Fourier Transform UV Ammonia Analyzer Model FTUV

Emission monitoring (CEMS) & Engine exhaust gas

FTUV:

Ultra-fast NH3 monitoring (response time < 2 seconds)

FTUV analysis cabinet with built_in heated sampling module (integration of other analyzers for NOx or THC as an option)

Applications:

- Engine exhaust gas monitoring
- Emission monitoring (CEMS)
- Process control (DeNOX SCR and SNCR)
- ...

Exclusive features:

- Very high selectivity and maximum stability thanks to the UV Fourier Transform principle
- Ultra-fast response time (< 2 sec)
- High speed DSP processor
- No risk of interferences or quenching effect due to CO, CO_2 or H_2O
- No internal converter, ultra-low maintenance
- High lifetime of the lamp (> 1 year of continuous use)
- Heated chamber (190°C)
- Touch screen
- Multilingual software
- Automatic compensation of pressure and temperature variations

Fourier Transform UV Ammonia Analyzer - Model FTUV

Specifications:

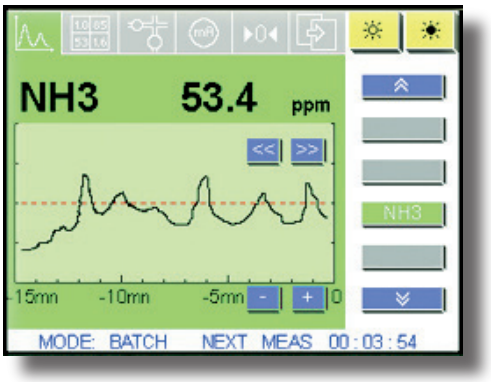
- Ranges: 0-100 / 0-500 ppm
- Zero noise: < 2% Full Scale (F.S.)
- Span point noise: < 2% F.S.
- Lower detectable limit: 0.4 ppm
- Response time: < 2 sec (T90)
- Zero drift: < 2% F.S. / 24 h
- Span drift: 2 % F.S. / 24 h
- Linearity: ± 1 % F.S.
- Interferences:
  - < 4% F.S. (sum of interferents)
  - < 2% F.S. (single interferent)
- Sample flow rate: 0.1 to 5 l/min
- Heated block temperature: 190°C
- Housing: Rack 19 " – 3U
- Dim.: 435 x 560 x 132 mm (W x D x H)
- Weight: 10 kg
- Operating temperature: +5 to +45°C
- Communication: RS 232
- Protocol: AK and MODBUS

Utilities:

- Power supply:
  - 90 to 264 VAC, 50-60 Hz
  - consumption 40 VA
- Zero air

Options:

- 4-20 mA isolated output
- Complete rack cabinet integration, with sampling system



FTUV Touch Screen

Operating principle:

The absorption spectrum of a UV radiation (180-320 nm) is measured by a spectrometer after crossing the FTUV optical chamber (22 cm absorption pathlength).

A first measurement, performed on zero air, gives the reference spectrum. Then the sample to be measured is injected into the UV irradiated optical chamber. The sample gas absorbs a part of this radiation in the 190-210 nm wavelength.

The difference between these two spectra corresponds to the NH_3 absorption spectrum.

The periodic structure of the absorption bands coming from the different levels of rotational energy of ammonia molecules is analyzed by performing a Fourier Transform on the absorption spectrum.

An absorption ray is obtained from the spectrum period, by applying a FFT signal processing (Fast Fourier Transform).

This absorption ray is then converted into NH_3 concentration thanks to the universal proportional relationship between absorbance and concentration (Beer-Lambert law).

The general Beer-Lambert law is usually written as:

$$A = \varepsilon \times L \times C$$

With:

A : radiation absorbance by the gas molecules through the optical pathlength
L : optical pathlength
C : gas concentration
ε : $(4\pi.k)/ l$ and l= radiaition wavelength
k : extinction coefficient

The use of the UV range for the measurement of NH_3 has been specifically selected to avoid any interference with other major emission gases (CO, CO_2, H_2O etc..) that do not absorb in the UV.

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