Webinar: Industry 4.0 – Retrofit

Rene Pfaller
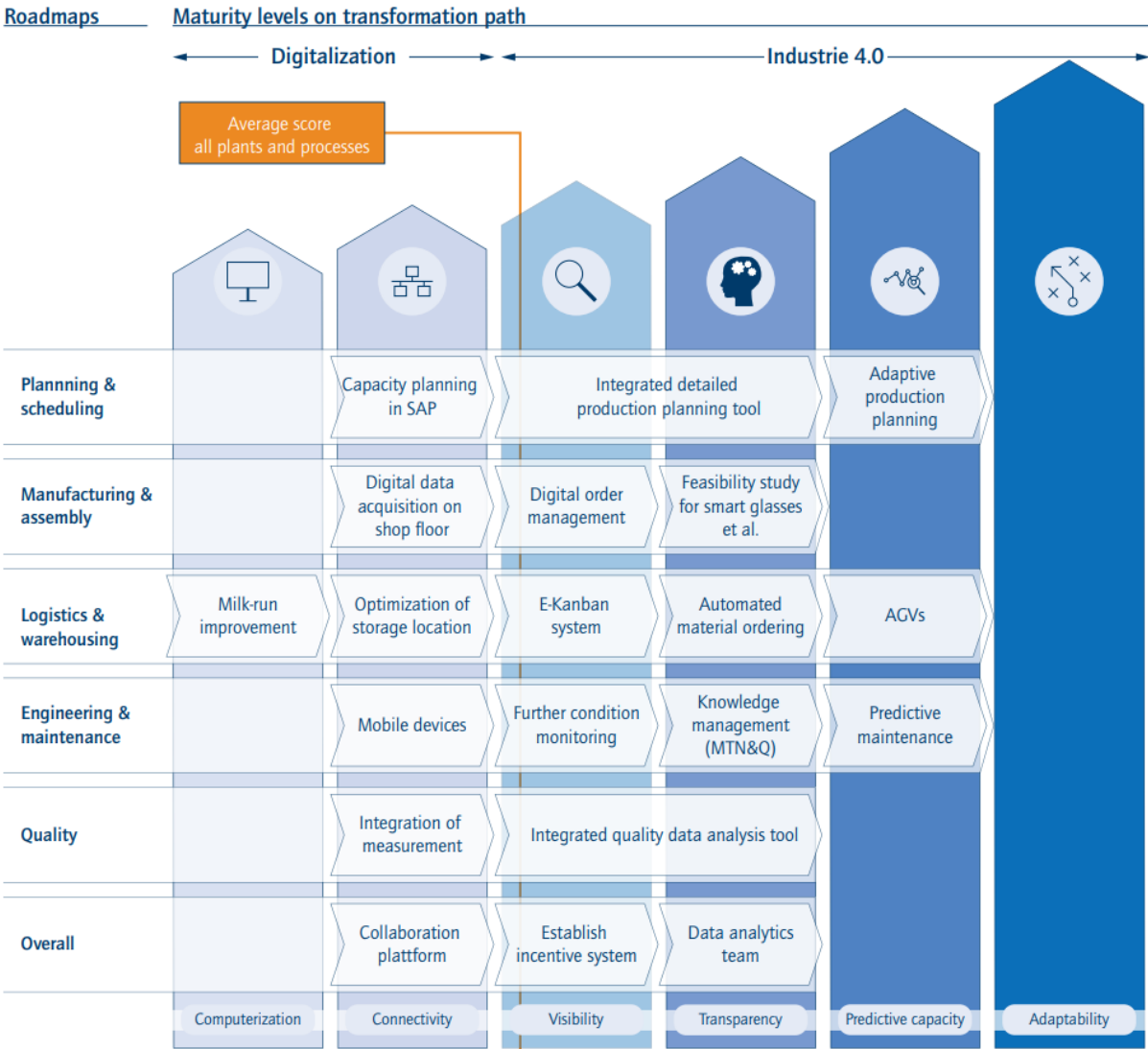**June 2021**

The big 6 losses

PLANNING	Scheduled Production Time		

AVAILABILITY (B / A)

| A | Available time | | |
| B | Production time | | Start up, Changes, Failure, Waiting |

PERFORMANCE (D / C)

| C | Production capacity | | |
| D | Actual Production | | Micro-stops, reduced speed |

QUALITY (F / E)

| E | Actual Production | | |
| F | Good pieces | | Defective pieces Repetitions |

OEE
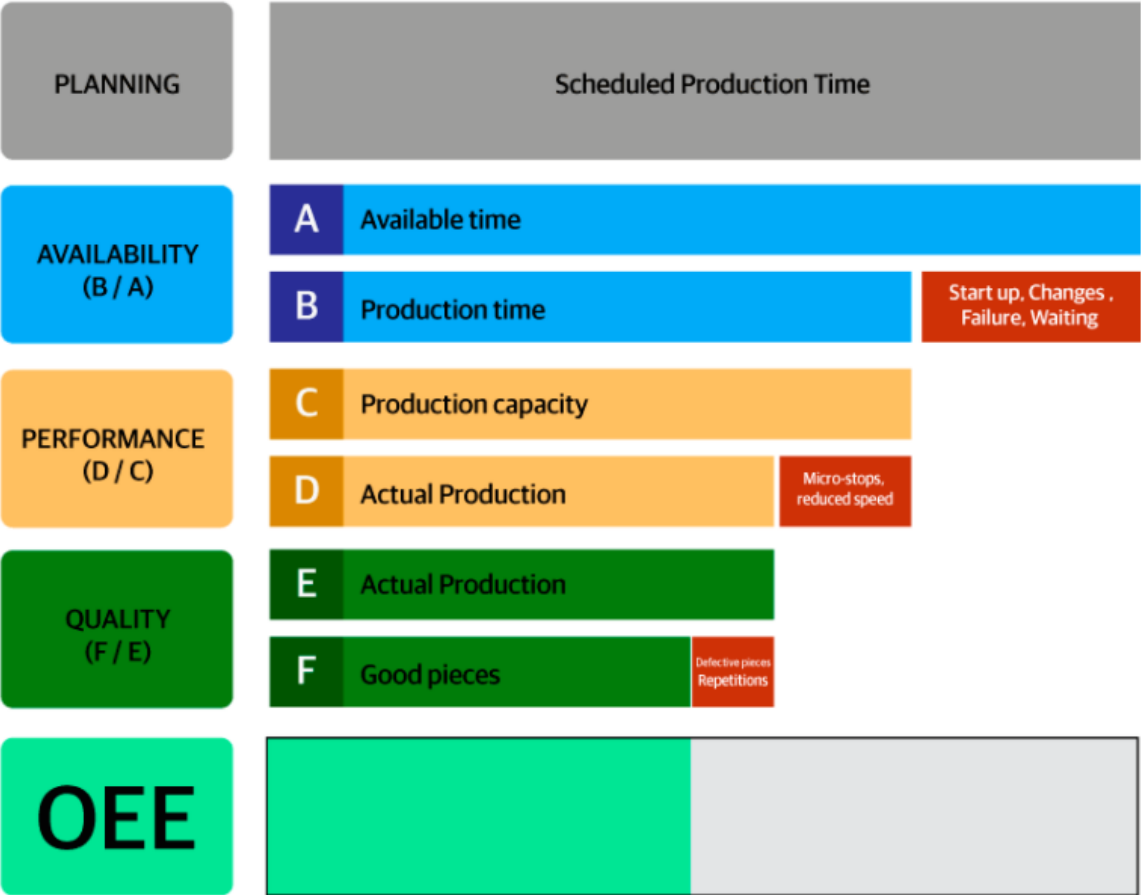
Availability	Performance	Quality
Planned Downtime	Minor Stops	Production Rejects
Breakdowns	Speed Loss	Rejects on Start up

The road to digitalization

PLM Analytics Rapid Deployment Kit
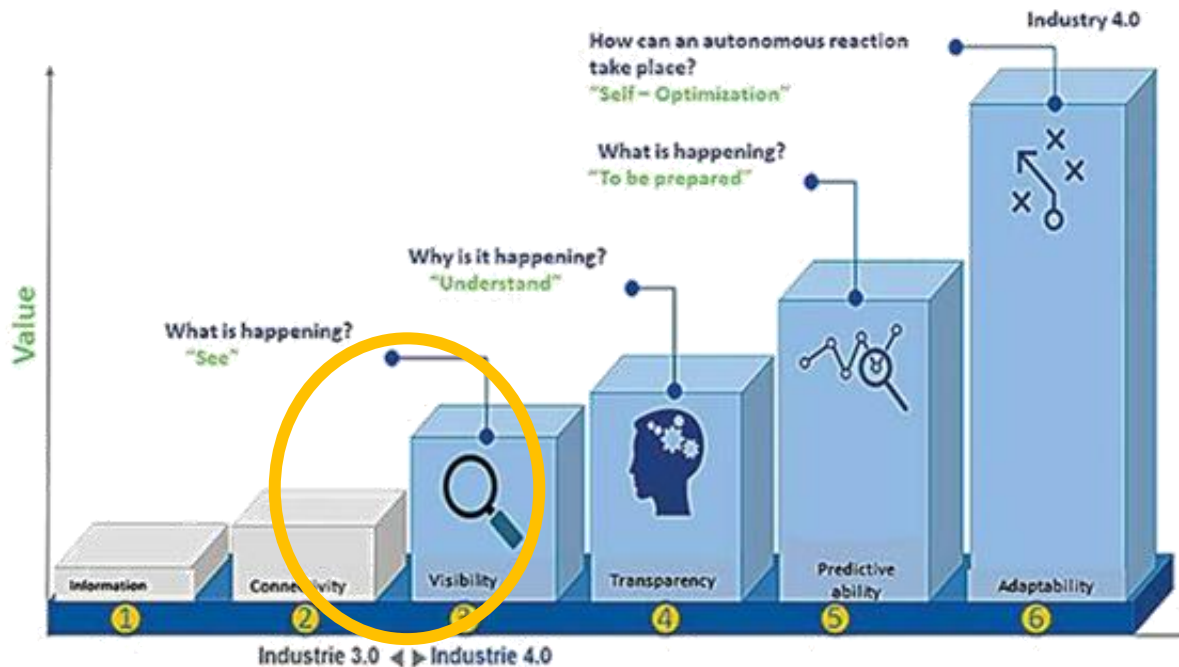
SICK Industry 4.0 Maturity Index

Customer Profile:

Customers in the early stages of Industry 4.0 and "Digital Transformation".

Looking for easy entry solutions to acquire and visualize additional data
1. Reduce manual data input and processes
2. Visualize Real Time and Historical data (KPI's)
3. Lean/optimize production and operations
4. Without impacting existing automation systems
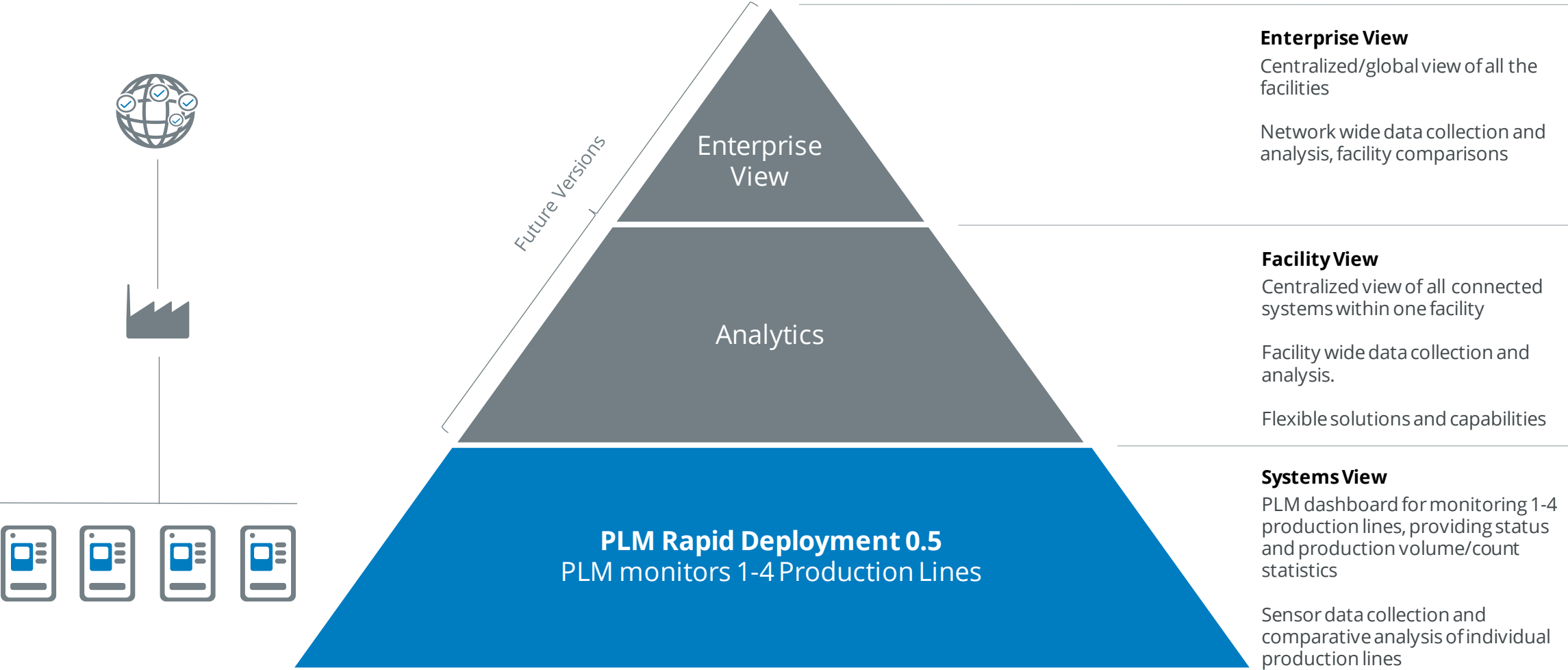
PLM Analytics Rapid Deployment Kit

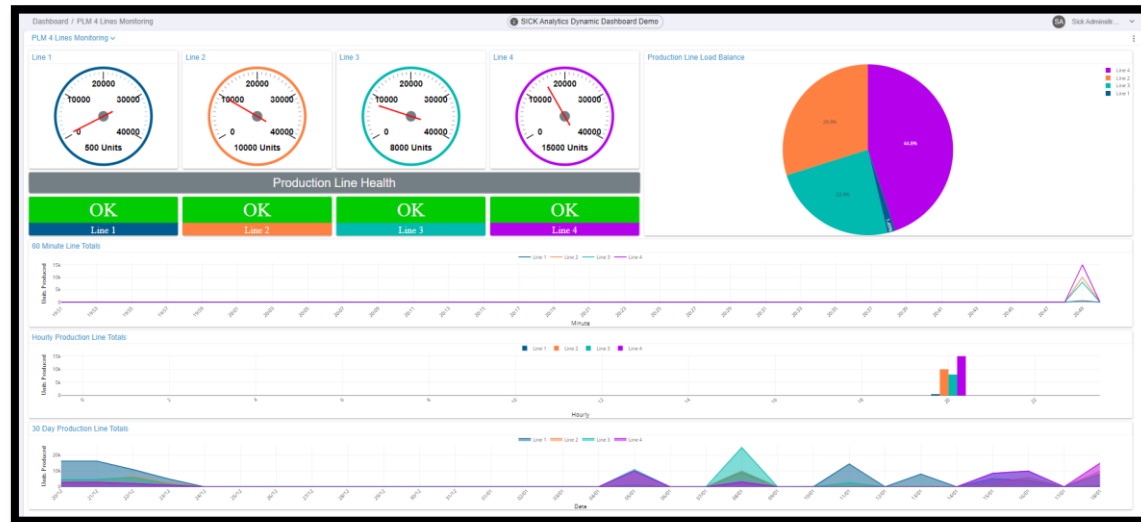
Target Applications:

Factory Automation Customers in:

› Consumer Goods

› Food and Beverage

› Any Factory Vertical concerned with gaining accurate insight into their actual production capabilities

From the field-level to the cloud

SICK
Sensor Intelligence.

Future Versions

Enterprise View

Analytics

PLM Rapid Deployment 0.5
PLM monitors 1-4 Production Lines

Enterprise View

Centralized/global view of all the facilities

Network wide data collection and analysis, facility comparisons

Facility View

Centralized view of all connected systems within one facility

Facility wide data collection and analysis.

Flexible solutions and capabilities

Systems View

PLM dashboard for monitoring 1-4 production lines, providing status and production volume/count statistics

Sensor data collection and comparative analysis of individual production lines

What is Production Line Monitoring (PLM)?

Production Volume /Count

PLM

With:

› Production Volume/Count $= \dfrac{Product\ Count}{Time}$

What is Production Line Monitoring (PLM)?

Software and **Hardware** Industry 4.0 solution to **communicate, visualize and analyze** production floor capabilities.

› Pre-configured to make installation fast and easy

› Automated and accurate data transparency of Real-Time and Historical KPI's

› Gain insights for optimization, productivity and profitability

› Investigate root causes of production deviations
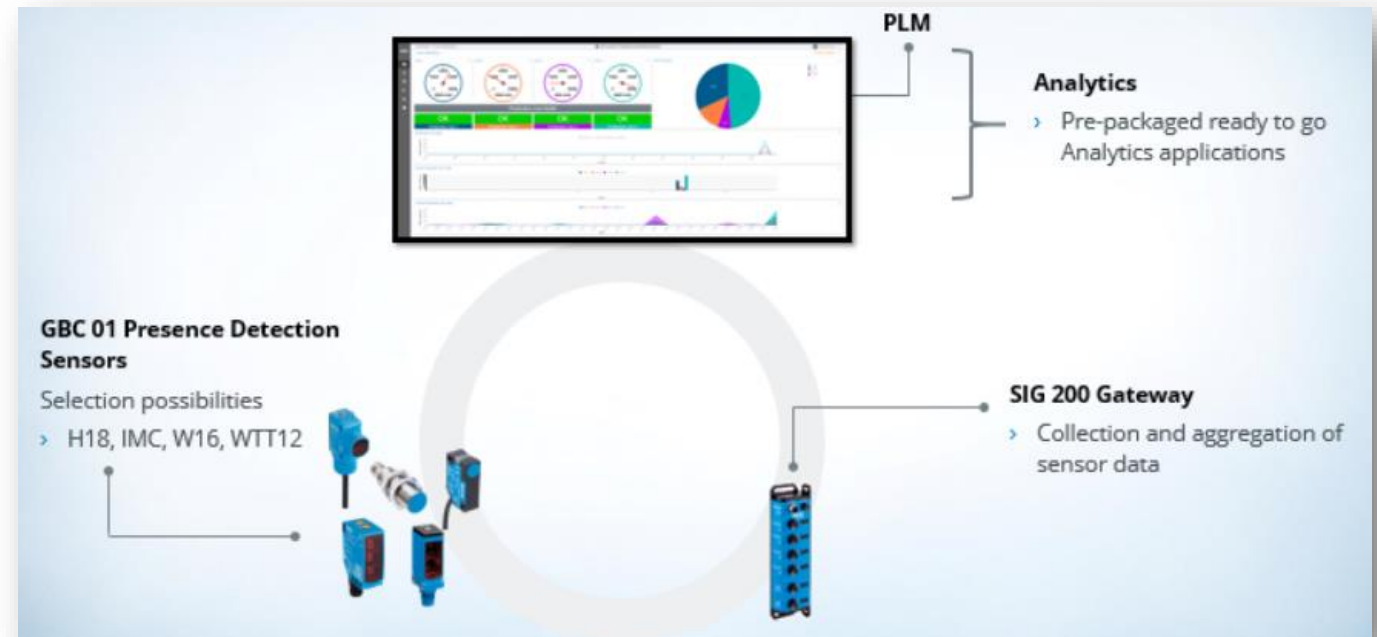
What is Production Line Monitoring (PLM)?

PLM RDK:

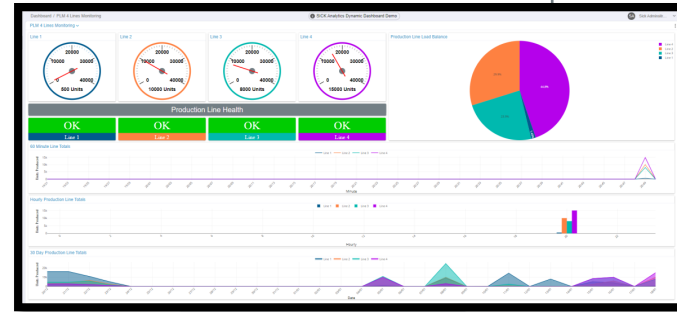PLM Rapid Deployment Kit bundles Software and Hardware for fast data ➜ actionable information.

› PLM Pre-defined Analytics Dashboard
  – Real-Time and Historical insight of **production throughput** of a machine/s or production line/s over time.
  – Licensable for 1 to 4 production lines hosted on customers target PC

› SIG200
  – Collection and aggregation of sensor data

› 1 to 4 digital I/O sensors to measure production throughput
  – Production Line 1
  – Production Line 2
  – Production Line 3
  – Production Line 4

What is Production Line Monitoring (PLM)?

Solution: Powered by SICK Analytics, "Rapid Deployment Kits"

› The Rapid Deployment Kit bundles predefined Hardware and Software for fast data ➔ actionable information.
  - PLM Predefined Analytics Dashboards
    i. Licensable for 1 to 4 production Lines
  - SIG200
  - 1 to 4 Digital I/O Sensors

› Commissioning by SICK

› **Easy Entry Level Solution for customers**

SOFTWARE

HARDWARE

SERVICES

4 INDUSTRY 4.0 READY

System components

PLM Analytics

> Runs on customers IT Environment/PC's and connected to SIG200 gateway to collect data

GBC 01 Presence Detection Sensors

Selection possibilities

> Devices that can be connected to SIG200 via Digital I/O

> PNP or NPN Trigger

SIG 200 Gateway

> Communication REST API via JSON Format to Analytics Dashboard

> Ethernet

System components

SICK
Sensor Intelligence.
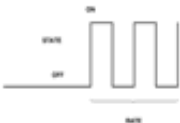
Sensor Level – Digital I/O

Pre-Configured SOPAS File

- No PLC needed
- No need to create logic with pre-configured SOPAS project files

Ethernet

HTTP REST API
JSON-based events

- Data communication

DI
DI
DI
DI

S1 = Line 1

S2 = Line 2
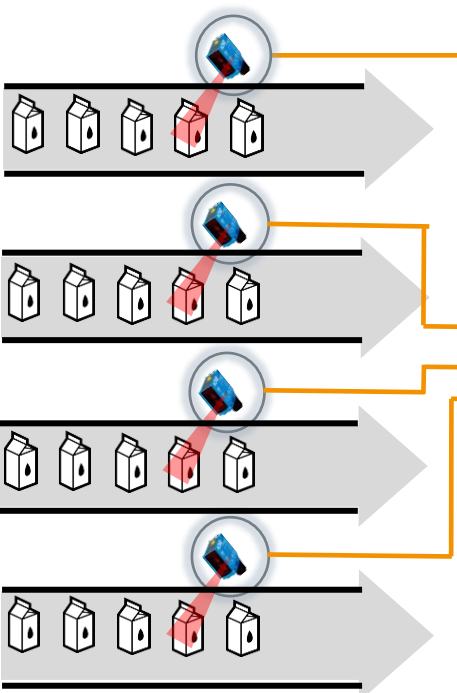
S3 = Line 3

S4 = Line 4

Production Line

Monitored by SICK Sensor Components

Data Source

SIG200 Gateway

PLM Analytics

Installed in customers IT environment or PC's

System dashboard

SICK Sensor Intelligence.

Real-time and Historical production volume (1 to 4 lines)

Multi-User management for access rights

Offline Data Analysis

Production Line Balance

Sensor/HW Health

Min by Min production

Hourly production for 1 day

30 Day Production Overview

System dashboard

Hardware configuration in Analytics

› Configuration of SIG200 and Production Line Sensors

- IP address management of SIG200

- Connection Status (On/Off Line)

- Error Counts

- Error messages for troubleshooting

System log
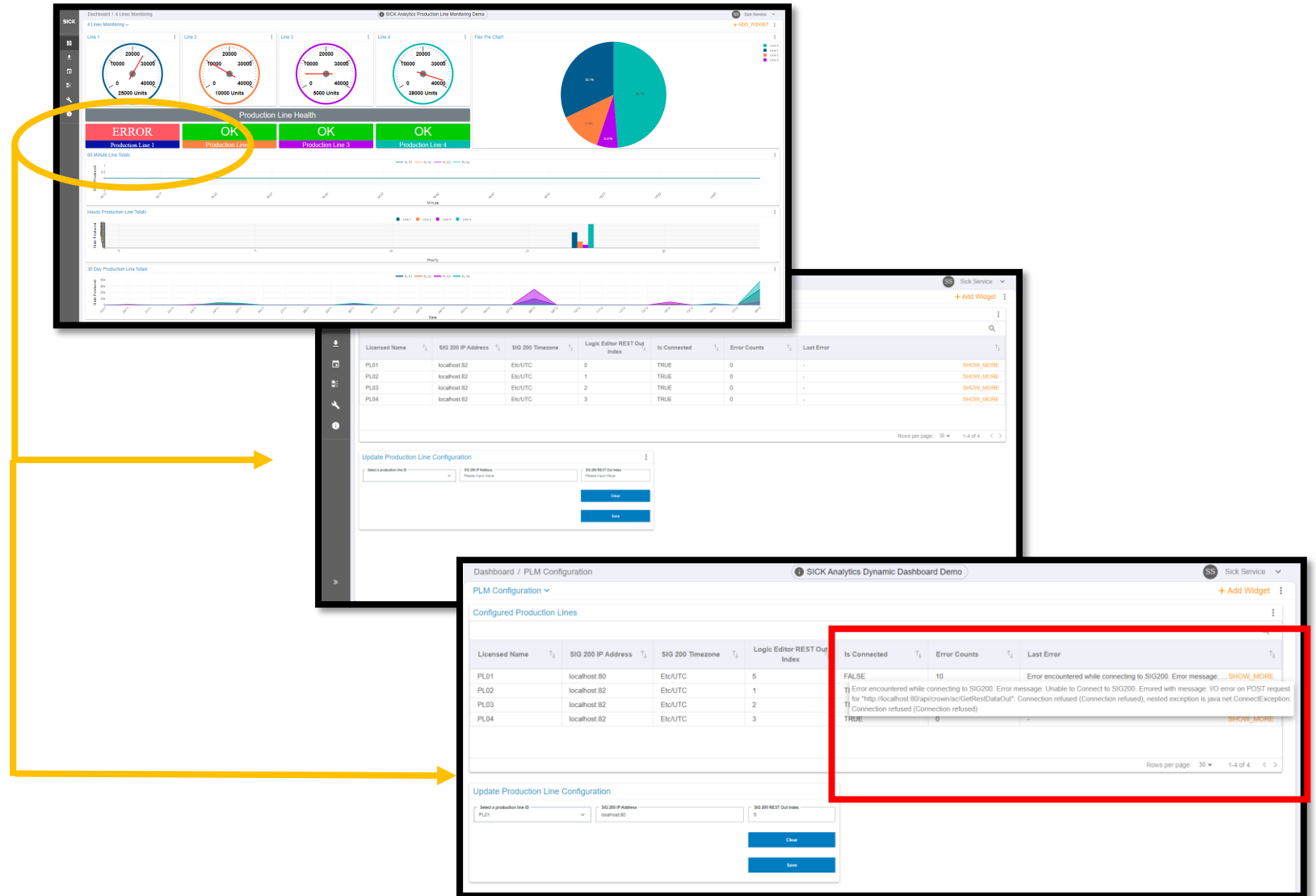
PLM Analytics Data Download and Log Files

› Production Data Download

  – Downloadable production data for **additional** offline analysis

› Log Files

  – Trouble shooting and support with application or services

 – Analytics Team is there to support our customers

User & Role Management

User role management for secure access management

› Different levels of privileges to different users

› Analytics is providing Pre-defined user groups and roles

- – Administrator

- – operator1

› Customer can then define additional users, groups and roles

Languages Supported

› Currently available in EN

WHY?
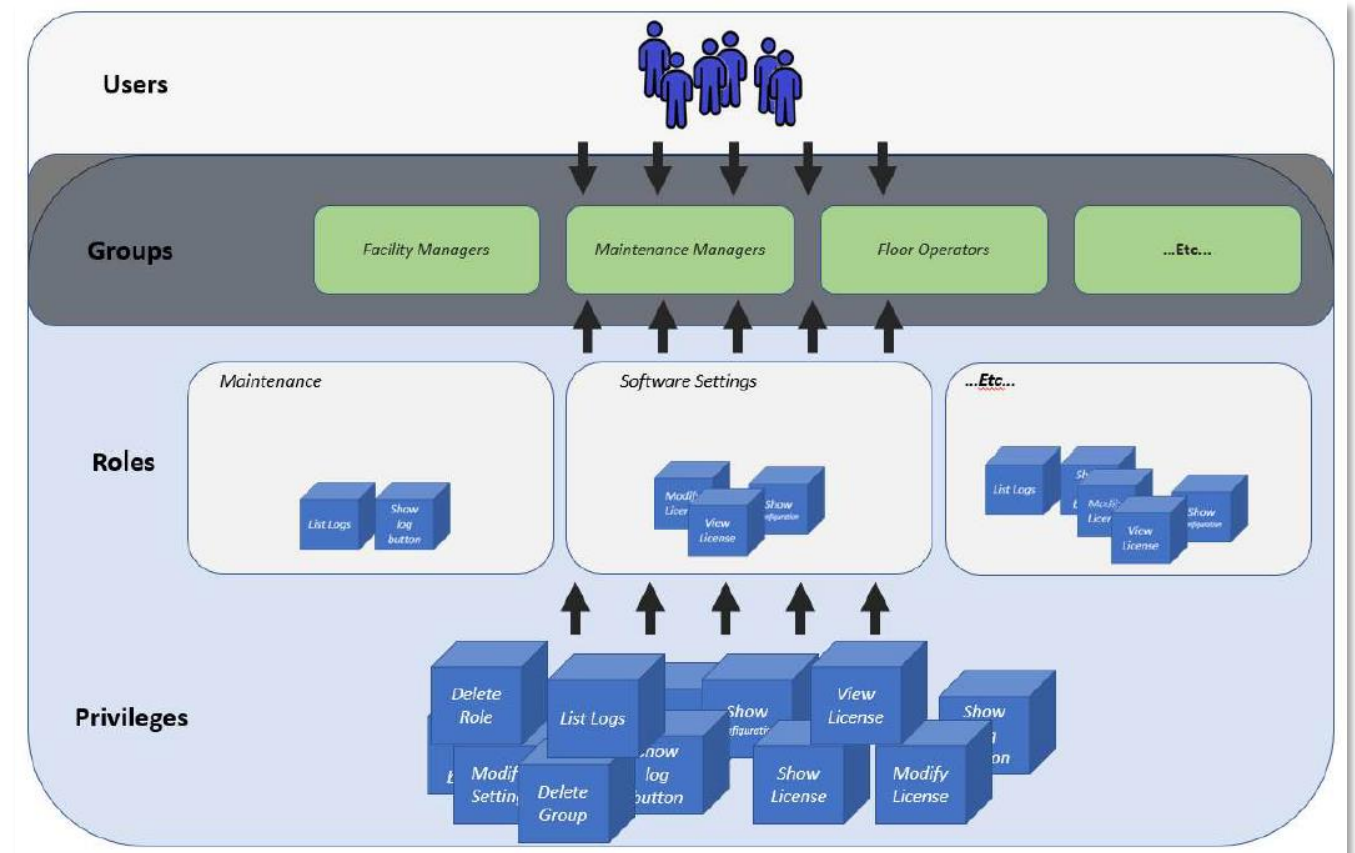
Baselining and Tracking Real-Time and Historical PLM metrics over time

› **Operations/Maintenance:**

› Accurate insight into true production line capabilities to avoid over and under producing with automated data collection and transparency

› Identify and resolve process variances faster to improve efficiencies to keep up with business demand

› Automated data collection:

  − Reduce risk of inaccurate reporting caused by human error, resulting in better data driven business decision

  − Allows operators to perform other value added tasks

› Analyze data to improve production predictability

› **Customer Service/Sales:** Improved predictability equals greater accuracy and on-time delivery of customers orders

› **Finance:** Improving on-time order performance and quality drives more sales, competitive edge and brand awareness.

› User management for privileged access to sensitive data

› Via the SICK Support Portal, you can count on quick and professional support provided by SICK experts

WHY?

› Management Benefits
- Leaner operations
- Improved order ful-fillment

› Operations
- Less Paperwork
- More time to perform other operational value added tasks
- Reduction in production counting errors

› Tracking PLM over time, manufacturers can improve their production environment thereby:

- Decreasing Costs

- Improving productivity

- Increasing production capacity

Key Massages

PLM Analytics RDK: Easy to Integrate I4.0 Solution for quick data to actionable insight

Key Feature	Benefit
Real-time and Historical visualization of critical operational metrics	Complex production metrics into simple accessible information
	Identify Bottlenecks for process improvements

Gain transparency

Stabilize and Optimize using the power of data for better business gains
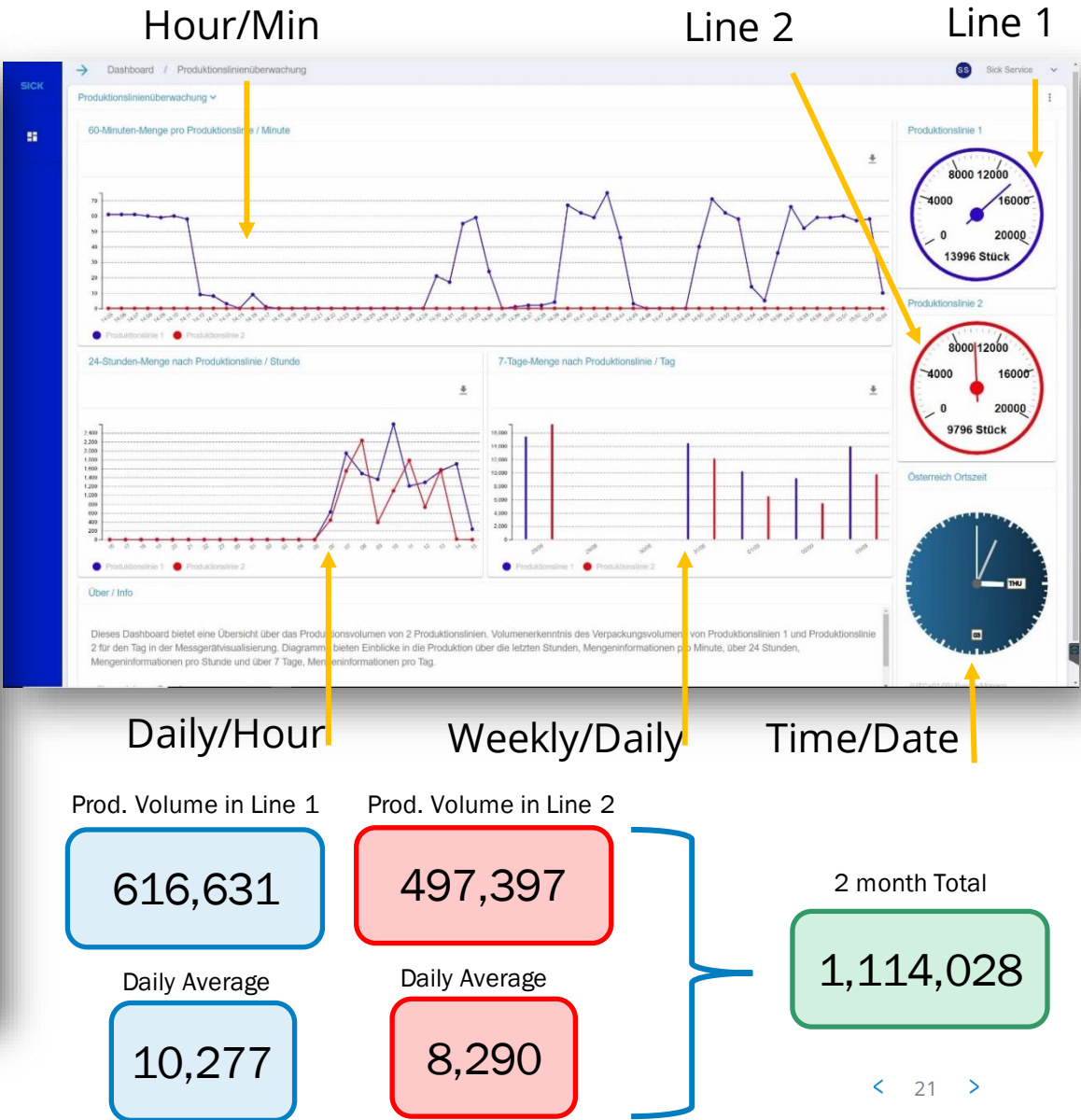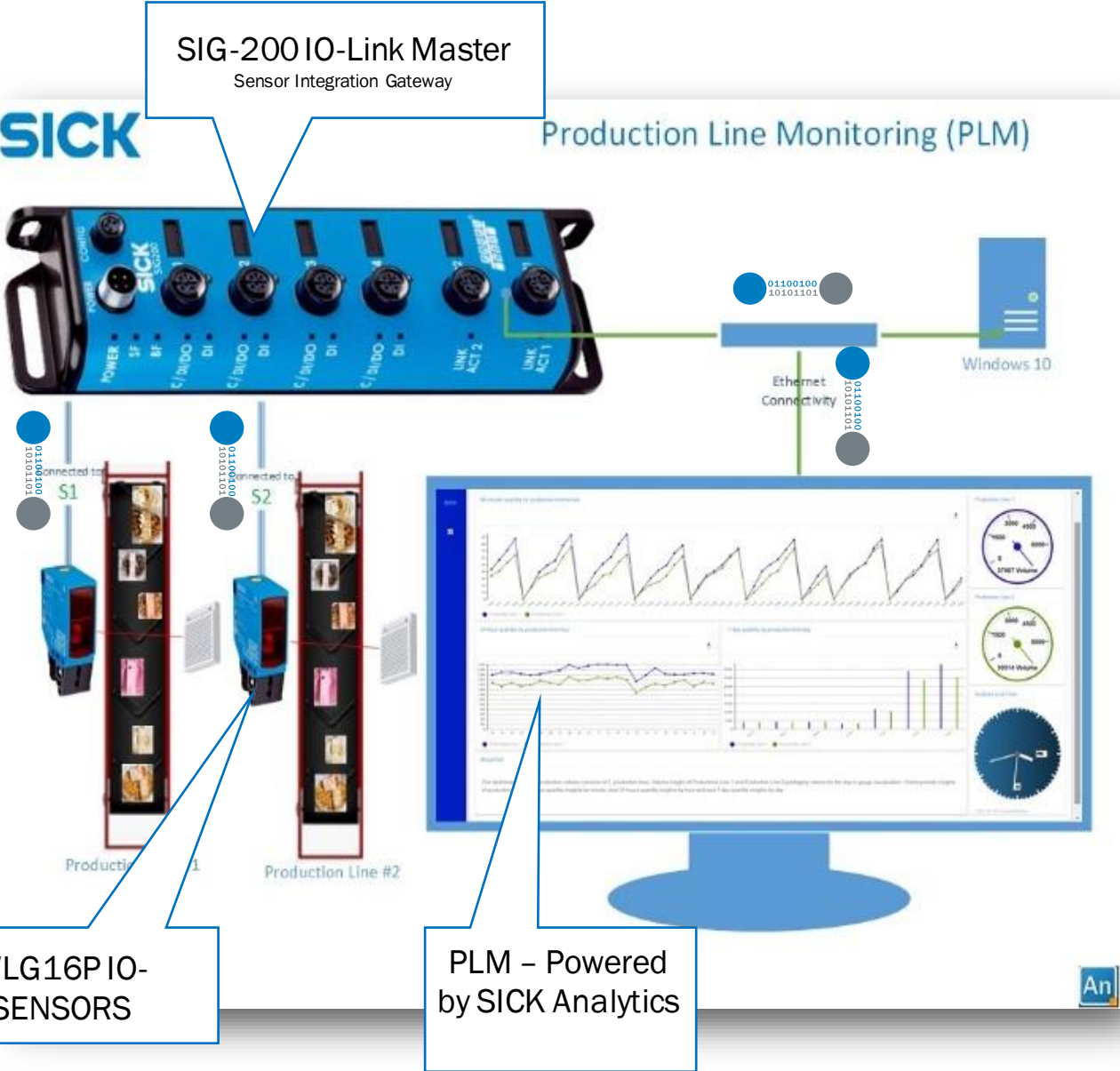
Getting Started

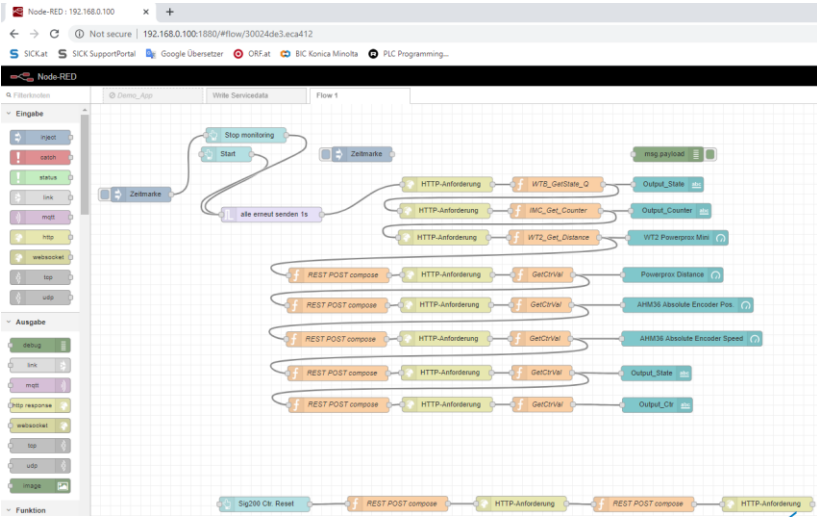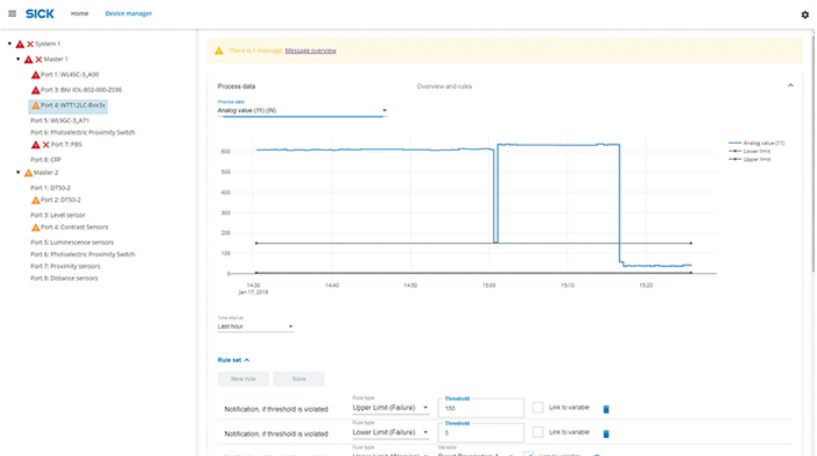**Time limited trial license available**

Internal and external customers can request a trial license for the PLM Analytics software for evaluation with purchased HW (SIG200 and associates sensors) purposes by submitting required information to SICK (contact us!)

› Duration of trial requested will be 90 days

› MAC address(es) of the PC/server/VM that will host the software

› PLM Analytics cannot be used without a license key. A trial version also requires a license key from SICK.

Out of the field a real usecase!

SIG-200 IO-Link Master
Sensor Integration Gateway

WLG 16P IO-SENSORS

PLM – Powered by SICK Analytics

Hour/Min

Line 2

Line 1

Daily/Hour

Weekly/Daily

Time/Date

Prod. Volume in Line 1
616,631

Prod. Volume in Line 2
497,397

2 month Total
1,114,028

Daily Average
10,277

Daily Average
8,290

Want more? Go for our IO-Link Starter Kit!

Thank you!