

Reitter Wasserkraft

Success Story – Remote Monitoring

Reitter Wasserkraft operates and manages hydroelectric power stations on rivers in Southern Germany and South Tyrol. The company successfully uses the industrial NB1600 routers of NetModule for remote monitoring.

The Project

More than 20 hydroelectric power stations are operated by Reitter Wasserkraft, which is situated in Rechtenstein on the Danube. Almost all stations are unmanned, so they need to be monitored remotely.

Reitter can do so over the Internet. It's possible to retrieve information about the output, machine parameters as the temperature or the present water level. Also, the power stations partly are under video-surveillance or the screens of the control systems are remote-controlled.

«The routers of NetModule optimally meet our requirements and enable us to monitor our systems very reliably.»

Thorsten Zitterell
Reitter Wasserkraft



Previously, the Internet connection was cable-connected. Today this is no longer practical for both cost and technical reasons, which is why the routers of the NB1600 series are used. Over LTE or UMTS, they establish the Internet connection using OpenVPN wireless, secure and reliable and with their various interfaces, they provide further advantages.

Requirements

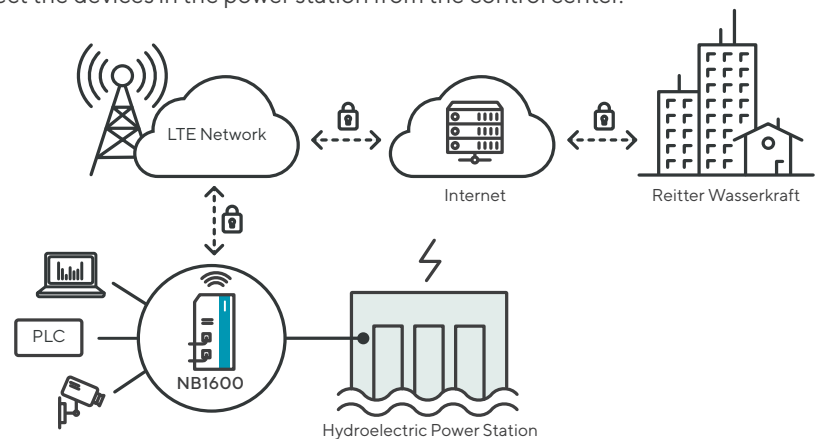
To monitor the hydroelectric power stations safely and reliably, the used routers must meet the following requirements:

- Suitable for industrial applications
- Power supply with 24 V
- Support of OpenVPN
- SMS alerting
- Link supervision

Solution

With the routers of the NB1600 Series, Reitter has found devices which meet all requirements for an optimal remote monitoring of their power stations. The compact and programmable devices are designed for a temperature range of $-25\text{ }^{\circ}\text{C}$ to $+70\text{ }^{\circ}\text{C}$ and bring a mobile broadband connection wirelessly to the power station using LTE. Depending on the availability, the mobile radio standard is switched automatically without any interruption. To connect terminals or switches, the routers are equipped with two Ethernet ports. In addition, the devices have two digital I/O's.

Reitter Wasserkraft uses a server with a fixed public IP address. The server is used to access the routers and thus the systems in the power stations from the control center. To do so, the routers register themselves independently with the server via OpenVPN tunnel. The server acts as a connection manager and makes it possible to connect the devices in the power station from the control center.



The power stations of Reitter Wasserkraft are monitored in different ways. There are in principle three possibilities: Passive queries of power, temperature or water level via a PLC in the power station, active remote access to the central computer and video surveillance. In addition to these measures, SMS messages are sent via the NB1600 in case of emergency.

The routers of NetModule are designed for high availability and operation around the clock. For this purpose, the connections and the hardware are constantly checked with several mechanisms. This is done on five levels:

- Level 0: Hardware Watchdog
- Level 1: Link Supervision
- Level 2: Monitoring of the modems
- Level 3: Monitoring with "ping"
- Level 4: VPN tunnel monitoring

Some of the power stations are also equipped with WLAN by means of the NB1600. This allows Reitter's employees to connect their notebook to the network and work wireless if changes or start-ups take place. The e-mails can also be accessed or problems can be recorded directly in the company's own ticket system.

With the routers of the NetModule the company Reitter has created a good and professional solution that meets their requirements and makes daily work considerably easier.