



## Endress+Hauser Levelflex Guided Radar in Activated Sludge Reactor accurate & reliable liquid level measurement despite the presence of a thick foam layer

In February 2005 the North Shore City Council commissioned a new activated sludge reactor surface wasting system, designed by Sinclair Knight Merz, consultants at their Rosedale Wastewater Treatment Plant.

The purpose of the activated sludge reactor (MLE configuration) surface wasting system is to preferentially remove floating surfactants and hydrophobic filamentous micro-organisms that are brought to the surface of the reactors under aeration.

Previously, when the surplus activated sludge was removed from below the surface, the Rosedale WWTP frequently experienced a significant accumulation of surfactants and hydrophobic organisms on the surface of the reactors which resulted in a thick and potentially odorous scum layer.



Levelflex FMP40 installed at NSCC - WWTP

The new system removes the surplus activated sludge from the surface near the final reaeration zone of the 3 reactors using a pneumatically operated weir penstock that is controlled so as to maintain a set distance between the liquid surface and the top of the weir (currently 150mm) during variations in the liquid level.

This ensures that unwanted surfactants and hydrophobic organisms are rapidly and preferentially removed from the surface. This also minimises the growth of these unwanted organisms.

An Endress+Hauser FMP40 Levelflex Guided Radar was selected to reliably measure the liquid level in the reactors which is recorded as a rolling average and used to control a constant differential between the weir and the surface.

### Accuracy Important

The maintenance of an accurate differential is important so that wasting is from near the surface layer otherwise scum prevention will be unsuccessful.

Since commissioning the accumulated scum layer has gradually decreased to a stage where in mid April 2005 it is no longer present.

Paul Bickers (Process Controller at the North Shore City Council WWTP) comments that the Levelflex FMP40 Guided Radars are performing well.

### More information?

Circle Enquiry No: 0701  
Contact: Chris Gailer / Howard Berry

### Levelflex M FMP40

The Levelflex M FMP40 performs continuous level measurement of liquids and powdery to granular bulk solids.

Three types of probe are available with threaded process connections from 3/4" and flanges from DN40:

- Rod probes, for liquids
- Coax probes, for low dielectric liquids e.g. LPG
- Rope probes, for solids up to 35m

The following interfaces are available:

- HART (standard), 4-20mA
- PROFIBUS PA
- Foundation Fieldbus

### Benefits

- Measurement is independent of Density, Temperature and Dust
- Measurement is possible with surface foam
- Simple, menu-guided on-site operation with 4-line text display
- On-site envelope curve on the display for easy diagnosis
- Easy operation, diagnosis and measuring point documentation with ToF Tool software (supplied)
- Optional remote display & operation
- With coax probes measurement is independent of tank internals and nozzle installation
- Replaceable rod and rope probes
- Application in safety related systems with requirements for functional safety up to SIL 2

# EMC Trade Exhibitions

If you have visited EMC's web site in recent weeks you will have noticed the significant upgrade.

We have endeavoured to provide a site that is interesting, functional and easy to use.

Our web site is basically an information database on the range of products and services available from EMC.

It contains information on many products available from EMC with access to all the pages from our printed Price Catalogue (including updates) and links to relevant articles from our Newsletters in pdf format.

Pdf copies of all recent EMC Newsletters are also available.



Technical literature is accessible on all EMC manufactured products such as Weighing Instrumentation, Belt Weighers and Weigh Feeders.

We have included links to all our overseas Principals web sites where a wealth of Literature, Technical Data, Operating Manuals, etc can be found.

## Endress+Hauser

If you require Technical Data or Operating Manuals for any Endress+Hauser product you will be able to find this on their web site by following the link from our site.

However, you may find it easier to send your request direct to EMC as we have all E+H documentation available on CD and can send you the complete disc or email the relevant material as an attachment.

## On-line requests

Please visit our web site whenever you require information on a particular product. If further assistance, literature or a quotation is required, click on 'Contact EMC' and you will be able to send your request on-line for prompt action.

The web site is updated regularly and while we endeavour to hold published prices, these are subject to change at any time. Please confirm all prices with EMC to ensure it is still current.

Your comments, good or bad, regarding our web site, and any other product or service provided by EMC, is always welcome.

*Russell Mason*  
Marketing Manager

EMC always welcomes the opportunity to support and participate as a trade exhibitor at a variety of industry conferences.

These provide an ideal platform for us to introduce the latest top quality instrumentation and weighing products to New Zealand's process engineers and industry group leaders.

Recent events included the 59th **Appita** Annual Conference and Exhibition held at the Sky City Convention Centre in Auckland during May.

Appita is the Australasian Pulp and Paper Industry Technical Association.

Endress+Hauser fully supported this event with exhibits and technical staff from E+H Australia and Radiometric measurement specialist Tanja Stoecklin from E+H Germany. Janerick Bergmark, E+H Global



Attending the Appita Exhibit,  
L/R: Chris Gailer (EMC), Janerick Bergmark, Tanja Stoecklin and Gavin Astbury (E+H)

Pulp & Paper Industry Manager, gave a presentation at the conference.

Products on display included various flow, level and pressure instruments of particular relevance to the pulp and paper industry.

The **NZIFST-DIANZ** Conference was held in Christchurch this year at the end of June (New Zealand Institute of Food Science & Technology and the Dairy Industry Association of New Zealand).

Chris Gailer and Stephen Wells from EMC attended our exhibit (left) which incorporated a variety of Endress+Hauser hygienic Instrumentation, an EMC stainless steel Weigh Feeder and a portable Flow Meter Rig.



# Excell Counting Scales

## Exceptional Offer on AWH 6kg Counting Scales

We are pleased to present EMC Newsletter Readers with an exclusive offer on Excell AWH 6kg capacity Counting Scales.

Used in high accuracy applications, the robust 6kg AWH Scale has a resolution of 0.2g and is ideal for counting small components and can save many valuable hours at stocktake time.

As well as counting, the AWH can also be used for normal weighing functions in addition to weight checking functions - a truly versatile scale.

Normally selling for \$740.00 we have several of these scales in stock which we are offering at an exceptionally net low price of **only \$370.00** + GST - a massive 50% discount!

This offer is open until 30th September 2005 and is limited to the stock currently held by EMC. Don't miss out - order your scale today.

### Features include

- Weighing/counting/checking functions (with buzzer)
- Large platter size of 280 x 230mm
- AC adaptor (included) or Battery
- Preset tare and Auto calibration
- External resolution: 30,000 divs
- Internal resolution: 600,000 divs
- Low battery indicator
- Totalising function



### More information?

Circle Enquiry No: 0702  
Contact: Steve Watkins

# Tank Level and Product Density System

## Frucor Beverages Ltd achieve accurate results using hygienic E+H Deltapilot S Pressure Transmitters and Unitronics Vision 260 OPLC

EMC were delighted to be selected to supply Tank Level and Product Density Systems for 3 batching tanks at Frucor Beverages Ltd in Auckland.

EMC recommended Endress+Hauser Deltapilot S DB50L Pressure Transmitters for this application (2 per tank) together with a Unitronics Vision 260 PLC with integrated Operator Panel.

The Vision 260 OPLC graphically indicates the level of each tank as well as calculating and displaying the product density. Programming was done by Steve George (EMC's Integrated Systems Manager) and the control package was fully installed in a control cabinet together with the snap-in I/O and expansion modules.

The hygienic Deltapilot S Pressure Transmitters used have a 316L Stainless Steel housing with a Universal Mounting Adaptor Process Connection. The measuring range is 0-400mbar and they were fitted with a loop-powered 4-20mA, HART, FEB22 Electronic Module.



Batching Tank at Frucor Beverages Ltd with 2 Deltapilot S Pressure Transmitters (circled)

### Frucor Beverages - very pleased with performance

Amy Sia of Frucor Beverages Ltd explains what Frucor were wanting to achieve with this system:

"The reason why we chose this system was because we wanted to do away with sight glasses due to it being a potential breeding ground for microbes.

We first tried an ultrasonic unit but due to the amount of foaming we got from our products, we got erroneous readings with level measurement. We wanted a system that could give us 95% accuracy at least, which the ultrasonic did not do.

When EMC suggested using pressure transmitters, we were concerned about whether it would give us an accurate reflection of the level inside the tank due to the variety of products we batch.

We have used pressure / level transmitters in our other tanks before but only one per tank. With this one pressure transmitter, we set a fixed density of

1g/cc which is that of water.

This assumption of density is not a true reflection of the actual density that is in the tank. However, as they were only holding tanks the level indication was not crucial.

With batching, it was a different scenario. With two E+H Deltapilots, we were able to compensate for specific gravity differences and produce a reliable reading.

We also had issues with cleaning and we wanted instruments that were flush sealed so that there were no dead areas where product could accumulate. The Deltapilot came with welding necks that were flush sealed which were exactly what we were after.

Overall we are very pleased with the performance of the Deltapilots. The system is giving us good accuracy and allows us to comply with food hygiene practices by replacing our sight glasses."



EMC Control Cabinet with Unitronics Vision 260 OPLC

### More information?

Deltapilot S: Circle Enquiry 0703  
or contact Howard Berry  
Unitronics OPLCs: Circle Enquiry 0704  
or contact - Steve George

## Successful Non Contact Density Measurement of Lime Slurry

There are many applications where extreme process conditions prevent the use of conventional measuring techniques.

One such recent project was successfully resolved by EMC at a Pulp and Paper application in New Zealand for the density measurement of Lime Slurry on a DN125 recirculation pipe.

Lime Slurry is highly abrasive and a non-contact system was necessary to provide wear and maintenance free operation.

The Endress+Hauser Gammapiilot M FMG60 provided the ideal solution. It offers continuous, non-contact measurement through the steel pipe wall, using the radiometric measuring principle, together with temperature compensation for density measurement.

### Radiometric Measurement

The Gammapiilot M FMG60 is a compact transmitter designed for non-invasive limit detection, level, interface layer, and density measurement. Applications are many and include:

- Continuous, non-contact measurement in liquids, solids, suspensions or sludges, etc
- Extreme measuring conditions, e.g. high pressure, high temperature, corrosivity, toxicity, abrasion, hazardous locations
- Process vessels, e.g. reactors, auto-claves, separators, acid tanks, mixers, cyclones, cupola furnaces
- Food processing industry without additional requirements or approvals



Source Container and Gammapiilot M FMG60



Gammapiilot M FMG60 installation on a NZ Pulp and Paper application

### General Features and Benefits

- Compact transmitter: one instrument for all measuring tasks
- Highest availability, reliability and safety, even for extreme process and ambient conditions
- Highest sensitivity and accuracy at lowest dose rates (ALARA principle)
- Optimum adjustment to the application via a variety of detectors
- Ex d, Ex e or Ex i current output for simple plant integration
- Stainless steel housing 316L
- SIL2 according to IEC/EN 61508 and WHG approval
- Gammagraphy detection
- Simple, menu guided on-site operation with 4-line text display or convenient operation, diagnosis and measuring point documentation with the supplied "ToF Tool Package"
- System integration via
  - HART
  - PROFIBUS PA
  - Foundation Fieldbus

EMC have experienced, trained staff in all aspects of Radiometric Measurement and will be pleased to assist with your application.

### More information?

Circle Enquiry No: 0705

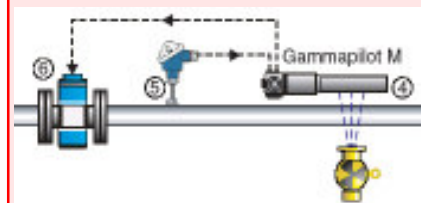
Contact: Chris Gailer / Howard Berry

### Measuring principle

The radiometric measuring principle is based on the fact that gamma radiation is attenuated when it penetrates a material.

For Density or Concentration Measurement a gamma radiation source and a Gammapiilot M are mounted on opposite sides of a measuring tube (4).

Gammapiilot M calculates the density or concentration of the medium from the intensity of the received radiation.



If an additional temperature sensor (5) is connected, the Gammapiilot M accounts for the thermal expansion of the medium.

That means, it does not output the measured density directly. Instead it calculates the density which the medium has at a certain standard temperature defined by the user.

Furthermore, the density signal of Gammapiilot M can be combined with the signal of a volume flow meter (6), e.g. Promag 53. From these 2 signals it is possible to calculate mass flow.