ENERGY COSTS REDUCED WITH ELIPSE E3 AT UNIMED VTRP FACILITY, IN SOUTHERN BRAZIL

Power consumption at the company's 140,000-square-foot building has been reduced to almost half with Elipse Software's solution

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Needs

In January 2016, one of its branches in the South, Unimed VTRP (Taquari and Rio Pardo Valleys), adopted Elipse E3 to help manage the lighting system from its 140,000-square-foot facility in Lajeado, Rio Grande do Sul (RS). The site's infrastructure can be managed remotely with the technology developed by Elipse Software, among the other sustainability policies adopted by the company. The solution was implemented by Ideal Home, specialized in smart, integrated automation projects, and by Homesystems, responsible for the equipment employed in the building's automation system.

Figure 1. Unimed VTRP facility in Lajeado, RS

Unimed VTRP

Operating in 59 municipalities in the Taquari and Rio Pardo Valleys and the Jacuí delta, Unimed VTRP oversees the healthcare of nearly 250 thousand inhabitants in the area. It covers a region in the Mideast of Rio Grande do Sul known for its strong agricultural production and industrial activity. In 2017, the company will have been providing healthcare to its clients and supporting the community for 46 years.

Unimed VTRP was the first operator in the South of Brazil to be officially accredited for its work in supplementary healthcare. Only operators that meet all the rigorous goals established for the sector by the National Agency of Supplementary Health are entitled to this accreditation. Since 2014, Unimed VTRP has been recognized as a Level 1 operator (the highest possible level), which reflects the excellence in all services provided by the company to the community, such as preventive measures, service network, and high-end facilities for the general public.

Solution

With Elipse E3, Unimed VTRP's building operators are now able to control and monitor the facility's electric and fire prevention systems, as well as its generators, no-breaks, electric fence, water reservoir, pumps, and TV sets installed in the facility. Each screen in the E3 system displays a list of alarms and events, indicating their date/time and areas, and also any messages regarding the alarm/event and the name of the user responsible for its acknowledgement. Check out below for more details of this application.

Figure 2. Initial Screen

Building management

The software works alongside Homesystems' equipment to manage the whole lighting system at Unimed VTRP's facility. On the initial screen, operators can click <Building> and access any floor that requires monitoring. Once they've accessed the first floor, for example, lights can be turned on and off easily by clicking the individual light bulb icons (white = off; yellow = on).

Additionally, operators can also program the lights to go on or off automatically according to the time and day of the week. Outside lighting and the electric fence that surrounds the building are also controlled via Elipse E3, either remotely or manually.

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The software also allows operators to control light dimmers in the building according to the natural sunlight available. When and where natural light is stronger, the system will automatically reduce the amount of artificial light supplied to the room; conversely, poor natural lighting will result in exposition to stronger artificial light to compensate. Operators can also decide which dimmers will be activated and when, which in turn helps save costs with energy at Unimed VTRP.

Likewise, all TV sets in the building can be turned on or off by clicking their respective icons on the system's screens. The software's remote control allows not only turning the TV on/off, but also monitoring their volume, changing their channels, and programming them for automatic shut on/off. To locate any TV sets or light switches that require monitoring, operators need only click <ID>: this key will allow easily locating and remotely controlling the device.

Generators and no-breaks

The facility has two power generators, whose performance is monitored on a screen displaying a power flowchart. This chart indicates the flow of energy in the building and allows users to activate one or both generators, as needed, in the event of power outage. The system also monitors the ASCU (Alternating Current Service Unit) in order to activate or deactivate switches, according to the power source available (energy supplier company or generators).

The flowchart allows following all voltages and/or currents in the system, whether coming from the supplier or the generators. Finally, the software can also monitor the voltage level of batteries, as well as their level of diesel oil.
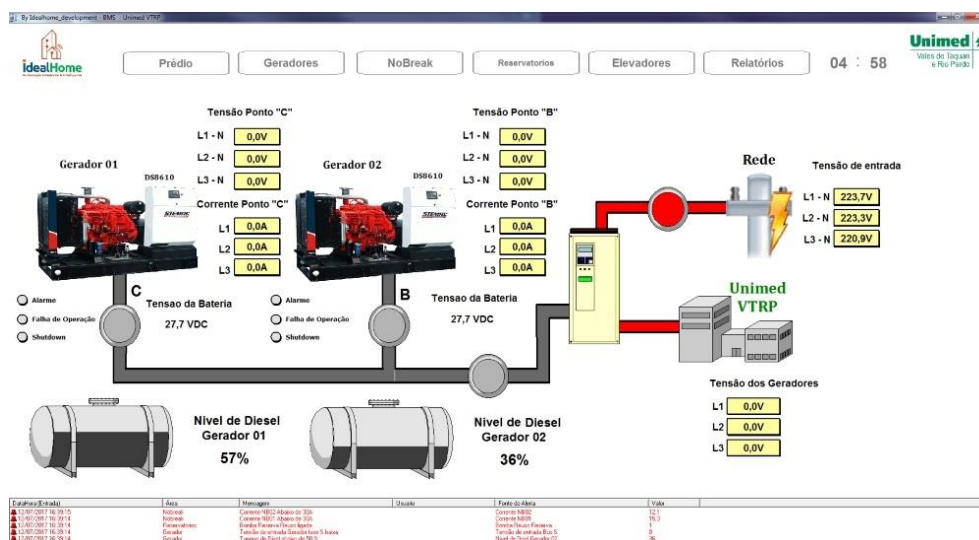

Figure 3. Generators management screen

Additionally, the Elipse E3 reads the temperature in the Standard Service Unit (SSU) and the voltage and currents from the two no-breaks in the building. The software also monitors the no-

breaks' battery usage, firing an alarm whenever their capacity is 40% or lower. The same alarm is fired if the oil level in the generators drops below 20%.

Water Reservoirs

The Elipse E3 system monitors water from two reservoirs: one with drinking water supplied by the water treatment facility, and another one with reused rain water, which is employed for irrigating the building's gardens and for flushing toilets. The software also allows managing the lifecycle of water pumps: if the water level in the reservoir drops dramatically, or if the pumps record more than 800 working hours each, the software's alarm system is activated.
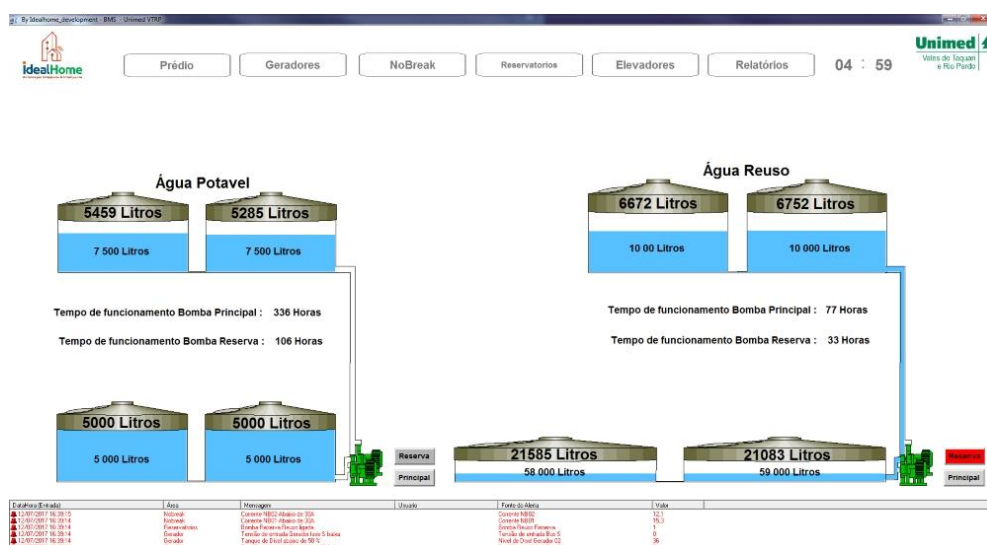
Figure 4. Water reservoir management

Alarms and Reports

As seen previously in this article, the Elipse E3 has an alarm system that is activated in real time for any events at the Unimed VTRP building. Any issues will fire a message with further information on the event, and this message is displayed on the screen's footer and sent via email to the company's maintenance team.

In the event of a fire, the software activates a fire prevention alarm system that opens a blinking red screen indicating where this event is taking place. To reinforce building security, Elipse E3 issues reports informing the fire's date/time and place, as well as a brief message about the nature of the occurrence, describing the alarms and events activated by the operator. These reports can be saved in PDF format, printed, and/or emailed.

Benefits

Ms. Lilian Ester Lohmann, Unimed VTRP's Logistics Coordinator, says she is very pleased with the automation system managed by Elipse E3, especially as it pertains to the building's lighting project. According to her, the facility was planned and built with the specific purpose of making the most of the natural sunlight in the site.

Other selling points to Ms. Lohmann were the natural ventilation resulting from the windows placement in the building and the reuse of rain water in restrooms and gardens. These factors, alongside E3's automation system, make the company save almost 50% in energy: the 140,000-square-foot building now consumes the same amount of power as another one no bigger than 75,000 square feet.

"Our building was designed for sustainability and making the most of natural resources such as sunlight. Additionally, we've installed a VRF air conditioning system, movement sensors in hallways and restrooms, smart elevators, and brises. These factors, alongside the complete automation of our internal and external lighting systems, managed by Elipse E3, have resulted in massive reduction in our energy bills," she said.

Mr. Paulo Ricardo Menezes, Ideal Home's General Supervisor, believes this application reflects the perfect balance between the many systems involved in its structure, and has resulted in a high-end product that can be used in other similar facilities to achieve comparable results.

"The Unimed VTRP project stands as a perfect example of how technology can be used for promoting sustainable ventures," he said.

Among the main benefits Elipse E3 has brought to this project, we highlight the following:

- Remote control of the facility's lights and dimmers, which result in massive reduction in energy costs;
- Application developed with SketchUp, a tridimensional modelling tool;
- Electric fence that can be switched on/off remotely;
- Control of light sensors and TV sets in any room/floor of the facility;
- Control of generators and no-breaks and monitoring of voltage, currents, batteries, oil level, and energy source;
- Control of water level in two reservoirs (drinking water and reused rain water);
- Control of how long each water pump has worked;
- Immediate notifications from the prevention fire system in case of any occurrence, via screen or emails;
- Fire prevention alarm system;
- Reports detailing all events and alarms from any given period are issued in PDF format;
- Integration with Homesystems', Schneider Electric's, and Deep Sea's devices.

DATASHEET

Client: Unimed Taquari and Rio Pardo Valleys

Systems Integrator: Ideal Home

Elipse Package Used: Elipse E3

Number of Copies: 6

Platform: Windows Server R2

Number of I/O points: 3000

I/O Driver: Modbus RTU / TCP