

atmosFieldCAL

Field & Laboratory Analyser Calibrator

The accurate calibration / verification of gas analysers during routine service and on-going field assessment of analyser performance is a requirement of Automated Monitoring Systems (AMS). Protea has developed the atmosFieldCAL to enable dilution and humidification of certified test to carry out calibration and verification of installed gas analysers and systems.

Enabling characteristics such as absolute reading, repeatability, reproducibility, linearity, cross-sensitivity to water vapour and response time to be tested in the field

For example to comply with the new reference method for Hydrogen Chloride (HCl) EN 16429

Using multiple Mass Flow Controller (MFC) technology and Protea's Mini Vaporiser the required humidified gas concentration can be set and adjusted as required. In addition the gas concentration required can be generated from certified solutions. The gas / humidified gas concentrations can be manually selected or subject to automatic pre-selected concentration values.

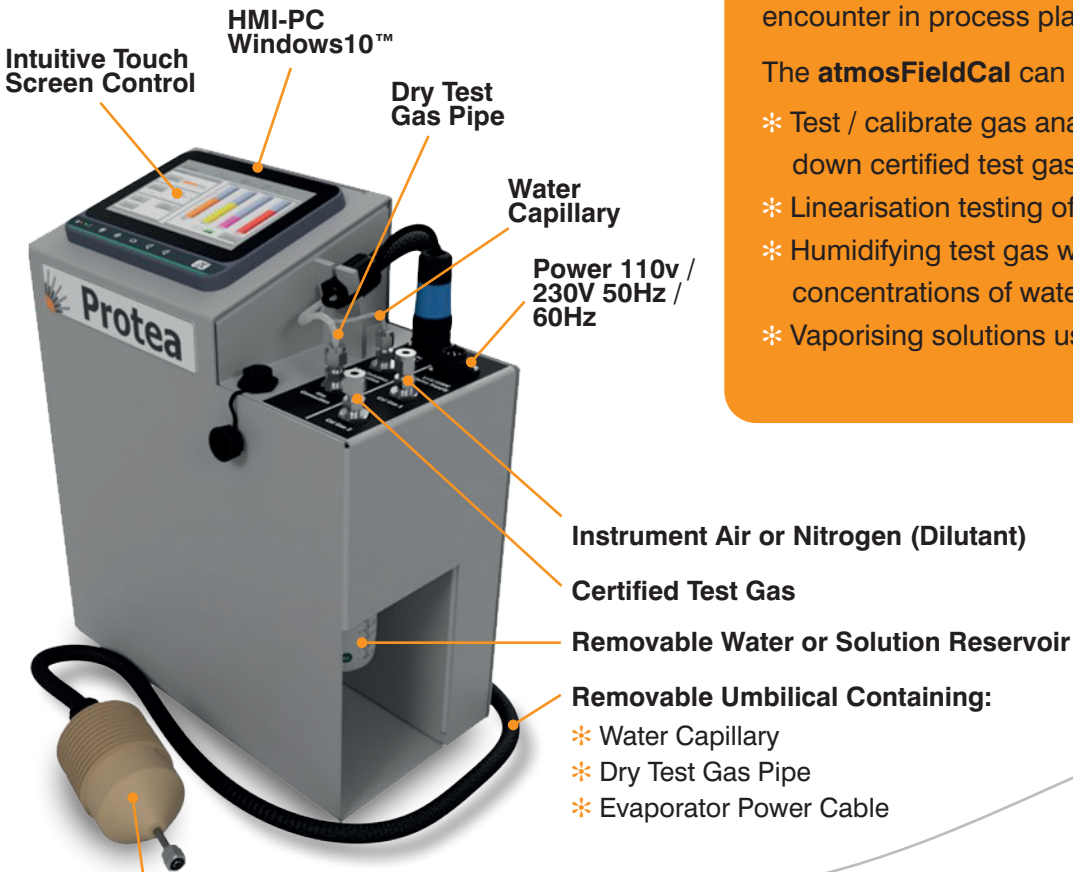
Using the touchscreen HMI the desired gas species, gas concentration, water vapour concentration, flow rate, concentration steps can be set and adjusted. The atmosFieldCAL can be supplied with different MFC flow rate of up to 10l/min.

Cylinder information can be input and logging, such as certificate numbers, for calibration traceability.

The atmosFieldCAL is supplied in a ruck sack to enable it to be safely carried to the AST / CEMS locations, with the option of a rugged flight case for ease of shipping.



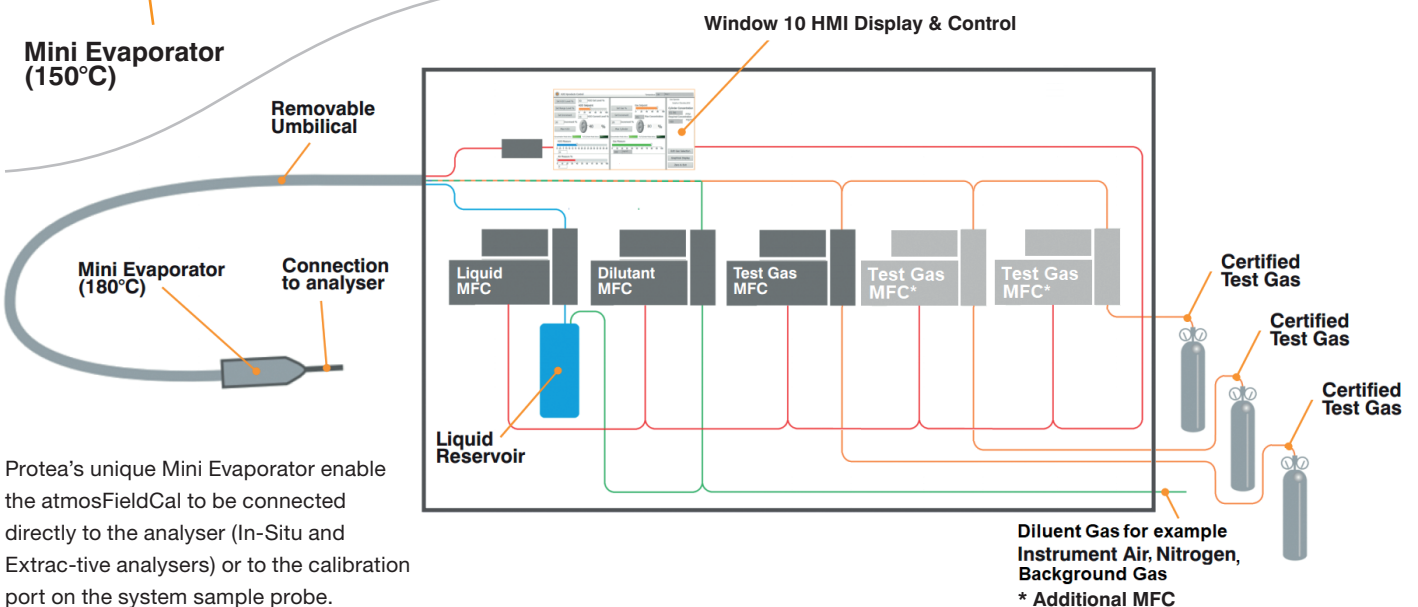
atmosFieldCAL Configuration



The **atmosFieldCal** - is designed to be operated either in the harsh environment encounter in process plants or in laboratories.

The **atmosFieldCal** can be used to:

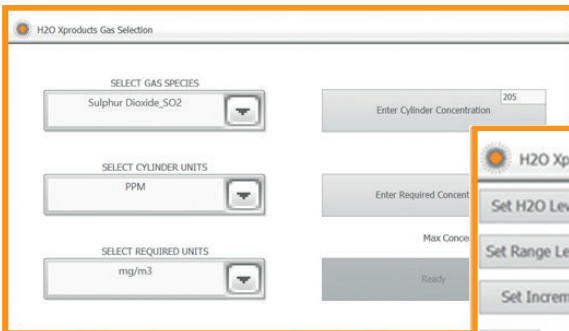
- * Test / calibrate gas analysers by blending down certified test gas
- * Linearisation testing of gas analysers
- * Humidifying test gas with known concentrations of water vapour
- * Vaporising solutions used in calibration



Protea's unique Mini Evaporator enable the atmosFieldCal to be connected directly to the analyser (In-Situ and Extrac-tive analysers) or to the calibration port on the system sample probe.

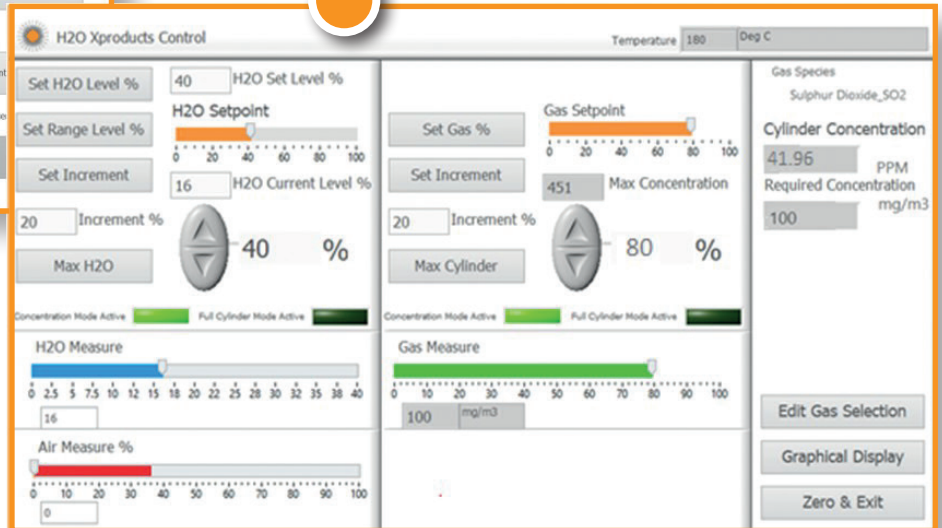
Intuitive Controller Software—Display of Water Vapour, Test Gas & Dilutant Concentrations

Touch Screen HMI with clear display of humidified concentrations of test gas, manual or automatic step function enabling unattended test routine.



Clear indication of actual concentrations of Dilutant Gas, Test Gas and Water Vapour

Post test purge to increase life of “wetted” parts



Time stamped graphical display of concentrations of Dilutant Gas, Test Gas and Water Vapour.

Concentrations of test gas can be applied with a constant water vapor concentration and vice versa.



Calibration and Accuracy

The MFCs used have a high accuracy of 0.5% of reading, plus 0.1% of the range. The atmosFieldCAL embedded software allows for quadratic calibration functions to be applied to the MFCs following their calibration.

Protea can provide the atmosCAL MFC's with full ISO 17025 traceable calibration.

Features	Benefits
Universal for all AMS/CEMS	Suitable for any AMS/CEMS system with a hot span gas port on the sample probe or analyser
Portable water vapour/gas generator	Unique in the market, allowing field calibration / verification
Humidify Test Gas	Identify effect of water vapour on monitored gas
Calibrated to traceable standards	Allows customer to meet legislative requirements
Multiple gas concentrations available from single source gas cylinder	Allows linearisation testing from a single gas cylinder - QAL 2 & AST
Evaporator Temp. Interlock	Ensures Evaporator at temperature before allowing operation, removes the risk of introducing liquid phase water into analyser
Single self contained unit	Multiple equipment hook-ups not required.
Simple user interface	Minimal training/qualification required

Specifications

Gases using Certified Cylinders	Majority of Gases including Combustion Gases - Examples CO, CO ₂ , SO ₂ , NO, NO ₂ , N ₂ O, NH ₃ , CH ₄ , HCl, HF, C ₃ H ₈
Concentrations	0—100%
Water Vapour Concentration	0—80%
Solutions (mol/lit)	Hydrogen Fluoride (HF) 0.001—1.0M Hydrogen Chloride (HCl) 0.001—1.0M Ammonia (NH ₃) 0.001—1.0M Formaldehyde (CH ₂ O) 0.001—1.0M
Carrier Gas	Dry Instrument Air or Nitrogen
Water	Distilled Water
Flow Rate	Adjustable—Carrier Gas , Test Gas, Water
Start up Time	Dry Gas 30 secs, Humidifier Gas 2mins (Vaporiser warm up)
Step Response Time	Dependant on flow rate—Typically 5 secs
Min Evaporator	Temperature Adjustable 100°C—200°C Dimensions Ø70mm x 120mm
Umbilical Length	2 metres
Pipe fittings	6mm Pipe Compression
Dimensions	430mm (H) x 360mm (W) x 180mm (D) Weight 12kg
Power	110V / 230V 50hz / 50Hz—125W



This Datasheet is a guide to the product and Protea Ltd reserve the right to modify the product without notification.