

SNCF GIVES WIREPAS MESH TWO THUMBS UP

**In-tunnel Wirepas Mesh fast installation
keeps 500+ Paris Metro workers safe**



WIREPAS



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CHALLENGE

Imagine 500 workers in an 8-kilometre stretch of tunnels under Paris and suddenly someone accidentally pierces a natural gas pipeline. What do you do?

KEEPING TUNNEL WORKERS SAFE

This is one of many scenarios that the *Société nationale des chemins de fer français* (SNCF), France's national railway company, must plan for when it carries out tunnel work. In the midst of a congested urban underground environment the risk of cave-ins, gas-line breaches, water-line flooding, fire and other dangers are very real.

As part of keeping employees and subtrade workers safe and secure, SNCF needs to know where all workers are at any given time. They also need a reliable way to tell every worker to evacuate immediately in the event of an emergency—and to know exactly where to send rescue teams, should workers be trapped underground.

THE SEARCH FOR A FUNCTIONAL SYSTEM

Over the years, SNCF used different technologies to locate its armies of SNCF employees and contract workers performing yearly tunnel renovations on the *Réseau Express Régional* (Regional Express Network or 'RER'). The rapid transit system serving Paris and its surrounding suburbs shuts down every year for renovation from mid-July to the end of August, when most Parisians take summer vacation. And each September, dissatisfied with the solution they had just tested, SNCF resumes its search for a new worker location system.

SOLUTION

ELA INNOVATION TO THE RESCUE

In 2018, ELA Innovation answered SNCF's need for a reliable worker location system with the help of Wirepas. ELA, a leader in the development of industrial wireless sensors and beacons located in Montpellier, France, created an integrated system combining their own battery-powered low-energy tags, anchors and gateways with Wirepas Mesh, our resilient large-scale wireless mesh network.



AN AUTONOMOUS SYSTEM

Workers wear Wirepas battery-operated tags on lanyards around their neck or on their helmet. Battery-powered anchors are secured to the tunnel walls every 25 metres in order to carry tag location information to three gateways placed along the eight-kilometres tunnel. The gateways ensure the transition between the Wirepas Mesh network and the cellular network communicating with the SNCF control centre. The information is then displayed on monitors. Anchors include a bright LED and a loud buzzer so that, in the event of an emergency, the noise of the buzzers would clearly signal the need for an evacuation and the LEDs positioned every 25 metres would illuminate the way out even if the power is out.

INSTALLATION TIME MEASURED IN HOURS, NOT DAYS

ELA started by integrated Wirepas Mesh with its hardware products, Wirepas Positioning Engine and the cloud server. A close cooperation with Wirepas' French office in Grenoble helped to fine-tune the interaction between Wirepas Mesh and the other network components.

In June, 2019 ELA moved into the implementation phase. Because Wirepas' nimble technology involves no wires or other cumbersome infrastructure, installing the wireless mesh network was very fast—so fast that ELA was able to complete the eight-kilometre installation during RER's regular train timetable before the start of tunnel renovations in July. All anchors and gateways were installed over a 10-day period in the three-hour window from 1:00 a.m. to 4:00 a.m. when trains were not running—a total of just 30 hours.

In the meantime, ELA trained SNCF operators on the new system and instituted a worker training program. The system was designed to operate, without maintenance, for over eight years (the entire period of tunnel renovation).

“I was in charge of tag distribution this past summer. I previously experienced other solutions and I was pleased to find the ELA Innovation solution particularly easy to use. I'm glad that we will be keeping the solution.”

EDOUARD GALAN
Project Manager, SNCF

RESULTS

100% ACCURACY & RELIABILITY

During tunnel renovations between mid-July and the end of August 2019, SNCF operators could see where all workers were at all times, without interruption. In September, ELA brought system operators, managers and a selection of workers together for a debrief. Each group had good things to say about the system.

SNCF PLACES NEW ORDERS

In the end, SNCF gave a clear vote of confidence by ordering another eight-kilometre Wirepas Mesh-enabled network from ELA Innovation for 2020. In fact, SNCF was so pleased with the ELA/Wirepas Mesh solution that their maintenance centres deployed a similar solution to keep better track of their tools. They were positively surprised that the Wirepas Mesh solution didn't require extensive special training and that the devices connected to each other automatically, making the process very fast.

