S4 PULSAR Gas Analyser

Multi-gas NDIR 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

○ Supplied with software suite for use over Ethernet or RS232

○ Optional touch screen GUI for intuitive operation

Accurate

○ Rotating gas filter design for minimal cross sensitivity

○ Suitable for ultra-low measurement applications

Non-screen Version available for system integrators

SIGNAL GROUP

Atut Sp. z o.o.

S4 PULSAR

Signal Series 4 PULSAR analyser range

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

The new PULSAR analyser from Signal 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.

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 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.

All Series 4 analysers can be supplied with an **optional touch-screen display**, which employs an intuitive menu structure for simple operation, calibration, fault-finding etc. The screen includes on-board datalogging with a USB memory stick or SD card.

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.

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
- CO_2
- CH_4
- NO
- N_2O
- SO_2
- HCl
- O_2

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

Signal Series 4 PULSAR analyser screens

MAIN SCREEN

Shows up to 5 channels of information (error condition, measure state, gas type, concentration, range in use, unit in use). Has links to further detail for each channel. Buttons for menu and logging measure state (sample, zero, span, pause, standby and sleep), calibration, abandon calibration, whether to apply calibration to a single range or every range, alarm clearance and user lockout. Also gives general analyser details (time/date/serial number/software versions/etc).

MENU SCREEN

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.

CAL GAS SETUP

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

DATE/TIME SET SCREEN

Set current date/time. Exit returns to Main screen.

DATALOGGING SCREEN

Set log rates and choose data location (USB or SD card), start and stop logging. Exit returns to Main screen.

CHANNEL DETAIL SCREEN

This gives channel specific details such as controlled temperatures, pressures and flows, and allows individual selection of controls for this specific channel, i.e. measurement modes (sample/zero/span/pause), calibration, abandon calibration, errors and choice of range or autorange. Exit takes you to Main screen.

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

OUTPUT SIGNAL:
TCP/IP
RS232/AK protocol
0-10 VDC

OPTIONAL
4-20mA
Canbus

WATER (H$_2$0) INTERFERENCE:
1-2ppm with 2% H$_2$O typical

CO$_2$ INTERFERENCE
1-2ppm with 15% CO$_2$ typical

REMOTE OPERATION:
Full suite of software running Window VB

SAMPLE TEMPERATURE:
5ºC - 40ºC 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

SAMPLE FILTER:
10 microns

OPTIONS:
Colour touch screen front panel with USB and
SD card connections
Sample pump
Sample/Span/Zero gas selector valves for 1 or all
measurement channels
Programmable contact closures (can be set to operate a Span/
Zero gas valve for every range on every measurement channel)
Barometric Pressure compensation

NOTE:
For all touch screen and remote software please see separate
data sheet

OXYGEN:
- Servo controlled dumb bell detector
  Range 0-5 %, 0-10 %, 0-25%

- Accuracy
  +/- 0.01 % of reading

- Zero drift
  +/- 0.002 % O$_2$ hour

- Tilt effect
  0.01 % O$_2$ 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$_2$

- Detector noise
  Less than 0.005 % O$_2$

- Linearity
  Better than 0.1 % O$_2$

Authorised Representative:

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