

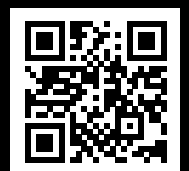


DIGITAL – FLEXIBLE – SMART

TECHNOLOGIES FOR THE PRODUCTION OF THE FUTURE

INNOVATIVE MANUFACTURING AND PROCESS SOLUTIONS FOR THE PRODUCTS OF TOMORROW.

WE AUT  MATE YOUR WORLD



PIA INDUSTRIAL APP SUITE

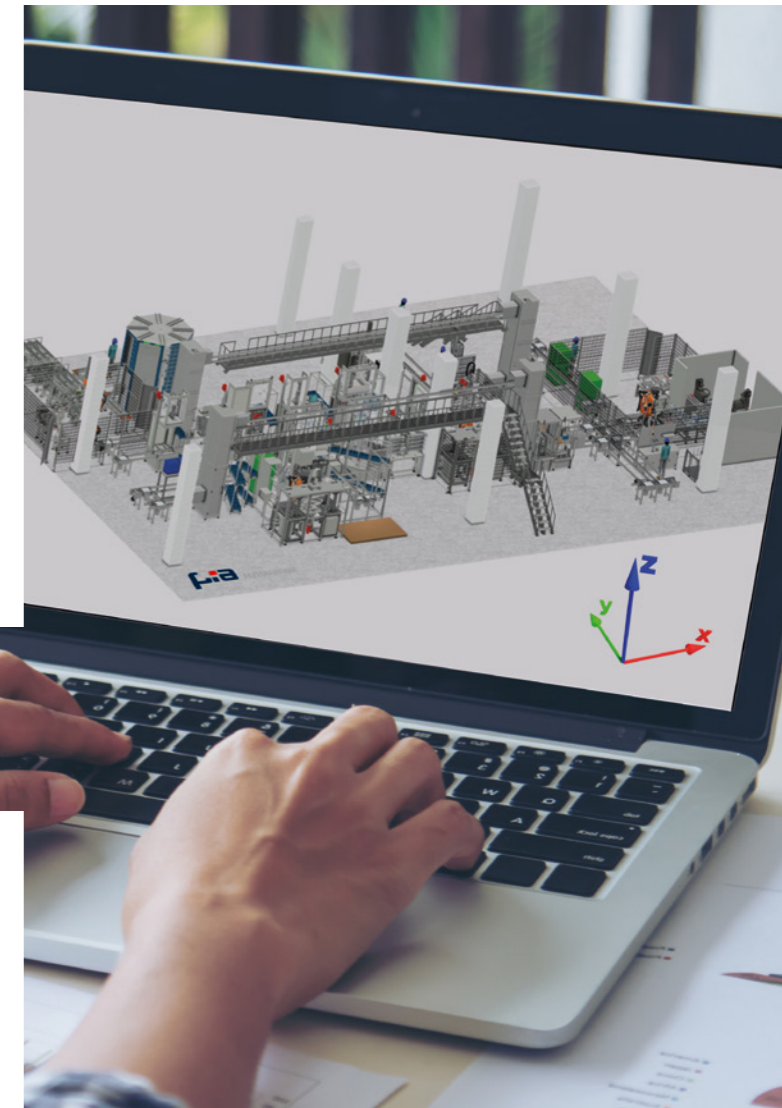
PIA'S
DIGITAL
PRODUCT,
SOLUTION
AND
SERVICE
PORTFOLIO.



PROGRAMMED FOR THE FUTURE

If you want to manufacture the products of tomorrow, you have to use future technologies today. PIA combines the world of mechanical engineering with the world of digitalization unlike any other automation specialist. „Engineering 4.0“ is not a challenge for PIA, but rather, daily business...and we go one step further. Where there are not yet adequate tools, we develop our own solutions. In doing so, PIA utilizes its greatest advantage - the creativity and innovative spirit of its employees.

PIA - We make your visionary ideas come true!



MAKING BIG DATA SMART DIGITAL SOLUTIONS

Automation and digitalization interact to form the future driver for industrial value creation. With the I4.0 solutions of the PIA Industrial App Suite, PIA can provide its customers with the technology for significant productivity increases and enhance their competitiveness in the dynamically networked markets of the future. On the other hand, PIA also uses this evolution internally to drive better engineering based on real-time data.

PIA's App Suite provides comprehensive functionalities for production, maintenance and quality managers as well as professionals to meet the challenges of plant operation and optimization.



THE 3RD DIMENSION OF PLANNING 3D-LAYOUT & -SIMULATION

PIA has been working for many years on the 3D layout of both line parts and entire plants. The advantages over 2D models are obvious. With the availability of the third dimension and the possibility to check robot accessibilities, concept discussions with the customer become less abstract. An additional factor is becoming increasingly relevant: The creation of simulations and the resulting option of virtual reality (VR) applications.

3D simulation is a process of creating a fully functioning digital model of a real system. Benefits include the ability to make interactive adjustments, instant visualization of processes, clear presentation of results, and support for decision-making through demonstrable simulations. In the case of robot simulation, there is an additional advantage: the simulation is the basis of the basic program, i.e., the positions of the simulation can be reused within the real system.

The 3D model can reproduce, in detail, a specific area or even the complete production system on the computer. Alternatives in design and planning can be compared as well as the risk-free investigation of different process scenarios. This allows processes to be optimized and costs to be reduced.

From the quotation phase, through the engineering process, to final acceptance and maintenance - the use of 3D simulation and virtual reality runs through the entire product development cycle at PIA. This cycle, which also includes development work to enable workflow across all project phases, makes PIA unique. In addition, a proprietary layout library guarantees fast and efficient implementation of the 3D model.

PLANT SIMULATION

ROBOT SIMULATION

PRESENTATION OPTIONS

- Material flow
- Cycle time
- Workpiece carrier utilization
- Walking distances (workers)
- Idle/Busy states (workers)

- Cycle time
- Accessibility
- Workload
- Safety configuration

DIGITAL TWIN VIRTUAL COMMISSIONING

Based on 3D data, a mechatronic model is created that represents kinematic properties of the plant. This virtual model is linked to the PLC program of the real plant, thus validating the entire automation. The combination of these simulation models creates a digital twin of the real application, which is used to simulate, check, and optimize the machine until the desired performance is achieved.

PIA is already working intensively on virtual commissioning to reduce the time, cost and risk of real commissioning of production, test, and measurement equipment in the future.





TECHNOLOGIES FOR THE PRODUCTION OF THE FUTURE



MAN & TECHNOLOGY HAND IN HAND ROBOTICS & COBOTICS

Today, modern factory planning is hardly conceivable without robots. They optimize production for even the most highly complex tasks by increasing output and reducing operating and personnel costs.

Whether cycle times are less than 10 seconds, payloads of up to 400 kg, use in clean rooms or collaborative robots - PIA has the know-how of a wide range of robot systems and all current manufacturers. We develop our own programming standards and respond to our customers' requirements. PIA's flexible robot cells are not only applicable in mass production, but allow for increased profitability in small series as well.



FLEXIBLE TRANSFER SYSTEMS AUTONOMOUS MOBILE ROBOTS

For tomorrow's products, transfer systems must be flexible. Depending on customer requirements, PIA's portfolio ranges from rigidly interlinked systems to manual assembly carts and in-house development of autonomous moving transport systems. Particularly for the production of e-mobility components, PIA has developed the concept of partially automated and flexibly interlinked assembly cells. These result in an agile and future-proof system, which prepares the integration of further units and enables variable employee utilization.

The use of autonomous mobile robots (AMR) can be optimally adapted to the plant environment. Further advantages: AMR as a mobile workpiece carrier or workstation; flexibility in layout design, size, payload (up to 1000 kg) and workpiece-specific load handling device; free laser navigation as a standard; inductive fast loading.



Strategic partnerships enable us to offer our customers high-tech solutions:



AUGMENTED VISION AUGMENTED REALITY

Augmented (AR) and virtual (VR) reality is finding its way more and more into mechanical and plant engineering. Augmented Reality becomes exciting when a plant is under construction or is already in operation. Fitters, programmers and maintenance staff can, for example, use smartphones or head-mounted displays (HMD) to „look through“ a specific part of the plant, call up information or contact a service technician (remote assistance). It is the use of mobile devices in combination with PIA's innovative Industry 4.0 tools - e.g. for optimizing overall equipment effectiveness (OEE) - and future AR applications that makes our Customer Service unique.



DIGITAL PLANT EXPERIENCE VIRTUAL REALITY

The potential of virtual reality (VR) lies primarily in the fact that complex automation contexts can be mastered more easily because machines and plants can be experienced live thanks to a digital image. PIA has been using VR as an effective tool in engineering for a number of years. One example is ergonomics testing: if the acceptance test is carried out directly on the 3D model using VR goggles, the time required is drastically reduced due to the very high level of detail that can be achieved with the model. The entire plant is displayed in a concentrated manner within a few m² and any changes can be implemented quickly and easily. With the help of VR, the customer sees and experiences exactly what he ultimately receives from PIA.

BENEFITS OF VR APPLICATIONS

- Machines, stations and complete plants become „tangible.“
- Sequences of steps can be learned.
- „Human cycle times“ can be checked during the planning phase.
- Ergonomics can be checked as early as the planning phase (human engineering); this saves up to 3 weeks of time.
- Process verification via „interact.“
- Offline training for employees and operators (before/during operation of a real plant)

PIA BRANCHES

PRODUCTION, MEASUREMENT AND TESTING SYSTEMS FROM A GLOBAL AUTOMATION SPECIALIST

Evansville
USA

Toronto
CANADA

Bad Neustadt a.d. Saale/Amberg/Esslingen/Erfurt
GERMANY

Grambach-Graz
AUSTRIA

Ningbo/Suzhou
CHINA

Novaki-Zagreb
CROATIA

León
MEXICO

EUROPE

PIA Automation Holding GmbH
Theodor-Jopp-Straße 6
97616 Bad Neustadt a.d. Saale
Germany
T +49 (0) 9771 6352 - 1000
info@piagroup.com

PIA Automation Amberg GmbH
Wernher-von-Braun-Straße 5
92224 Amberg
Germany
T +49 (0) 9621 608 - 0
info@piagroup.com

PIA Automation Austria GmbH
Teslastraße 8
8074 Grambach/Graz
Austria
T +43 (0) 316 4000 - 0
info@piagroup.at

PIA Automation Bad Neustadt GmbH
Theodor-Jopp-Straße 6
97616 Bad Neustadt a.d. Saale
Germany
T +49 (0) 9771 6352 - 1000
info@piagroup.com

PIA Automation Croatia D.O.O.
Ulica Dr. Franje Tudjmana 26
10431, Novaki (Sveta Nedelja)
Croatia
T +385 (1) 264 - 1771
info@piagroup.at

PIA Automation Service DE GmbH
Branch Erfurt
Stotternheimer Straße 37b
99087 Erfurt
Germany
T +49 (0) 361 26279 - 610
sales@piagroup.de

PIA Automation Service DE GmbH
Branch Stuttgart
Roentgenstraße 12/2
73730 Esslingen am Neckar
Germany
T +49 (0) 711 50482 - 841
sales@piagroup.de

NORTH AMERICA

PIA Automation Canada Inc.
355 Norfinch Drive
Toronto, North York, Ontario
M3N 1Y7
Canada
T +1 416 665 - 9797
sales@piagroup.ca

Office in Catalyst Commons
137 Glasgow St Unit 210
Kitchener, Ontario
N2G 4X8
Canada
T +1 519 497 6853
sales@piagroup.ca

PIA Automation US Inc.
5825 Old Boonville Highway
Evansville, IN 47715
USA
T +1 812 485 5500
info-us@piagroup.com

PIAMEX Automation
La Vid 107, Tablas de la Virgen
León, Guanajuato, C.P. 37140
Mexico
T +52 477 167 5042
piamex@piagroup.com

ASIA

Ningbo PIA Automation Holding Corp.
Building 4#
No. 99, Qingyi Road
Hi-Tech Park I Ningbo
Zhejiang Province
Post code: 315040
PRC
T +86 (574) 8749 - 7888
info-nin@piagroup.com

PIA Automation (Suzhou) Co., Ltd.
No. 12, Baiyu Road
Suzhou Industrial Park I Suzhou
Jiangsu Province
Post code: 215028
PRC
T +86 (512) 6818 - 9566
info-suz@piagroup.com

