The system has been designed to satisfy the needs of Industry Research Centres requiring the development and the testing of Gas Sensor Heads.

A wet and a dry gas mixture at a controlled concentration are mixed in an UHV cell installed in a climatic chamber.

The system configuration allows the monitoring of concentration, temperature and humidity of a gas mixture in a small volume cell.
A volumetric mixture is prepared via massflow controllers starting from pure gases. Different full scale massflow controllers are used to obtain the required precision over the concentration mixture range.

An additional massflow reader is used to monitor the mass balance through the cell while an optional mass spectrometer can be used to monitor the mixture concentration. The system includes one line for dry air, one line for wet air and four lines for dry gases.

The desired humidity content is obtained mixing dry air and saturated wet air at the required ratio. All tubings are in SS with metal seals to avoid water vapor permeation and gas surface adsorption.

Programmable PSs and one multimeter are used to power and to characterize the sensor heads. An IEEE 488 interface and a Microsoft Access based software are used to set and to control all instruments and to store the data into standard sheet.

The test cell can accept up to 10 sensor heads and has a volume of 1/2 Lt.