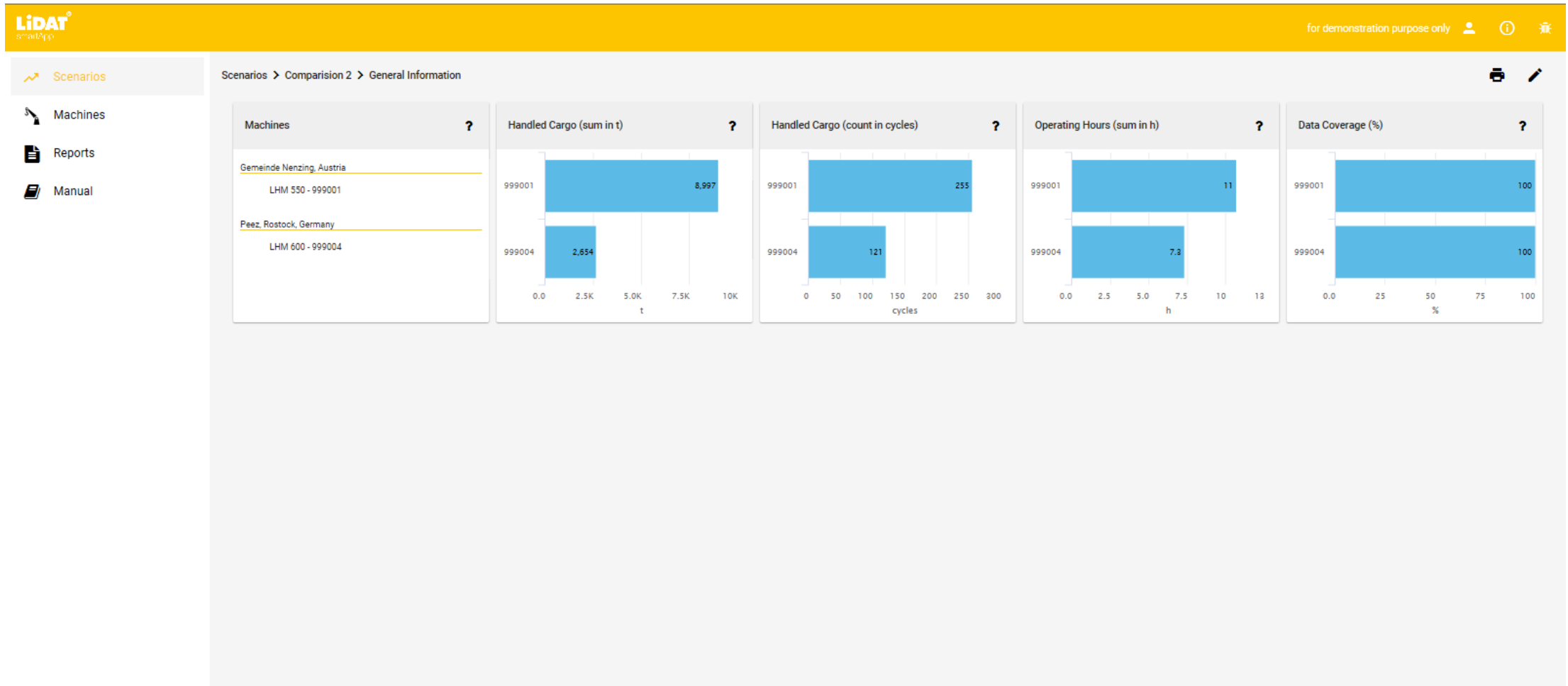
Machine Health

Fuel Level	<i>min of latest</i>	17 %
AdBlue Level	<i>min of latest</i>	—
Hydraulic Oil Level	<i>min of latest</i>	66 %
Overloads	<i>sum</i>	0

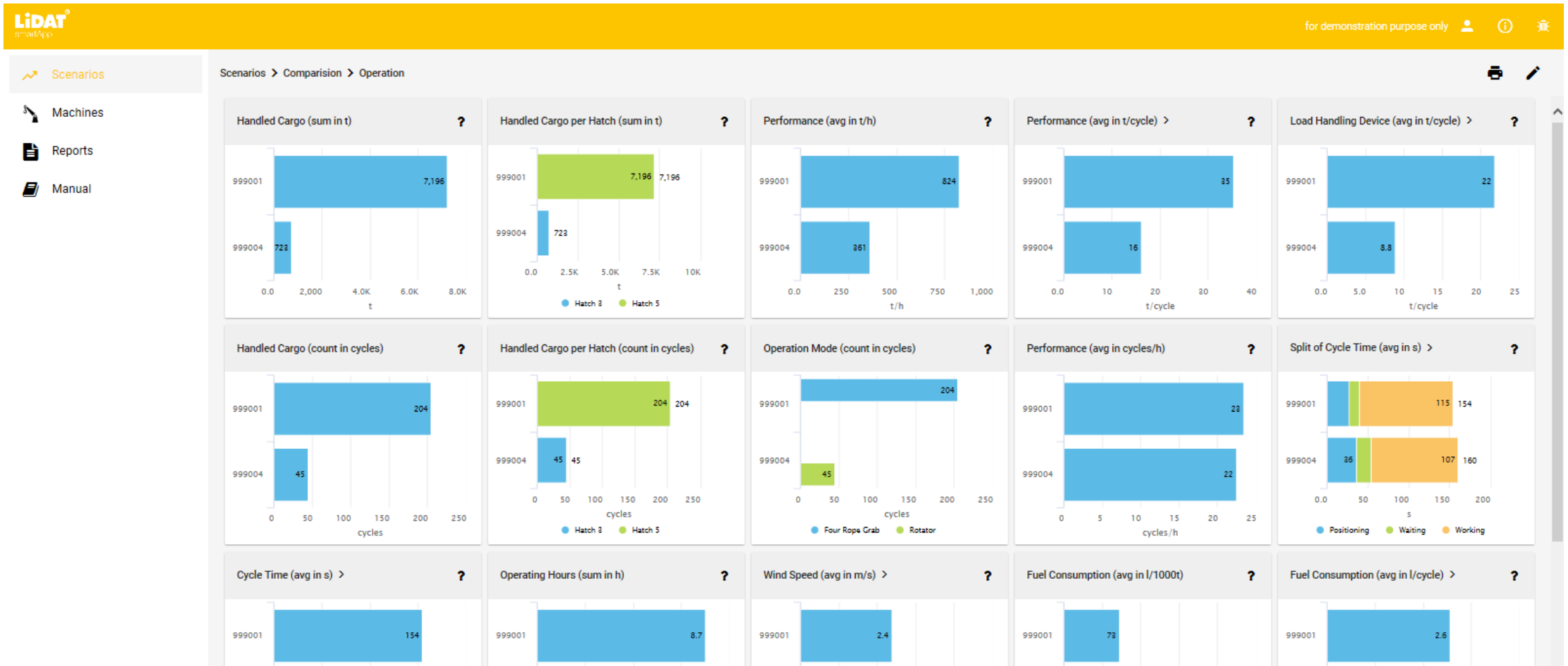
Load Recorder

Turnover	<i>sum</i>	7,904 t
Turnover	<i>count</i>	246 cycles
Cycle Time	<i>avg</i>	155 s
Performance	<i>avg</i>	744 t/h
Performance	<i>avg</i>	23 cycles/h
Cycles Recorder Inactive	<i>count</i>	2 cycles
Invalid Cycles	<i>count</i>	1 cycles

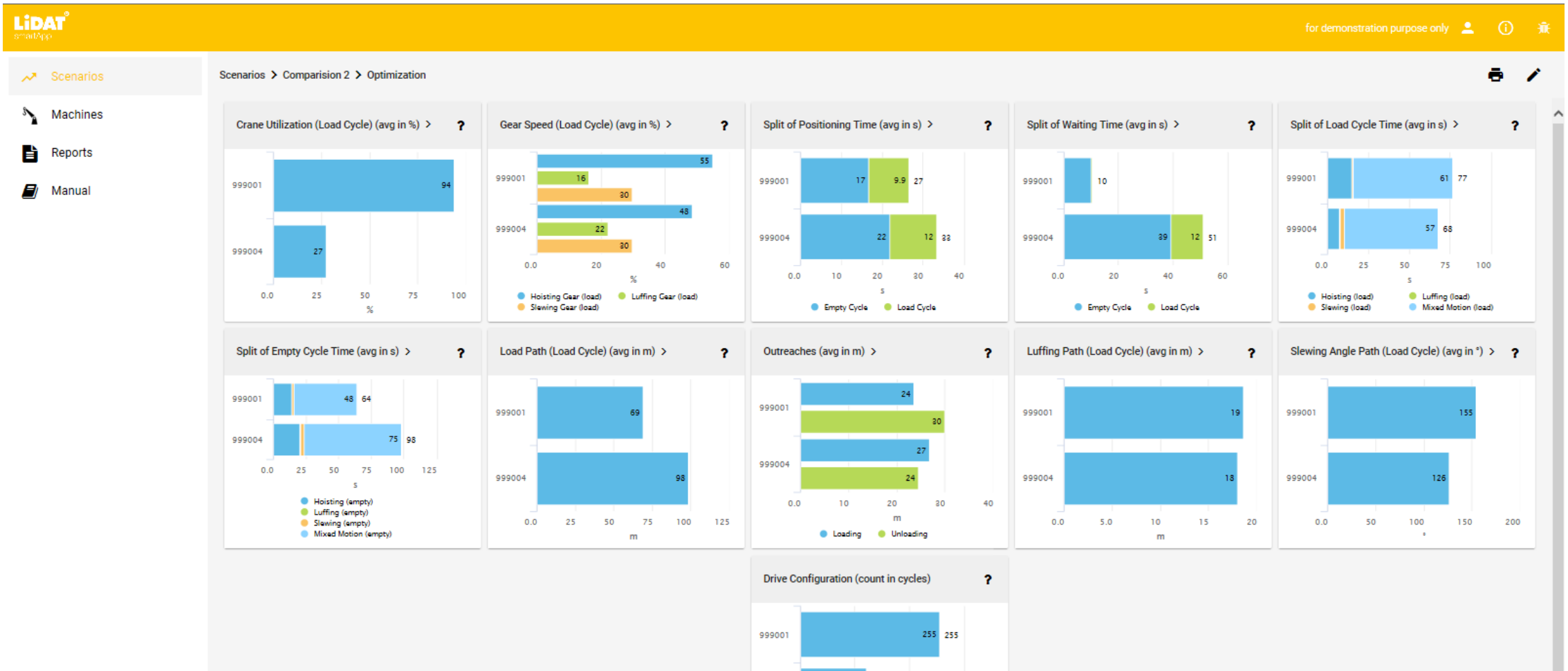
Optimisation : Scenarios – General information



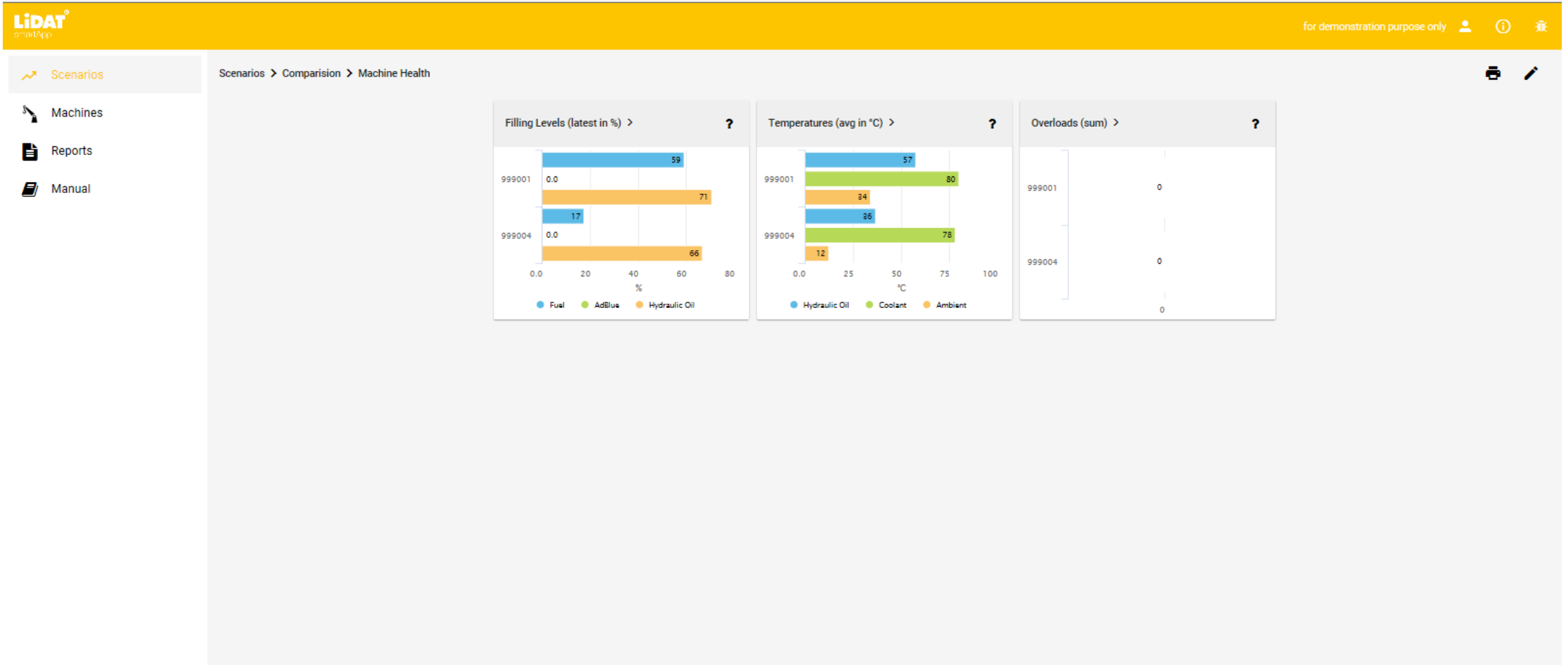
Optimisation : Scenarios - Operations



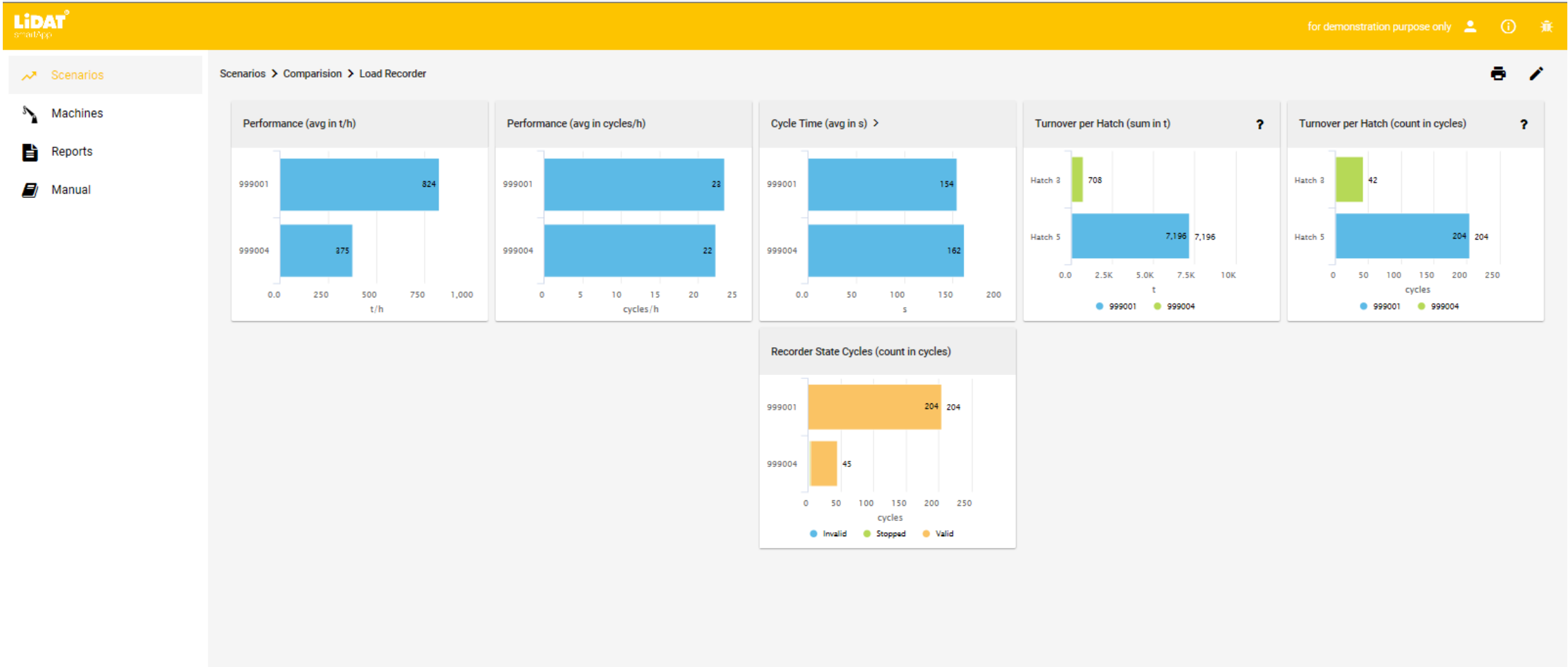
Optimisation : Scenarios - Optimization



Optimisation : Scenarios – Machine Health




Optimisation : Scenarios – Load recorder



Optimisation : Scenarios – PDF reports

- For each Scenario a PDF report can be downloaded
- More PDF reports available such as:
 - Machine use
 - Machine logbook
 - Safety report
 - Customer maintenance planner



Scenario "Comparison"

Scenario Information

LHM 550 999001
2019-03-07 10:00 - 2019-03-07 18:00

LHM 600 999004
2019-03-07 10:00 - 2019-03-07 18:00

General Information		
Machine Type	1*	LHM 550
Machine Type	1*	LHM 600
Time Range	from	2019-03-07 10:00
	until	2019-03-07 18:00
Data Coverage	exact	100 %
Operation Hours	sum	11 h
Handled Cargo	sum	7,918 t
	count	249 cycles

Load Recorder		
Turnover	sum	7,904 t
Turnover	count	246 cycles
Cycle Time	avg	155 s
Performance	avg	744 t/h
Performance	avg	23 cycles/h
Cycles Recorder	count	2 cycles
Invalid Cycles	count	1 cycles

Operation		
Cycle Time	avg	155 s
Waiting Time	avg	14 s
Wind Speed	avg	2.8 m/s
Performance	avg	737 t/h
Performance	avg	23 cycles/h
Fuel Consumption	avg	82 t/h
Operation Mode	main	Four Rope Grab

Optimization		
Waiting Time	avg	8.8 %
Crane Utilization	avg	81 %
Holding Gear Speed	avg	54 %
Load Path	avg	74 m
Slewing Angle Path	avg	149 °
Luffing Path	avg	18 m

Machine Health		
Fuel Level	min of latest	17 %
AdBlue Level	min of latest	-
Hydraulic Oil Level	min of latest	66 %
Overloads	sum	0

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Scenarios - Summary

Scenarios are:

- Easy to create
- Customizable
- Clearly presented

Scenarios allow:

- Increased turnover efficiency
- Cost saving
- Eco-friendliness
- Good process and machine overview

Upgrade and Retrofit

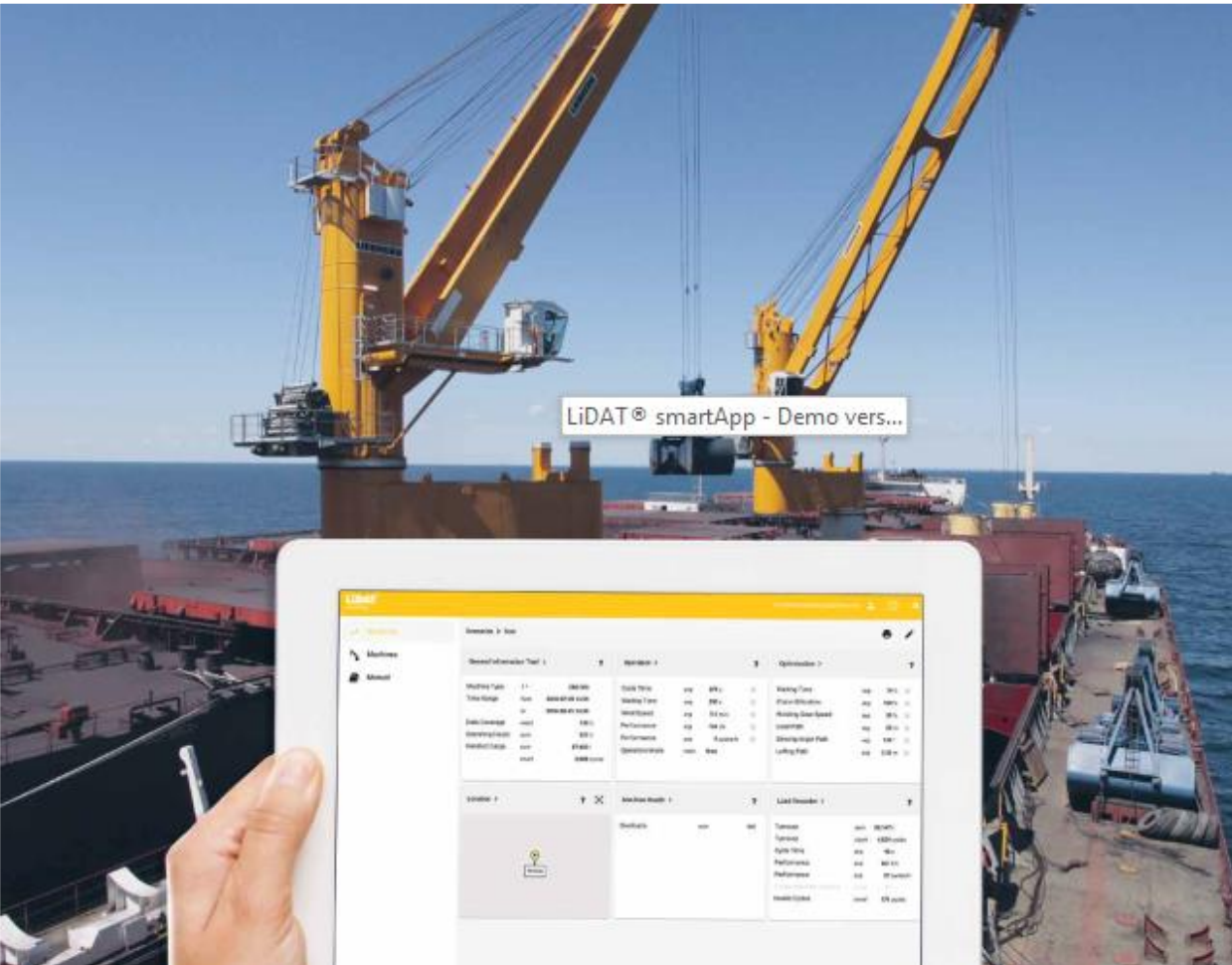


- Upgrades from existing LiDAT® packages available
- Retrofit depending on machine software and crane generation
- For further information please contact your responsible service station or contact:

lwn-ts-itm@liebherr.com

LiDAT® smartApp

LiDAT® smartApp - Demo version



- Get your user account from: lwn-ts-itm@liebherr.com
- Login under: <https://demo01-smartapp.liebherr.com/login>
- Discover the possibilities



Thank you for your kind interest