Modbus Router Enables Remote Monitoring

For more than fifteen years, in the town of Sabadell, just north of Barcelona, Spain, Joan Ramon and his team of specialists at Elecsan S.A have supplied the local and international market with counters, timers, indicators, text displays and other types of off-the-shelf and custom controls, much of it communicating over Modbus networks.

With many of their Spanish customers requesting more remote monitoring and control from Elecsan’s control products, Ramon faced a significant problem. Most of the controls Elecsan delivered over the years were Modbus RTU, not Modbus TCP, and a large part of their inventory was point-to-point RS232. Without a massive effort to replace those systems in many remote places around the world, it was going to be tough to find a way to provide the kind of remote monitoring customers needed.

So Elecsan experimented. They tried serial tunnels and virtual com ports — linking remote Modbus RTU masters with various RTU slaves in other parts of the world. Problems ensued: Framing timeouts, message timeouts, lost messages, and more.

Seeking a non-disruptive solution

Disruptive and expensive workarounds were ruled out: Code changes to all Elecsan industrial controls at customer sites; changes to Elecsan software; addition of computers at remote sites; additional software; even renting a remote cloud service provider.

Ramon, like any good engineer, worked his contacts; having successfully worked with RTA Real Time Automation several times over the years, he figured that they might have a solution. RTA’s BFR3000 Modbus Router could easily facilitate the remote monitoring without changing any of the pre-existing industrial controls or computer programs and while meeting all Modbus TCP and RTU protocol requirements for reliable communications.

This application featured the use of Modbus RTU, Modbus TCP/IP, serial RS232, Ethernet and wireless technology. At the remote site, Ramon used the BFR3000 Modbus Router in its TCP Server-to-RTU Master Mode. The BFR300 became the Modbus Master at the remote site, and provided a TCP Server back to Barcelona that Ramon could access over the Internet.

For systems in Spain with a Modbus Master, Joan Ramon simply used a BFR300 in RTU Slave-to-TCP Client mode enabling that RTU Master to access the remote slaves as if they were on the same RTU network. With three operating modes, a friendly user interface, multiple serial interfaces, and the ability to connect TCP Clients to RTU Masters, the BFR3000 became Ramon’s go-to device for remote Modbus communication.

Legacy opportunities

While a large installed base of legacy control and automation systems are still effective and efficient, the scarcity of experienced people to troubleshoot and keep controls up to date is becoming even more of a challenge. (Having an expert on staff for all controls and automation in an industrial location has always been a large overhead cost.) The ability to have a remote expert that can update, troubleshoot, and maintain controls and automation solves this problem.

The opportunity is for manufacturers, like Ramon’s Elecsan, to achieve more speed, agility and efficiency, leading to a competitive advantage.

“We like the BFR3000 router from Real Time Automation. It was very easy to use for the final client, and we will recommend it to everyone that needs an Internet connection to their machines.”

Joan Ramon, Design Engineers Elecsan S.A.