

DEW-POINT ANALYSER

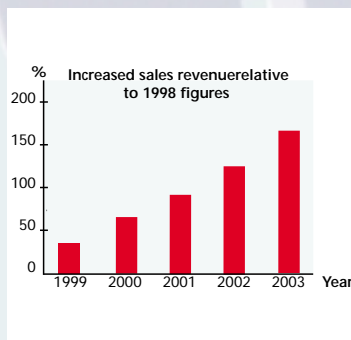
Microcontroller reduces manufacturing costs by 13.5 %

Alpha Moisture Systems has applied microcontroller technology to its high quality Dew Point Analyser moisture measurement system to improve the accuracy of the equipment, provide improved inter-changeability of sensor probes, and offer improved display facilities. The product improvements and the reduction in manufacturing costs of 13.5% will improve the product's competitiveness leading to a doubling of its market share.

Alpha Moisture Systems designs, manufactures and sells high quality moisture meters for use in the gas extraction and supply, chemical, petrochemical and defence industries. The company also provides calibration and technical support to its customers.

ALPHA MOISTURE SYSTEMS	
Employees	10
Turnover	1.5 M€/year
Industrial Sector	Instrumentation NACE code: 33
Technical expertise before the project	PCB
Technical expertise at the end of the project	Microcontroller

SIGNIFICANT ECONOMIC BENEFITS



Sales of Alpha Moisture Systems' existing Dew Point Analyser were projected to decline slowly as a result of the limited performance of the equipment. The improved product applies microcontroller technology to provide a range of features thereby enabling the company to compete successfully with sophisticated moisture meters on the market, leading to a doubling of world market share within the next 5 years. The prototype development cost funded under the FUSE programme was 54.8 K€. The joint economic benefits of a reduction in manufacturing cost of 13.5% and the increased sales will pay back this investment within 19 months, and will generate a return on investment over the 7-year product life of 558%. The industrialisation costs were 18 K€.

PRODUCT IMPROVEMENTS

Alpha Moisture Systems' existing Dew Point Analyser required extensive factory calibration procedures which restricted the equipment's use to the supplied probe. The introduction of the microcontroller device in the improved product allows the use of interchangeable probes, removing the costly requirement for the customer to return the equipment when the sensor was changed. The following product enhancements were also delivered:

- Faster response times, and higher measurement resolutions.
- Improved operability, including the provision of alarms when open or short circuit sensor and out of range indications are detected.
- A wider range of display options, including the following units - °C, °F, PPM (v), PPB (v), g/m³, lb/MMSCF, PPM (w) Mol.
- Power saving features to maximise battery life, and the provision of a low battery indication.



How to go about it

CHOOSING THE RIGHT TECHNOLOGY

Alpha Moisture Systems selected a microcontroller device to implement the improvements in its dew point analyser because it provided the following benefits:

- The lowest cost and most flexible, low risk implementation approach in the low annual volumes.
- The required peripherals, including an analogue to digital converter and serial data interfaces were integrated into the device.
- The ability to store calibration data in memory.
- The availability of low cost development tools.
- Low power consumption for battery powered operation.

PROJECT OVERVIEW

Main Activity	Microcontroller development
Duration	7 months
Effort	242 person days
Overall prototype development costs	54.8 K€

A PARTNERSHIP FOR SUCCESS

Alpha Moisture Systems conducted the project as a FUSE application experiment. The company's staff participated in all of the project tasks in collaboration with selected subcontractors. The subcontractors provided support in:

- Training in microcontroller design and the use of development design tools.
- Specification development.
- Hardware and software design.

The main project tasks, effort and costs are listed in the adjacent table.

EFFORT & COST

Task	Company's effort (days)	Subcontractors' costs (K€)
Management	26	
Training	17	0.82
Specification	30	1.37
Hard- and software Design	95	11.51
Evaluation	74	
Total	242	13.70

YOU CAN ALSO BENEFIT FROM MICROELECTRONICS

Microcontroller technology provided Alpha Moisture Systems with the means of improving its product and enhancing its market position. You can also achieve significant benefits by acquiring the right microelectronics technology and utilising it in your product or manufacturing process. You can get help from FUSE to realise this.

FUSE is a technology transfer programme, funded by the European Commission to stimulate the wider use of microelectronics technologies by European enterprises to increase their competitiveness and enhance their economic growth. The demonstrator described here is one of many examples in the public FUSE portfolio covering the whole spectrum of microelectronics technologies and spanning a wide range of applications and industry sectors.

FUSE provides you with:

- *Best practice in acquiring specific microelectronics technologies and conducting full development projects through the FUSE portfolio of real life demonstrator documents.*
- *Local training and expert support to plan your innovation realistically and help you conduct your project successfully.*

Further information and support relating to this and other demonstrators can be obtained from the addresses below.

The Technology Transfer Node

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