SAMARCO'S ELECTRIC SYSTEM CONTROL MADE 96% MORE AGILE WITH ELIPSE SOFTWARE PLATFORM

Elipse E3 allows monitoring and remotely maneuvering the 15 reclosers that comprise the energy distribution network at Germano Complex in Mariana (MG), Southeast Brazil

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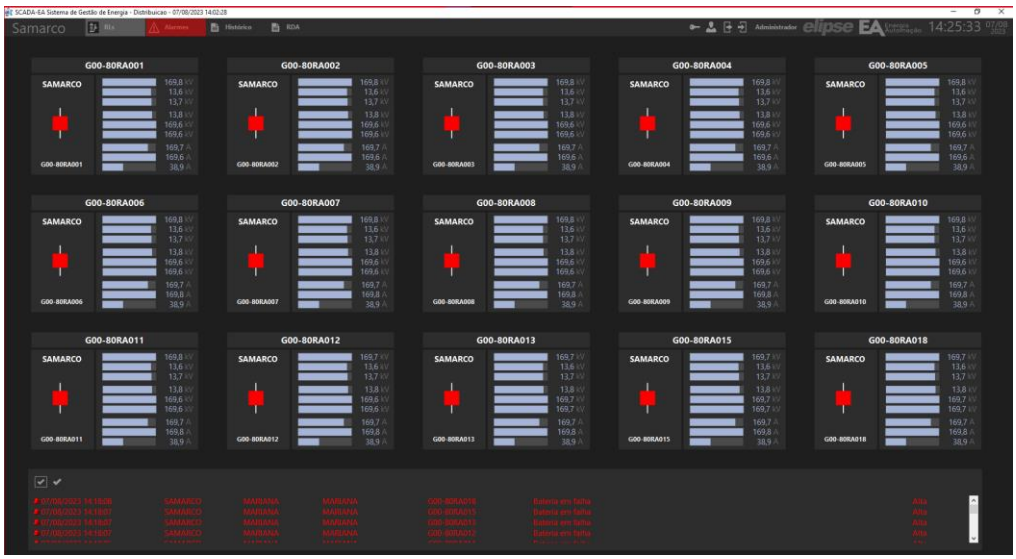
Needs

Headquartered in Belo Horizonte (Brazil), Samarco is a closed capital company acting in the mining sector. It is widely regarded in the market for producing iron ores, the main stock used in the steel industry. A joint venture between Vale and BHP, Samarco's operational units are spread throughout the states of Minas Gerais and Espírito Santo, Southeast Brazil.

Samarco is resuming its operations in the country in a safer, more sustainable way, with new technologies. In this context, the company has invested in a group of 15 reclosers by Noja Power, installed in the electric system of Germano Complex, in Mariana, a municipality in the state of Minas Gerais. Due to the large scale of the complex, Samarco also needed to factor in the project an energy monitoring and operations center, a system that can control reclosers remotely.

Reclosers are devices that open in order to avoid the passage of electric current whenever there is an issue in the energy distribution network, and then close as soon as the damage is repaired. In doing so, they can isolate the affected area in the network while protecting the whole. This open/close operation will take as long as needed to correct the occurrence.

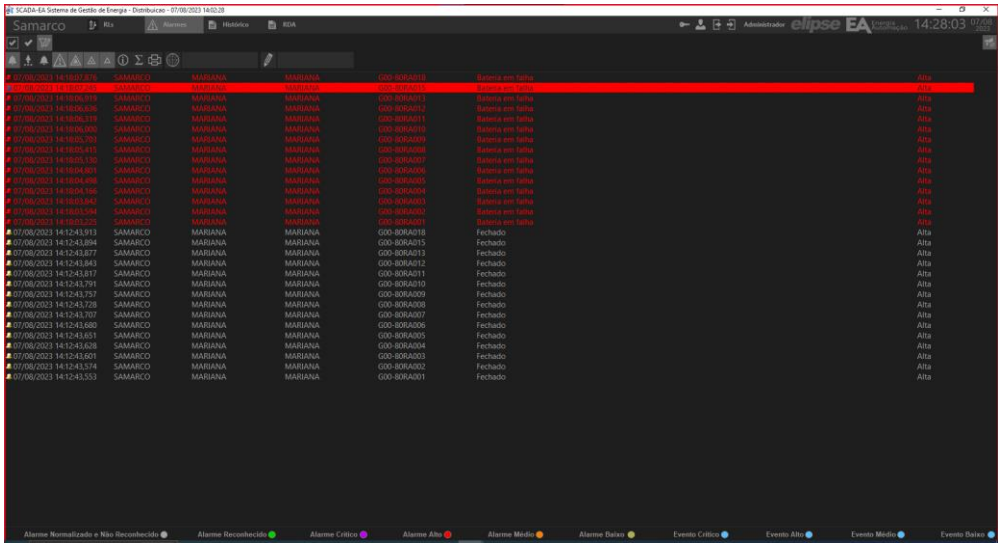
To control the reclosers, Samarco opted to invest in the solution SCADA EA Smart Grid, a technology by Energia Automação based on Elipse E3, the Elipse Software's process management platform. With it, the formerly mechanic, manual control of the system, which required time-consuming trips to the site of the recloser, is now done remotely and within a few minutes via Elipse E3 screens.



Elipse E3 main screen for controlling Samarco's reclosers

Solution

Currently, Elipse E3 allows Samarco to monitor remotely and in real time all 15 reclosers at Germano Complex, in Mariana (MG). Through an alarms system, the software informs each recloser's batteries conditions and status (on/off). In that case, should any of them fail, Elipse E3 promptly signals the issue on their screens so that the maintenance team can work on it as soon as possible.

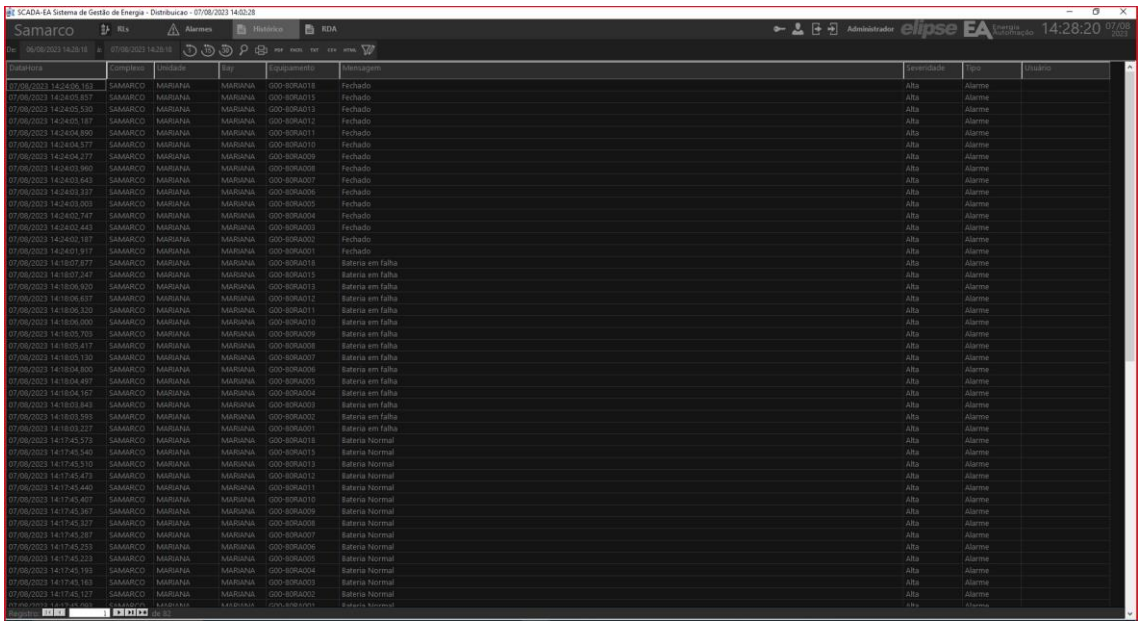


Reclosers' alarms control

The Elipse platform also allows monitoring voltage, current, (active/reactive) power, power factors, and fault distance, that is, how far the issue from the activated/open recloser is in order to isolate it. It's possible to follow these indicators via charts, so operators can follow the variables' behavior during a specific time interval.

Chart monitoring voltage, current, power, and fault distance from a recloser

Finally, Elipse E3 allows monitoring reclosers via daily activity reports and history. Via reports, it's possible to visualize all activities being carried out by operators in real time at each recloser. Via history, it's possible to follow alarms, statuses (open/closed), and battery conditions of reclosers at a given past interval.



Reclosers controlled via history

Benefits

For Thiago Lopes Pereira, electric maintenance supervisor and creator of the Samarco Energy Monitoring Center, Elipse E3 has allowed for a macro-overview of the electric system at Germano Complex; it also made control and failure resolution of its reclosers 96% more agile.

“With the software, operators can make more assertive decisions, coordinated via information generated by the database. This is a new, exciting reality for us, since execution used to be merely operational before these changes,” he said.

According to Pereira, not only does Elipse E3 allow monitoring reclosers in real time, but it also acts on them preemptively.

“The database available with Elipse E3 provides us with the complete information on all the operations executed. Therefore, we can have a better grasp on the statistics about failures in order to act upon preventing and eliminating future issues. This gives the process new layers of improvement, which in turn increases the system’s reliability,” he added.

Among the main benefits Elipse E3 has brought to the control of reclosers at Samarco’s Germano Complex, we highlight the following:

- Controlling and preventing failures at the 15 reclosers was made 96% more agile than before.

- Remote control and macro-overview of the energy distribution network.
- Safer operation for people working in the process directly or indirectly.
- Remote, real-time monitoring of batteries, statuses, voltages, currents, power, and fault distance regarding the reclosers performances.
- Greater productivity and reliability in the energy distribution network.
- Safer working conditions for technicians, who can now control reclosers via the monitoring central and not on site anymore.
- Reduced greenhouse-gas emissions: Prior to this project, operators had to visit reclosers on site (150 kilometers away) to monitor them in person. This represents a sustainability gain for the company as well as the environment.

Datasheet

Client: Samarco

Solution provider: EA Energia Automação

Elipse product: Elipse E3

Platform: Windows Server 2016

Number of copies: 2 (1 E3Viewer + 1 E3Server)

I/O points: 1,000

I/O drivers: 15 DNP3