

In the 'Cockpit' of a Food & Beverage Plant

Real-time Key Performance Indicators with zenon

Have you ever visited a production line in a Food & Beverage manufacturing plant? If so, you very probably remember the dynamics of the production area: many different machines working together on each line. Often a large variety of different products must be produced, as rapidly as possible and to the highest quality. To stay competitive, the production teams at this kind of plant face ever more complex pressures to optimize products and processes. Modern control and monitoring systems help, of course, but these production teams must manage a wide variety of parameters and deal with huge amounts of online and historical data in order to keep track of all processes and events.

The challenge to interpret this data must be something like being in a helicopter cockpit. Just imagine it – full of gauges, dials and displays detailing important information about altitudes, pressures, temperatures, radar and so forth. The cockpit displays an enormous amount of vital information and the pilot must make sense of it in order to keep the helicopter in the air. In Food & Beverage manufacturing, quality and consistency have the potential to be 'life and death' matters too. In addition, quality and consistency must also be balanced with financial concerns: the drives to optimize the speed and efficiency of production. So what is the vital information that the 'cockpit' of a Food & Beverage plant should display?

Typically, process automation systems deliver a huge amount of data, but it isn't the quantity of available data that is the critical success factor. The production teams need relevant and aggregated information instead of just data. And the clarity of this information is vital. Information should help production teams to take corrective actions immediately, where they are needed, so business objectives can be met. In short: they need real-time information which enables rapid and flexible responses. Information that helps teams to achieve their stated business objectives is vital – and the most important statistics form the basis of the plants' Key Performance Indicators (KPIs). These KPIs are calculated to make the 'cockpit' of Food & Beverage plants easier and

less risky to control. Standards such as DIN 8782 or Weihenstephan inform the definition of KPIs and describe how they can be calculated. One important KPI in Food & Beverage manufacturing is Overall Equipment Effectiveness (OEE) – a well-known indicator calculated from important equipment ratios pertaining to availability, performance and quality. The machine operators, the Packaging Manager, maintenance staff and the Operations Manager may have access to different information, based on what their role requires. But, by using real-time KPIs, they become a more effective team, because they know where to focus activity for maximum impact on results and profit.

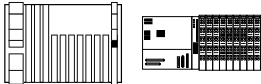
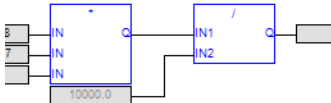
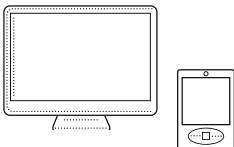

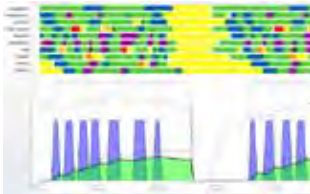
zenon has been developed to have an active impact at the heart of production processes – so a zenon system can perfectly deliver real-time KPIs. zenon's contribution ranges from data acquisition to KPI presentation (see table, next page). When you deploy zenon to deliver real-time KPIs, you can expect a high return on investment (ROI) because:

- ▶ The system is ready to be connected to various and heterogeneous production equipment: old or new, with different functionalities, from different suppliers – whether during initial development or at a later stage, as processes or information requirements change and develop.
- ▶ Complex online data processing supports the implementation of standardized or customized KPIs.
- ▶ The system ensures flexible extensibility.

- The clarity that zenon's graphical capabilities and ease of engineering bring to the display of information reduces the probability of mistakes in interpreting KPIs.
- Out-of-the box and configurable modules allow easy system engineering, including the development of complementary tools for KPI-related process analysis.

What KPIs do you use to monitor your production processes? Are you interested in KPI benchmarking? Are you involved in engineering solutions to capture, display and report KPI data?

I'd love to hear your feedback. Email me: Emilian.A@copadata.com.
 & Emilian Axinia

| | | ZENON'S CONTRIBUTION | YOUR BENEFITS |
|---|---|---|--|
| 1 |  | Data Acquisition over 300 communication protocols | Access to any relevant production data from any production equipment or device, for real-time KPI calculation |
| 2 |  | Data processing and KPI calculation <ul style="list-style-type: none"> Mathematical drivers straton (IEC 61131-3 PLC Programming) VBA/VSTA (.NET, C#) Programming | <ul style="list-style-type: none"> Freedom to choose between different ways to implement real-time data processing Create calculation libraries so you can re-use KPI calculations |
| 3 |  | Information sharing, including KPI data <ul style="list-style-type: none"> Client/Server on all PCs, HMI panels and mobile devices in a network WEB Server over Internet/Intranet Message Control (SMS, e-mail) Communication with alphanumeric displays | <ul style="list-style-type: none"> Distributed and rapid delivery of real-time KPIs to all members of production teams Cost-effective extensibility of the system |
| 4 |  | KPI presentation <ul style="list-style-type: none"> Dynamic graphical objects System/user symbols WPF elements ActiveX objects | <ul style="list-style-type: none"> Modern, clear and coherent display Easy integration Simple solution engineering |
| 5 |  | Complementary information <ul style="list-style-type: none"> Alarm and Event Management Trends Reports | Additional support for even deeper and broader data analysis of production processes |