

NEW

# S4 PULSAR

NDIR Multi-gas analyser



NDIR Multi-gas analyser series for industrial gas applications, combustion research, emissions monitoring and gas purity measurement (with optional oxygen analyser).

## Flexible

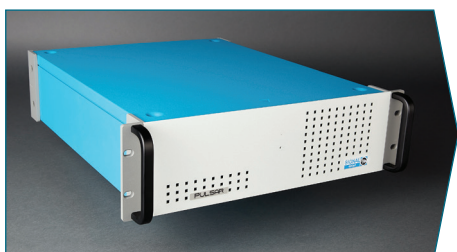
- Available in 1, 2, 3, 4 or 5 gas channel configurations
- Multiple gas and range options

## Easy to Use

- Software suite for use over ethernet or RS232
- Wireless tablet

## Accurate

- Rotating gas filter design for minimal cross sensitivity
- Suitable for ultra-low measurement applications



**Non-screen version**  
available for system  
integrators

**SIGNAL**  
**GROUP**



## A new analyser platform for high-performance and ease-of-use

The new PULSAR analyser from Signal Group has been upgraded to provide the company's best ever performance specification. With **ultra-low drift** it is ideal for low range applications and high accuracy measurement. The unique design of the detector prevents cross-sensitivity to other gases and also removes the risk of contamination by particulate matter. As a result, this instrument is ideal for a wide range of industrial applications.

The new PULSAR gas analysers employ Gas Filter Correlation technology to measure only the gas of interest, with **negligible interference from other gases**.

The optical bench is enclosed in a heated case so an **external chiller is not necessary** for non-condensing samples. There is no interference from water vapour.



two ranges of the same gas running continuously.

Advanced software, employing a 4th order polynomial, ensures linearity of response to maintain **high levels of accuracy across the full range**. Each range on each channel can be linearized by the user and can be calibrated independently. The analysers are supplied with **remote interface software (S4i)** as standard, which enables remote data collection and diagnostic capability. This is open source software designed to provide a wide range of functionality, including an option for users to add their own features if they wish.

User selectable ranges can be programmed to allow each range to have a calibration value entered and a relay inside the analyser can be used to select that calibration gas and auto-calibrate each range separately.

An **OEM version** of the PULSAR is available for systems integrators. This is supplied without the touch-screen front panel and instead uses a Windows software package to run the entire functionality of the analyser from a remote PC.

Every analyser is supplied with a memory stick loaded with a full suite of software to operate the analyser remotely using LAN/RS232.

**NEW: Every S4 gas analyser can now be supplied with a rugged, wireless tablet which connects wirelessly to the analyser via an inbuilt 802.11 wifi that can connect up to 50 metres away. This provides users with the ability to view live data in a different location, and even manage data logging, alarms and calibration.**

By using two sample cells of different lengths in series, it is possible to select a low-range and a high-range; thereby **increasing the overall dynamic range**.

A parallel twin optical bench version is also available for applications requiring the measurement of two **different gases** or

## A wide range of user-set alarms are available for conditions such as:

1. Concentration limit (user set)
2. Sample flow (outside limits)
3. Pump failure
4. Heater failure
5. Voltage outside limits
6. Thermocouple failure
7. Config. error
8. Options incorrectly set
9. IR Motor failure
10. IR Source failure
11. Calculations bad (no calibration set)



## GASES

- CO
- CO2
- CH4
- NO
- N2O
- SO2
- HCl
- O2

## APPLICATIONS

- CEMS
- Research
- Compliance
- Gas Purity
- Automotive
- Air Quality
- Process
- Combustion

## Specifications by gas/range

To receive a quotation for an analyser that precisely meets your needs, simply send Signal or your local distributor a list of the gases that you need to measure and the required measuring range(s) for each.

### CO

| Measuring Range | Resolution | LDL    |
|-----------------|------------|--------|
| 100ppm          | 0.1ppm     | 0.6ppm |
| 1000ppm         | 1ppm       | 2ppm   |
| 1%              | 10ppm      | 0.02%  |
| 10%             | 0.01%      | 0.1%   |
| 100%            | 0.1%       | 0.4%   |

### CO2

| Measuring Range | Resolution | LDL    |
|-----------------|------------|--------|
| 100ppm          | 0.1ppm     | 0.6ppm |
| 1000ppm         | 1ppm       | 1ppm   |
| 1%              | 10ppm      | 20ppm  |
| 10%             | 0.01%      | 0.02%  |
| 20%             | 0.02%      | 0.1%   |
| 100%            | 0.1%       | 0.4%   |
| 100%            | 0.1%       | 0.4%   |

### CH4

| Measuring Range | Resolution | LDL   |
|-----------------|------------|-------|
| 1000ppm         | 1ppm       | 4ppm  |
| 1%              | 10ppm      | 40ppm |
| 100%            | 0.1%       | 0.2%  |
| 100%            | 0.1%       | 0.4%  |

### HCL

| Measuring Range | Resolution | LDL   |
|-----------------|------------|-------|
| 1000ppm         | 1ppm       | 8ppm  |
| 1%              | 0.1%       | 80ppm |

### N2O

| Measuring Range | Resolution | LDL   |
|-----------------|------------|-------|
| 1000ppm         | 1ppm       | 2ppm  |
| 1%              | 10ppm      | 20ppm |

### NO

| Measuring Range | Resolution | LDL   |
|-----------------|------------|-------|
| 1000ppm         | 1ppm       | 4ppm  |
| 1%              | 10ppm      | 40ppm |

### SO2

| Measuring Range | Resolution | LDL   |
|-----------------|------------|-------|
| 1000ppm         | 1ppm       | 2ppm  |
| 1%              | 10ppm      | 20ppm |

## S4 PULSAR analyser screens

### MENU



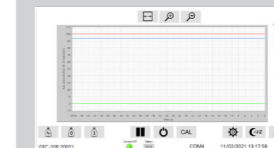
Has links to calibration gas setup, time set, error log, display restart, display refresh, local/remote mode selection and software upgrade. Exit returns to Main screen.

### CHANNEL DETAIL



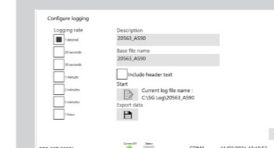
Control and calibration of individual gas measurement channel. Contains chart for visual trace of concentration. Range selection and other channel specific information.

### GRAPHS



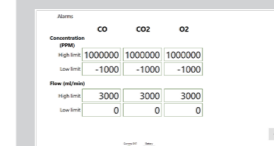
A visual log of recent concentration measurements for all channels, shown as percentage of range.

### DATALOGGING



Enable and set log rates and file title. Allows for exporting to external memory.

### ALARMS SETUP



User selectable settings for concentration and flow alarm limits. Useful for safety or process control.

### PROGRAMMABLE CONTACT CLOSURE SETUP



Select contact closure output actions, used for alarm outputs, range indication, external calibration gas switching per range or external sample valve selection.

### DIAGNOSTICS



Shows current analyser condition (pressures, temperatures and flows).

### CAL GAS SETUP



Use this page to set span gas concentrations. Users may set one concentration for each range on each measurement channel.

# S4 PULSAR

## SPECIFICATIONS

**RANGE:**

See separate page

**RESOLUTION:**

1000:1

**LINEARITY:**

0.5 % of range or 1 % of reading

**REPEATABILITY:**

1 % of reading

**ZERO DRIFT:**

1 % FS per week

**SPAN DRIFT:**

1 % FS per 24 hrs

**WARM UP TIME:**

Usable in 15 minutes, 1 hour to obtain specifications

**FLOW SENSITIVITY:**

1 % of range per l/min

**SAMPLE FILTER:**

10 microns

**OUTPUT SIGNAL:**

TCP/IP

RS232/AK protocol

0.10 VDC

**OPTIONAL**

4-20mA

Canbus

**WATER (H<sub>2</sub>O) INTERFERENCE:**

<1ppm/2ppm H<sub>2</sub>O typical

**REMOTE OPERATION:**

Full suite of software running Window VB

**SAMPLE TEMPERATURE:**

5°C - 40°C Non-Condensing

**POWER REQUIREMENTS:**

110/220V 50/60 Hz

24VDC

70-350 Watts depending on number of channels

**CONSTRUCTION MATERIALS:**

316 Stainless steel

PTFE

Quartz

Calcium Fluoride

**SIZE:**

19" x 133.5mm x 530 mm

**WEIGHT:**

Max 23 Kg

**OPTIONS:**

- Wireless Tablet
- USB socket, SD card
- 4-20mA output
- Canbus
- 35 programmable contact closures (can be configured to select cal gas per channel and per range with cal gas value set in instrument memory)

**OXYGEN:**

- Servo controlled dumb bell detector  
Range 0-5 %, 0-10 %, 0-25%
- Accuracy  
+/- 0.01 % of reading
- Zero drift  
+/- 0.002 % O<sub>2</sub> hour
- Tilt effect  
0.01 % O<sub>2</sub> degree
- Magnetic effect  
A mass of soft magnetic material placed anywhere on the enclosure will cause a change in reading of less than +/- 0.1% O<sub>2</sub>
- Detector noise  
Less than 0.005 % O<sub>2</sub>
- Linearity  
Better than 0.1 % O<sub>2</sub>

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ISO  
9001 : 2015  
REGISTERED

Cert No. 317012019