



*MCS Zutphen*  
*Dutch Dairy Quality Control*  
*System Spotlight*

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For a copy of the original Article (in Dutch) please write to 'info@americangroup.com'  
keyword: MCS



## MCS Zutphen examines all Dutch farm milk

### Three million samples at an accuracy of 0,1°C!

MCS (Milk Control Station) is able to pick up and transport three million milk samples throughout the Netherlands. A Euroscan

Temperature recorder solution is constantly monitoring if the critical parameter 'Temperature' stays accurate within the prescribed limits.



*Robin Eyesink is in charge of Logistics at MCS and ensures that all **3 Million Milk Samples** arrive safely at Zutphen.*



*Custom Made Containers for Transportation of Milk*

are Sterlab Certified which means that all processes are subject to very high demands and standards. Temperature measurements are subject to an accuracy of 0,1°C. To give you an impression: HACCP [standard is at] 0,8°C and standard instruments work with a tolerance of [at most] 0,2°C!'

In the Netherlands, farmers get paid for their milk based on its quality. The important factors in the determination of the price of milk are the percentage of fat and protein, as well as the number of germ cells. The required quality examination is executed at MCS, the independent Dutch Milk Control Station based in Zutphen, who hold an ISO 17025 (Sterlab) accreditation. Robin Eysink, at MCS, is in charge of all transportation issues and ensures that all milk samples arrive both on time and under correct conditions in Zutphen. Mr. Eysink says: "This is a major logistic operation requiring strict quality requirements. We

The logistical challenge for MCS is to collect 3 million tubes containing milk samples in a two-phase system. In the first phase the samples are picked up every other day at the farmer by drivers of R.M.O Transport. In the truck, a specially designed cool box stores the tubes at temperatures between 0° and 4°C. Every tube has a RFID tag enabling the tracking of each tube throughout the process. After that the samples are stored in a cold storage facility at the dairy factory.

In the second phase the trucks and the vans of MCS collect the samples at the dairy factories; this happens about twice a week. Furthermore, Mr. Eysink

explains: “At the laboratory in Zutphen we have to know the Temperature Curve [regarding the samples] over the entire period and not only from the farmer to the dairy factory but also during cold storage in the factory and throughout the transport from the factory to the laboratory of MCS. And this all with a tolerance of 0,1°C!”



One of the specially designed and **ultra-sensitive** Temperature Sensors.

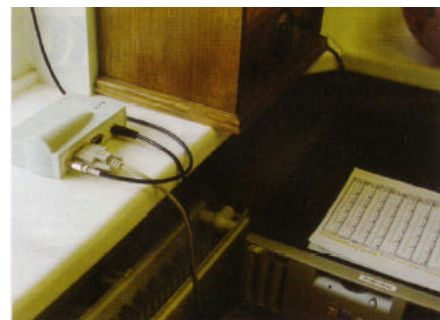
## **No GPRS or GSM**

When searching for a new complete solution to monitor and control the Temperature during the MCS Quality Control process one of the demands was the obvious temperature accuracy, but on the other hand controlling costs as well. Thus, Eysink says: “We ended up at Euroscan because they were excellent on both requirements. The costs are low because we do not use an on-line system such as GSM or GPRS. The challenge we faced was to collect the data in all the different phases. An option [we considered using] was GSM or GPRS but this will cause variable [monthly] costs”

Euroscan offered a bespoke solution utilizing wireless DECT radio technology. The cold storage rooms at the dairy factory are equipped with [Euroscan] Temperature recorders with multiple functionalities, and are used throughout the MCS Quality Control Process. In the first step the recorders will monitor and record the temperatures of the cold storage rooms themselves. When the MCS vehicles arrive to pick up the samples the stored data is then wirelessly and automatically transferred to the recorders in the trucks. When these vehicles arrive at MCS in Zutphen the stored data, including the temperature readings during the vehicles journey, will again be wirelessly



A **Euroscan X1** Generation Recorder that was modified to meet the special communication needs at MCS.



**Transmission Station:** ensures that all Data is transferred to MCS Computers at Zutphen.



### ***Automatic Data Analysis***

The driver will put any sample aside that is not within the specified range and is no longer eligible for its analysis. The farmer will be paid based on the overall average quality of the milk produced. Higher quality therefore leads to higher prices for the farmer and prices vary by as much as 23 cents [circa 0.27 USD] per kilo!

transferred onto the MCS PC's and servers. The software application then processes the data automatically, which is followed by a comprehensive report that is being generated giving a complete picture of all elements in the quality control chain.

But the real unique and interesting aspect of the MCS system is how the quality controls are interlinked with the payment scheme. When a driver picks up samples at

the dairy factory he will automatically get an alert if any of the loaded samples exceeded the temperature limits.

## **Euroscan supplies custom solution**

Ryan Ter Bals from Gullimex notes: "The solution provided at MCS is one of the options we have in our program. GPRS, GSM, Bluetooth or GPS [Satellite] are other wireless technologies used for data transfer. We are a solution provider in the area of monitoring and recording conditioned logistics of any kind, you ask we create! To achieve the accuracy of 0,1°C at MCS we had to adapt our system at several points. Normally such a high accuracy is not usual at vehicle based recorders." Therefore Gullimex worked with Euroscan to develop custom made temperature sensors that could handle the required accuracy as well as adjusting the Temperature Recorders communication standards to allow for the relevant data to be 'relayed' throughout the two phase quality control process.

The system used at MCS, as mentioned, is build around several components from Euroscan,



***Gullimex's Ryan ter Bals*** holind-up a Euroscan X1 Recorder.

including the software. The EuroBase software package is used for centralized processing and analysis of the measured data. EuroBase, with the addition of the EuroTrace module can, if desired, monitor temperature and vehicle position in 'real-time' utilizing GPS technology [this however was not implemented at MCS]. Euroscan features an b 'open' source system that, according to Mr. Ter Bals: "is compatible with most common

on board computers such as Transics, ICS, MobiCoach, Dynafleet, etc."

## **References**

MCS Netherlands:

[www.mcs-nederland.nl](http://www.mcs-nederland.nl)

Gullimex:

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