



Leading the way in hazardous area static control

Case Study

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Storing and Handling Flammable Liquids Safely

During the storing and handling of flammable liquids, it is imperative to implement safety solutions to avoid the build-up of static electricity. This case study looks at how Newson Gale helped a customer specializing in the production of resins to improve employees' safety. After conducting a HAZOP (Hazard and Operability Study) analysis, a need to simultaneously ground and monitor multiple metal containers during processing was identified to reduce the risk of static charge build up.

How a Newson Gale customer specializing in the production of resins, improved process safety and efficiency by selecting to install the Earth-Rite® MULTIPOINT II.

When conducting a HAZOP analysis of its filling area, which is classified as a Zone 2 IIB T3 gas/vapor atmosphere, the customer identified a requirement to simultaneously monitor three electrostatic protected composite hazardous area suitable Ex IBCs prior to being filled with a solvent-based resin. The analysis also identified the metal funnels seated on top of the Ex IBCs as a potentially isolated conductor that required an independent monitoring connection. Due to this requirement, a total of six monitoring connections were used.

Operating Environment

Adjacent to the filling room is the switch room, classified as a non-hazardous area. The switch room contains the PLC which controls the hazardous area certified pumps used to drive the flow of material from the mixing tanks (structurally grounded) to the Ex IBCs via metal pipework.

The CompEx accredited installer determined the most practical location for installation to be the switch room, positioning the power supply unit, monitoring control unit, and marshalling junction box next to the PLC - the latter two components being terminated to a common pre-verified ground bar. From there, intrinsically safe Ex ia monitoring circuits were routed via overhead cable trays to remote indicator stations positioned local to each filling station. Finally, two-pole clamps and cable assemblies were specified for each of the Ex IBCs and funnels, with all clamps possessing penetrative tungsten carbide tips to mitigate the potential for viscous product deposits preventing a $\leq 10 \Omega$ connection from being achieved.

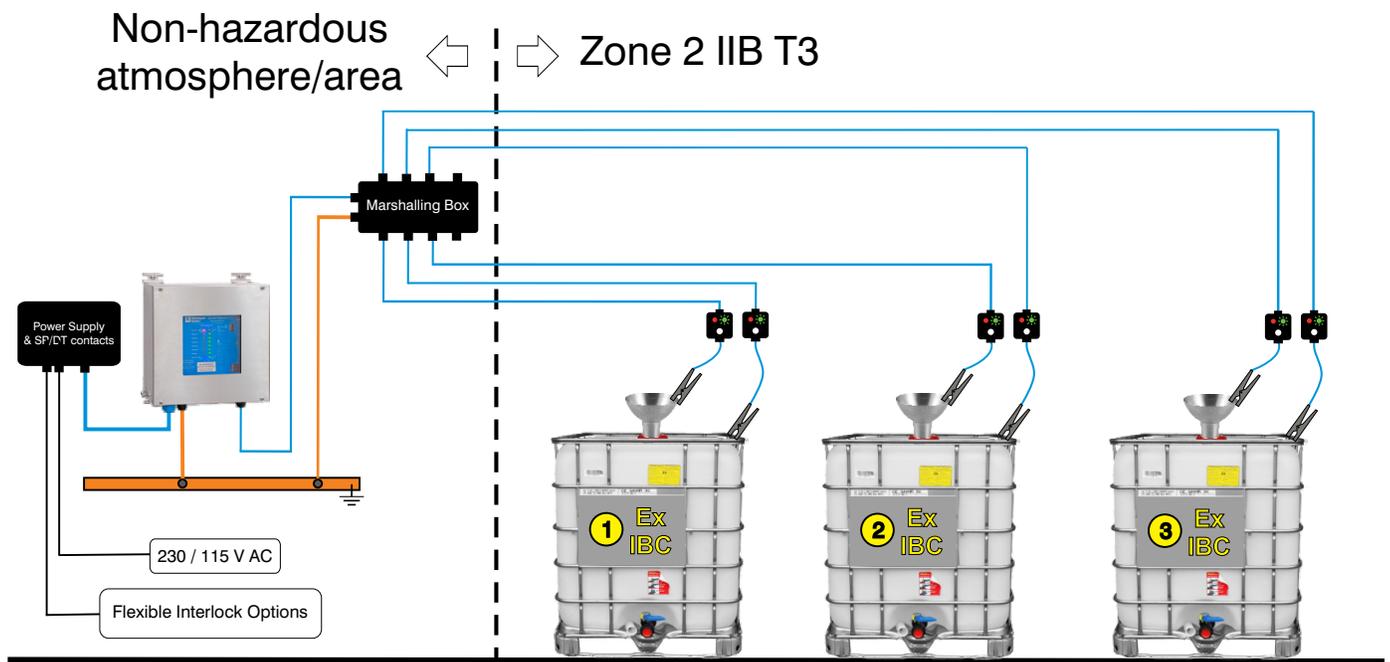


Fig. 1 - Process interface flexibility

In this case, the benefits of selecting the **Earth-Rite® MULTIPOINT II** and installing in this manner included:

- The positioning of the monitoring control unit and remote indicator stations provides easily accessible **visual indication to operators inside the potentially hazardous atmosphere and those located remotely** in the switch room.
- **Minimized interlock control circuit runs** by positioning the power supply unit local to the PLC. The installer grouped the two channels allocated to each filling station in series and interfaced them with the PLC. The PLC was then programmed to ensure that the operation of the inline transfer pump was inhibited until the two channels allocated to that filling station obtained a permissive output. By “grouping” the channels in this manner, it avoided cross-interference between the respective filling operations at each station, thus outlining the **flexibility** afforded by the system.

- The two spare channels also **“future-proof”** the equipment against potential operational expansion or changes to process requirements.

This is one of many diverse hazardous area/EXLOC applications that the Earth-Rite® MULTIPOINT II can be applied to. Should you have a potential application in mind, a Newson Gale Sales Engineer can be contacted to discuss your requirements in further detail.

If you have any questions relating to this article please e-mail [Newson Gale](#).

If you would like to learn more about the Earth-Rite® MULTIPOINT II follow this link to the [product webpage](#).

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