MONITORING COOLING CHAINS DURING DRUGS TRANSPORTATION

Problem

Goods that are sensitive to changes in temperature, e.g. foods and drugs, must be stored and transported under strictly regulated conditions. Most drugs must be transported at temperatures ranging from between 2 and 30°C. But something that is already well-established in food transportation has to date been neglected in the movement of drugs – i.e. shipping in air-conditioned vehicles. It is only possible to meet temperature requirements when freight spaces are heated in winter and cooled in summer. A high-quality transport process will not only employ air-conditioned vehicles but will also monitor and document temperatures.

Task

A monitoring system suitable for industrial applications is required to measure the temperature at different points in a vehicle's cooling space. In other words, a system that monitors compliance with temperature requirements and how long the vehicle doors remain open. This data must be recorded, for instance, to integrated memory cards, so that the required documentation duties may be fulfilled. It must be possible to immediately send an alarm to the person responsible for handling logistics when unusual events occur. E.g. what problem has occurred on which vehicle? Critical temperature fluctuations or the situation where the doors have remained open for too long demand quick countermeasures for the protection of the goods in transit.

Solution

WatchDog pro is able to monitor the temperatures at four different points in the vehicle's cooling space and records how long the doors to the cooling space remain open to ensure that the cooling chain is not interrupted when drugs are shipped by road. Alarms will be triggered through the GSM modem contained in the *WatchDog pro* box when the temperatures (e.g. 2 to 30°C) exceed or fall short of requirements or if the doors to the cooling space remain open for too long. The system's flexibility means that it also allows cooled products (2 to 8°C) to be transported. The measured values are logged on to a memory card and cannot be deleted or written over by the monitoring system. Even board power failures will not cause any data to be lost.

The *WatchDog pro* programming environment (WDP SOFT) enables the permissible temperatures and times and vehicle-specific alarm texts to be programmed. A specially developed software is used to read out the memory card (MMC-READER) which will filter, format and convert the data into a universally legible format.

The pre-configured *WatchDog pro* box will reduce the necessary installation work and will thus minimize vehicle downtimes. The extended *WatchDog pro* monitoring system also permits additional parameters to be integrated into the monitoring system.