

BALLUFF

Simplify controls inside the cabinet

MAKING THE MOST OF IO-LINK FROM THE INSIDE OUT



innovating automation

Simplify controls inside the cabinet

GET THE BALLUFF IO-LINK ADVANTAGE



REDUCE WIRING AND PROMOTE FASTER MACHINE BUILDS With Balluff I/O devices

IO-Link I/O devices provide diagnostics information such as short-circuits or over-current and make configuration data available to the controller for easy troubleshooting.

Valve connector for 25pin D-Sub vs. IO-Link

- Terminations: 24
- IO-Link: 4
- Aprox. Savings: 2-3 hours

30 discrete I/O points vs. IO-Link

- Terminations: 90
- IO-Link: 4
- Aprox. Savings: 4-6 hours

30 I/O points with passive splitter vs. IO-Link

- Terminations: 34
- IO-Link: 4
- Aprox. Savings: 2-3 hours



SIMPLIFY SETUP AND PROGRAMMING With Balluff smart sensors and RFID

Balluff IO-Link smart sensors and RFID solutions enable easier setup and configuration by using only 3 wires for process data, parameterization and event handling. Whether the need is for access control at the operator station or tracking work-in-process in the machine, IO-Link simplifies implementation of RFID – from pilot to production. Balluff also provides add-on-instructions or function blocks for most common controllers to enable faster configuration and programming.



ELIMINATE EXPENSIVE ANALOG CARDS AND SHIELDED CABLES With Balluff A/D converters

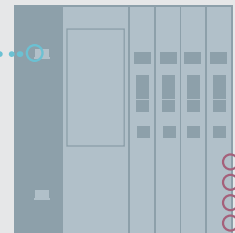
Single channel adapter or multi-channel analog I/O hubs powered with IO-Link and mounted closer to measurement devices eliminate the need for analog I/O cards inside the cabinet. This approach also reduces or eliminates expensive shielded cables and associated routing issues.

Revolutionize inside the controls cabinet

TRADITIONAL CONTROL ARCHITECTURES WITH IO-LINK

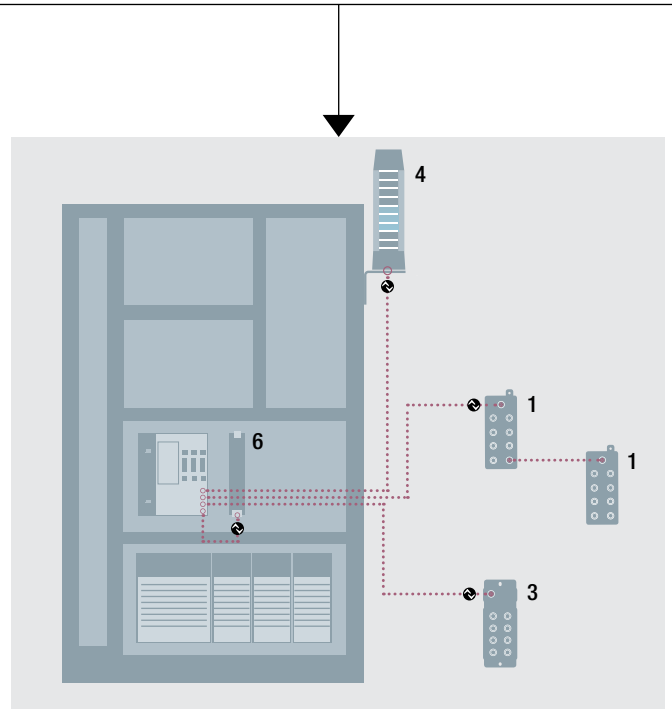
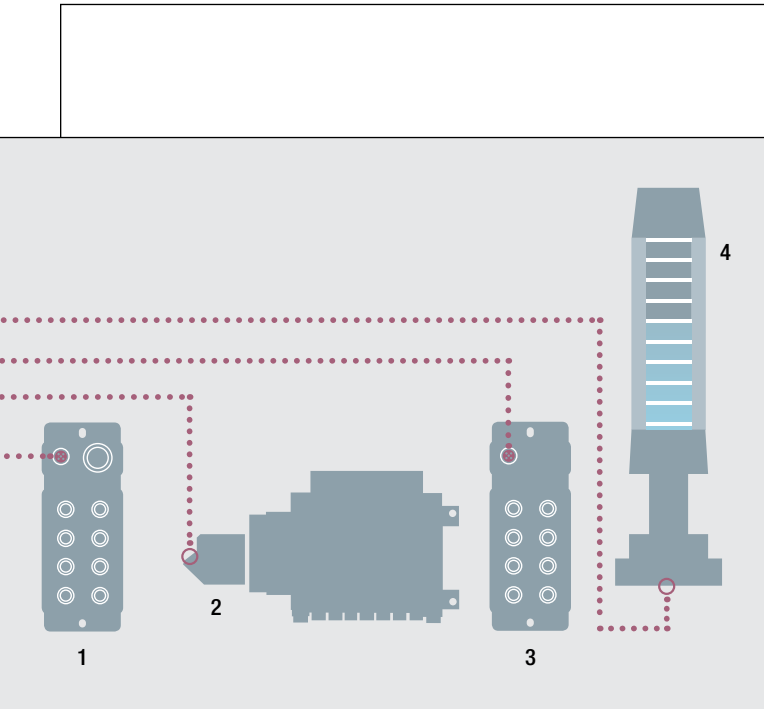
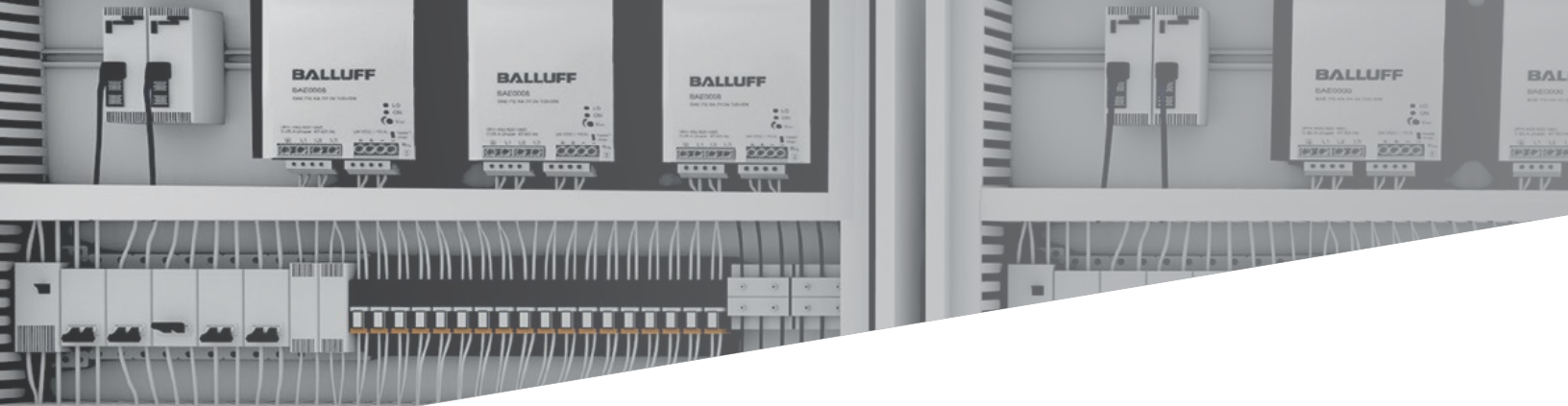
 *innovating automation*

EtherNet/IP[®]
PROFINET[®]
EtherCAT[™]
CC-Link IE
and more!



Cabinet mounted I/O is still a predominant approach in today's complex automation – whether the choice is customer driven or internal. This centralized approach to I/O is labor intensive and prone to human errors; as each wire needs to be planned in the design phase, routed from the sensor to the cabinet, cut, stripped, crimped, labeled, and then terminated. All this effort comes with little diagnostics. In the final phase of the machine build process, troubleshooting requires significant efforts in electrical and controls engineering.

Balluff's extensive portfolio of IO-Link smart devices offers significant benefits by simplifying the cabinet mount architecture and associated controls, enabling machine builders to reduce time to market and build scalability for the future.

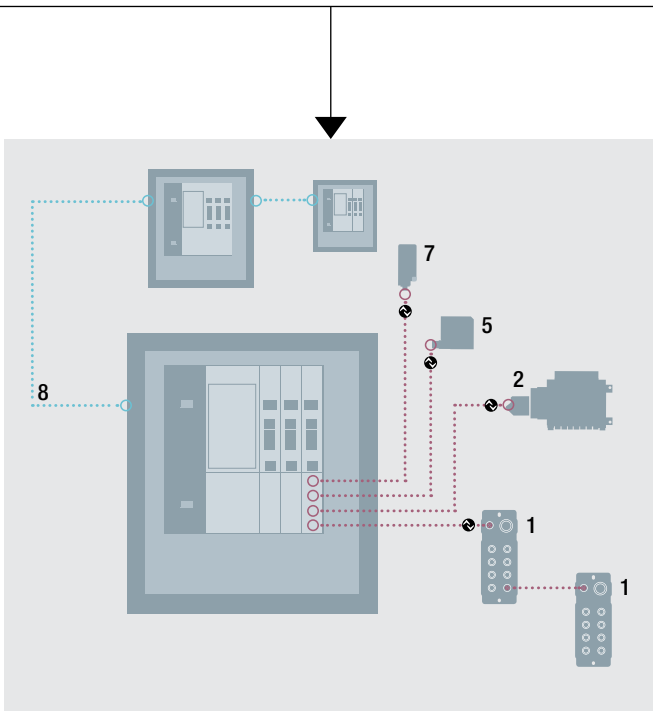


- 1 Discrete I/O
- 2 Valve control
- 3 Analog I/O
- 4 SmartLight tower light
- 5 Smart sensor
- 6 Smart power supply
- 7 RFID traceability
- 8 Network/Bus
- 9 SmartLight indicator
- 10 RFID access control

IO-LINK FOR CENTRALIZED I/O CABINETS

IP20 IO-Link masters that communicate with the controller over the backplane can be connected to host Balluff IO-Link field devices. This architectural approach can significantly reduce the size of the cabinet as well as labor associated with the build.

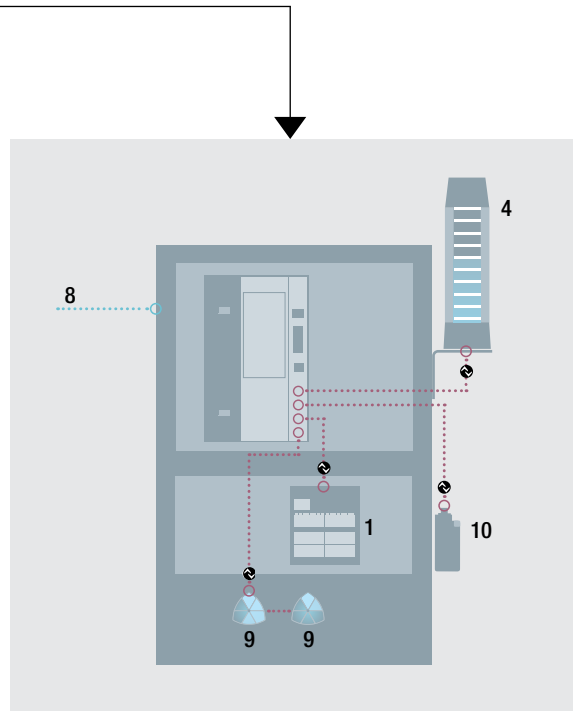
- IP20 IO-Link power supplies with the Balluff Heartbeat function, provide critical information such as the current load, stress level, and expected life. This ensures your system runs smoothly and maintenance can be scheduled in a timely manner.
- IO-Link based architecture minimizes changes to the bill of materials when switching from one controller brand to the next.



IO-LINK FOR REMOTE DECENTRALIZED I/O IN HARSH ENVIRONMENTS

In harsh environments such as welding or wash-down, remote mounted control cabinets are a common practice to keep the network devices protected and reduce the cable routings. Balluff IO-Link devices tailored to these environments not only work well with IP20 IO-Link masters, but also add flexibility for the future without affecting the footprint.

- Balluff weldblocks, which provide superior protection against electrical noise and weld spatter, offer expansion I/O capabilities for harsh environments.
- Balluff's IP69K and stainless IO-Link portfolio is a perfect match for wash-down environments in food and beverage equipment.
- Balluff's high durability cables portfolio is tailored to suit various harsh environments.



IO-LINK FOR OPERATOR STATION I/O

Operator stations are characterized by a small set of remote I/O that encompasses safety I/O, access control, pushbuttons for system interaction, and status visualization. Typically, a single 4-channel IP20 IO-Link master with fieldbus node is sufficient for hosting all the controls at the operator stations.

- Balluff IP20 I/O hubs are a perfect match for the multi-point I/O needed inside or along the cabinet.
- Balluff IO-Link RFID can simplify access control or recipe change functions without adding any complexity.
- Balluff SmartLight tower lights offer programmable functionality for status visualization while SmartLight indicators offer 1-12 operator signals with one IO-Link channel.

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