

## GASCAL 1100

### GAS DILUTION CALIBRATOR

The Ecotech GasCal 1100 gas dilution calibrator performs precise gas dilution calibrations, ozone analyser precision checks, gas phase titrations and can be used as an ozone transfer standard.

The GasCal 1100 is available in one of three different versions, the choice depending on the application.

#### GasCal 1100 Dilution Calibrator

The GasCal 1100 uses the latest technology in a simple and effective way to precisely control the dilution of gas standards for calibration of ambient air and source monitoring analysers. The calibrator may be connected with up to four external gas cylinders for precise dilution of these gas standards with dilution air in order to generate a wide range of user configurable gas concentrations.

#### GasCal 1100GPT Dilution Calibrator

Providing all of the functionality of the GasCal 1100, this version adds the ability to perform gas phase titrations and ozone analyser function checks using an extremely stable internal ozone generator.

The ozone generator produces a continuous flow of ozone using the photochemical reaction of oxygen with ultraviolet light with a wavelength of 185 nm.

The ultraviolet lamp used to stimulate this reaction is maintained at 50.0 °C ±0.1°C by a proportional temperature controller and the ozone flow rate is kept stable at 100 sccm.



#### GasCal 1100TS Dilution Calibrator/Transfer Standard

The GasCal 1100TS incorporates a photometer module that enables this gas dilution calibrator to be used as a transfer standard for calibration and precision checks of ozone analysers as well as being able to perform gas dilutions and gas phase titrations.

It is suitable for stand alone use or incorporation into an ambient air monitoring system. The photometer accurately and continuously measures and controls the ozone concentration output by the internal ozone generator, before sending it to an ozone analyser for routine calibration.

### BENEFITS

- Uses U.S. EPA and EN approved calibration methods.
- Calibrations are performed using ISO17025 traceable precision mass flow controllers.
- Mass flow controller zero stability drift less than 0.6 % full scale per year.
- 95% response to MFC changes in less than 5 seconds.
- Up to 10 automatic calibration sequences can be programmed.
- Up to 20 calibration points can be programmed.
- Allows concentration of up to 10 gas standards to be programmed making it ideal for use with multiblend cylinders.
- Full remote configuration and control using Ecotech's WinAQMS data acquisition system.
- Parameter setup also supported via inbuilt LCD and keypad or external PC.
- Calibrations sequences initiated by a suitable data acquisition system, PLC or gas analyser.
- Optional carry case.
- Purge function allows flushing of gas lines.
- Supplied standard with 0-50 sccm source MFC and 0-10 SLPM diluent MFC. Other MFC flow ranges optional.

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## SPECIFICATIONS

### Dilution and span flows:

Input dilution gases:	1 standard 200 kPa (g)
Input source gases:	1 to 4 as standard 140-170 kPa (g)
Dilution mass flow controller:	0-10splm (std), Other ranges available consult Ecotech
Source mass flow controller:	0-50sccm (std), Other ranges available consult Ecotech
Flow accuracy (const.):	Within 1% of full scale
Flow repeatability:	Within 0.15% of full scale
Linearity:	Within 0.15% of full scale
Zero drift:	< 0.58% per year
Response time:	< 5 seconds
Output manifold:	4 output ports standard
Dilution ratio:	Variable 100:1 to 2000:1 (std)

### Ozone generator (optional):

Output:	50 ppb to 1000 ppb at 3 slpm
Repeatability:	< 1% short term (24 hours), 5% long term at constant temperature and humidity.

### Photometer (optional)

Ranges:	0-1000 ppb
Linearity:	< 1% of full scale
Precision:	+/- 3 ppb or 1% of reading whichever is greater
Zero drift:	+/- 2 ppb per day, < 3 ppb per year
Span drift:	< 1% per day, < 3% per year
Flow rate:	3 slpm

### Interface:

Programming:	Via front panel keypad, RS232 or WinAQMS
Programmable calibrations:	10 separate programmable sequences 20 separate programmable points
Digital inputs:	8 digital input bits can start/stop calibration sequences.
Digital Input types:	Relay contact closures or TTL logic inputs.
Digital outputs:	8 digital output bits send status and alarms.
Display:	Four line illuminated display.
Memory:	Non volatile protected, automatic start-up after power failure

### System:

Operating temperature:	0° - 50°C (20° - 35°C for optimum performance)
Input voltage/power:	100-240V AC 47-63 Hz /80VA max
Maximum elevation:	3000 m
Dimensions:	19" Rack mount (135mm H x 450mm W x 440mm D) (Rack mounting drawer optional)
Weight:	GasCal-1100 11kg <sup>(*)</sup> Carry case 9kg

\* Excluding photometer option

### Ecotech Pty Ltd

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