



PRESENCE OF ICE ON ROAD SURFACE MONITORING SYSTEM

24/7 monitoring system of road safety conditions

Supply: **December 1996-today** | Areas at issue: **5 motorway sections**



CHALLENGE

Execution of a stand-alone monitoring system able to provide forecasting and alert instruments for road safety.

WHY ETG?

The wealth of experience that ETG has acquired in the weather instrumentation sector and in real-time monitoring data acquisition, archiving, processing and circulation makes it a valuable collaborator.

INTRODUCTORY SECTION

The monitoring system in question, divided up into 5 motorway sections as requested, consists of the following monitoring stations:

- Section II Milan: 10 peripheral stations;
- Section III Bologna: 12 peripheral stations;
- Section V Fiano Romano: 2 peripheral;
- Stations; Section VI Cassino: 3 peripheral;
- Stations; Section VII Pescara: 9 peripheral stations.

As a whole, the system acquires the temperature, humidity and salt concentration on the road surface data, in addition to other basic environmental parameters for monitoring the road safety conditions, such as the presence and type of precipitation, air temperature and humidity, and the wind velocity and direction.

The peripheral stations, equipped with ETG - Microrecorder model control units, transmit the data in real time to the 24/7 room of Autostrade per l'Italia through an optic fibre connection, giving the operators all the elements necessary to take preventive and emergency actions, such as salting operations, essential for the safety of the road's users.

THE SOLUTION

ETG studied the problems and developed an algorithm directly on board the Microrecorder control unit and on the Control Centre. It is able to consider all environmental parameters present on the single systems and not only those measured on the road surface. In this way the 24/7 room operators are relieved from complicated analyses of single data, with a simple and direct indication of what is occurring on the road instead provided.

This algorithm not only can read also the most dangerous weather conditions in real time, such as freezing rain that triggers the sudden formation of ice on the ground, but it also provides the operator, directly on the centralised management portal, with the "Normal state" of the road surface when it is danger-free, the "Warning state" when conditions for the formation of ice on the ground approach, and the "Alarm state" in which the formation of ice is imminent.

THE BENEFITS

The solution proposed by ETG allows the Customer to manage the activities carried out to rationally keep the road safe for the users while simplifying the job of the 24/7 room personnel, above all in the most critical and emergency conditions, providing an integrated and efficient automatic alert system.

SUCCESSFUL DATA

Ever since 1995 the ETG monitoring system and peripheral stations have progressively spread over different motorway sections, and today cover a considerable portion of motorway. Today, 20 years later, the system is still an essential tool for Autostrade per l'Italia.

CLOSING SECTION

Every new monitoring system engineered by ETG entails peculiarities that can be solved only by those - like our company - that have been working in the sector for years.

In the case of the stations built for Autostrade per l'Italia, the peculiarity broached and solved was that regarding the development of a specific algorithm that forecasts the safety conditions of the road surface.

The system built as a whole, with its efficiency and importance, fully optimises the technical and development capabilities of the ETG team.

