



# CELLULAR ROUTER FOR WATER INFRASTRUCTURE SCADA SYSTEMS

## HIGHLIGHTS

- ✔ [Watt Unit](#) is a Romanian specialist in electrical system engineering, procurement, and project management, leveraging technological expertise for industrial challenges of any kind.
- ✔ To execute a water infrastructure upgrade project and establish a SCADA system in the city of Medgidia, Watt Unit needed an industrial cellular router for reliable and secure connectivity.
- ✔ The chosen device is our RUT951 cellular router, deployed alongside the [TSW010 Ethernet switch](#). This router provides this solution with uninterrupted connectivity, remote monitoring capabilities, and a wide and flexible range of support communication protocols and interfaces.

## THE CHALLENGE – NEW INFRASTRUCTURE, NEW PROBLEMS

Improving [water infrastructure](#) is no simple undertaking. That's why when [Raja](#), Romania's premier regional water operator, took the reins of a water infrastructure improvement project in the city of Medgidia, it chose our partner, Watt Unit, to handle all things electricity.

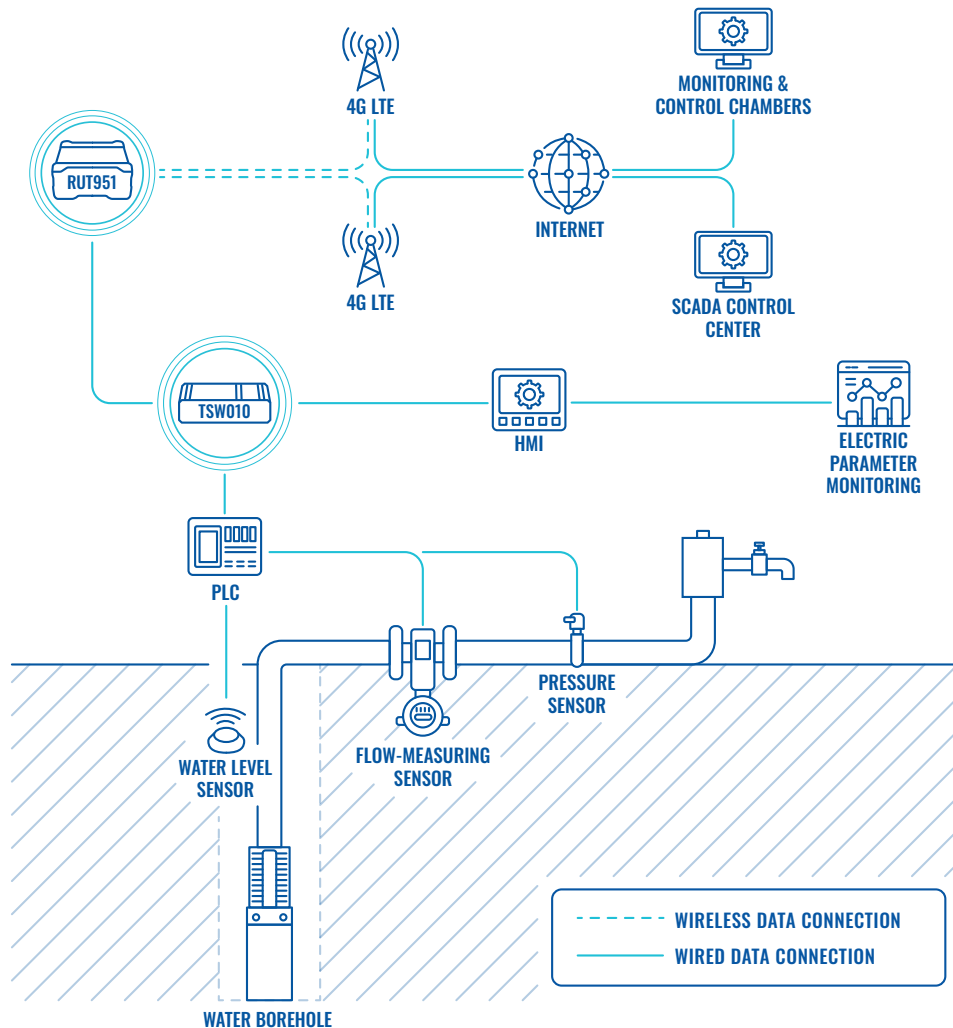
The project's goal was to improve access to [high-quality drinking water services](#) by connecting all Medgidia residents to a distribution network, ensure continuous operations, and reduce water losses.

In practice, legacy equipment in four wells had to be replaced, including laying down the foundations of a [Supervisory Control and Data Acquisition \(SCADA\) system](#) and adding on-site sensors for measuring water parameters. The data would be wirelessly transmitted to a SCADA control centre, where it could be monitored and analysed in real time.

Of course, these IoT remote monitoring capabilities demand reliable connectivity, and therein lies the challenge. The wells in which the equipment was to be installed were in areas with poor accessibility, weak General Packet Radio Service (GPRS) signals, and adverse weather conditions.

A meticulously planned network infrastructure would be needed to maintain a reliable connection in such conditions. And as the bright minds at Watt Unit know, the infrastructure of any remote monitoring network solution starts with its beating heart: a cellular router.

## TOPOLOGY



## THE SOLUTION – ENABLING SCADA WITH CONNECTIVITY

Watt Unit chose the Teltonika RUT951 industrial cellular router for Medgidia’s water infrastructure SCADA system. This 4G LTE router is at the heart of an array of end devices, protocols, and key features needed in this network solution, so let’s unravel things piece by piece.

At the far end of one side are the on-site sensors, such as water level, flow, and pressure sensors. These are connected to the Teltonika TSW010 Ethernet switch via its RJ45 ports. The 5-port switch centralises the network the sensors are connected to, allowing for streamlined network management.

The Ethernet switch is then connected to the RUT951 industrial cellular router, also via RJ45. The router collects the data from the sensors and transmits it wirelessly to the SCADA system on the other end of the solution.

And it is here, in this wireless transmission, that the real IoT magic happens.

The 4G LTE router is paired with a [GNSS Wi-Fi SMA antenna](#) for improved capabilities, as well as VPN and [firewall](#) services for enhanced data security. Seamless communication with the SCADA system is done via the OPC UA protocol, while Modbus TCP and Modbus RTU are used for communication with secondary panels.

Further cementing this solution’s reliable connection is the RUT951 cellular router’s dual SIM functionality, utilising auto-[failover](#), backup WAN, and other switching scenarios to ensure network redundancy and uninterrupted LTE Cat 4 connectivity.

These give the solution room for future adaptation to additional end devices, remote operations, and more. Narrowing down on the physical side of things, this industrial cellular router is [housed in rugged aluminium](#) and features operating temperatures of -40 °C to 75 °C

Indeed, the RUT951 plays a pivotal role in Watt Unit's masterful execution of this SCADA system network solution. Together with the TSW010 5-port switch, this 4G router provides reliable connectivity, advanced remote monitoring capabilities, and data protection essential for the modernisation of Medgidia's water infrastructure.

