

Improve diagnostics with intelligent sensors

PROCESS OPTIMIZATION FOR BEVERAGE CARBONATION

The third-largest sector within the food and beverage industry is the production of beverages. Currently, non-alcoholic soft drinks in particular are on course for growth. Flexible plant technology is required for this because production usually takes place in individual, highly automated process steps. To ensure that a high-quality product is produced without quality fluctuations, solutions are required that guarantee maximum process reliability.

With the Smart Automation and Monitoring System (SAMS), Balluff offers a system for all areas of beverage production – starting with raw material handling, through processing and filling of the beverages, to packaging and conveying technology. In addition, SAMS products are based on the strict hygiene regulations required of equipment in food and beverage production.

And how do we support the production of soft drinks?

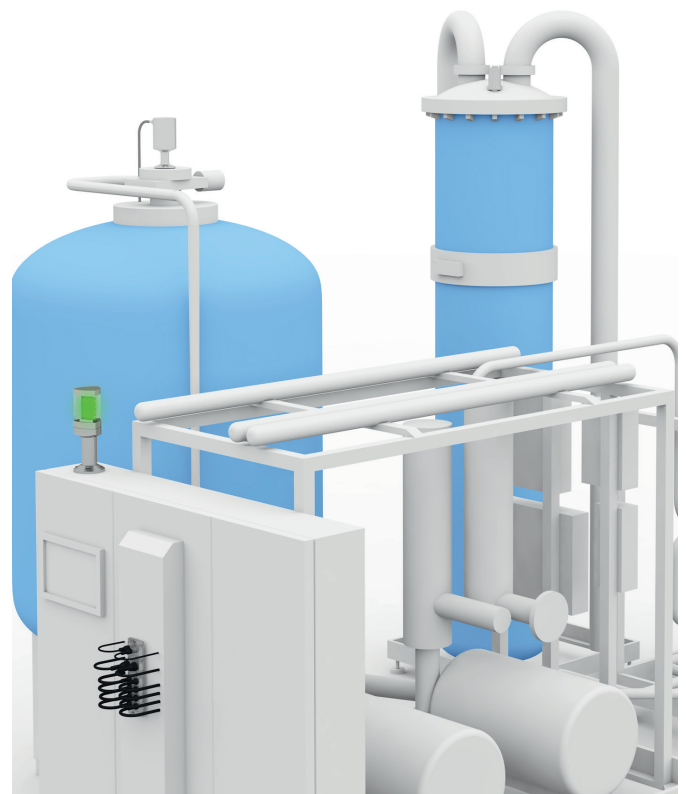
One process step in soft drink production is carbonation which involves forcing carbon dioxide into the liquid under high pressure. Inductive sensors are suitable for detecting all metallic surfaces and objects. Due to their non-contact detection, they can be optimally used during carbonation for position control of the valve for liquid regulation. Due to their hygienic material (stainless steel 1.44404/PBT) and our Washdown Plus promise, which ensures that the IP69K protection class is exceeded, these can withstand demanding cleaning conditions and at least 1000 cleaning cycles.

All sensors have embedded "smart features", providing process and condition data, as well as valuable diagnostic data for deeper analysis, deriving trends and better planning of product replacement and maintenance of the carbonation plant. Condition monitoring functions include, vibration and tilt detection, moisture measurement and temperature monitoring. They also feature multifunctions, such as logic blocks for interconnecting internal/external signals or monitoring the signal speed which not only guarantee reliable control of the plant, but also how machine and plant performance can be significantly increased.

All data can be collected and processed via the IO-Link fieldbus module. Our SmartLights LED signal lamps also signal operating states via a flexible, diverse color spectrum. This allows you to reliably monitor the status of your carbonation plant.

Your advantages

- Uniform configuration and diagnostic concept as well as consistent display concept
- Washdown Plus promise, specially designed for demanding requirements in cleaning processes
- Extended IO-Link functionality: smart features such as internal temperature and humidity monitoring as well as logic blocks



Carbonation plant with IO-Link fieldbus module BNI

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PORTFOLIO



| | BNI00EK | BES05WY | BNI0082 |
|--------------------------|---|---|--|
| Dimension | 68 × 36.8 × 226 mm | 18 × 66 mm | 60 × 60 × 309 mm |
| Style | | M18 × 1 | |
| Installation | | quasi-flush | |
| Range | | 0,5...8 mm | |
| Mounting part | | | Screws M18 |
| Interface / IT Interface | Profinet I/O / REST API | IO-Link 1.1 | IO-Link 1.1 |
| Switching output | | PNP/NPN/push-pull NO/NC; Push-pull NO/NC | |
| Switching frequency | | 700 Hz | |
| Housing material | PPS | 1.4404 stainless steel | |
| Principle of operation | | | Indicator light |
| Connection | slots, 8× M12×1-Female, 5-pin, A-coded | Connector, M12×1-Male, 4-pin | M12×1-Male, 4-pin |
| Operating voltage U_b | 18...30.2 VDC | 10...30 VDC | 18...30.2 VDC |
| Ambient temperature | -25 °C...70 °C | -40...85 °C | -5...50 °C |
| Function indicator | | | Runlight Mode, Level Mode, Segment Mode, Flexi-Mode |
| IP rating | IP68, IP69K | IP68, IP69K | IP65 |
| Approval/Conformity | CE, EAC, Ecolab, IO-Link, WEEE | CE, EAC, cULus, Ecolab, IO-Link, WEEE | CE, cULus, WEEE, EAC |
| Digital inputs/outputs | 16× PNP, Typ3/16× PNP | | |
| IO-Link version | 1.1 | 1.1 | 1.1 |



| | BCC0JRZ |
|-------------------------------------|---|
| Operating voltage U_b | 250 VDC/250 VAC |
| Cable | TPE-V gray, 2 m |
| Connection 1 | M12×1-Female, straight, 5-pin, A-coded |
| Connection 2 | M12×1-Male, straight, 4-pin, A-coded |
| Number of conductors | 4 |
| Cable temperature, fixed routing | -50...105 °C |
| Cable temperature, flexible routing | -25...105 °C |
| IP rating | IP67, IP69K/IP67, IP69K |
| Approval/Conformity | CE, Ecolab, EAC, WEE |