



*Installing Eaton products has radically changed plant management for Acque del Basso, making it decidedly more technological and efficient*

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## The Purification Revolution

**Location:**

Annone Veneto (VE), Italy

**Segment:**

Machine Building

**Problem:**

no way to perform remote diagnostics and resolve technical problems

**Solution:**

PKE motor-protective circuit-breaker, SmartWire-DT, SLX9000 inverter, XV-150 touch display PLC, XP-702 industrial PC

**Results:**

ability to remotely control and monitor the entire plant, diagnose and correct technical problems and thus save time and costs

**Background**

Acque del Basso Livenza S.p.A. is a wholly publicly held joint stock company that serves over 140,000 customers in nineteen municipalities in the provinces of Treviso, Venezia and Pordenone. It is one of the largest purification plants in the Portogruaro area and in the entire province of Pordenone. The company has always been committed to offering its customers a high standard of service efficiency and quality, as well as facing the challenges posed by the recent liberalization of water supply services and the resulting competition. That is why, now more than ever, investing in technology and efficiency has become one of Acque del Basso's priorities.

**Challenges**

As anyone who operates in the water treatment sector knows, water purification plants such as the one Acque del Basso Livenza manages are typically unmanned. In other words, there is no on-site staff as the plants are entirely automated and operate in a continuous cycle. It follows that whenever one of the motors or pumps in a plant malfunctions, off-site technicians need to be notified of the event and must therefore be on call 24 hours a day. This problem often reduces overall plant productivity and involves considerable personnel management costs and dead times. When, for example, a motor stops because of an overload, the entire plant comes to a halt until a technician goes

to the site to restore the motor-protective circuit-breaker.

In order to solve this type of problem, Acque del Basso Livenza recently decided to adopt the innovative PKE motor-protective circuit-breaker, integrated in the Eaton SmartWire-DT system, the latter in turn connected to the XV-150 series touch display PLC (programmable logic controller) equipped with CANopen interface. "It is essential to be able to remotely control each single piece of machinery in a water treatment plant without having to physically go to the site," explains Lorenzo Pattaro, Application Engineer Automation at Eaton Italy. "Thanks to its innovative integration in the SmartWire DT system and the touch display PLC, the PKE



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motor-protective circuit-breaker now allows Acque del Basso to send detailed information to its technicians by text or e-mail, and they can then interact with the plant from remote stations simply using a computer or smartphone." A remote connection via VNC allows the Acque del Basso technicians to monitor in real-time the amount of current absorbed by each motor and, in the event of overload or a technical stop, immediately re-energize the motor simply by tapping the screen of a tablet or smartphone. "The graphic interface of the PLC installed in the plant allows users to view or change settings and interact with the plant," explains Pattaro, "and the technicians can see exactly the same thing from the remote stations".

### Solution

Another significant improvement to Acque del Basso Livenza's purification plant management brought about by the PKE, SmartWire-DT and touch display

PLC system is the possibility to diagnose the cause of any malfunction from remote stations. In the past, when a fault occurred, the technicians automatically received a text message signaling the fault, without however specifying what the cause was and not allowing any remote intervention. As Pattaro explains, "the system is now capable of remotely controlling all the plant devices and allows the technicians to monitor protection calibration, immediately identify the cause of a fault and determine whether, for example, a technical stop or a short-circuit has occurred". Thanks to this innovative remote control system, Acque del Basso Livenza has significantly reduced personnel management costs and increased overall plant productivity, as its technicians can identify and solve most problems without having to physically go to the site.

In addition to the PKE and SmartWire-DT technology, Acque del Basso Livenza has installed the Eaton SLX9000

series inverter. By means of this device connected to the XV-150 touch display PLC via CANopen, the company can control the plant motors and change their settings, for example the acceleration/ deceleration ramps or the PID regulator parameters, simply by tapping a screen. Moreover, like the PKE, the SLX9000 has significantly improved the diagnostic quality. In the past, the only way to identify a fault was by an alarm, "but now via the auxiliary CANopen communication board connected to the touch display PLC, you can view the physical state of the inverter, its speed and the current absorbed by the motor so that you have a complete overview of the plant status," comments Pattaro. Completing the Eaton technology at the Acque del Basso plant is the XP-702 industrial PC whose function is to store all the data coming from the Eaton devices together with those provided by other system components, giving an overall view of the status of the purification plant.

### Results

"The possibility the Eaton technology offers to intervene from remote stations is undoubtedly the feature that most impressed our customer and that led to their choosing the PKE motor-protective circuit-breaker integrated in the SmartWire-DT and XV-150 touch display PLC products," concludes Pattaro, "and their installation has radically changed plant management for Acque del Basso Livenza, making it decidedly more technological and efficient". Where the company was previously forced to rely on the availability of its technicians, who had to be on call at any time of day and night to go to the site, most problems can now be resolved remotely and in the technicians can use the time saved to dedicate themselves to other tasks. The result is greater efficiency and productivity.



The plant is being controlled and operated via an industrial PC and two touch display control units, the integrated remote control functionality helps increase availability.



SLX9000 inverters, PKE motor-protective circuit breakers and SmartWire-DT save time and space