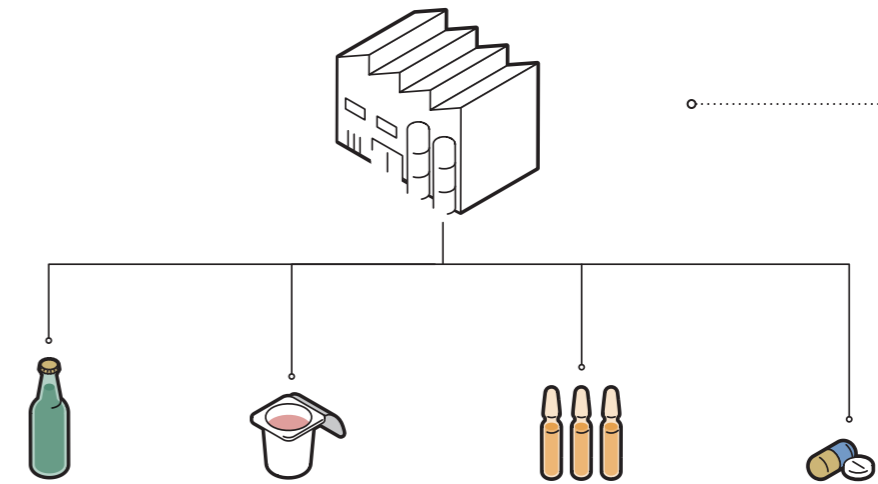




Distributed plant control for efficient and safe production

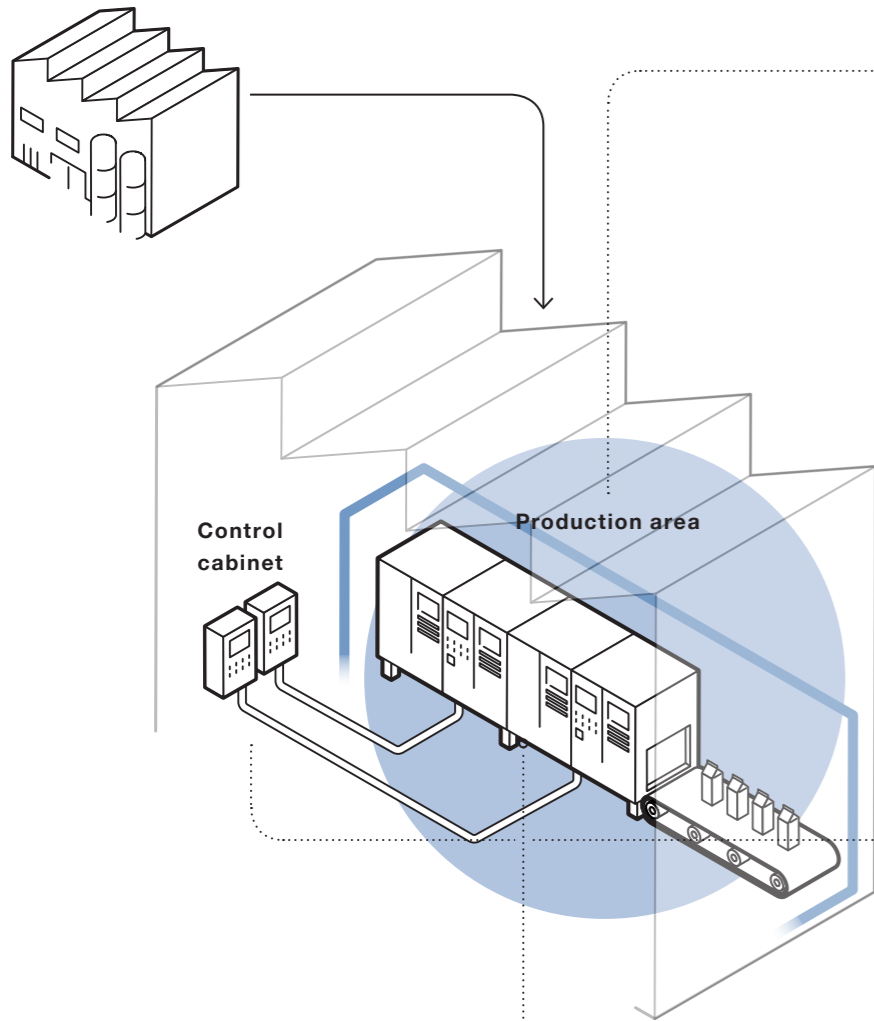
/ Better safe than sorry / If malfunctioning occurs during production, you need to react quickly – regardless of whether you produce beverages, food or pharmaceutical products such as tablets or vaccines. Since the quality of your products must be perfect at all times: Contaminated batches have to be disposed of to guarantee consumer safety. On the other hand, you want to keep plant downtime to a minimum. A control unit enables you to quickly identify faults and to switch off individual modules instead of the whole plant. This saves both time and money.

Product quality is of crucial importance in the pharmaceutical industry and in the production of food and beverages. At the same time, producers want to utilise their plants as efficiently as possible while avoiding downtime. Planned maintenance is just as important as targeted process monitoring.



Do you want to ensure the quality of your products and increase output at the same time? Find out on the following pages how central automation makes your plant more productive and safer.

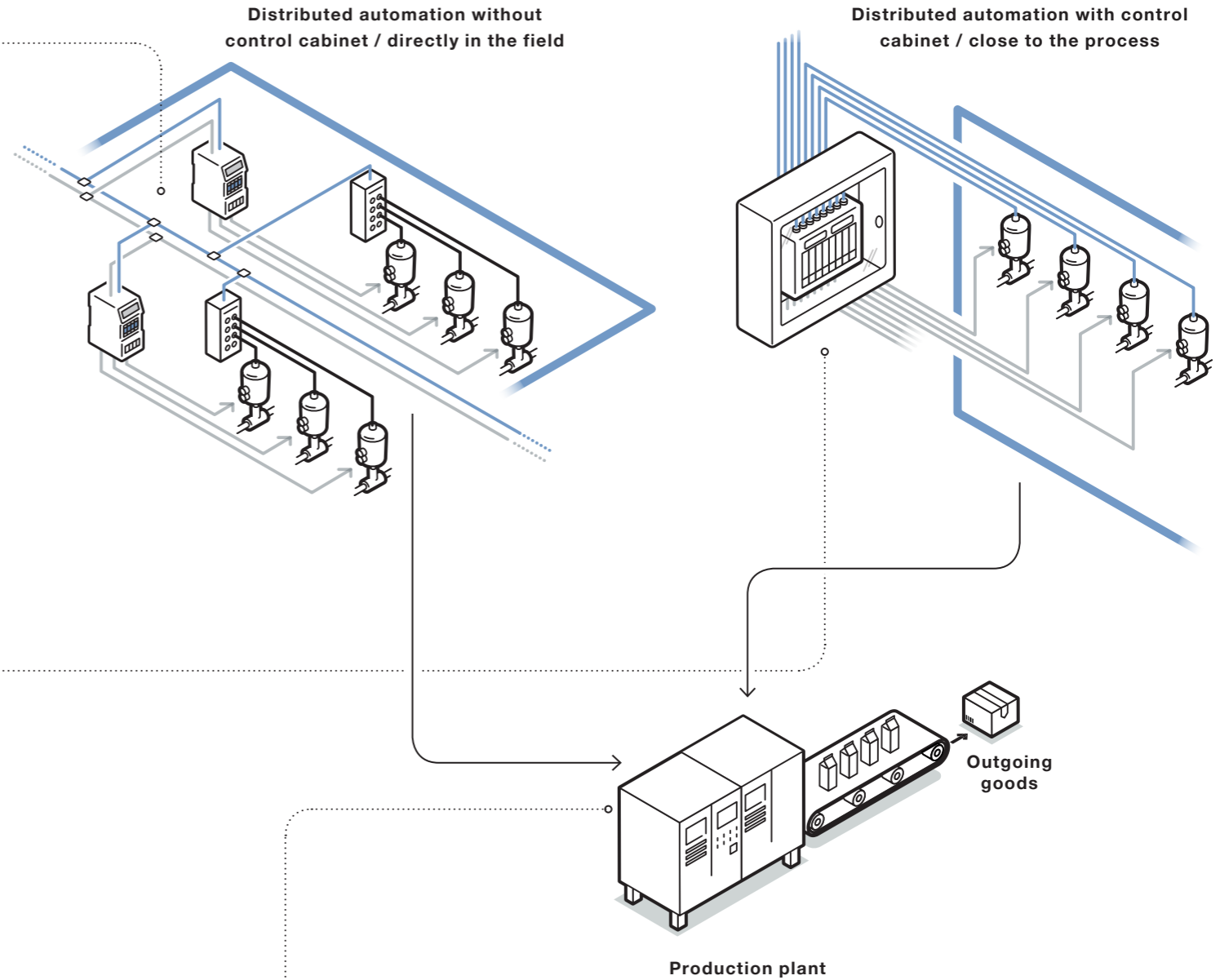
/ Ensuring process reliability / The quality of your products must be guaranteed at all times – even if malfunctioning occurs. The sooner a plant is back in operation, the greater your productivity.



Getting back into operation faster The faster a plant can be serviced, the shorter the downtime. For example, the electronic teaching of new devices saves you valuable time in this respect.

Ensuring product quality

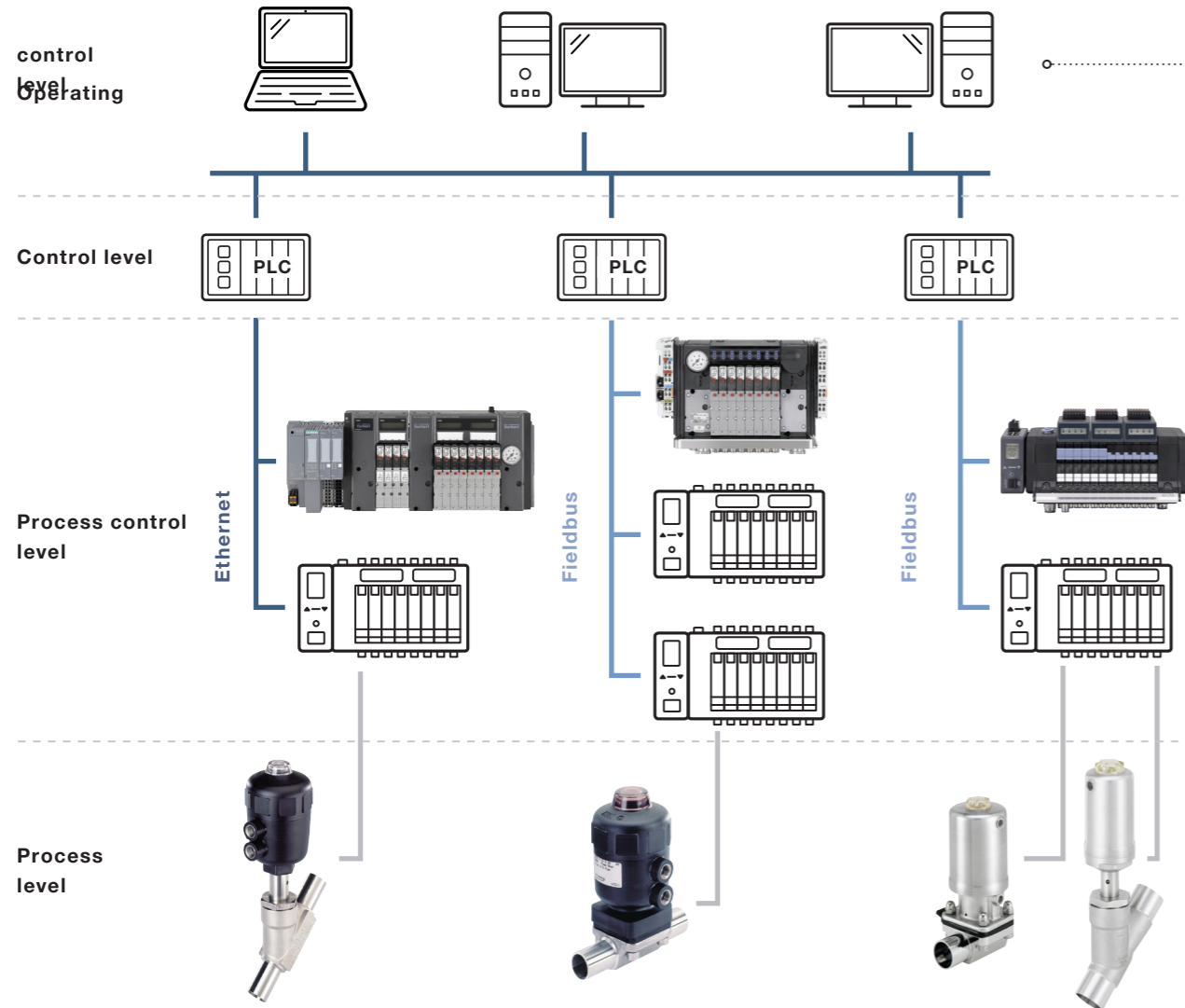
24 hours a day, 7 days a week: Your product quality needs to be perfect. If various fluids are mixed together accidentally, you not only lose money on the contaminated batch, you also have to pay for its often costly disposal. Exact, reproducible control of the processes and their continuous monitoring are of great importance in this respect.



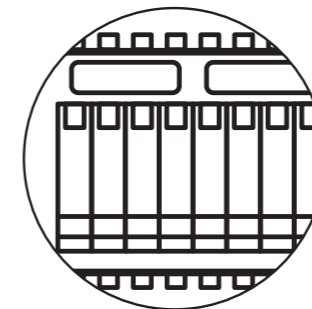
Increasing productivity

A plant must be able to run 24/7. To avoid downtime and failures, you need to monitor processes correctly and offer quick diagnostic assistance, if necessary.

/ Playing it safe with valve islands / Automate the pneumatic functions of your plant – with Bürkert valve islands in a control cabinet. The valve island allows you to control processes via a network of single valves. Your advantages: The diagnostics function on the device and at operating control level enables you to detect faults at an early stage. This makes your production processes safer and more efficient.



Diagnostics function on the control (at control level)
 Visualisation of the “message” on the user interface



Diagnostics function on the device

- Valve open
- Valve closed
- Upper end position reached
- Lower end position reached
- ▽ Replacement necessary
- ⊗ Broken wire / Short circuit

Replacing valves without downtime



Always in operation: With the HOTSAP technology developed by Bürkert, you can replace individual valves of the valve islands while your plant continues to run. Less downtime means higher productivity for you.

Avoiding rejects in case of malfunctioning



If the air is not vented quickly enough in case of malfunctioning, valves may open unintentionally as a result of the back pressure and contaminate the product. Not with Bürkert: The check valves installed in the valve island ensure reliable production without rejects.

Guaranteeing safety for both humans and processes



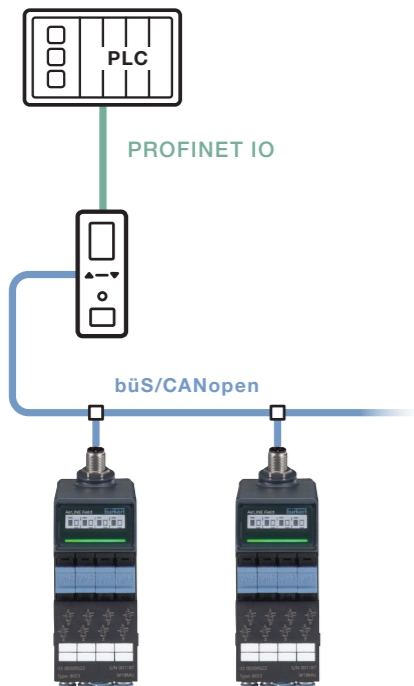
The valve islands ensure peace of mind through safety-related shutdown. Bürkert solutions offer modular or channel-based shutdown – thereby preventing injuries to employees and changes to product quality.

Reducing costs with interference-free communication

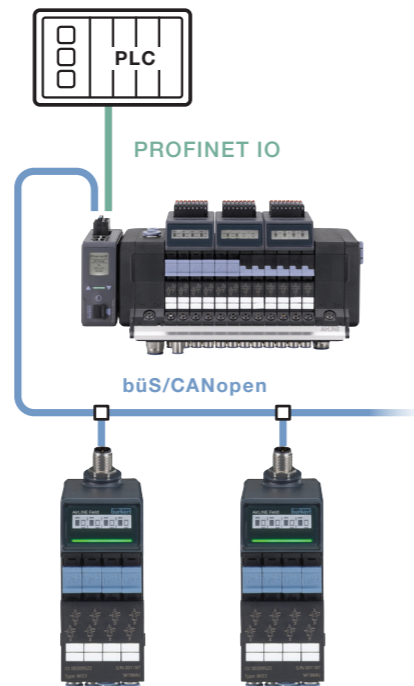


Bürkert valve islands can be connected via redundant configuration R1, system redundancy S2 or a Media Redundancy Protocol (MRP). The functions ensure interference-free communication and less downtime. Meaning: Production continues safely even if a cable breaks or an interface module fails.

/ Close to the process with valve islands / Do you need, above all else, fast switching and a considerably reduced cabling and tubing outlay? The innovative Bürkert valve islands AirLINE Field can also be installed directly next to the process. Due to the smaller pneumatic distances, your valves switch faster and you also save on compressed air and energy. With so-called distributed automation, you can configure your plant flexibly and at the same time rely on safe production.



AirLINE Field can be connected to other higher-level controllers (PLCs) via the fieldbus gateway Type ME43 (stand-alone).



AirLINE Field can be connected to other higher-level controllers (PLCs) via the valve island Type 8652.



Highest level of reliability for all plant processes



With Bürkert valve islands you always have a clear overview of the device status – for fast monitoring and diagnostics. Thanks to the redundant ring topology and protocols, your processes always run reliably and you avoid unwanted valve switching.

Simple start-up and fast maintenance



The valve islands can be installed quickly and flexibly on the wall or on a standard rail. With a visual position indicator and a robust manual override, they are easy to operate and maintain: Rely on preventive and wear-optimised maintenance.

Reduced cabling and tubing outlay



Short line lengths not only enable faster valve switching, they also save costs and space in the plant by reducing the number of required cable trays. Further, the need for control cabinet engineering is eliminated.

Extensive flexibility for your plant



Bürkert valve islands can be installed directly in the field since they adapt to various set-ups. Needless to say, they support all important fieldbus protocols and can be connected to the Bürkert device platform EDIP.

Well protected against corrosion and unauthorised access



Bürkert device solutions are compact and available as a control cabinet or a stand-alone field module. The components are robust, easy to clean and yet protected against unauthorised access.

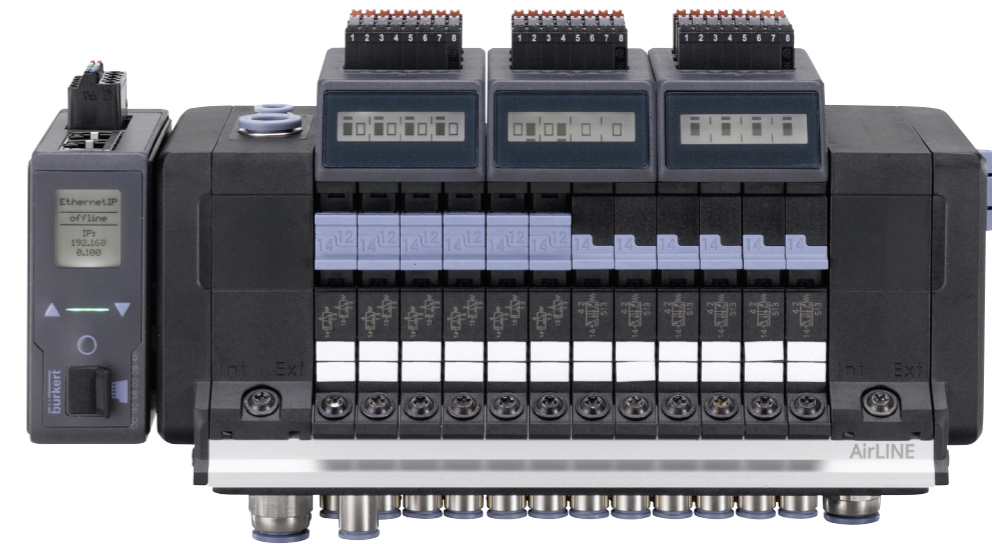
/ Bürkert developed the valve islands AirLINE especially for process automation / They are easy to install and maintain while ensuring reliable processes. The valve islands AirLINE reliably control process valves and other actuators, clearly show status and diagnostic information on the LC display and transmit this information to higher-level controllers. They represent the highest level of process reliability: For instance, the check valves in the exhaust air ducts make sure there is no unplanned actuation due to pressure peaks.



AirLINE Field
Type 8653

Device solution for distributed automation without control cabinet / directly in the field:

This valve island is optimised for installation close to the actuator. Thanks to an intelligent installation system, you can install the valve island in a wide variety of positions – or on the standard rail.

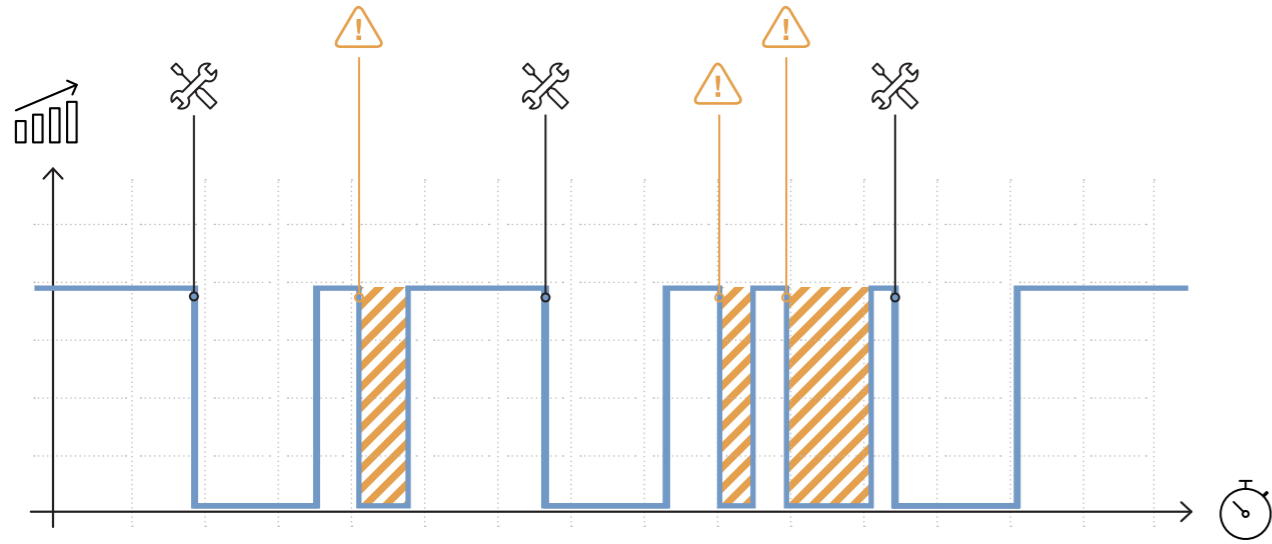


AirLINE Field
Type 8652

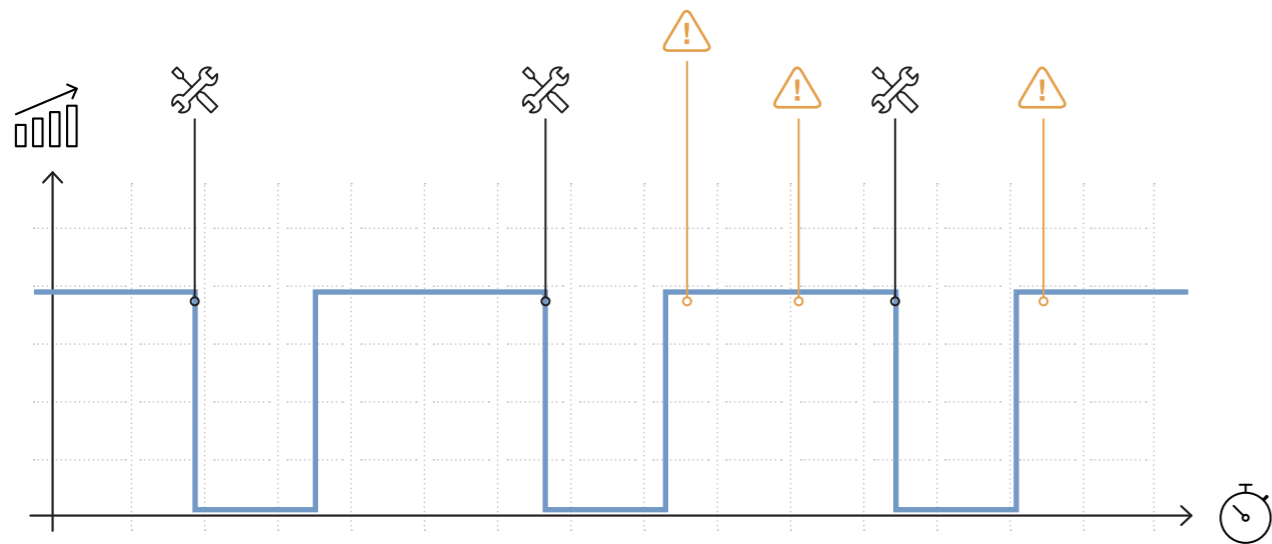
Device solution for distributed automation with control cabinet / close to the process:

The hardware is optimised for installation at the bottom of the control cabinet. The valve island can of course also be installed on the standard rail. This saves, for instance, on bulkhead fittings and, above all else, space in the control cabinet.



/ Less downtime equals more production / Using central automation, you not only increase your productivity but also enjoy enhanced control of your plant availability. Keyword: Predictive maintenance. Intelligent diagnostics functions allow you to schedule maintenance work, since wear is predictable and faults can be detected more quickly. Thanks to additional safety functions, you can rely on interference-free communication.

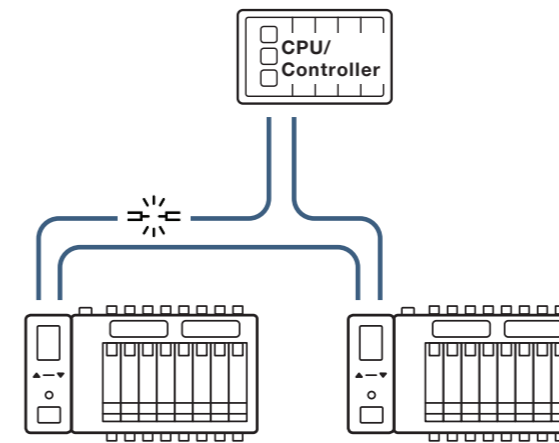


Plant availability without safety functions



Plant availability with safety functions

 Planned maintenance  Failure/Fault

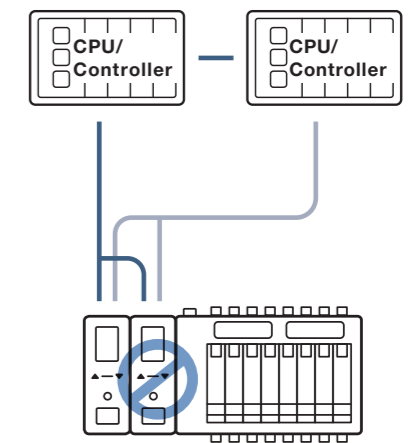


Media Redundancy Protocol (MRP)

Problem: Broken cable or defective device

Effects: Safety function – your production continues without downtime

MRP: If the communication connection is interrupted, all devices of the ring are supplied via an alternative communication path. Max. switching time 200 ms.



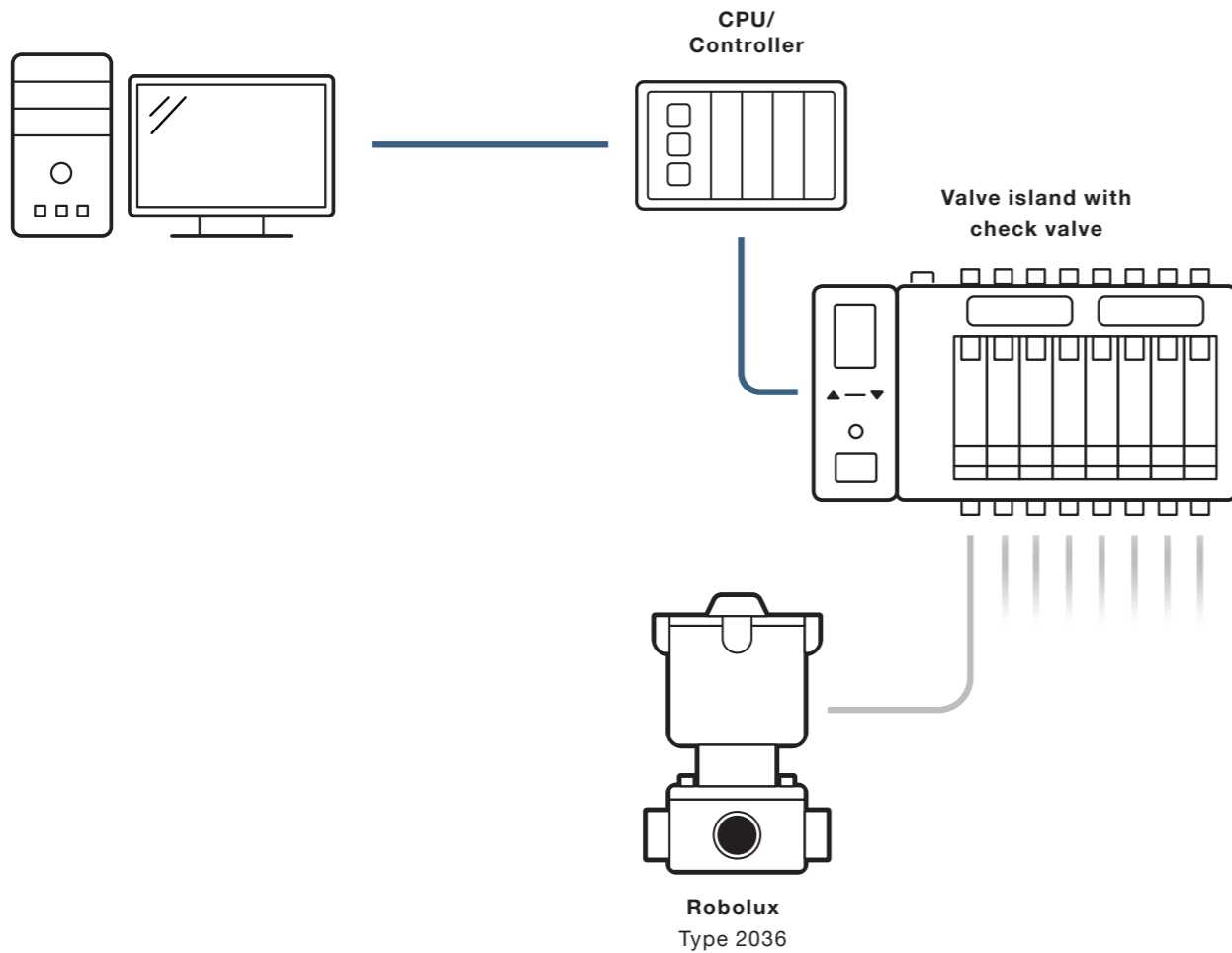
System redundancy S2 and redundancy R1

Problem: Broken cable or defective device

Effects: Safety function – your production continues without downtime

System redundancy S2 and redundancy R1: The Bürkert valve island with Siemens electronics can be connected to two controllers via two interface modules. If a cable breaks or a module fails, the second PROFINET network is used.

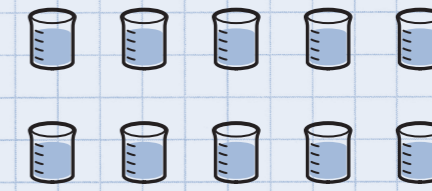
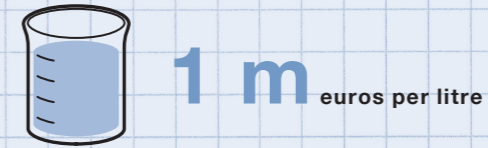
/ Protecting products saves costs / A safe and undamaged end product is important in every industry. Even the smallest amount of mixing leads to the loss of a whole batch. But how do you protect your end product in case of malfunctioning? If the air is not vented quickly enough in case of malfunctioning, valves may open unintentionally as a result of the back pressure and the product may mix with unwanted substances. The check valves installed in the valve islands ensure reliable production without rejects.



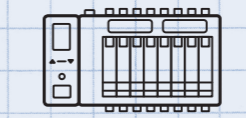
Example calculation

In pharmaceutical production, media are not only filtered but also separated using specific processes such as chromatography. To guarantee separation of the sometimes extremely expensive media and end products, one manufacturer has, for example, modernised its plant with Robotlux valves from Bürkert. If malfunctioning occurs and there are no check valves installed in the valve islands to protect the chromatography end product, it can cause enormous financial problems.

Chromatography end product



1 batch = 10 litres **10 m euros**

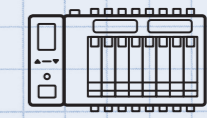


Valve island without check valve

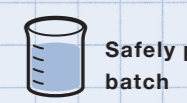


Contaminated batch

Loss: **10 m euros**

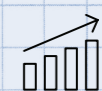


Bürkert valve island with check valve



Safely protected batch

Loss: **0 euros**





Distributed automation

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