



“Clear communications are essential in highway tunnels for employee and passenger safety.”

Market Segment:
Road Tunnels

Country of installation:
Colombia

Year of Installation:
2020

End Customer:
Túnel de la Línea

System Integrator:
C3 Critical Communication

Solution:
Emergency communication

Key Products:
**TCIS-2
ICX-500
VS Recorder 2.0**

Key Technology:
**ONVIF & SCADA Integration
Ambient Noise Reduction
95 dB with Automatic Volume Control**

Enabling Clear Communications in the Túnel de la Línea

Zenitel is ensuring clear communications throughout the 5.3-mile long Túnel de la Línea highway tunnel in Colombia.

The End Customer

The Túnel de la Línea in Colombia is a highway tunnel that is located between the cities of Calarcá, Quindío and Cajamarca, Tolima in Colombia. It crosses beneath the locally famous “Alto de La Línea” in the Cordillera Central or central range of the Andes mountains, easing traffic on one of Colombia’s main east-west road connections (the National Route 40), which links Bogotá with Cali and the Pacific port of Buenaventura.

At 28,386 feet (5.3 miles) it is the longest road tunnel in Latin America.

The Requirement

The project was important, as it helped to not only link several parts of the country, but also was necessary to help with traffic management. In some areas, travel times were reduced by more than one hour.

Construction of the tunnel began in 2008 and was complete in September 2020 at a cost of \$870 million.

The Challenges

Clear communications are essential in highway tunnels for employee and passenger safety. For example, in an emergency, such as an evacuation or an individual who needs assistance.

The project management team was looking for a solution that would provide

clear communications in the tough conditions of a tunnel, which includes extreme noise and temperatures (low and high) and high humidity levels. The solution also needed to be vandal resistant.

Other objectives included providing operational efficiencies and a better decision-making process for emergency situations.

The Result

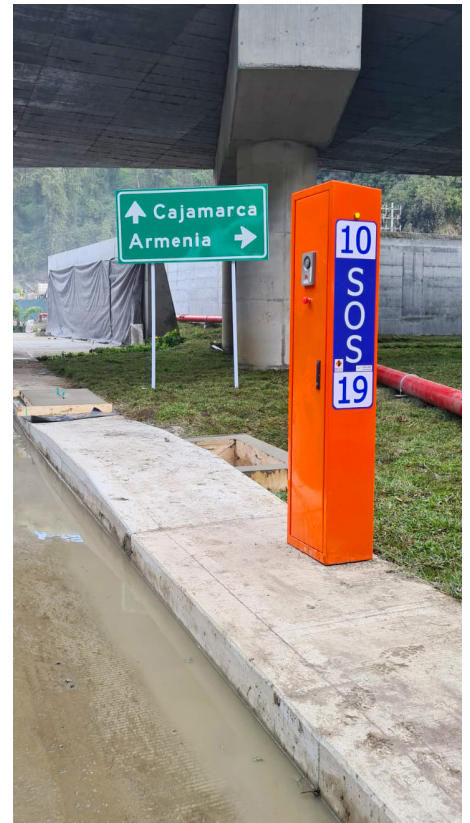
The team worked with C3 Critical Communication, a Zenitel Center of Excellence located in Bogota, Colombia, and installed 100 Zenitel

TCIS-2 IP and SIP intercoms on SOS "smart poles" every 150 meters (164 feet) for emergency communications inside the entire tunnel.

The TCIS-2 is a vandal-resistant intercom that provides crystal clear audio in all conditions. The TCIS-2 is also ONVIF compatible, which means that users can integrate and map Zenitel solutions with other security systems, while giving security teams more tools to manage not just video but also audio under the same control interface. Additional features that make it especially suited for the difficult tunnel conditions include an IP66 rating, a die-cast aluminum frame, and a 10W Class D amplifier.

Each TCIS-2 on each SOS pole has a single backlit button that when pressed, generates a call to two different control centers that notifies staff that someone needs assistance. The calls are recorded to ensure transparency and quality. The SOS system can manage several simultaneous calls, such as if calls are generated from several poles at the same time.

The SOS pole system is integrated into the tunnel's SCADA system, which allows for additional product integration and operator control of system administration, status, and operation. The integrators on the project were Colsein and 1Solution.



Why Zenitel?

Zenitel is well positioned to drive the future of intelligent critical-communication solutions. Through our portfolio of IP products & solutions, with built-in intelligence and a focus on cybersecurity, we provide organizations with superior, scalable security and flexibility. Zenitel is the proven, preferred choice for environments requiring crystal-clear audio to ensure the protection of human life, property, assets and the management of critical activities. With interoperability at all levels, we seamlessly integrate with access control, video management and security platforms.