Fribourg Public Transport Infrastructure

Fribourg, Switzerland

Control Center of Fribourg Public Transport Infrastructure

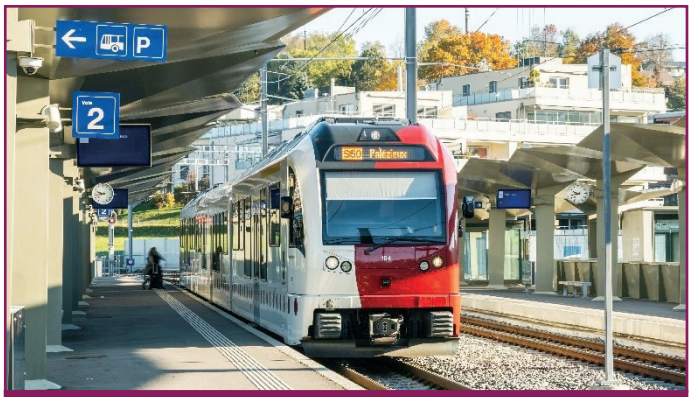
About Fribourg Public Transport Infrastructure

Fribourg Public Transport Infrastructure (TPF INFRA) is the public transport organization of the canton (district) of Fribourg, Switzerland and resulted from a merger between Fribourg Public Transport and Fribourgeois Gruyere Fribourg-Murten Railroad in 2000. The canton of Fribourg is one of 26 cantons that make up Switzerland and is shared between the French-speaking part and the German-speaking part of the country. The TPF INFRA is the key player in mobility in the canton of Fribourg with a network that covers the entire area with trains, regional buses, and urban bus routes. Beside operating and maintaining these lines, the organization also renews all rail sections and access points, which have been granted concessions by the Swiss Confederation.

Fribourg Public Transport is one of the few public transport companies in Switzerland that serves both road and rail. Furthermore, the organization researches and invests in innovative transport solutions, an example of which was their decision to be close to users by transforming stations into places of activity and residence. To add, this regional network is complimentary and therefore is available to all commuters wishing to use it.

Project Summary

The previous automation system had reached its end of life and needed to be replaced. The TPF INFRA wanted a new automation software system, one they could use for remote management and control of their traction power generation and distribution facilities, as well as the low-voltage electrical installations in the railway stations. They



A TPF INFRA Train Station
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Operations Overview Map

needed a high-performance, functional tool with open communication protocols that could easily interface with other sub-systems. The system also needed to have a user interface that was intuitive and easy to use, with the intelligence to display just the right amount of information on each screen.

Additionally, the TRP INFRA had special requirements for the system which included the capability to customize graphical views and applications (such as alarms, trends, graphs, and energy management) and to create a symbol library specific to the organization. Lastly, the new supervision control software had to be easy to integrate into the existing automation architecture and that complied with the railway applications standard: the French specification for maintainability (M), demonstration of reliability and availability (D), and safety (S) or "FMDS". TPF INFRA evaluated several software packages through an invitation to tender. ICONICS came out on top so was the chosen solution. TPF INFRA's own team proved themselves more than capable of deploying the automation software with the help of the ICONICS team.

ICONICS Software Deployed

- GENESIS64™
- Hyper Historian™

Realized Benefits

This advanced automation system greatly meets the needs of the operating and maintenance centers and has the capacity to keep pace with technological developments.

The three railway lines are operated from the main operating center located in Givisiez (Fribourg) using ICONICS software and include:

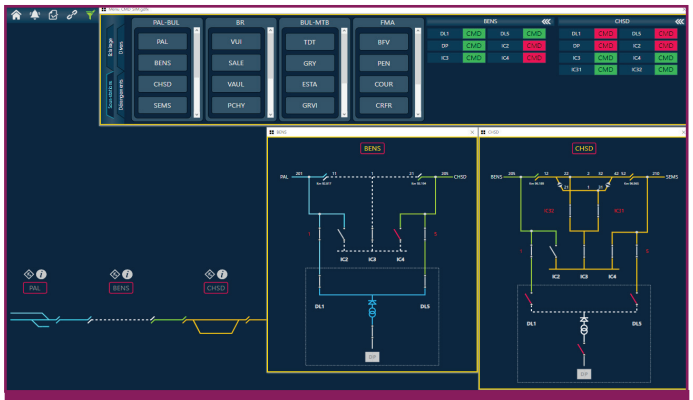
- **FMA Line:** Normal track supplied with 15 kVAC alternating current.
- **Romont-Bulle-Broc Line:** Normal track supplied with 15 kVA alternating current.
- **Palézieux-Bulle-Montbovon Line:** Metric track supplied with 900 VDC direct current.

Additionally, the stations and traction power generation and distribution facilities are remote sites, with only a PLC and switchboard interface.

Comprising a computer network, PLCs, and redundant servers and workstations, this modern system is designed to be scalable, simple, and ergonomic thereby easily centralizing the control and monitoring of the transportation network. For example, the workstations are equipped with a graphic interface displayed on three screens. Moreover, a new "fiche reflex" function was developed to provide an operating assistance tool that guides operators step-by-step through alarm processing, so they can trigger the appropriate intervention according to the degree of urgency. A simulator was also developed and is used to train operators and to establish safety procedures for work. Both of these two new features are highly valued and appreciated by users.

Conclusion

The project is now 100% operational and functional. The



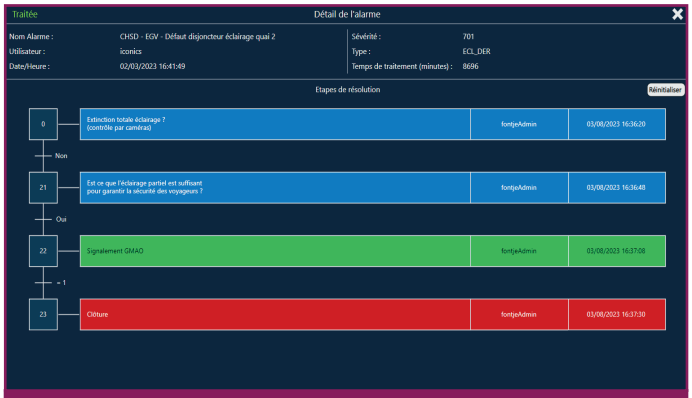
Simulator Used for Operator Training

Train Station Overview

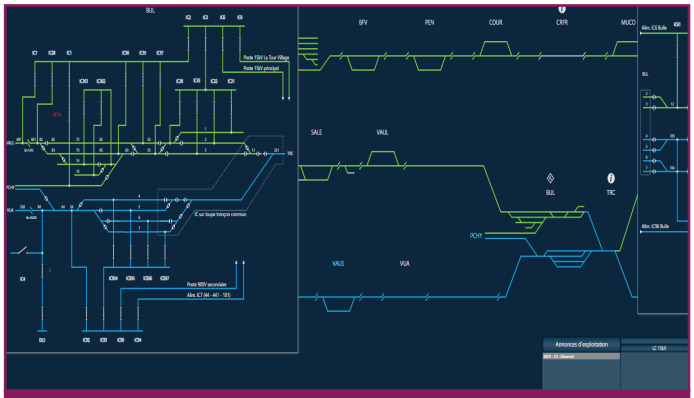
TPF INFRA highly rates the ICONICS automation software suite, especially since the solution is so easy and quick to program. And because ICONICS software is so extremely efficient, they realized significant engineering savings. As another example of the software's ease and quick programming, the TPF INFRA team can deploy a new station or installation in just one working day. Whereas before, their team would have needed two weeks to complete this deployment with the old system. In addition, the organization greatly appreciated the responsiveness of ICONICS' technical teams.

The TPF INFRA will be implementing the same solution on behalf of TPF TRAFIC to remotely manage and control the trolley bus traction power generation and distribution facilities in Fribourg. The organization also aims to offer this solution to other railway companies in French-speaking Switzerland.

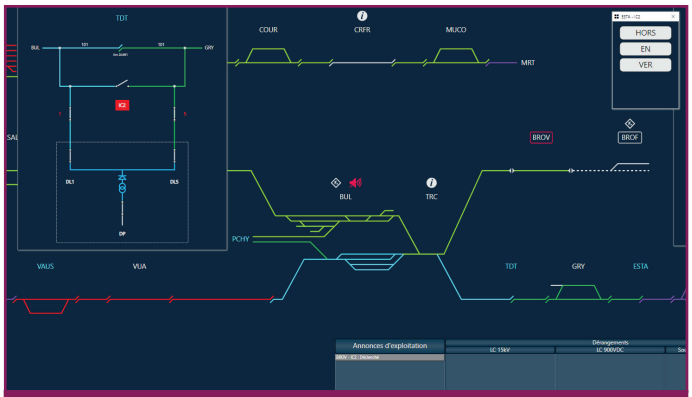
> "Understanding and learning the ICONICS suite is surprisingly easy. The new generation and methodology of object-oriented programming are highly appreciated. The only limit is your imagination!"
>
> **Jean-Philippe Fontaine**
> Project Manager



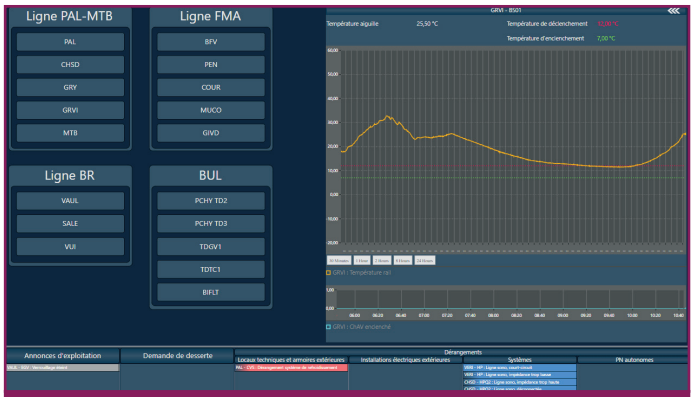
Alarm Details



Line Details



General Overview



Temperature Trend