



## VISIBILITY – TRANSPARENCY – INTELLIGENCE

# PIA INDUSTRIAL APP SUITE

PIA Automation is an international group of companies that develops and manufactures customer-specific assembly, measuring and testing systems for various industries. PIA responds to trends in digitizing and networking the manufacturing process with the PIA Industrial App Suite (piaIAS) – a digital portfolio of products, solutions and services. With PIA Industrial App Suite our aim is to support our customers in achieving their business goals in a sustainable and proactive way. Furthermore, we understand goals as priorities and therefore improvement of OEE, the increase of production quality, along with an even more flexible and transparent production planning are essential.

PIA combines many years of expertise from two worlds: special machine construction and digitization. As a globally established and successful mechanical engineering company, we operate directly from the plant in all of our developments. At PIA we know what data is needed and how we can access it. PIA's software engineers, (representing more than 40% of PIA's entire engineer team,) are engaged in the design, implementation and roll-out of intelligent and custom analysis applications. These smart apps are integrated with PIA's assets, enabling seamless data flow from the Edge, on the fog, to the cloud level.

With the digitization strategy „PIA 4.0“ we want to further expand our position within the global market as well as offer our customers added value. Due to this, we provide a digital solution portfolio using piaIAS. For example, apps are hosted in the cloud on MindSphere, Microsoft Azure, etc. and can also be

on premises or locally at the facility. Depending on the issues, customers can access the apps „on demand“ to solve specific problems. For example, our solutions help reduce production costs (based on continuous OEE optimization) and improve the quality of the product. Our applications are in use by renowned customers worldwide.



PIA Automation is your strong partner for the design and implementation of sophisticated assembly automation systems in the mobility, commercial and consumer goods, medical technology and pharmaceutical sectors.

At its locations in Germany, Austria, Croatia, China, Canada and the US, PIA Automation offers a mature range of products and solutions for assembly and automation systems as well as reliable worldwide service.



[WWW.PIAGROUP.COM](http://WWW.PIAGROUP.COM)

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THE DIGITAL PORTFOLIO OF PIA

# PIA Industrial App Suite

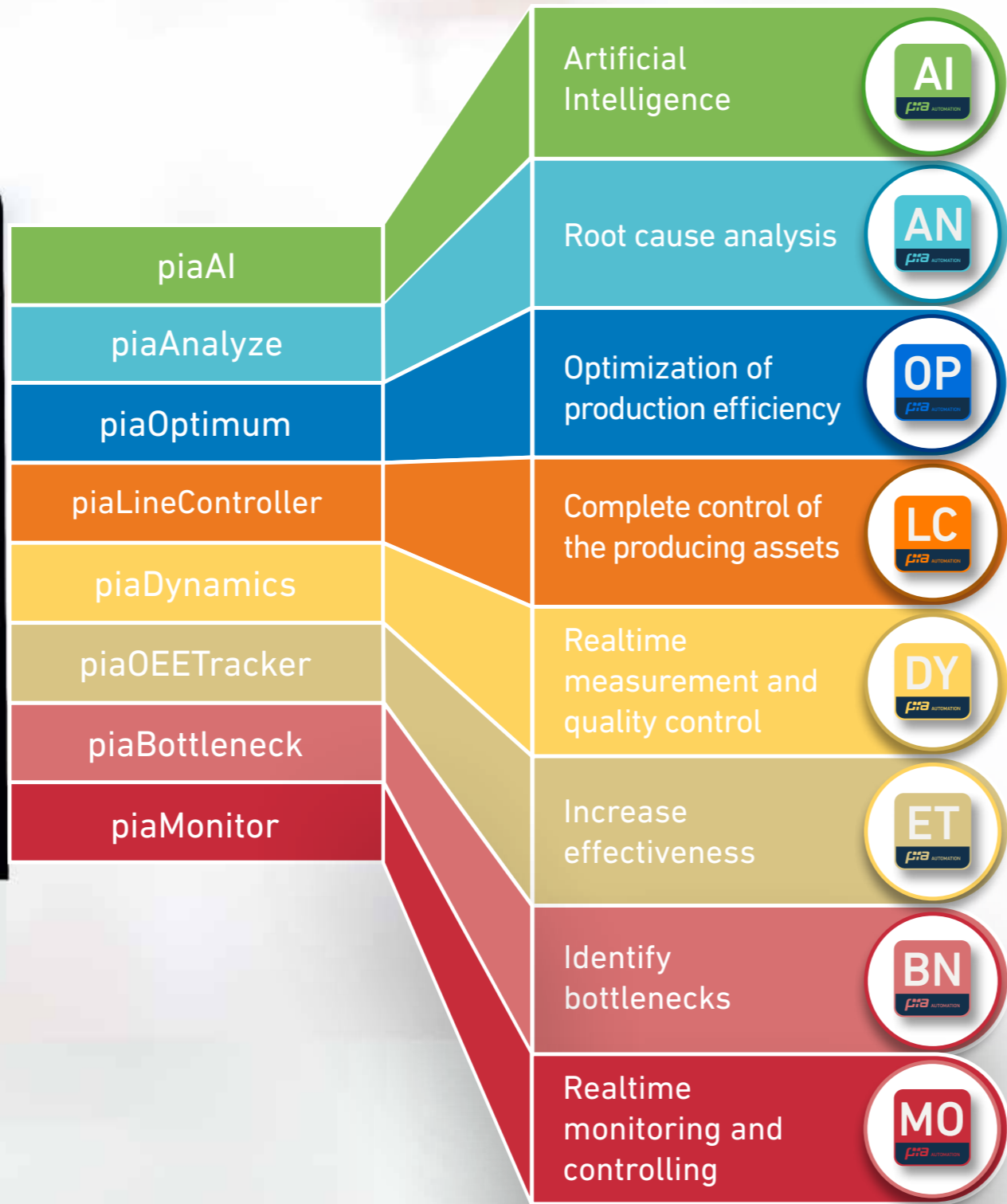
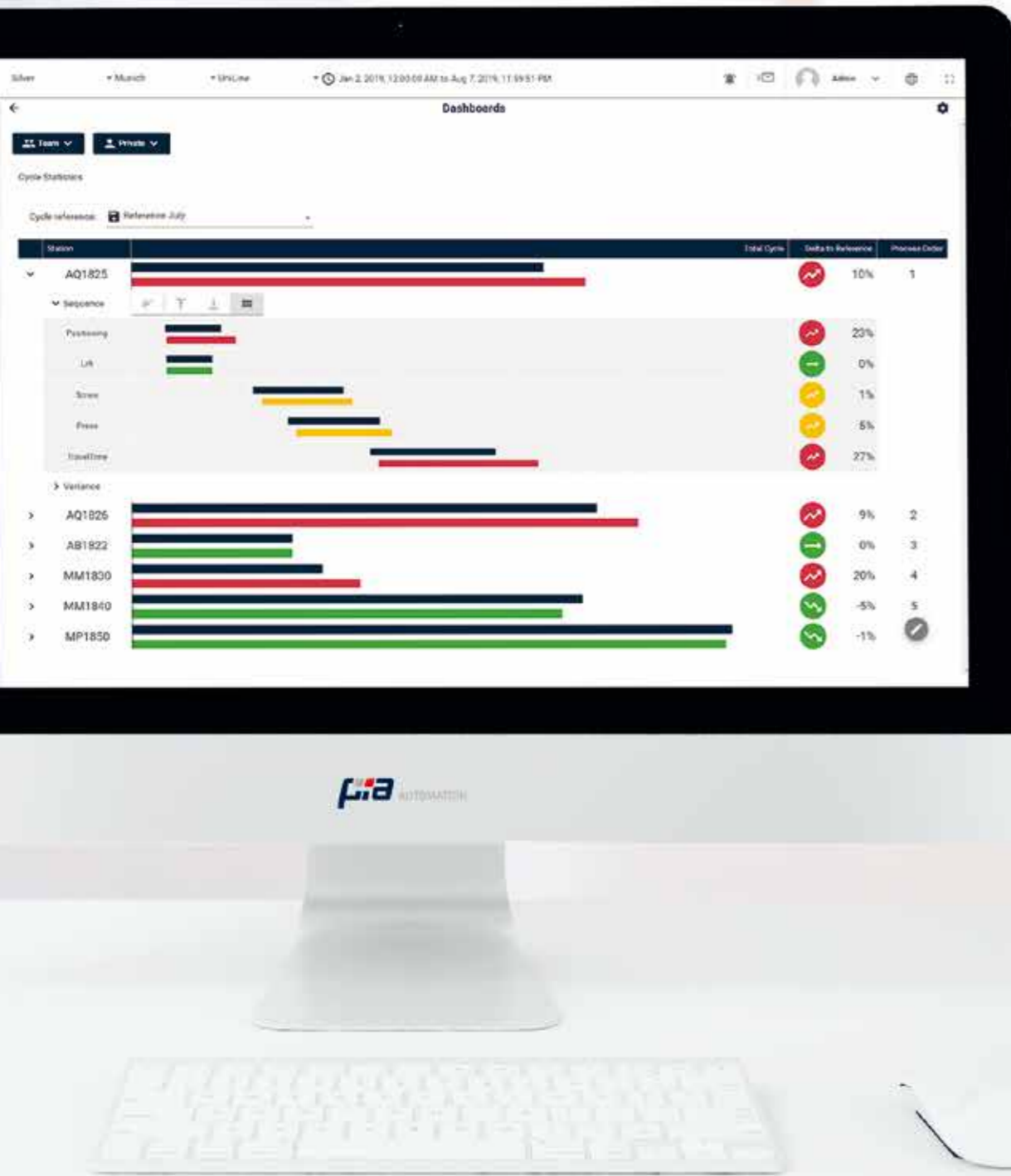
Worldwide monitoring and control of a wide range of areas of production.

PIA 4.0 - MAKING BIG DATA SMART



# PIA INDUSTRIAL APP SUITE

## THE DIGITAL PRODUCT SOLUTION AND SERVICE PORTFOLIO FROM PIA



INTELLIGENCE  
MACHINE LEARNING  
PREDICTIONS

TRANSPARENCY  
ROOT CAUSE ANALYSIS TRACKING  
AND TRACING

VISIBILITY  
CONNECT AND MONITOR

### SMART APPLICATIONS

### BENEFITS

### FEATURES

<p><b>AI</b> piaAI</p> <p>PIA has developed the software tool piaAI (Artificial Intelligence) to establish plant prophylaxis and significantly improve OEE in three steps: visibility, transparency and prediction. piaAI is based on a digital production twin, where all stations and modules become visible.</p>	<ul style="list-style-type: none"> <li>- Prediction of unplanned shutdowns</li> <li>- Reduction of NIO parts</li> <li>- Increased efficiency and productivity</li> </ul>	<ul style="list-style-type: none"> <li>- Detection and analysis of causes of poor production quality</li> <li>- Preventive analysis based on AI algorithms</li> <li>- Easy integration of different data sources and types</li> </ul>
<p><b>AN</b> piaAnalyze</p> <p>piaAnalyze enables the analysis of past host computer information and all relevant production data. This tool can be used to identify the causes of quality losses and correlations between measurement variables. The most common loss-makers are displayed (Quality Losses): what measurements and features were most often out of the norm. Once the most common NIO features have been identified, a dynamic correlation matrix can be used to determine which values correlate to what extent (directly or indirectly). Two values can also be compared directly in a scatter plot. This allows the ability to identify (type-dependent) relationships and trends.</p>	<ul style="list-style-type: none"> <li>- Reduction of the reject rate by means of intelligent parameter analysis</li> <li>- Increase of the production quantity</li> <li>- Increased product quality and first pass yield analysis of past host computer data</li> </ul>	<ul style="list-style-type: none"> <li>- Analysis of past host computer data</li> <li>- Display of the most common loss-makers</li> <li>- Comparison of values in the form of a scatter plot</li> </ul>
<p><b>OP</b> piaOptimum</p> <p>piaOptimum displays performance gaps in assembly lines and enables data efficiency to optimize production efficiency. This is not only for individual stations, but entire line sections can be optimized up to the entire system. The simple data connection of all PLC units enables fast recording of process and machine data as well as user input. Partial cycles are used to identify the most relevant OEE losses. piaOptimum promotes overall equipment effectiveness by presenting and optimizing opportunities for availability, performance and quality losses.</p>	<ul style="list-style-type: none"> <li>- Reduction of downtime</li> <li>- Optimization of the production quantity</li> <li>- Increasing production volume</li> </ul>	<ul style="list-style-type: none"> <li>- Determining performance gaps of complex linked assembly systems</li> <li>- Location-independent evaluations</li> <li>- Data connection via OPC-UA</li> <li>- Monitoring of sub-cycles</li> </ul>
<p><b>LC</b> piaLineController</p> <p>The piaLineController is a powerful, superior system that combines traceability, type management and analysis. This system offers increased production transparency through plant overview and increases quality assurance through traceability.</p>	<ul style="list-style-type: none"> <li>- Increased production transparency through plant overview</li> <li>- Ensuring traceability</li> <li>- Increased productivity through type management</li> </ul>	<p>Different intuitive process evaluations:</p> <ul style="list-style-type: none"> <li>- Pareto evaluations</li> <li>- Number of IO / NIO quota</li> <li>- First Pass Yield</li> <li>- Measurement analysis</li> </ul>
<p><b>DY</b> piaDynamics</p> <p>piaDynamics is a hardware-independent measuring computer system. Tasks are in addition to the visualization of the user interfaces of a measuring machine in the digitization, scaling and calibration of sensor values. The processing of the values takes place according to a configurable algorithm with graphic display options. Both current and past readings can be visualized. This software is based on server-client architecture, which can be individually adjusted. Remote access to measured data is possible from all browser-enabled devices.</p>	<ul style="list-style-type: none"> <li>- Reject rate reduction</li> <li>- Intuitive detection of systematic deviations of measured values</li> <li>- Simple analysis of the measuring process</li> </ul>	<ul style="list-style-type: none"> <li>- Remote access via web browser</li> <li>- Easy creation / modification of measurement tasks</li> <li>- Graphical analysis</li> <li>- Logging changes</li> </ul>
<p><b>ET</b> piaOEETracker</p> <p>The piaOEETracker provides a complete visual representation of plant efficiency with minimal effort. This tool can identify and categorize downtimes, as well as analyze drops in efficiency, and closely monitor quality features. With this information, problem areas can be identified quickly and optimized. The application requires minimal effort for data connection due to a high degree of automation and enables a fast connection to assembly lines of all sizes.</p>	<ul style="list-style-type: none"> <li>- Makes it easier to track, observe, and analyse the OEE-indicator (overall equipment effectiveness)</li> </ul>	<ul style="list-style-type: none"> <li>- Determination of the OEE and its partial factors</li> <li>- Downtime overview and categorial management</li> <li>- OEE comparison between different shifts</li> <li>- Live overview of OEE, availability, performance, quality and downtime</li> <li>- Clear reports for export</li> </ul>
<p><b>BN</b> piaBottleneck</p> <p>piaBottleneck serves to identify bottlenecks in linked installations. An example would be a station that causes congestion on the predecessor stations because they can not extend parts. The operator sees the „primary“ bottleneck from the past as well as all current bottlenecks. In addition, piaBottleneck also displays the current state of the machines (automatic mode, malfunction, maintenance).</p>	<ul style="list-style-type: none"> <li>- Minimizing the cycle time of the entire production line</li> <li>- Identification and elimination of bottlenecks</li> </ul>	<ul style="list-style-type: none"> <li>- Graphical representation of the component flow</li> <li>- Visualization of waiting and work spaces as well as bottlenecks</li> <li>- Positioning the stations directly on the layout</li> </ul>
<p><b>MO</b> piaMonitor</p> <p>With piaMonitor, plant operators have the opportunity to break down production into measurable sizes and targets. This allows worldwide monitoring and control of different areas. The information and KPIs recorded by piaMonitor are based on common factors, are transparent and thus can be compared. With piaMonitor, production managers gain insight into ongoing processes and can make decisions in order to increase performance.</p>	<ul style="list-style-type: none"> <li>- Worldwide production monitoring and comparisons of characteristics</li> <li>- Standardization of quality measurements</li> <li>- Minimize downtime</li> </ul>	<ul style="list-style-type: none"> <li>- Dashboard with global asset status, time-dependent evaluations</li> <li>- Graphical plant overview up to sensor level</li> <li>- Graphical evaluation of historical sensor data</li> </ul>