

Clamp-On Gas Flow Measurement

Abstract

One of the largest renewable energy companies in the UK asked RS Hydro to measure landfill gas production from multiple locations. Previously only insertion probes could be used but now clamp on flow meters can be used to measure gas at any location onsite from 20mm to 700mm. Previously thought not possible, but the PT878GC takes this in its stride...

Equipment Used

Panametrics PT878GC from RS Hydro's rental fleet.

SIEMENS



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Background

RS Hydro is the UK's leading distributor of Panametrics flow meters for all liquids and gas. Although there are a number of manufacturers supplying liquid ultrasonic flow meters, their success in gas flow measurement circles is far less. Ask a professional whether they would rather use insertion probes to measure gas flows or use technology which can be mounted easily and externally to the pipe, the answer is all too easy.

RS Hydro's portable and permanent clamp on flow meters have recently been used to monitor landfill gas at various locations throughout the UK. Working for a leading renewable energy company, RS Hydro used its clamp on gas meters to measure production from various landfill sites without any modifications to the existing pipe work.



fig1. PT878GC can be used on most gases.

After just a few hours training, the user was able to install and relocate the flow meter within just a few minutes. The flow meter can log up to 100,000 readings for flow, velocity or any diagnostic. The user is also able to connect 2 (of) 24v analog (4-20mA) instruments such as pressure or temperature. The user can also transmit the data externally using another 4-20mA or digital pulse output. And there's no need for cables because when you've finished logging data, you can transmit the data to any PC using the internal infrared port.



fig2. PT878GC used to measure landfill gas

The Total Solution

RS Hydro provide a total service solution, so whether you wish to purchase or rent, the instruments are available on a next day service anywhere in Europe. To protect and transport the flow meters, RS Hydro provide the flow meters in lightweight hard carry cases.

Not just landfill gas, the flow meter can be used on most gases including but not limited to natural gas, methane, oxygen, nitrogen, air, CO₂ and off-gas. If the gas is under pressure you can either run the flow meter in passive or active modes. In active mode, it can measure mass flow by using pressure and temperature sensors. In passive mode, you can simply enter the information in a few seconds.

Traditional portable landfill gas flow meters use pitot tubes to measure flow at a single point. Transit time flow meters send ultrasonic signals through the complete cross-section and can therefore achieve accuracies of better than 2-5% below 150mm and 1% above 150mm diameter.

The PT878GC can also be used for natural gas, compressed air, nitrogen, aggressive and corrosive gases.