

The Modern Whiskey Distillery

Precise Monitoring and Control of Field Devices with Remote I/O and FieldConnex®

The Application

The production of whiskey involves a chain of procedures that are carried out in potentially hazardous atmospheres. It involves dust hazards in grist mills, mash tuns, and pot stills, which were previously classified as Zone 2. Therefore, these processes must be properly protected.

As many of the existing whiskey distilleries were built in the 18th century, plant operators invest in state-of-the-art automation systems for more efficiency as well as compliance with current laws and regulations. One of Scotland's leading distilling groups recently updated their PLC platform and also their signal transmission systems.

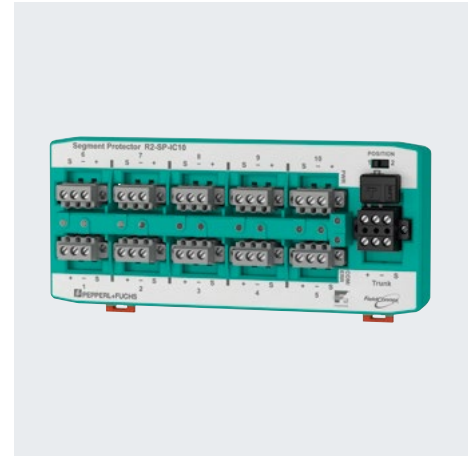




LB Remote I/O System



PROFIBUS Power Hub for four segments. Connects and powers field instrumentation with PROFIBUS PA



Segment Protector – installs in Junction Boxes near the instrumentation

The Goal

For plants such as whiskey distilleries, which process extremely valuable raw materials and finished products, precise measurements and accurate transmission of the measurement data is crucial.

Signals were previously transmitted via standard PLC I/O cards and multicore cables. Within the scope of the control technology update, the signal transmission system was updated.

The Solution

For the connection of control valves in the still house a Zone 2 certified LB system from Pepperl+Fuchs is used in the distillation process. Depending on the distillery size and the number of stills, up to 200 control could be necessary in the distillation process alone.

Profibus PA control valves are applied for all measuring field instruments such as level, pressure, flow, and temperature measurement. The high-precision digital transmission of PROFIBUS PA fulfills the requirement of precise measurements and accurate transmission of the signals.

The FieldConnex PROFIBUS Power Hubs in the control room feed field-mounted Segment Protectors, which reduce wiring costs while diagnostic information is easily accessible. The configuration is done via GSD files, allowing all measurements to be displayed in the control room with digital precision. Remote configuration, alarms, and diagnostics from field instruments are transmitted to the maintenance system via PROFIBUS PA, enabling to proactively review plant performance. In order to avoid an information overload or alarm flooding, the data is split two ways with only measurement values reaching the plant operators. Maintenance technicians and staff have full access to all other data, allowing them to keep the plant's processes functioning at a high performance level.

The Benefit

Before using Remote I/O installed in a stainless steel housing, the valves have been operated Point to Point via the PLC I/O cards. Installing the LB System in Zone 2 reduces wiring and installation complexity significantly and has a smaller PLC footprint. Integrated LEDs allow each channel to be easily viewed right on the spot, allowing easy maintenance. In addition, the operator of the Scottish distillery highly values the remote access to configuration and diagnostic data of the instrumentation.

The whiskey distillery's Chief Process Engineer identified PROFIBUS DP, and PROFIBUS PA and the digital infrastructure by Pepperl+Fuchs as a cost-effective method for minimizing maintenance and repairs, while fulfilling the demands of high production levels. Using both Remote I/O system for digital signals and fieldbus for analog signals offers the perfect solution, and it is easy to maintain by on-site technicians.

With occasional assistance from Pepperl+Fuchs, technical support engineers, commissioning and set-up is straight forward, saving both time and money.

At a Glance:

- Re-routing of control commands to valves with Remote I/O system via PROFIBUS DP
- Reliable and precise signal transmission of level, pressure, flow and temperature with FieldConnex and PROFIBUS PA