

Unmanned Total Gas (UTG) Service

Fast and reliable continuous real-time gas measurement to ensure drilling safety

APPLICATIONS

- Development land wells
- Completions
- Workovers
- Well abandonment projects
- Geothermal projects

BENEFITS

- Provides real-time safety alert with no extra personnel on board
- Enhances data resolution by measuring continuous total gas
- Performs fast total gas (TG) measurement when long gas analysis transit time can compromise rig safety

FEATURES

- Auto-levelling gas extractor
- Near-zero maintenance
- Range of 0–100% CH₄
- Limit of detection: 1,000 ppm (methane equivalent)
- Accurate within $\pm 3\%$ full scale range
- No cross sensitivity with main contaminants

The UTG service encompasses two primary components, which include an auto-levelling, constant volumetric gas extractor and a gas analyzer. The gas extractor samples gas from the drilling mud, which is then pumped into the gas analyzer. Based on infrared technology, the gas analyzer continuously measures the TG concentration of the sampled gas.

Both the gas extractor and the gas analyzer require nearly-zero maintenance. The extractor features a self-adjustment mechanism that automatically sets the position of the extraction chamber in the header box, as well as trips an automatic purge of the compressed air filter. The gas analyzer benefits from the automatic purging systems for the compressed air filter and for the demister filter which remove humidity.

The UTG service is simple and quick to rig up and can be installed on any electronic drilling recorder. Data can be viewed and exported in both time and in-depth format.



UTG service.

Gas Analyzer

Metrology:

- Measured gas: combustible hydrocarbons
- Detection range: 0% to 100% Vol CH₄
- Limit of detection: 1,000-ppm equivalent methane
- Accuracy: ±3% full scale range

Environmental conditions:

- Temperature range: -20–65 degC
- 0 to 100 % RH, noncondensing
- Response time (with standard degasser): < 5 s

Integration:

- Signal output: 4–20 mA powered between 18–30 V
- Minimum pressure required: 100 psi
- Air consumption: 70 L/min–90 L/min

Dimensions:

- Length: 400 mm [16 in]
- Width: 550 mm [22 in]
- Depth: 300 mm [12 in]
- Weight: 15 kg [34 lbm]

Certifications ATEX, IECEx:

- Ex II 2G EX IIC T4 Gb
- Ex h IIC T4 Gb
- IECEx INE.17.0001X
- INERIS 17ATEX30001X

Gas Extractor

Certifications UL:

- Class I, Div 1, Groups A, B, C, D
- Class II, Div 1, Groups E, F, G
- Class I, Zone 1, Group IIC; T-Code T4/T6
- -40 degC ≤ Ta ≤ +40 – +80 degC

Certifications CSA:

- Class I, Div 1, Groups A, B, C, D
- Class II, Div 1, Groups E, F, G
- Class I, Zone 1, Group IIC; T-Code T4/T6
- -40 degC ≤ Ta ≤ +40 – +80 degC

Dimensions:

- Height: 900 mm [36 in]
- Width: 200 mm [8 in]
- Depth: 220 mm [9 in] motor with 220 mm [9 in] pneumatic control box

Weight:

- Extractor with electric agitator: 19 kg [41 lbm]
- Mast assembly: 11 kg [24 lbm]
- Control box: 8.2 kg [18 lbm]
- Total: 38 kg [83 lbm]