



OIL & GAS

GET BEST-IN-CLASS WIRELESS CONNECTIVITY WITH MIOTY™

ROBUST
SCALABLE
COST-EFFECTIVE



In the context of increasing competition and volatile commodity prices, the oil and gas industry is constantly searching for new approaches to increase Overall Equipment Effectiveness (OEE), while simultaneously fulfilling HSSE (Health, Safety, Security, and Environment) requirements. Digitalization and IIoT technologies bring about huge opportunities for asset visibility, operational efficiency, and safety management. Nevertheless, the transition from brownfields to digital oilfields can be cost-intensive and highly challenging due to extreme operating conditions and insufficient communication infrastructure. Offshore distance,

explosive atmospheres, rugged terrains, absent power supply and electromagnetic interference represent the most demanding environment for any wireless network.

Experience carrier-grade, robust sensor connectivity in oil & gas fields

With a long range, high power efficiency and high interference immunity profile, MIOTY™ delivers the most resilient sensor connectivity to facilitate automation of manual processes on oil and gas



fields. Covering a vast area of a 5 - 15km radius (depending on structural density), the system enables effective data collection from assets located in remote and hazardous areas where workers' accessibility is restricted. Supporting long-lasting operation of independent, low-cost batteries on the sensor side, MIOTY™ significantly alleviates the upkeep effort of battery recharging and replacement. Outstanding network robustness, powered by the worldwide patented Telegram Splitting technology, secures optimal signal reliability in the electromagnetic interference environment, as well as across rough terrains, elevation and through heavy metal obstructions.

Use Cases

Empowering a broad spectrum of IIoT applications across upstream, midstream and downstream processes, MIOTY™ delivers a new layer of operational transparency, productivity, and safety in oil and gas.

Remote monitoring of disparate field equipment to increase asset visibility & combat fuel thefts

Pumps and compressors are critical assets in drilling and extraction processes. A single pump failure may cost as much as \$300,000 a day due to halted production. Malfunctions, especially at offshore rigs, are often not discovered until an on-site surveillance is conducted. Enabled by the MIOTY™ network, remote pressure, temperature, flow rate and other measurements from embedded sensors inform whether the equipment is

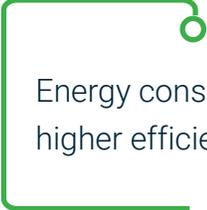
functioning at its full capacity and send notifications of any anomalies for effective maintenance scheduling.

From flow lines, gathering lines to transmission lines and distribution lines, pipes are among the most vital components in the oil and gas industry. Outfitting pipelines with temperature, flow rate, pressure and vibration sensors, allows for timely diagnosis of corrosion, ruptures and leakage to prevent hazards and production losses. Continuous pipeline monitoring also helps identify potential threats of fuel theft and accompanied spillage that can result in the loss of millions of dollars to oil and gas businesses.

Tank overflow can result in severe environmental issues and associated regulatory fines. Transmitting data from level sensors, MIOTY™ helps companies remotely monitor both above- and underground storage tanks for timely unloading to avoid spills. Tank leakages can further be diagnosed when unusually low levels are observed.

Predictive maintenance of machinery to reduce production downtime

In both exploration and refinery, MIOTY™ networks can be leveraged to connect vast embedded and environmental sensors, providing near real-time insights into machinery status (e.g. electric motors, turbines, valves, ventilators) and their operating conditions. Coupled with a powerful analytics platform, causes of past failures and future error probability can be identified. Maintenance can thus be effectively scheduled, when needed, to prevent failures in advance and minimize costly production downtime.



Energy consumption monitoring for higher efficiency & sustainability

MIOTY™-enabled wireless sub-meters allow for seamless multi-level energy consumption tracking from plant, process unit to machinery level. Energy flows, consumption patterns and usage behavior across multiple sites can be analyzed for effective production planning, identifying power waste sources and improving energy efficiency. Energy usage at the machinery level will also provide insights into the service life of an asset and when an upgrade is required.



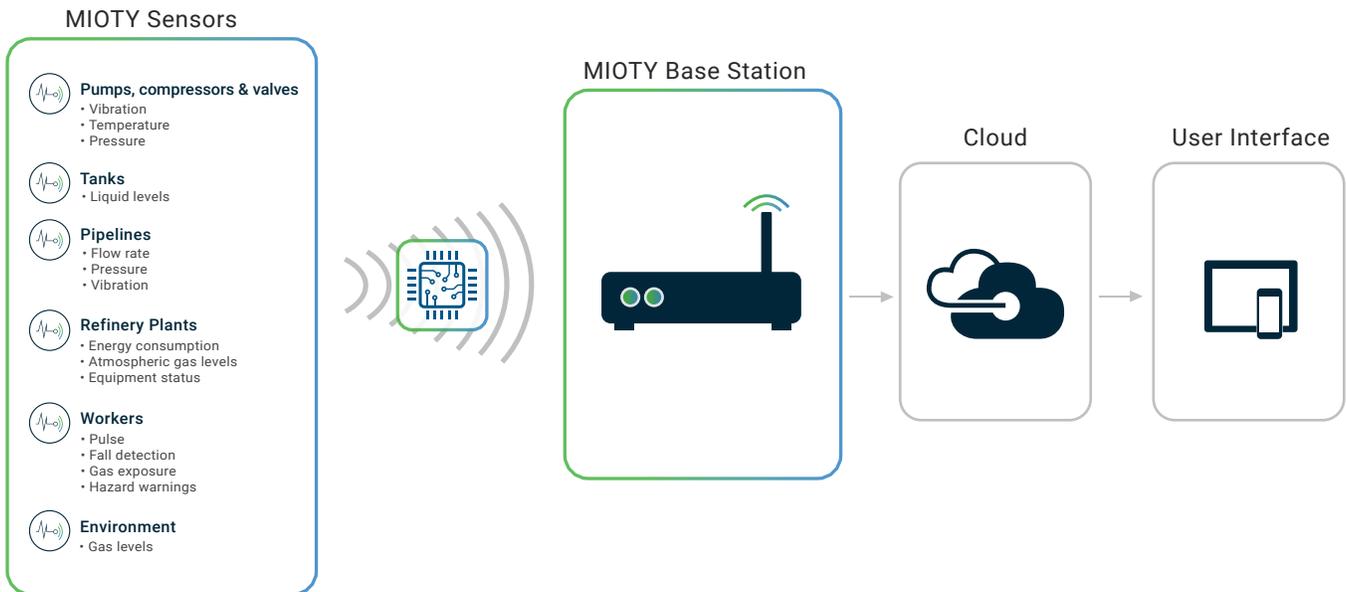
Professional wearables to enhance worker safety

Oil and gas fields with a combination of flammable substances, hazardous chemicals, and powerful equipment represent one of the most dangerous industrial working environments. Professional wearables can regularly communicate workers' health and activity parameters (e.g. pulse, fall detection, emergency distress indicators, GPS location) and trigger emergency signals when an accident or an "out-of-tolerance" event occurs. In combination with situational data from environmental sensors (e.g. air quality, gas concentration level), wearables can also alert workers in case of potential hazards for timely evacuation from endangered zones.

Connecting a vast amount of remote sensors, even the ones at previously unreachable locations, MIOTY™ fuels unprecedented data inputs to enable real-time analytics and visualization of onshore and offshore processes. As the first and only LPWA technology complying with the global ETSI standard for low throughput networks, MIOTY™ brings a worldwide compatible, reliable and secure solution into play. Oil and gas companies can now benefit from improved asset integrity, energy efficiency, environmental protection and personnel safety.

MIOTY™ in Action

Feeding Massive Data for Real-time Analytics & Visualization



Why Choose MIOTY™ ?



About BTI

Founded in 2018, Toronto-based Behr Technologies Inc. (BTI) is a worldwide licensee of MIOTY™, the leading wireless communication technology for Industrial Internet of Things (IIoT). The company is focused on commercializing, licensing, and supporting the MIOTY technology through partnerships with industry-leading technology providers, and the development of new MIOTY-based products and applications for the IIoT marketplace. BTI's first commercial product using this ETSI standard is the MIOTY 1.0 Starter Kit with Microsoft Azure, which was launched in April 2018 at Hannover Messe, Germany.

For more information, visit:

www.behrtechnologies.com

