



Ultrasonic flowmeter and solar GSM datalogger

deliver continuous monitoring and compliance for hydroelectric plant in Türkiye

Summary

Hydroelectric power plants generate electricity by converting the kinetic energy of the flowing water in penstocks into mechanical energy through turbines. To increase operational efficiency, a facility in Türkiye required a system that could provide real-time monitoring of water consumption and turbine performance, while also ensuring continuous data reporting to the State Water Authority.

As part of their transition to a more sustainable operating model, the customer's facility management team needed to implement live monitoring of flow rates and turbine efficiency. Additionally, to meet supervisory and regulatory purposes, the State Water Authority mandated continuous 24/7 remote access to real-time water usage data.

Application

Pipe Size and thickness:	OD 2000 mm, Thickness 14 mm, (80", 0.55")
Pipe Material:	Carbon Steel
Water Velocity:	0 – 10 m/s (32.8 ft/s)
Water Temperature:	5 – 30°C (41 – 86°F)

Benefits:

- Easy to install and set up
- Cost effective
- Accurate for large pipes
- Operational efficiency by assessing water turbine efficiency and ensuring protection at high flow rates
- No process interruption
- Live remote monitoring
- Solar panel powered



Challenge

However, the absence of an on-site electrical supply presented a major obstacle to reliable data collection and transmission from the flowmeter. This limitation created operational inefficiencies and compliance challenges.

Solution

To resolve this challenge, Panametrics collaborated closely with plant management to evaluate a suitable solution. The team conducted a demonstration using an AT600 ultrasonic clamp-on flowmeter powered by an external battery, equipped with C-RS 401 transducers and a magnetic clamping fixture. This set up successfully met the customer’s technical requirements and performance expectations.

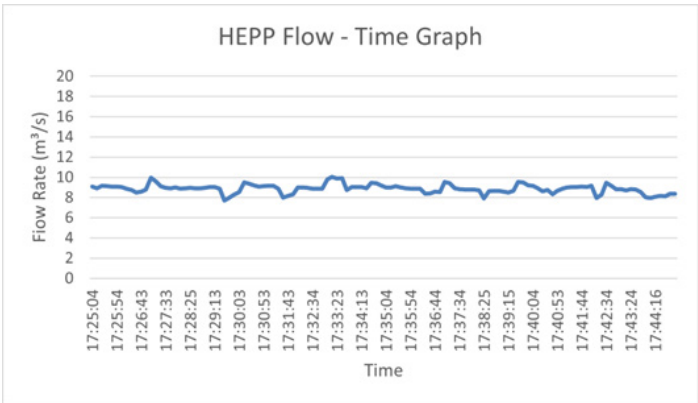
Following the successful trial, a complete monitoring and communication system was installed. The system was integrated with GSM communication, a datalogger, a web-based monitoring panel, and a solar powered unit with battery backup ensuring reliable and continuous operation.

By utilizing solar energy, the absence of an electrical line on-site was effectively mitigated. The solution ensured an uninterrupted power supply, enabling continuous data transmission from the flowmeter to the State Water Authority.

As a result, the facility has achieved full compliance with reporting requirements, enhanced operational efficiency, and advanced its transition to a more sustainable operational model.



Cabinet with Panametrics AT600 electronics



AT600 flow aret through GSM information



AT600 flow and diagnostics data