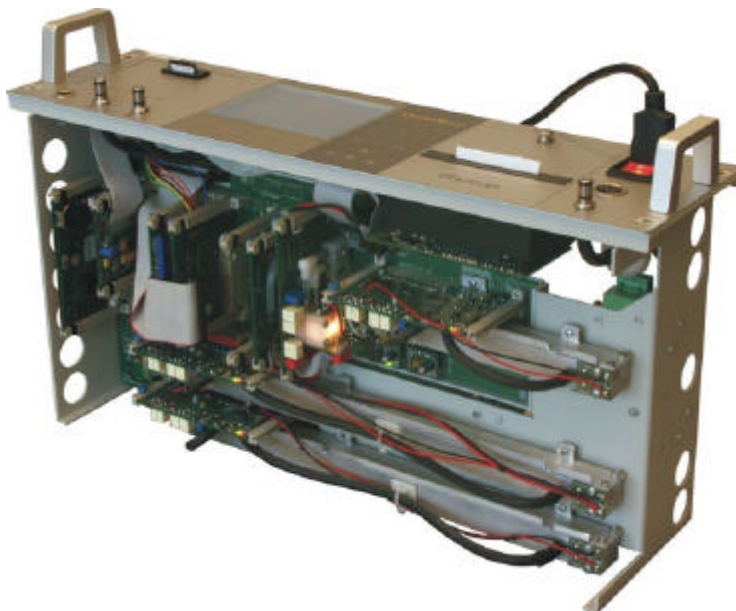


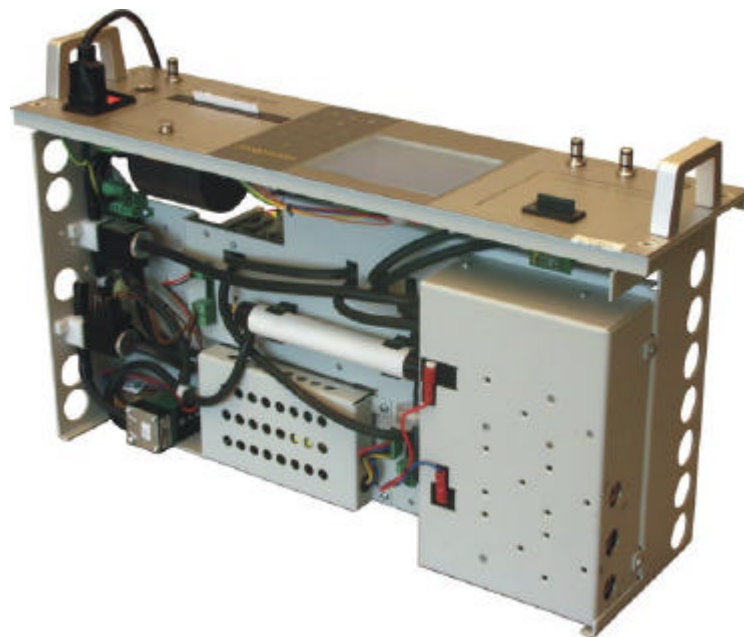
Photon Infrared Flue Gas Analyser

The Photon infrared flue gas analyser is the first instrument truly built on the "plug and play" principle. The basic instrument consists of casing with display, power supply and the back-plane board. The main CPU is also fitted, as are pump and other standard ancillaries. All the main sensing technology for this infrared analyser can then be chosen from a list and simply slotted in. Connect up the gas tubing if needed and the infrared flue gas analyser is ready to go!

In addition to the slots for infrared measurement of carbon monoxide (CO), nitric oxide (NO), Sulphur dioxide (SO₂), carbon dioxide (CO₂), and methane (CH₄), there is a slot for a board carrying up to nine electrochemical sensors. These can be chosen from any of the sensors we generally use. The instrument is designed to give you a choice in all matters. Although designed primarily as an infrared flue gas analyser, the instrument may also be configured using only electrochemical sensors.



In most cases the oxygen sensor will be needed. Differential pressure and temperature measurement are standard equipment on the instrument. This is a flue gas analyser and needs the standard capabilities of a flue gas analyser in addition to the more advanced features associated with infrared technology.



Slots are provided for all the other options that can be fitted as standard. These include additional analogue outputs, relay outputs, extra temperature or pressure measurements, a data-logger and numerous others.

The Photon infrared flue gas analyser weighs in at a slim 8.5 kg with all sensors fitted. Set up takes no time at all, the infrared sensors will, however, give best results after around 20 minutes time. They operate best when they have reached a stable temperature.

Effective drying of the sample is essential when measuring with infrared technology, partly to prevent any danger of fogging of the optics, but mainly due to the absorption lines of NO and

SO₂. These lines are very close to the absorption line for water, so there will be an inaccuracy due to these effects, particularly at low concentrations, if the water is not efficiently removed.

This is best carried out with a permeation dryer for a number of reasons. The Peltier dryer does not remove enough water to be used for this purpose. Whilst it is perfectly acceptable for use with electrochemical sensors, or even for infrared sensors measuring methane or carbon dioxide, the residual water vapour will provide enough signal absorption to completely drown the weaker peaks from low concentrations of NO or SO₂. Even then, it is mostly still necessary to remove the last traces of water chemically to have a completely dry sample stream. A staged refrigeration dryer would also be capable of providing the efficiency needed, but has other disadvantages, not least the size and weight needed!

All in all, this infrared flue gas analyser will change the face of gas analysis, providing the power of a stationary unit in the housing of a portable analyser.