

Portable IR Flue Gas Analyser PHOTON



PHOTON is a flue gas analyser designed to use mainly infrared gas sensors. It can also be fitted with up to nine electrochemical sensors. The modular construction of this IR flue gas analyser allows almost any configuration to be made, according to the needs of the operator. The measuring ranges of the sensors can also be chosen to suit the application.

The IR flue gas analyser can also be equipped with a range of digital and analogue inputs and outputs to guarantee the transfer and documentation of measuring data. The IR flue gas analyser can also be used to carry out various regulation and control operations. This IR flue gas analyser covers all the possibilities for a flue gas analyser and more.

Measuring Capabilities

- Infrared gas measurement modules:
CO, NO, SO₂, CO₂, CH₄
- Electrochemical gas measurement modules (max. nine sensors)
: O₂, NO₂, H₂S etc.
- Temperature measurement modules: 4 x thermocouple and 4 x thermistor
- Pressure measurement module: 1 x differential pressure and 1 x ambient (absolute) pressure
- Current/voltage measurement module: 8 input channels
- Current/voltage output module: 8 outputs 0 - 10V und 8 outputs 0 - 20 mA
- Programmable relay outputs: 2 relays, extendable to 6 relays

Directly Measured Values

| Variable | Method | Accuracy | Range | Resolution |
|--|-------------------------------|---------------------------|---------------------------------------|-----------------|
| CO - volume concentration | Sensor IR | +/-3 ppm or 3 % rel. | 0 - 2000 ppm 0 - 5 % | 1 ppm 10 ppm |
| NO - volume concentration | Sensor IR | +/-3 ppm or 3 % rel. | 0 - 2000 ppm 0 - 10000 ppm | 1 ppm 10 ppm |
| SO ₂ - volume concentration | Sensor IR | +/-3 ppm or 3 % rel. | 0 - 2000 ppm 0 - 10000 ppm | 1 ppm 10 ppm |
| CO ₂ - volume concentration | Sensor IR | +/-3 ppm or 3 % rel. | 0 - 25 % 0 - 100% | 0.01 % 0.1 % |
| CH ₄ - volume concentration | Sensor IR | +/-3 ppm or 3 % rel. | 0 - 5 % 0 - 100% | 0.01 % 0.1 % |
| Toxic gases such as: NO ₂ , SO ₂ , H ₂ S,... | Electrochemical sensor | +/-5 ppm or 5 % rel. | diverse | 1 ppm |
| O ₂ - volume concentration | Electrochemical sensor | 0.2 % | 0 - 25 % | 0.01 % |
| Gas temperature and temperature channels | PtRh-Pt Ni-CrNi Fe-CuNi | +/-2 °C or 1.5 % rel. | 0 ÷ 1600°C 0 ÷ 1150°C 0 ÷ 700°C | 1°C |
| Ambient temperature and temperature channels | Pt-100 Pt-500 KTY | +/-1 °C | - 20 ÷ 100°C | 1°C |
| Differential pressure | DMS bridge | +/-0.05 hPa or 1% rel. | - 50 ÷ +50 hPa | 0.01hPa |
| Analogue U/I inputs | A/D converter | 0.02 V 0.05 mA | 0 - 10 V 0 - 20 mA | 5 mV 0.01 mA |

Package Details

| Standard | Optional |
|--|---|
| <ul style="list-style-type: none"> • Dot matrix printer 57mm wide • LCD Display 1/4 VGA (320x240) with illumination • Membrane pump • Solenoid valve • Battery with charger • Interface RS232C • 12 slots for measuring modules • CPU module • PC programme for data conversion | <ul style="list-style-type: none"> • Data logger 64MB • 2 user programmable relays • Module with 4 further user programmable relays • Module for control of further pumps and solenoid valves. • Module for 8 analogue outputs • Electronic flow regulation |

Software Capabilities

Communication:

- Extensive list of control and communication commands

Data storage:

- As single reports or continuous

Averaging:

- User programmable from 10 sec. to 60 min.

Preparation of results:

- Cross sensitivity compensation
- Temperature drift compensation
- Calculation of relative and absolute mass concentrations for the gases

Calculation of combustion parameters:

- 22 typical fuels programmed as standard in the IR flue gas analyser
- 10 user programmable fuels
- Calculation of all relevant combustion parameters

Temperature measurement:

- Choice of thermocouple from: PtRh-Pt, Ni-CrNi or Fe-CuNi
- Choice of thermistor from: Pt-100, Pt-500 or KTY

Semi-stationary operation:

- User programmable operating cycle: purge - zero - measure - sleep

Analogue outputs:

- Each of the 8 outputs can be assigned to any value
- Begin and end of the output signal can be defined for every channel singly
- Each output can be defined individually as current (0 - 20 mA) or voltage (0 - 10 V).

International compatibility:

- Four languages in each IR flue gas analyser as standard
- Form and units variable according to national standards

Calibration:

- There is an automatic calibration of the instrument if standard gases are available