## PYRENEES TUNNEL MONITORING SYSTEM — FRANCE / SPAIN



Q-Free works with a number of overseas technology partners. Recently we were approached by our long standing Spanish partner and distributor, KINEO to help with a vehicle detection and vehicle classification challenge in the Bielsa-Aragnouet Tunnel on the border of France and Spain in the Pyrenees.

The brief was to improve road safety by routing Heavy Goods Vehicles through the narrow two lane tunnel in one direction at a time.

A total of ten of Q-Free HI-TRAC EMU2s were supplied, two at the tunnel entrances and eight in different strategic locations inside the tunnel. The EMU2 can be configured to use a combination of Piezo Electric Sensors and Inductive Loops to accurately detect all vehicle classifications, a pre-requisite of the tunnel detection system.

In this case, the EMU2 firmware was modified and integrated with the KINEO Control System in order to provide alarm outputs when certain vehicles use specific lanes approaching the tunnel. The alarm outputs generated by the HI-TRAC EMU2s are used to activate the traffic signals in order to prevent a possible collision.

It is now several months since Q-Free's HI-TRAC EMU2s integrated with the KINEO Control System has been in operation and the end client is extremely satisfied by the results. This project demonstrates how supplier/distributor partnerships can bring added value in product development and innovation.

