



Serinus[®] Cal 3000

**Advanced Multi-Gas Dilution Calibrator with
Ozone Generator and Photometer**

Reliability, accuracy and precision are hallmarks of Acoem's product range. It's why Acoem's Calibrators have long been trusted worldwide.

The Serinus Cal 3000* includes an ozone photometer for the accurate creation and delivery of ozone concentrations when calibrating ozone analysers. The photometer accurately and continuously measures the ozone concentration to control output of the internal ozone generator, providing an accurate ozone source for routine ozone calibration.

* Acoem Serinus Cal 3000 formerly known as Ecotech Serinus Cal 3000

Features

- Serinus Cal user interface makes all functions simple & intuitive
- In-built photometer & ozone generator for use as a Level 3 ozone transfer standard
- Ozone photometer based on the reliable & proven technology used in the Serinus 10 gas analyser.
- Can be certified as an ozone Level 2 or Level 3 transfer standard

Dilution & span flows

Dilution gas inputs:	1 standard 100 – 200 kPa (g) (2 optional)
Source gas inputs:	4 standard 100 – 200 kPa (g) (8 optional)
Dilution mass flow controller:	10 SLPM, 0 Deg, 1 ATM (std), 1 SLPM, 2 SLPM, 5 SLPM or 20 SLPM (optional), 2nd MFC* (optional)
Source mass flow controller:	50 SCCM, 0 Deg, 1 ATM (std), 10 SCCM, 20 SCCM, 100 SCCM, 500 SCCM or 1 SLPM, 2 SLPM (optional), 2nd MFC* (optional)
Flow accuracy (constant temp):	Within 1 % of full scale
Flow repeatability:	Within 0.15 % of full scale
Linearity:	Within 0.15 % of full scale
Operating gas pressure:	100 – 200 kPa
Zero drift:	< 0.6 % per year
Response time:	< 5 seconds
Output manifold:	4 output ports standard
Dilution ratio:	Variable 10:1 to 2000:1 (std configuration)
Case dimensions rack length:	597 mm (23.5”) (front to rear)
Total length (with latch release):	638 mm (25.1”)
Chassis width:	418 mm (16.5”)
Front panel width:	429 mm (16.9”)
Chassis height:	163 mm / uses 4RU (6.4”)
Front panel height:	175 mm (6.9”)
Weight:	23.8 kg

* Additional source MFC reduces available source ports by 1 and results in no analog output being available

Communication

User interface:	Via front panel keypad or computer
Programmable calibrations:	16 separate programmable sequences 32 separate programmable points
Analog output:	Voltage output of 0 to 5 V, with menu selectable zero off set of 0, 5 or 10 %
Analog input:	Three analog voltage inputs (0 - 5 VDC) CAT I rated
Digital output:	RS232 port #1: Normal digital communication RS232 port #2: Multidrop port used for multiple analyser connections on a single RS232 USB port connection on rear panel 25 pin connector with discrete status & user control USB stick memory (front panel) for data logging, event logging & parameter storage 8 Digital Outputs, open collector max 400 mA each at 12 VDC (max total output 2A) 8 Digital Inputs, 0 - 5 VDC CAT I rated 1 Diluent Control, + 12 V output.

Power

Operating voltage:	100 - 240 V VAC 50 / 60 Hz (autoranging)
Power consumption:	165 VA maximum 95 VA after warm-up
Operating conditions ambient temperature range:	0 - 45 °C (32 - 104 °F), 20 - 35 °C for optimum performance
Pressure:	Maximum altitude: 3000 m above sea level.

Ozone generator

Output concentration:	3 ppb to 5000 ppb
Flow rate:	Variable dependent on Dilution Mass Flow Controller installed
Repeatability:	< 1 % short term (24 hours) 5 % long term at constant temperature & humidity.

Photometer

Range:	0–20 ppm
Precision:	0.5 ppb or 0.2 % of reading, whichever is greater
Linearity:	< 1 % of full scale
Noise at zero:	< 0.25 ppb
Response time:	30 seconds to 95 %
Zero drift:	Temperature: 1.0 ppb per °C 24 hours: < 0.3 ppb 7 days: < 0.3 ppb
Span drift:	Temperature: 0.1 % per °C 7 days: 0.5 % of reading.

