



CASE STUDY

INDUSTRIAL SHIELDS



ANALYZE ELECTRICAL NETWORK USING INDUSTRIAL SHIELDS EQUIPMENT

On this occasion, a current analyzer was used together with the Industrial Shields equipment to have a **real-time control of the consumption** in street lamp posts.

SUMMARY

Having real-time knowledge of the actual use of the current in **urban street furniture** can help us to have a better knowledge about the current expenditure that is carried out in the streets. **Information is power.**

With this information, and the help of an **Arduino-based PLC** to manage all received data, alarms can be set when the current exceeds a set limit, as well as to process the data and display them in real time.

The possibilities offered by our equipment to communicate with the current analyzer are:

- To control alarms, digital inputs of the equipment can be used.
(These alarms will reach the server through the Ethernet port of the Arduino-based PLC).
- Digital outputs to relay for the action on circuits of the installation.
- RS485 port for peripherals.
(Normally Current Analyzers allow communication with RS485. Modbus RTU is a good protocol for such communication).

Even so, there is also the possibility of using RS232 or SPI, among others.

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FINAL SOLUTION (HARDWARE)

The hardware implementation of the system consists of receiving the voltage and current data through the current analyzer.

This information will be directed to the Arduino-based PLC (MDuino 19R +), which optionally may also have contactors connected to its relay outputs to act on the current flow in the event of an alarm.

Once the information is managed, it is send to the Panel PC that has an MQTT broker server to share the data in Node-Red.

Node-Red allows us to perform a dashboard to sample the data in real time and even warn in case of alarm status.

The Panel PC will also have connection via VPN to be able to share the data in a virtual private network and have access from any other point (PC, smartphone, ...).

To ensure the time synchronicity, there is an internal clock with 3.3V lithium cell coin battery.

