

Technical Datasheet

DESIGN

Based on the highly successful Signal Model 4000VM chemiluminescent NO_x analyser, the 4000VMA has been modified to operate at ambient conditions.

Designed for use with a clean, dry sample where accurate results can be obtained with a less sophisticated unit.



SPECIFICATION

Detector

Chemiluminescent
NO + O₃ → NO₂ + photon
Cooled Photomultiplier Sensor

Ranges

0-4, 10, 40, 100, 400, 1000ppm plus auto-range

Response

95% of reading within 1.5 secs

Bypass Flow Sensitivity

Less than 1% from 1 to 3ltrs/min

Accuracy and Repeatability

Better than ±1% range or ±0.2ppm whichever greater

Linearity

±2% of point or ±1% FSD on all ranges down to 10% of range

Temperature Effects

Zero: Less than ±0.5ppm from 5°C to 35°C
Span: Less than ±0.33%/°C

Noise

Less than ±2pm or ±0.1% of range.
Range time constants can be configured to suit application sample noise. Longer time constants will reduce noise at the expense of response time.

NO₂ to NO Converter

95% efficient requiring periodic checking (use Signal NOXGEN tester)
Converter Temperature adjustable from the front panel

Ozoniser

Generates O₃ from air with negligible NO production.
Air must have less than -12°C dew point

Sample System

Manufactured from 316 stainless steel with an internal 191°C oven, filter, and flow control components

Inlet Pressures

Sample: -5 psi to 15 psi max.
Calibration: 7 psi typical (2l/min) to 30 psi max.

Sample Filter

0.4 micron PTFE filter removable from the rearpanel

Display

240 x 64 pixel LCD display with backlight shows concentration, units and gas in large clear characters; vertical bar graph of chart output with alarm markers; sample flow indication; range, control and message areas.
Bottom of display defines top row key functions.
Additional pages provide full analyser status and parameter set facilities

Remote Control

All functions by 'AK' Protocol using RS232 port. Range, gas path, detector mode, calibration and standby by contact closure or TTL/CMOS logic levels

Power

Dual voltage 115 VAC or 230 VAC ±15% switchable on the rear panel.
600 VA maximum during warm-up.
Pumps are supplied for one voltage on

Outputs

0-10VDC and isolated 4-20mA analogue outputs of displayed range. Range analogue output of 1 to 8VDC. Logic outputs of range, gas path, detector mode, calibration status, and readiness. Two logic alarm outputs. Volt-free relay contacts for analyser fault indication. Output for pump control adaptor. Pumps are automatically controlled from the front panel

Options

Specify mains voltage required.
NO₂ Measurement

Environment

5-40°C ambient temperature.
95% R.H. non-condensing

Dimensions

Analyser:
19" rack mounting 3U high. (133.5mm)
Depth behind mounting face 590mm
Protrusion in front mounting face 45mm
Weight approx. 30Kg
Vacuum Pump:
250w x 270d x 170h mm
Bypass Pump:
200w x 190d x 210h mm
Pump Control Adaptor:
170w x 120d x 55h mm

Plumbing

Sample, span, and zero inlets ¼" tube fittings. Requires 1.5 to 1.6 m 3/8" PTFE tubing for optimum performance

Services

Air at 520 ml/min with a dew point of less than -12°C for the ozoniser.
NO in N₂ diluent for span calibration.
100% N₂ for zero calibration

Every effort has been made to ensure the accuracy of the information contained in this publication. However, Signal's policy of continuous product improvement could possibly result, without notice, in changes being made to the specification as described. Responsibility cannot be accepted for damage, loss or expenses arising as a result.
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