

REMOTE MONITORING OF OIL & GAS PIPELINES

SUMMARY

Our lives depend on energy and while many countries are working towards more sustainable future with development focused on renewable energy sources, oil & gas remain the most popular sources of energy today. Combined, oil & gas account to more than 60% of the global energy consumption, according to BP estimates.

CHALLENGE

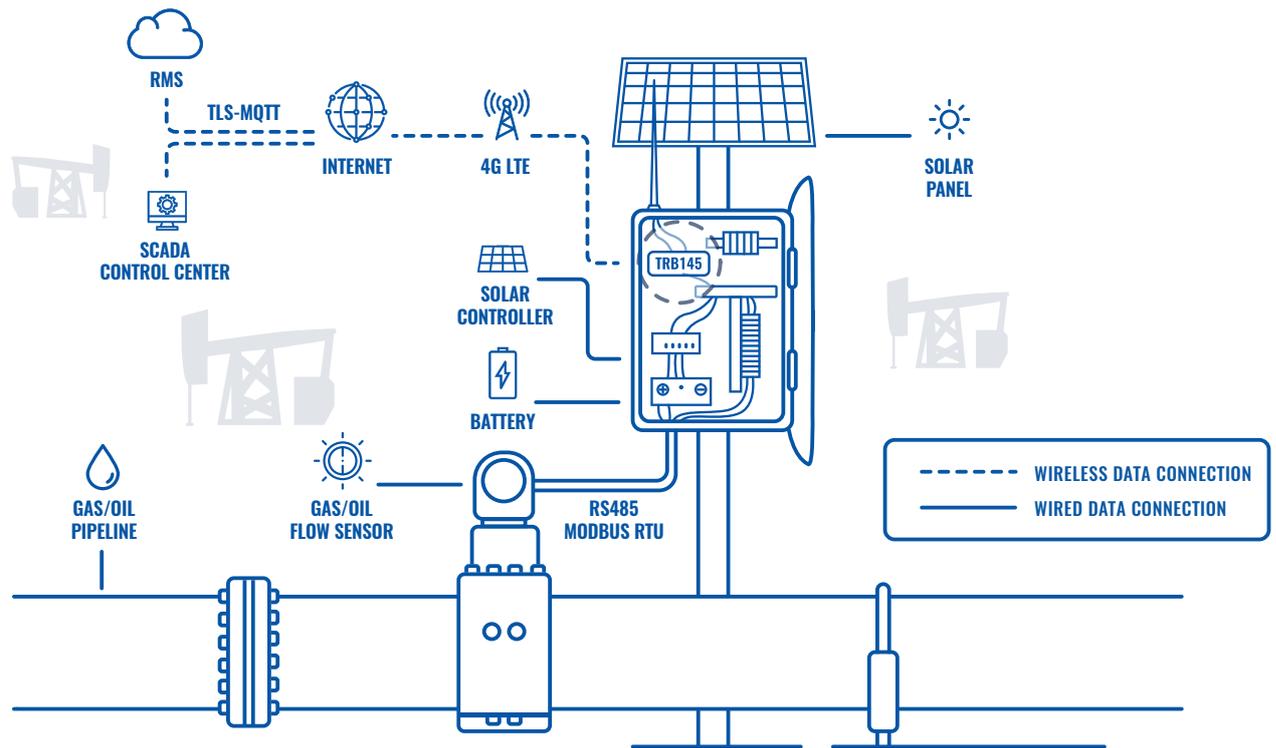
Extraction of energy from oil and gas sources is a complex process which requires a lot of infrastructure. One part of such infrastructure are the pipelines which are the key transport mechanism for Oil & Gas industries. They provide a safe, efficient, and cost-effective way to transport processed and unprocessed materials and operate continuously outside of scheduled maintenance windows. To preemptively diagnose possible safety and/or productivity issues the rate of the flow of materials must be closely monitored. However, pipeline infrastructure is usually placed in remote areas where wired Internet connectivity is not available.

SOLUTION

Satellite communications are still highly expensive, however global expansion of 4G LTE coverage enables Oil & Gas companies to implement a wide pipeline flow monitoring network by using dedicated flow meters which output data using industrial protocols. In many cases – serial communication with RS-485 and Modbus industrial protocol is used. The data generated by the flow meter must be obtained and forwarded to control centers, SCADA systems to aggregate and interpret centrally. TRB145 Serial IoT Gateway by Teltonika Networks is perfect for such applications - with RS-485 interface, Modbus RTU Master functionality and 4G LTE Cat1 it is able to periodically read flow meter information and send gathered data to remote HTTP/HTTPS servers or various IoT platforms using MQTT. Finally, wide power supply range and low energy consumption allows TRB145 to be powered up by combining solar power and batteries.



TOPOLOGY



BENEFITS

- Low-cost and quick to deploy – multiple TRBs can be simultaneously configured immediately using Teltonika Remote Management System (RMS).
- High availability and low data cost – 4G LTE is highly available globally and cost efficient due to low amounts of data needed for this application.
- Data security – TRB145 supports advanced data protection with embedded Firewall and encryption with multiple VPN services available, such as OpenVPN, IPsec, PPTP, L2TP and others.
- Immediate notifications – if preset flow values fall out of defined criteria, system operators can setup TRB145 to receive immediate alarms.

WHY TELTONIKA?

TRB145 with Teltonika Remote Management System (RMS) enables operators to quickly deploy a large number of monitoring sites and manage them with ease from anywhere using RMS even without Public IP. In addition, highly functional and secure RutOS empowering TRB145 IoT Gateway allows great solution flexibility able to adapt to different network requirements of the whole system. Finally, TRB145 has two configurable I/Os allowing to monitor solar controller and alert system operators if there are any issues with solar battery system.

