

## Development of a Zone 1 CEMS analyser

**Working with a leading manufacturer of process analysers to develop a Zone 1 CEMS solution using a safe area analyser.**

### Overview

The client is a leading manufacturer of process analysers. In this case, the analyser was used to measure CO and CO<sub>2</sub> content in effluent being vented to flare following a de-coking process and was an integral part of the Continuous Emissions Monitoring System (CEMS) of a large industrial complex in Thailand. The analyser was classified as Safe Area equipment but was required to be installed within a Zone 1 environment.



### Project Brief

The client needed to bring a safe area gas analyser together with related electrical equipment into a purpose-built analyser cabinet. The cabinet itself was to be located in an analyser house which was classified ATEX Zone 1.

The standard design of the gas analyser made it initially unsuitable for use in an Exp Panel due to the internal enclosure ventilation requirements of the Purge & Pressurization standard BS EN 60079-2. Other protection methods such as Ex d or Ex e had been investigated but were impractical due to either project time scales or cost constraints.

The client chose to work with Expo Technologies as we were the only company with the detailed knowledge of BS EN 60079-2, the right engineering capabilities, and a strong desire to solve the client's issue.

### Challenges

Create the necessary ventilation for the enclosure to fit the requirements of BS EN 60079-2, and satisfy the Notified Body.

Keep modifications to a minimum to satisfy the customer.

Partnering with a large multinational company to customise sensitive equipment and managing information flow between continents during lockdown.

### Solution

Expo's detailed understanding of analyser applications, purge flow requirements & trapped volume mitigation techniques enabled our engineers to produce a truly innovative solution.

Ventilation to the analyser unit was improved through mechanical modifications that did not impact its function.

Documentation was created to allow the customer to remotely sign off the solution prior to adjustments being made on their site.

## Expo Products and Services

### MiniPurge Type X

IECEx, ATEX & UL certified purge and pressurization systems for Zone 1, Class I Div 1 applications



#### Features

- Global approvals
- Purge flow capacity up to 900 NI/min
- Leakage Compensation or Continuous Flow
- Stainless steel enclosure construction

Expo's Minipurge type X range provides a full purge and pressurization solution for electrical enclosures and other equipment installed in Zone 1 or Class I Div 1 hazardous environments. With a range of flow capacities up to 900 NI/min, the systems are suitable for large enclosures up to 5.4m<sup>3</sup> volume.

[Click here](#) for more information.

### Fast-Track Standard Enclosure Service



Using standardised building blocks and automated configuration and design tools, Expo's Fast-Track service can deliver you tailor-made enclosures within weeks.

Expo manufactures the enclosure to your specifications and delivers to you component certified. If this is an Ex p enclosure, then the purge system will already be installed and tested. The enclosure can then be populated at your facility.

[Click here](#) for more information.

### Design and 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.



## Certification consultancy

Our Certification Engineer works with the customer through a standard, well-proven process to make sure the design is compliant with the Expo's Schedule of Limitations (SoL), ensuring successful project completion. The SoL defines the scope of what can be certified under Expo's populated enclosure certificate and is broad enough to cover most applications.

[Click here](#) for more information.