



Fire Detection in Rio de Janeiro Tunnels

Rio de Janeiro, Brazil

AP Sensing was recently selected to provide their Linear Heat Detection solution in four traffic tunnels in Rio de Janeiro. The tunnel operators needed a system with fast response times, excellent accuracy and low maintenance.

The operators selected one AP Sensing Linear Heat Series device per tunnel, for a total of three single-channel and one 2-channel device, all with a Modbus TCP interface. In total approximately 8000 meters of sensor cable was installed in a single-ended configuration.

The passive sensor cable is immune to dirt, dust, humidity, corrosive materials and electromagnetic interference (EMI). In this case the sensor cable is contained in a stainless-steel tube with a halogen-free plastic coating.

In the event of a fire, information regarding the size and spread of the fire is immediately available to arriving fire-fighting personnel. The Linear Heat Series device communicates with the SCADA system via the Modbus protocol over TCP/IP.



The tunnel "Via Expressa" in Rio

On average, over 25 different alarm zones were defined per tunnel to account for different allowed maximum temperatures (including time differentials) and differences between a measurement location and that zone's average (zone differentials).



Layout of the tunnel "450 Aniversario"

The installation was carried out as planned and on time. AP Sensing provided classroom training for the operators in Portuguese.

The system passed the Final Acceptance Test with no issues and the systems have been performing problem-free since operation began. Valuable infrastructures remain protected, and planning is underway for future tunnel projects in Rio de Janeiro.



The tunnel "Charitas Cafuba" (under construction)