

Application Brief: Integrating M-Bus Sensors with an Energy Monitoring System



Opto 22 OptoEMU™ energy monitoring system collects building temperature, power, and water data from M-Bus sensors using Anybus® M-Bus to Modbus®/TCP gateway.

The Challenge

A modern building is not only built of concrete, wood, or steel; it is also an intricate digital network linking together systems for heating and cooling, water, electricity, and more. A common problem for building owners and system integrators is that not all systems and machinery can communicate with each other.

One example is sensors for water, temperature, and power. Sensors and meters, particularly those used in building automation, often exchange data using the M-Bus communications protocol. Central system controllers often don't support this protocol, however, instead using communication protocols like Modbus/TCP.

This is the problem that faced Swedish system integrator Processcomponent AB, which was installing an energy monitoring system in an apartment building in Gothenburg, Sweden. The system gathers data from 72 individual apartments, a grocery store, and the central HVAC system for the entire building. Located throughout the building are sensors for temperature,

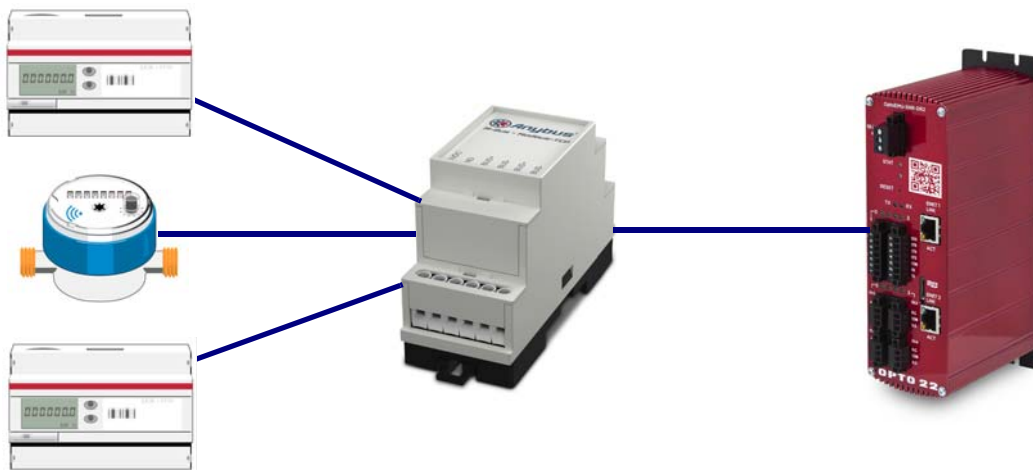
energy, and water. The problem for the integrator was that the sensors communicate via M-Bus, but the energy monitoring system—the OptoEMU from Opto 22—uses Modbus/TCP.

The Solution

Processcomponent solved this communication issue with the Anybus M-Bus to Modbus gateway from HMS Industrial Networks. The gateway decodes M-Bus telegrams and maps them directly to Modbus registers. This way, the sensors can be understood by the OptoEMU and their values show up directly.

OptoEMU—a powerful solution for energy monitoring

Processcomponent has been very successful in installing the OptoEMU, an energy monitoring system that collects energy data from buildings, electrical subpanels, and individual equipment like chillers and compressors. The OptoEMU delivers the data so users



An Anybus M-Bus to Modbus gateway (center) connects M-Bus protocol sensors and meters (left) to an OptoEMU energy management system (right).

can view it online and use it in a business application, for example for invoicing tenants. Users can also receive alarms whenever certain levels are reached.

Quick and easy access to M-Bus data

“What I really like about the Anybus M-Bus gateway is that it is very easy to use and quick to install,” says Jonas Karlsson, Sales Manager at Processcomponent. “All M-Bus sensors are automatically detected by the gateway without you having to do any configuration. This saves a lot of time since you don’t have to configure each meter individually—they all show up automatically, complete with serial number, name, and all current values. In fact, you don’t even have to be on site as long as you have someone to connect the wiring from the sensor to the gateway. Before, it could take several hours to configure a single meter running M-Bus. With the Anybus gateway we can set things up in 10 minutes!”

“Configuration is quite easy,” continues Karlsson. “You search for available M-Bus sensors connected to the gateway, which returns Modbus registers from the sensors. These are interpreted by the OptoEMU and provide the customer with real-time sensor data.” Karlsson says configuration is handled in a web-based configuration tool, so users can set up the gateway using only a web browser. No programming is necessary.

The results

The building in Gothenburg is now equipped with Anybus gateways connected to two OptoEMU units, one for the 72 apartments and one for the grocery store. Measured values can be logged to an Excel file which can be downloaded via FTP. Readings can also be sent directly to an SQL database or to HMI/SCADA systems via an OPC server.

With real-time data from all apartments in the building, building owners can be on top of consumption and receive alarms when certain thresholds are reached. Access to meter values also enables rapid and automated invoicing to apartment owners.

“The Anybus gateways have certainly made life easier for us and our customers,” says Karlsson. “By getting M-Bus values into the OptoEMU quickly and easily, we can get our monitoring system up and running faster, which is beneficial for both us and our customers.”

The Customer

Processcomponent AB was established in 1984 and has offices in Dingle and Gothenburg, Sweden. The company offers an all-inclusive commitment covering governing and control equipment for, among other applications, refineries, steelworks, purifying plants, glassworks, paperworks, ship automation and boiler installations. With more than 30 years of experience in the field and a highly qualified staff, Processcomponent performs all kinds of assignments in automation. Processcomponent is a long-time distributor and system integrator of Opto 22 products in Sweden and Scandinavia.

Visit www.processcomponent.se

About HMS Industrial Networks

HMS Industrial Networks develops and manufactures state-of-the-art hardware and software for industrial communication. Products are marketed under the brands Anybus, IXXAT and Netbiter. HMS was founded in 1988, is headquartered in Halmstad, Sweden, and is listed on the NASDAQ OMX Nordic Exchange in Stockholm, ISIN-code: SE0002136242.

Visit www.anybus.com.

About Opto 22

Opto 22 develops and manufactures hardware and software for applications involving industrial automation and control, energy management, remote monitoring, and data acquisition. Designed and made in the U.S.A., Opto 22 products have an established reputation worldwide for ease-of-use, innovation, quality, and reliability.

Opto 22 products, including the *groov* mobile operator interface, use standard, commercially available networking and computer technologies, and are used by automation end-users, OEMs, and information technology and operations personnel in over 10,000 installations worldwide. The company was founded in 1974 and is privately held in Temecula, California, U.S.A. Opto 22 products are available through a global network of distributors and system integrators. For more information, contact Opto 22 headquarters at +1-951-695-3000 or visit www.opto22.com.