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Dispensing of Ethanol Cooking Fuel

Titan Enterprises' flow meter technology is playing a vital role in supporting **KOKO Networks** (Nairobi, Kenya) deliver cheap, safe and clean cooking fuel into African homes.

Designed and built by KOKO Networks ("KOKO"), "

KOKO Point" vending machines dispense liquid bioethanol to customers across Nairobi. Installed inside local shops, these clean fuel ATMs provide fuel in small quantities for daily cooking, and are part of an elegant solution to a widespread problem in African cities: how to get clean fuel for cooking into homes safely and affordably.



A KOKO Point ethanol Fuel ATM being used by customers in a Nairobi convenience store

Across many African countries,

where electricity connections are expensive and unreliable, and mains gas non-existent, the cooking fuel market is dominated by charcoal and paraffin, both of which emit toxic fumes and soot that contribute to the premature deaths of hundreds of thousands of people each year.

Bioethanol (essentially industrial-grade alcohol) is an ultra-clean alternative that can be produced from a number of feedstocks. In East Africa it is a sustainable by-product of the local sugar industry. Until now, however, it has been difficult to package, transport and retail in a safe and cost-efficient way. By removing the need for single-use plastic bottles, KOKO's model gets fuel to customers at about half the price of traditional distribution models, creating a scalable solution to the dirty fuels problem.

KOKO has installed around 700 KOKO Point Fuel ATMs in corner stores right across Nairobi, and is preparing to expand across the rest of Kenya from next year. There is already strong demand for this safe, clean cooking fuel; customers simply dock their reusable KOKO fuel bottles into the machine, and once at home, connect the bottle to KOKO-designed twin-hob stoves.



Low cost, reliable turbine flow meter from Titan Enterprises

Neil Hannay, Business development manager at Titan Enterprises,

commented: "A few years ago we were approached by KOKO to work with them on this life changing development for African families. KOKO required a highly reliable and inexpensive flow meter capable of precisely dispensing ethanol cooking fuel in small volumes."

"As a result of our joint development,

at the heart of each KOKO Point fuel ATM is a precision Pelton wheel turbine flowmeter that rotates freely on robust sapphire bearings and contains over-moulded magnets that are detected through the chamber wall by a Hall effect detector. The output from this turbine flow meter is a stream of NPN pulses that are directly interfaced with the electronic display. This combination of materials and technology ensures a long-life product with reliable operation throughout. Constructed from totally non-metallic wetted components and offering a flow range of up to 10 litres per minute, our turbine flow meters are helping transform the way that African families undertake their daily cooking tasks."

For further information

on the 800-Series turbine flowmeter please visit <https://bit.ly/3iW6gVR> or contact Titan Enterprises on +44 1935 812790 or sales@flowmeter.com. For further information on KOKO Networks, please visit www.kokonetworks.com.

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Drawing upon over 40-years of flowmeter innovation - Titan Enterprises Ltd is a manufacturer of high-performance solutions including the Atrato ultrasonic flowmeter, Oval Gear flowmeters, low flow Turbine flow meters and a flow instrument range. Titan's company philosophy of "pushing the envelope by trying to do things a little different and better" has resulted in sales of over 500,000 products into 50 countries worldwide and a repeat purchase percentage of 95%. All flowmeters produced by Titan Enterprises are designed and manufactured to ISO9001 and calibrated to an uncertainty of $\pm 0.25\%$.

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