

Enabling Continuous Emissions Monitoring in Hazardous Areas

Delivering safe NOx conversion in IECEx Zone 2 environments through Purge & Pressurisation

Background

A leading analyser system integrator in the Middle East was contracted to deliver a Continuous Emission Monitoring System (CEMS) in a petrochemical environment. The CEMS required the use of two ABB SCC-K NO₂/NO converters. The challenge for the integrator was to use these uncertified converters while achieving full compliance within an IECEx classified location.



Project Brief (Specific requirement from the client)

Design, build, and certify an IECEx Ex pzc Purge & Pressurisation system to house the uncertified equipment, ensuring safe operation, automatic pressurisation and continuous monitoring.

Challenges

- Installing standard industrial electrical equipment in a hazardous area.
- Meeting IECEx Ex pzc certification requirements.
- Preventing energisation until safe purge conditions were achieved.
- Providing continuous pressure monitoring for safe operation.
- Design the enclosure in accordance with IECEx Ex pzc requirements, achieving IECEx certification for the completed panel.

Solutions

- SS 316L, IP66 Ex ec ic nC [pzc Gc] IIC T2 Gc Pressurised Enclosure
- Integrated SmartPurge Z purge controller
- 19-inch rack mounts for ease of installation
- Configured safety interlocks to prevent energization until safe conditions were met
- Validated the complete system for hazardous area operation.

Results

- IECEx populated panel certification for the NOx converter control panel under the Ex pzc Purge & Pressurization protection concept.
- Enabled the system integrator to specify standard industrial electrical equipment inside the hazardous area enclosure, avoiding the cost and lead time of sourcing certified equivalents.
- Delivered a fully compliant, hazardous-area-rated CEMS solution ready for deployment on the client's Middle East project on time in budget.

Expo Products and Services

SmartPurge Z

Fully automatic type Z Purge & Pressurization system for Zone 2, Class I Div 2 Gas Applications.

Features:

- Protects enclosures up to 6.1 m³
- Automatic leakage compensation
- LED status indication
- All-in-one unit for simple installation
- Super-fast commissioning
- ATEX, IECEx, UL, UKEX, PESO, CCC, INMETRO certified



[Click here](#) for more information.

Custom Enclosure Service



Some projects call for special shapes and sizes of enclosures, non-standard features, or very special applications, and may also require input from a Notified Body during the design phase or final certification.

With Expo's fully custom process, a dedicated engineer will work with you to develop exactly what you need and agree on a detailed budget and project timeline with milestones. As this is a highly flexible service, we can adapt the plan if your project requirements change.

[Click here](#) for more information.

Design & Consultancy Services

Expo Technologies' team of consultants and Certification engineers have the experience and knowledge to support our customers through the certification process for equipment to be used in Hazardous Areas.

From concept design through to maintenance, Expo Technologies works with you to reduce the risks and accelerate your entry into global markets.

Click [here](#) for more information.

