

## WS85 PLUS

### Containment In-Situ Hydrogen and Oxygen Measurement

WS85 PLUS provides information about the condition of the containment atmosphere and its composition in normal operation and after design basis and severe accidents.

#### Challenge

The operator of a nuclear power plant needs information about the situation inside the containment, especially during severe accidents. Of particular importance are the concentrations of the combustible gas hydrogen and the highly reactive oxygen. Only if the concentrations of these gases are known can the operator initiate suitable measures to mitigate the accident.

#### Solution

WS85 PLUS, derived from the proven WS85 design, now fulfills a wider spectrum of requirements. Innovative measuring cells have been integrated into the existing design to extend measuring range and parameters. WS85 PLUS is designed to determine the composition of the containment atmosphere during design basis accidents and beyond design basis accidents as well as in normal plant operation. Using the measured hydrogen, oxygen and temperature levels it is possible to obtain an analytical estimation about containment pressure and steam content. A containment hydrogen concentration monitoring system based on the WS85 PLUS sensor can provide the operators with the necessary information about the composition of the containment atmosphere due to its key features:

- Simultaneous monitoring of the combustible gas concentration and distribution at multiple locations.
- Measurement inside containment without sample transfer to the exterior
- Signal processing unit easily accessible for maintenance.

This information provided by WS85 PLUS enables the operator to initiate suitable safety functions, such as spraying, cooling and pressure relief.



WS85 PLUS sensor

#### Technical information

##### Dimensions –

width x depth x height:  
270 mm x 225 mm x 280 mm

**Weight:** about 13.5 kg

##### Measuring ranges:

Oxygen 0–25 vol.-%  
Hydrogen 0–30 vol.-%  
Temperature 0–300°C

##### Detection:

Steam content 0–90 vol.-%  
Pressure 1–10 bar<sub>abs</sub>

##### Boundary conditions:

Pressure 1–10 bar<sub>abs</sub>  
Temperature >160°C

#### Customer benefits

- Improved control of accidents by means of an instrumentation system designed to withstand severe accidents
- Only one cable penetration per sensor
- Easy installation and low maintenance effort

**Your performance**  
is **our everyday commitment**

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