Spectre Odour Monitoring

APPLICATION

Spectre Odour Monitoring units are installed on Gas Transmission or Distribution pipeline networks. Natural gas is odourless so, for safety purposes, odorants are added to give it the familiar gas smell.

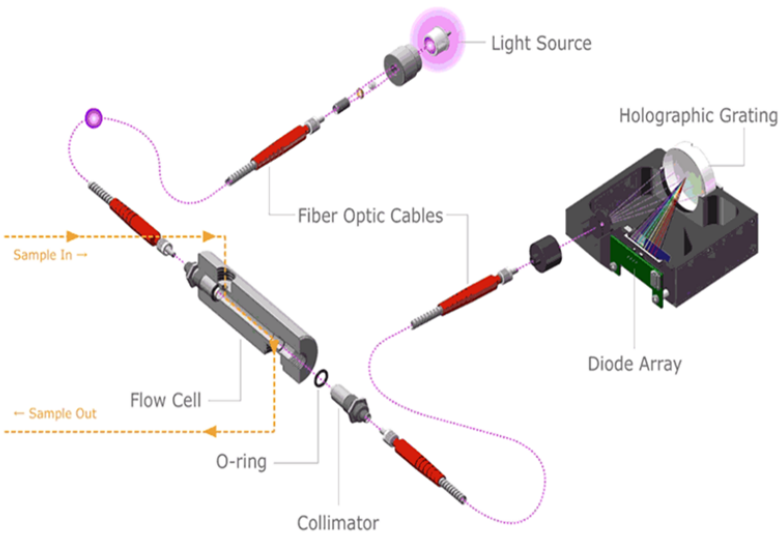
Spectra is designed to measure in-line and remotely monitor the concentration of odorant, TBM (Tetrabutylmercaptan), THT (Tetraidrotiofene) or a mixture of both, and other components in natural gas, such as:

The basic characteristics, common to all versions, are:

- Aromatics; Benzene, Toulene, Xylene, Ethylbenzene, Styrene, etc…
- Sulphured compounds, Mercaptans, Sulphides, H_2S, SO_x
- Amonia
- NO_x
- Flourine
- Chlorine

METHOD

The SPECTRA System analyses the spectrum resulting from the interaction of the gas with a UV radiation with wavelength λ between 190 nm and 250 nm and determines the corresponding absorbance curve. The analysis is carried out through a measuring cell, which the gas is introduced to at a known pressure by means of a system of electro valves.



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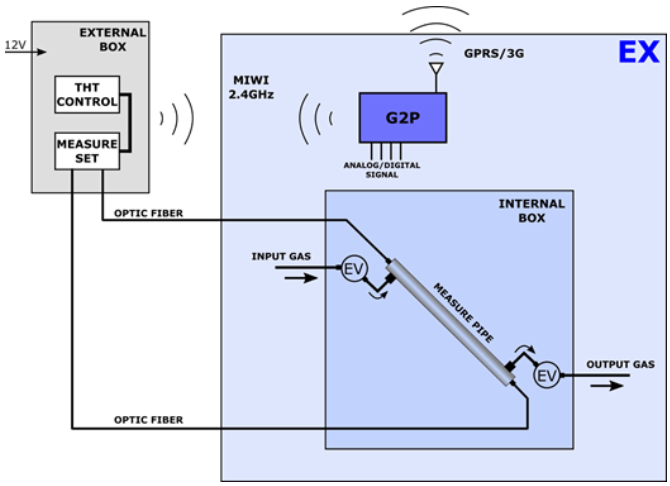
With: AUTOMA

Spectre Odour Monitoring

Measurement Section - Internal Box

The measurement is collected using a spectral analysis method of the gas within the measuring cell, in which the gas is introduced at a known pressure through a solenoid valve system.

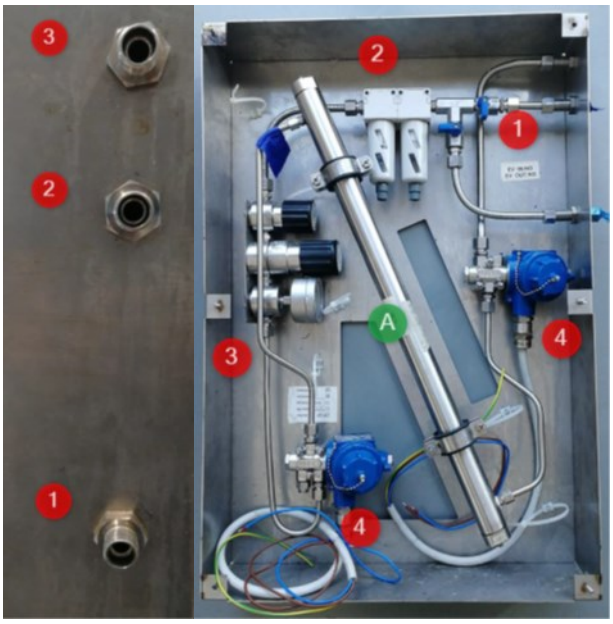
Each measurement is obtained as an average of several measurements over a 20-minute period using the same gas volume/sample (CYCLE).



Data is collected at a standard frequency of of 4 times a day. However, this can be increased if required with measurement intervals of up to 20 minutes.

The G2P unit sends data through a GPRS/3G/4G/Ethernet connection to a SCADA or to AUTOMA WebPressure system. Alternatively, it can send out a 4-20mA signal reference for other systems.

The internal box is installed within the classified area, it contains the measuring tube, the solenoid valves and the gas filtering and pressure reduction sections.



FEATURES

- Measurement from the medium pressure line (min 2.0 Bar)
- Measurement pressure regulated in the cell: 2.0 Bar
- Measurement cell length: 50 cm
- External dimension of the box: 780 x 540 x 100 mm (HxLxW)
- 3 x Connections (10 mm TAZ tube connections)
- Measurement accuracy: typically 5%

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Data Processing – External Box

The external control (data processing) box is installed in the safe area and contains the electronic control elements that allow us to carry out the measurements remotely. It is equipped with a wireless communication interface with the G2P unit for data transmission.

FEATURES

- Dimensions: 650x430x210 (HxLxW);
- Grade of protection: IP65;
- Power source: Mains or solar panel;
- Interface G2P: Wireless MiWi 2.4Ghz through internal/ external antenna.

DATA MANAGEMENT – SCADA SYSTEM OR AUTOMA WEBPRESSURE

The GOLIAH G2P monitoring unit operates in RTU mode and is regularly interrogated by a centralised system (SCADA or Automa WebPressure) which allows all SPECTRA system parameters to be managed remotely and receive all data. With the local hardware and software it is possible to carry out remote analyses, recover the full spectrum of the gas, detect changes in the composition and apply possible adjustments to improve the measurement accuracy.

The WebPressure software stores all historical data collected therefore offering in-depth analysis of a known location or the entire system.

The software/server can be hosted on by CPCL/Automa or on a server in the client network.

We recommend to simplify the initial analyses, the user operates the AUTOMA WebPressure application for use of immediate analysis tools.

The AUTOMA server connection to the SPECTRA system is made with a proprietary protocol procedure connection and access is authorized through user verification and security key.

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Example Installations