



Procal 9000 Field Calibrator

- ~ Unique, portable solution for in-field CEMS calibration
- ~ Variable gas concentration under both dry and humidified conditions
- ~ In-field testing to EN14181 / US EPA

Instrument Overview



The Procal 9000 range of portable gas / water vapour blenders are designed to carry out field testing and recalibration of installed Continuous Emission Monitoring Systems (CEM) / Automated Measuring Systems (AMS) safely and securely. Designed for ease of use in the industrial environment, they are mounted in a customised backpack to enable safe use when accessing elevated platforms.



Procal 9100: Water Vapour Generator – delivers a constant 5 litres/min flow with between 2 and 60% water vapour concentration by volume. Mounted on a two metre flexible conduit, the mini evaporator is designed to connect easily and directly to the calibration port of the analyser system, avoiding the need for heated sample lines. A syringe pump, using low-cost 50ml syringes, provides a convenient water injection method. A quick-change mechanism makes it practical to carry a number of pre-filled syringes to the point of use for extended device operation. The lightweight unit is supplied with a custom-made backpack for maximum portability. The backpack may also be worn on the front of the body when ease of access is required in confined spaces.

Procal 9200: Test Gas Divider. Housed in the same portable lightweight and robust polyurethane case as the Procal 9100, this unit contains two high-accuracy mass flow controllers coupled with a simple to use control interface. The unit has the facility to enter gas cylinder concentrations and to calculate and display final mix information as well as individual gas flow rates. Using this unit, linearisation tests on analyser systems (CEM / AMS) may be carried out with a single cylinder of gas per species. This represents a very cost effective approach to linearisation testing as require by EN14181 and the US EPA.



Procal 9300: Combining the functionality of both the Procal 9100 water vapour generator and Procal 9200 test gas dividers, this unit can be used to generate humidified gas samples. The test gas and water vapour concentrations can be set independently; allowing the unit to be used to verify the correct operation of extractive analyser sample preparation systems (CEM / AMS). For example, by applying accurately humidified SO₂ samples, the proportion of soluble gas removed by sample conditioning (coolers / dryers) can be measured. The test sample should be applied at the stack takeoff point in order to fully challenge the system.

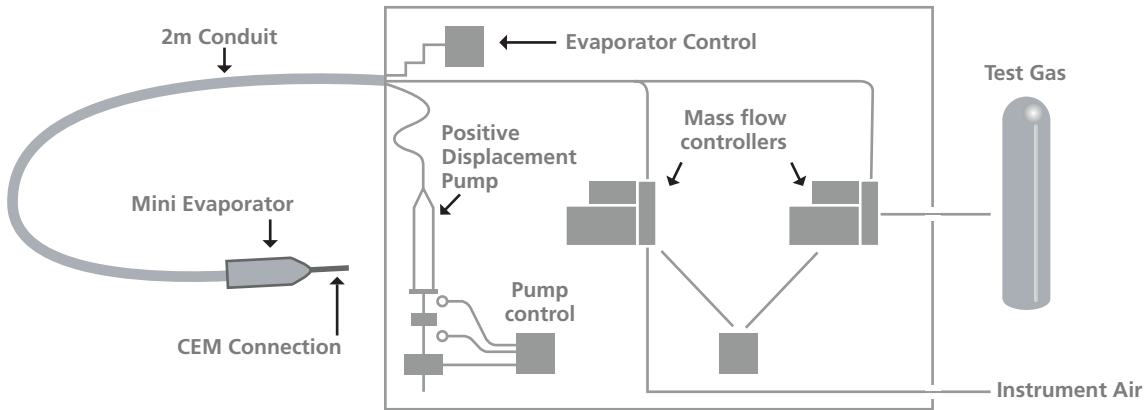


Features

Portable water vapour/gas generator
 Calibrated to traceable standards
 Multiple gas concentrations available from single source gas cylinder
 Single self contained unit
 Simple user interface

Benefits

Unique in the market, allowing in situ calibration.
 Allows customer to meet legislative requirements.
 Allows in situ linearisation testing from a single gas cylinder (required for Qual 2 (AST) checking within MCERTS).
 Multiple equipment hook-ups not required.
 Minimal training/qualification required.



Specifications

Procal 9100:

Water Vapour	2 - 60 % by volume
Sample flow	5 l/min
Water capacity	50ml liquid - Giving a running time per charge of approximately 1 hr @ 20% or 20 min @ 60%
Warm up time	2 min
Accuracy	+/- 1% of Set point plus +/- 0.2% water vapour.

Procal 9200:

Two individually controlled Mass Flow Controllers

Flow Rate	Each 0.1 - 5 l/min
Accuracy	Each +/- 0.5% of set point, plus +/- 0.1% of full scale.

Procal 9300:

Combines the specifications of both the 9100 and the 9200 above

Enclosure	Lightweight, robust polyurethane case contained within an easy to wear, comfortable backpack.
Dimensions:	58 cm High x 35 cm Wide x 22 cm Deep
Weight:	10kg
Supply:	90-264 VAC 47-63 Hz 260W
Instrument Air:	Requires up to 5 l/min @ 1-2 bar
Sample line connection:	6mm O/D stainless steel tube (6mm to 1/4" adaptor supplied)
Inlet connections:	1/8" BSP female.
Traceability	The system is calibrated to traceable national standards. Kittiwake Procal Ltd offers an annual recalibration service.



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