pronto

THE DIGITAL FACTORY

Digital production

Solution for the production management

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oas

AKTIENGESELLSCHAFT

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Optimising performance, increasing quality, reducing costs. Transparency and process reliability – these are the major objectives in digital production.

‘Industry 4.0’ is the keyword here: On the way to becoming a Smart Factory, our production control system **pronto** is the perfect tool. OAS offers the capacity of a software company and many years of experience in material logistics and process engineering. With our practical experience, we are able to understand your processes and will be of assistance to you already when it is about defining your process sequences.

”

Karl Krone
Head of software development
OAS AG

The challenge as a process

In the production industry, the head of production, the operators, and the maintenance fitters have to rise to a multitude of challenges: smooth operation of the production line without interruptions, consistent quality of products, and reduction of plant-related costs are part of the daily business. A flexible process control system is decisive to meet these requirements: This has to be powerful, while being at the same time user-friendly, and allow early detection of potential business risks.

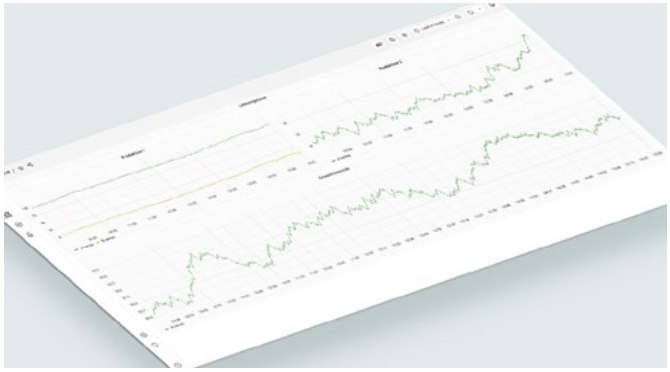
pronto is our answer to the transformation of analogue processes into the digital production — with **pronto** you get state-of-the-art technology to do so. Our Manufacturing Execution System (MES) is an extension to the enterprise resource planning system and can also serve as an independent system. Our software connects the higher-level production planning system directly to the machines and process flows in production in an integrated manner and in real time.

Today the future – jointly towards a Smart Factory

Taking on data sovereignty

Production or manufacturing control systems are required to collect mounds of data at many points in the plant. Materials management data, production parameters, lab data, energy consumption data, or data required for maintenance: the authorised operators need access to information at the points where the data are actually required. At the same time, the system prevents the operator from a confusing information overload. Only relevant data are filtered, summarised, and displayed.

pronto is ready to process “Big Data”. Based on a time series database **pronto** enables to collect a large amount of data in high frequency. Graphical user interfaces allow convenient data analysis and representation.



The interface expert

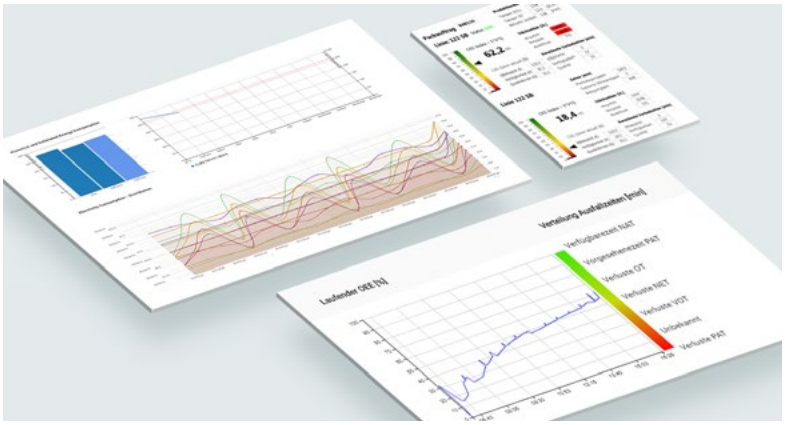
OAS is the interface expert. From the serial interface up to OPC, there is a multitude of interfaces and data logs available to **pronto**. In the food processing industry we observe interface specifications such as the Weihenstephan Standards or PackML. Naturally we also support OPC-UA. For machines with exceptional or “exotic” interfaces, we develop customised software. You may also trust in OAS when it is about discussing about the interfaces to be used with machine and system suppliers. Simple nonautomated devices and machines can be directly connected with **pronto**. Our “intelligent terminal” processes digital and analogue process signals. This way it is possible to record, e.g. machine operating times or temperature profiles.

We have realised interfaces to many ERP systems, e.g. SAP®, JD Edwards®, Microsoft Dynamics®, and other individual customer systems. **pronto** offers a standardized interface to ERP systems as well. This ensures perfect continuation of materials management in production. On the other side **pronto** can also serve as an independent system to support the materials management in the warehouse and on the shopfloor level without interfacing an ERP system. **pronto** comes with functions for goods receipt and issue, materials demand preview and work orders. It provides transparency and allows to control the materials management even without using an ERP system. As an alternative to its own warehouse management system **pronto** offers interfaces to dedicated warehouse systems and automated guided vehicle systems (AGV).

Investment security – **pronto** grows with your company

All around your process: extensions reaching deep into automation, the integration of an ERP system, additional reporting requirements, new operating systems – no issues, the OAS software cannot handle. In cooperation with our European partner institutes and universities, we develop future technology for the Smart Factory. Scalable for every requirement, **pronto** provides high system availability and future-proof technology. **pronto** is in use all over the world – from a single-user PC up to highly available server applications with well over 100 workstations.

Optimised performance & increased quality



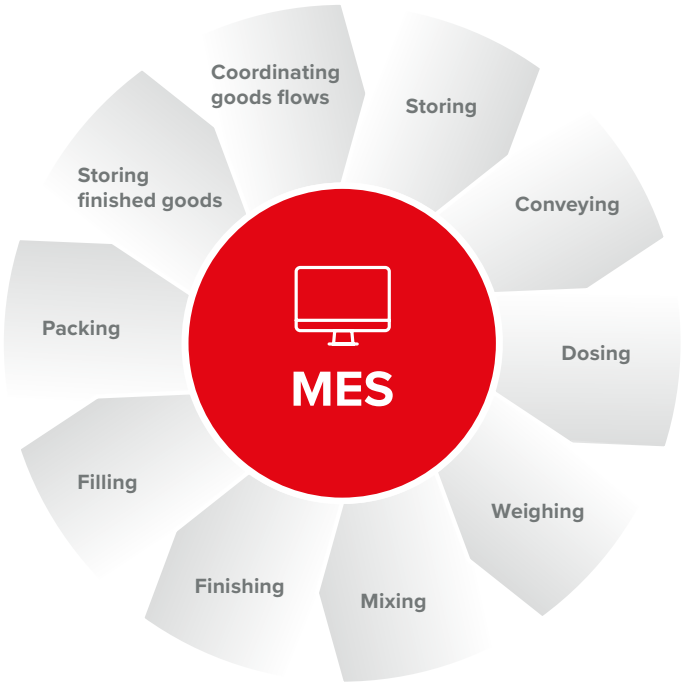
Changing the perspective – at any time. pronto reproduces two performance models in a web-based portal:

- Production output and quality with OEE key performance indicators (Overall Equipment Effectiveness)
- Energy management with energy key performance indicators (EnPI: Energy Performance Indicators)

All key performance indicators are closely related to the production and the resource planning, be it the production lines, the machines, the production orders, the products, or the raw materials. In addition, the efficiency calculation records the causes of downtimes.

> **“If you cannot measure it, you cannot improve it.”**

This is the reason why **pronto** is also a tool to record and quantify key performance indicators. The KPIs are gained from a multitude of process data. A comparison with the target values allows determination of potentials for improvement.



Process reliability

A reliable sequence of processes is a prerequisite to get a high product quality. Process reliability focuses on network automation as well as on an involvement of the operator in production.

Consequently, **pronto** translates resource planning and process engineering requirements into comprehensible and guided work processes. The process reliability is strongly increased by system-based plausibility checks, e.g. checks to ensure same materials in target containers, completed cleaning cycles, and correct manual handling. With code scanner, the proper use of containers coming from the incoming goods department can be checked. Exchangeable containers for temporary storage of semi-products or finished products can be monitored by means of RFID tags. The data security of the system itself is a vital point too. This is the reason why **pronto** uses an SQL database as data hub; at choice by ORACLE® or Microsoft®.

A continuous, paperless process documentation delivers the answers to process-relevant questions:

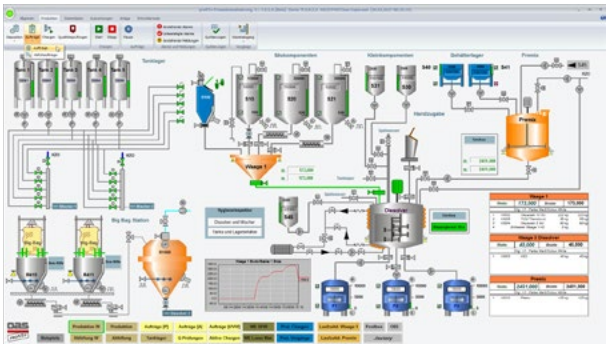
- Which raw material batches were used in a particular product batch? (tracking)
- For which product batches a particular raw material batch was used? (tracing)
- Which automated and manual processes have been executed at what exact time by which operator?
- Which machine parameters were adjusted?
- What kind of ambient conditions prevailed?
- How long raw materials and products (date of minimum shelf life) were stored? Under which conditions?
- Which data were recorded at the check points (identification point, CCP, QCP, check weigher)?

Extensive reporting from the recorded data:

- Batch logs
- Shift logs
- Reports of error messages
- Material balances (BoM)
- HACCP reports
- Energy reports
- Sanitation protocols
- IFS reports
- Shipping documents for lorries

pronto is well-established in a multitude of fields, e.g. construction chemistry, chemistry, paints and varnishes, or food processing and luxury food production. Here, we meet industry-specific requirements.

- Sampling and test values
- Correction recipes
- Baking program
- Master recipes
- Automatic compensation of rinsing components
- Shop order and raw material planning to anticipated requirements
- Stock management for articles, containers, portable silo and stock locations
- Relocations, stocktaking
- Implementation of the dates of minimum shelf life
- Health officer
- fTrace
- Operator guidance at the production line (product pass, manual dosing, vertically and horizontally, optional tapping points)
- Sub-orders
- Maintenance orders
- CIP



Cost reduction

Process automation relieves the operators and saves resources.

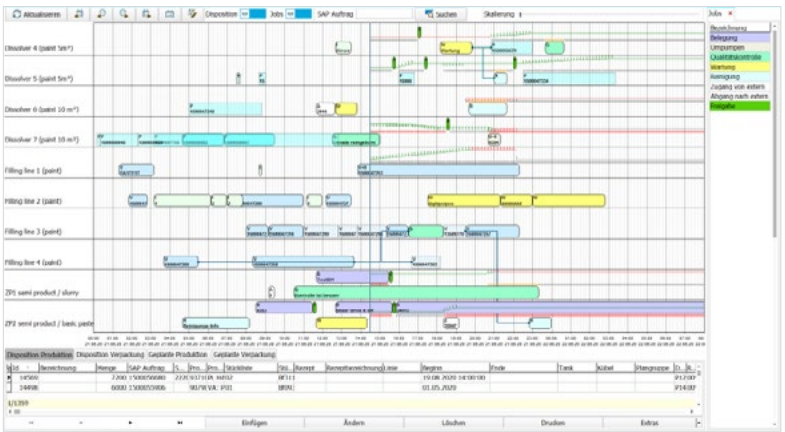
In the automated field, **pronto** provides for an optimum utilisation of the plant resources. Our functional PLC standard supports a an object-oriented approach for each component. This saves valuable programming and start-up time. An energy management, i.e. a selective use of rework, return or recycling material and a planned pre-production of semi-products in the amount actually required, reduce the operating costs. Tools, such as the tool for detailed planning, and the use of compatibility matrixes support an optimised course of production with minimum set-up times and cleaning expenditures.

Energy efficiency

pronto supports several different approaches to minimize energy cost on a sustainable base. Expensive peak demands can be avoided by using the integrated load management. An optimized feedback control concept allows to limit the energy consumption of dryer, autoclaves etc. to the required minimum. In the field of energy production **pronto** controls the entire range of technical processes for industrial biogas plants.

Artificial intelligence for high efficiency in production planning

Production planning with **pronto** gets done using genetic algorithms to optimize production time, resources and storage capacities in a fully automated procedure. AI determines promptly the optimized production schedule and allows to use production lines in the most efficient way. Should there happen any unexpected shortage in raw material availability or modifications in work order priorities, then a new production sequence can be calculated “at the push of a button” within seconds. Provided **pronto** is connected to the company’s ERP system, any material bookings and modified work order sequences will be available instantly in the ERP software. Production manager take benefit from flexible production scenarios that also include the required capacity of staff considering its individual qualifications.



These customers **trust in OAS**

Key figures do not lie: We use objective data to identify any optimisation potential along the entire process chain. Our success is measurable – and the customers of OAS AG appreciate this. We are proud of our long-term partnerships. Customers working in most diverse fields trust in our comprehensive know-how.

Thomas Rehsöft
Tönnies Lebensmittel GmbH & Co. KG
Rheda Wiedenbrück

"With **pronto**, the production has become transparent, flexible, and projectable. At 35 production lines, we pack different meat products, which **pronto** palletises automatically for each customer. All products are traceable. Here, **pronto** communicates in a network with machines and the ERP system."

"Since 2018, **pronto** has been used at GTF to control the production of dry mortar entirely. The system optimisation has strongly contributed to our increased performance of plus 30 %. In the new production of synthetic resin mixtures, **pronto** controls among other things the automated dissolver processes and so leads to extension of the plant capacities."

Carsten Monsees
G. Theodor Freese GmbH
Bremen

RYGOL BAUSTOFFWERK
SAKRET

Hubert Meier
Site manager Kalkwerk
Rygol GmbH & Co. KG
Painten bei Kelheim

"**pronto** comes along with us in the preparation and production of our products as well as in the management of quantities and contents in site silos. Consequently, it is possible to track each product batch, starting with the delivery of raw materials, through the production equipment, up to the customer, and, therefore, the products also meet the quality requirements of our customers."

"Our industrial bakery in Günzburg produces 50,000 buns per hour. The process control system requirements are accordingly high. **pronto** controls all production processes, from the acceptance of raw material up to portioning with the dough divider, and has proven to be extremely reliable in multiple-shift operation."

Edin Lemm
Head of production
Lieken AG
Bakery Günzburg

Lieken
Brot- und Backwaren GmbH

IT infrastructure

From industrial PCs to high-availability, redundant server systems server systems, we supply you with complete IT solutions. Our know-how also includes virtualisation, network technology and IT security. As a managed-service provider, we are also available for the monitoring, maintenance and security of your IT infrastructure. Upon request, we install **pronto** on a virtual machine in your server ecosystem. However, system administration still remains with you.

Automation

Our portfolio also includes the entire range of automation. From sensors through electrical engineering up to the design and construction of control cabinets – you will get all from one source. This not only means the PLC, but also a multitude of identification systems, such as RFID, QR code cameras, and many more.

In addition, OAS is a pioneer in the weighing and dosing technology. We deliver own dosing controllers and weighing systems from 0.01 g to 100 t.

System partner for the digital transformation

OAS advances your digital transformation with respect to production requirements. Being a process consultant let us support you with our competence in a holistic approach to digitalization. From the materials management through the production control up to the automation and IT infrastructure, we will offer you complete solutions. When it comes to digitization, we pick you up individually from your current production standards. Step by step, we work together to find a solution that digitizes your processes in reasonable and economically feasible stages of expansion. We would appreciate to support you with our advice and – if requested – joint workshops.

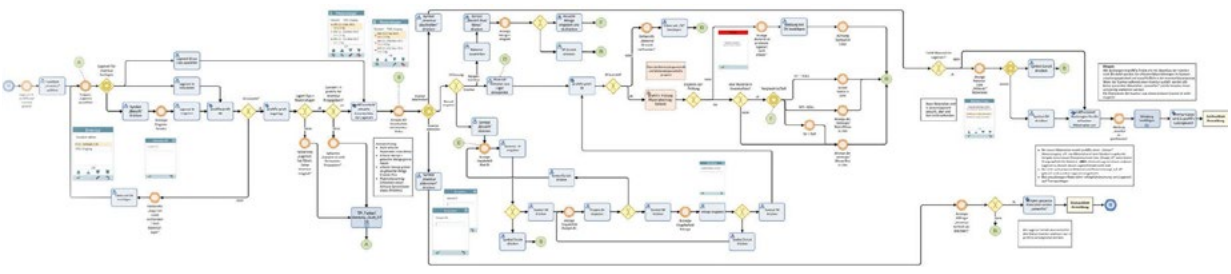
Our scope of performances

- Design of sensors and portable silo
- Project engineering according to ATEX and SIL, risk analysis
- MES consulting and preparation of performance specifications
- Delivery of the process control system **pronto** (MES, SCADA)
- Linking with the customer's ERP system
- PLC programming with performance standards
- Electrical engineering and switchboard construction
- Electric installation
- 24/7 on call and remote maintenance service

Jointly going for a goal

OAS develops sound concepts how to convert a line during running production. We clarify the interfaces with the ERP system and the machine suppliers for you. We are with our know-how in automation technology, IT infrastructure and process engineering a solution provider who understands your processes Working with OAS lays the foundation for a long-year partnership.

Strong partnerships



Modelling of business processes with BPMN (Business Process Model and Notation).

Understanding processes
pronto in detail

pronto is a production control system (Manufacturing Execution System, MES) developed by OAS and used throughout the world. Process control takes place automatically by means of an extremely powerful recipe and sequence control.

pronto connects requirements of the higher-level production planning system (ERP) to the machines and process flows in production in an integrated manner. Here, an absolutely continuous materials management is in focus: starting with the receipt of raw materials, through semi-products, and ending up with the finished product. If an ERP system is in use, **pronto** acts as its extension. If no ERP system is in use, **pronto** processes articles, products, as well as recipes and production orders on its own.

Energy transparency

Energy is a vital cost factor. **pronto** records the consumption rates down to the machine level and assigns the energy consumptions to the products and production orders.

Quality audit

pronto offers scheduled audits as well event-driven and manually resolved audits. The results are recorded in an audit-proof manner. Should an audit not be carried out within the scheduled time, an automatic escalation management system comes into function.

Test values

pronto allows the user to define test values for any kind of material parameters. These parameters will be determined by the laboratory at raw material acceptance as well as for semi and finished products during the manufacturing process. The results become an integral part of the corresponding batch records.

Recipes for readjust

If a quality check does not match the specified tolerance, an individual readjust recipe can be formulated for the batch. The raw materials and process steps of the readjustment process are consistently documented in the batch record.

Slot control

In addition to the common batch and continuous processes, **pronto** also allows the control and documentation of “product carpets”. Here, “slots” of a certain length are defined, which are considered statistically.

Optimised goods flows

An optimised yard management controls incoming traffics from parking spaces outside the site and the later traffic on-site already before a lorry arrives at the site and further through the access way to the site.

Industries

- Agribusiness
- Asphalt
- Automobile / automotive
- Building materials / construction chemicals
- Bioenergy
- Cement / lime / plaster
- Chemicals
- Disposal & recycling
- Foodstuff and luxury food
- Foundry
- Heavy industry
- Metallurgy
- Paints & varnishes
- Paper / paperboard
- Power stations
- Sand & gravel
- Synthetic materials

Scope of delivery and performances

- Automation
- Business software solutions
- Fabrication control system
- IT infrastructure
- Plant engineering
- Truck and track scales
- Weighing and dosing technology
- Yard management
- Consultancy
- Engineering / project engineering
- Software development / programming
- Manufacturing
- Assembly / installation / commissioning
- Training
- 24/7 after-sales service

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