



56 Tarndale Grove, Rosedale  
PO Box 101 444  
North Shore City 0745

## EMC INDUSTRIAL GROUP LTD

Phone 09-415 5110  
Fax 09-415 5115  
sales@emc.co.nz  
www.emc.co.nz

### Water Metering Services for the Selwyn Rakaia Groundwater Zone and Canterbury

#### General

Together with our main supplier Endress+Hauser, EMC Industrial Group Ltd is able to supply, support and service arguably the world's best range of process instrumentation, which includes Magnetic and Ultrasonic Flowmeters, and water level measurement devices, all at competitive prices. All instruments are manufactured to the highest quality standards and symbolise the latest in technology and innovation.

Endress+Hauser are the world's largest producer of Magnetic Flowmeters with an installed base of over 1 Million units. Some models have been designed specifically for the water / irrigation industry, meaning they are easy to install and service, accurate and price competitive. The robust construction permits their use even in the harshest environments.

EMC, as your local partner, provides full support for every product we supply, from initial specification, to commissioning and training, to ongoing servicing and calibration. Our aim is to be a major supplier to the NZ Irrigation Industry.



#### Organisation Profile and Resources

EMC Industrial Group Ltd is a privately owned NZ company, founded in 1970. We have grown to become one of New Zealand's largest and most respected industrial instrumentation suppliers. EMC is committed to providing a high level of customer service and has 25 highly competent and skilled staff in all facets of its operation from design, manufacturing, technical sales, service, marketing and administration.

Modern well equipped mechanical, electrical and electronic workshops and dedicated service tools ensure that comprehensive ongoing local support and backup is available for all products and systems supplied.

The water industry is a core area of activity for us and we annually exhibit at the Water New Zealand (formally New Zealand Water and Wastes Association) Conference. We are a registered member of Irrigation NZ.

Head Office: 56 Tarndale Grove, Albany, Auckland

Your main contact at EMC is:

Chris Gailer  
Managing Director  
DDI 09 415 5111  
Mob 029 415 5111  
Email [chris.gailer@emc.co.nz](mailto:chris.gailer@emc.co.nz)



Local service support will be provided by our Christchurch based Service Engineer.  
Our offices are at Unit 5, cnr Lincoln Road and Wise Street, Addington.

Local Contact:

Jared Curry  
Service Engineer  
Mob 029 365 2671  
Email [jared.curry@emc.co.nz](mailto:jared.curry@emc.co.nz)



EMC is an ISO9001 registered company (ISO registered since August 1995) and we are externally audited by SGS on an annual basis. A copy of our Quality Policy Manual is available on request.



EMC is already a major supplier of Industrial Instrumentation to the Water and Wastewater Industry.

We work closely with Consultants, Councils, End Users and Engineering / Electrical Contractors in practically every industry. Several councils throughout New Zealand have standardised on our Water Meters, as well as our Level, Pressure, Temperature and Analytical equipment.

References are available on request.

EMC will work closely with local companies once they have been identified and approved by Environment Canterbury. We are of course aware of these local service providers and already have a close working relationship with some of them.



### Methodology and Systems for Calibration and Verification

As part of our ISO system, EMC have documented procedures covering our Sales, Marketing, Manufacturing and Controlling Processes. Our order processing procedures are fully electronic, streamlined and traceable.

Our ISO complaints procedure ensures that any issues are resolved to the satisfaction of all parties whenever possible. Staff Training is also covered by our ISO System and our staff have a very high level of knowledge with regards to products, installation and servicing.

Product supply is not an issue. Anticipated lead times of Endress+Hauser products, if not already in stock in our Auckland and Christchurch stores, is 4-6 weeks.

Calibration of flowmeter installations is carried out with an Endress+Hauser Prosonic Flow 93T Portable Clamp-On Ultrasonic Flowmeter with an integrated data logger function. This flowmeter has a 4-20mA current input facility so that the water meter's readings can be directly compared to that of the Ultrasonic Flowmeter in real time. This information is stored on a USB stick and can therefore be analysed at a later stage if necessary. A calibration certificate is then produced for each flowmeter.

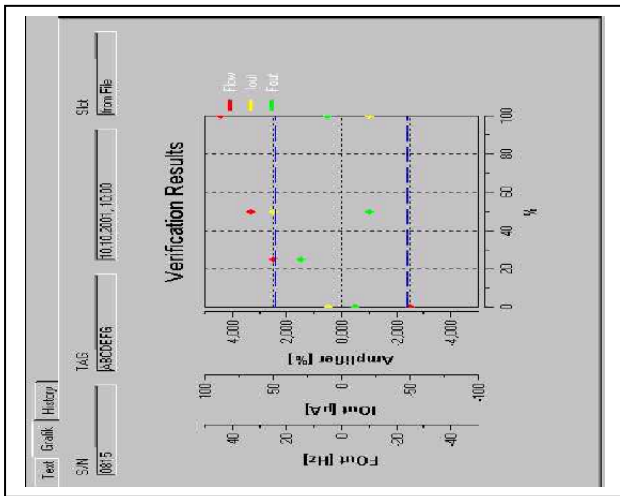
In addition, each Endress+Hauser Flowmeter can be verified in-situ with the FieldCheck Flowmeter Verification and Simulation System. This system is ideal if the meter is suspected to be faulty or to check the operation if the electronics have been exchanged. FieldCheck carries out the following tests:

Simulation Functions    Continuous Mode - Simulation of Continuous Flow Value  
                                  Pulse Mode - Simulation of Fast Flow Changes or Process Failures  
                                  Profile Mode - Simulation of a Slow Flow change

Verification Functions    Zero point Stability  
                                  Flow Signal Evaluation and Processing  
                                  Amplifier Linearity  
                                  Behaviour of the Outputs  
                                  Magnetic Field (Coils)  
                                  Electrode Integrity



The FieldCheck can then provide a printout of the Verification Certificate to produce an audit trail. This details all the verification results and deviations.



P/F	Date/Time	Failure in
✓	20.12.00, 9:31	
✗	21.12.00, 9:35	Aout 1: -100 uA Fout 2: +200 Hz
✗	22.12.00, 8:45	Aout 2: +400 uA Fout 1: -150 Hz Flow: -10,89 l/h Hz
✓	24.12.00, 9:31	
✗	26.12.00, 8:45	Aout 2: +400 uA
✓	26.12.00, 10:31	
✓	27.12.00, 10:31	
✓	28.12.00, 10:31	

### Flowmeter Verification Certificate

**Customer:** Hilwars Water Treatment  
**Plant:** Purifying Stage IV/5  
**Order Code:** 53W 15-HA081AA0A1AA

Verification Results	Applied Limits	Deviation
Amplifier Zero (Flow)	Passed	±0
Amplifier Span (Flow)	Passed	±0
Temperature	Passed	±0
Density	Passed	±0
Analogical Output 1	Not Tested	±0
Analogical Output 2	Not Tested	±0
Analogical Output 3	Not Tested	±0
Pulse/Frequency Output 1	Not Tested	±0
Pulse/Frequency Output 2	Not Tested	±0
Pulse/Frequency Output 3	Not Tested	±0
Coil Integrity	Passed	-
Electrode Integrity	Passed	-

**FieldCheck Details:** SI

**FieldCheck Results:** 25000/30000 NI, 25000/30000 NI, 1.00.00 T1, 25000/30000 NI, 25000/30000 NI

**FieldCheck Operator:** John Checker

**Date Returned:** Wednesday 6 April 2006, 11:35  
**Date Certificate Printed:** Thursday 5 May 2006, 15:51

### Printout of

- Verification Certificate
- Audit Trail

### For ISO requirements

- manipulation-protected

### Flowmeter Verification Audit Trail

Verification Date	Result	Failure in	Deviation
27.01.2006	Passed	-	-
25.07.2006	Passed	-	-
27.01.2009	Failed	Amplifier Zero Current Out: 25%	+10% +100 uA

**Date Returned:** Wednesday 6 April 2006, 11:35  
**Date Certificate Printed:** Thursday 5 May 2006, 15:51

**Endress+Hauser**  
The Flow Intelligence

In addition to the 5 yearly Calibration Check it may be prudent to carry out yearly checks on each meter using FieldCheck. The costs per flowmeter would be well under \$100/meter if a number of meters are checked at the same time. FieldCheck verifications can be carried out by EMC or any nominated 3<sup>rd</sup> party. The FieldCheck system can be purchased or hired, as preferred.

Pricing is generally subject to exchange rate variations however this can be fixed at time of order placement. In addition Endress+Hauser review their pricing on a yearly basis. They provide a 3 month notice period before any prices changes take affect.



## The Endress+Hauser Group

EMC has represented Endress+Hauser in New Zealand for over 25 years. Over this time we have built up a very close and trusting relationship. We are regularly visited by various Endress+Hauser personnel which included their CEO, Klaus Endress in 2002. In addition our staff annually attend several Endress+Hauser Training Sessions and Marketing Conferences in Australia, Asia and Europe. EMC is directly supported by Endress+Hauser Instruments International AG (E+H II) in Reinach, Switzerland, which is their export sales centre. Key personal at E+H II are:

Jean-Gyl Capt	Executive Manager
Reinhard Hees	Head of Sales
Thomas Frank	Area Manager New Zealand
Knut Neugebauer	Technical Support New Zealand
Brunhilde Ghelmi	Order Processing

**Endress+Hauser** 

## Endress+Hauser Facts and Figures

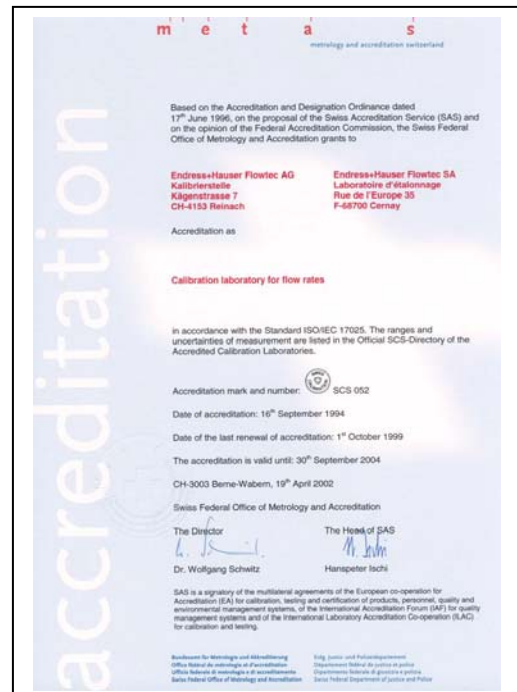
Endress+Hauser, an ISO9001 company, is recognised as a leading supplier of industrial measurement and automation equipment, providing services and solutions for industrial processes all over the world. They offer comprehensive process solutions for flow, level, pressure, analysis, temperature, recording and digital communications across a wide range of industries, optimising processes in regards to economic efficiency, safety and environmental protection.

In 2008, the Endress+Hauser Group generated €1211 million in turnover and a profit of €104.6 million.

Innovative products which generate additional benefits for the customer are crucial for Endress+Hauser's success. In 2008, the company applied for 200 new patents and invested 8% of its turnover in research and development. The Group currently has 3,900 living patents and patent applications to its name.



Endress+Hauser Magnetic and Ultrasonic Flowmeters are manufactured and calibrated in a purpose built modern facility in Cernay, France (pictured). This plant is capable of producing in excess of 1000 Magnetic Flowmeters per day. The accredited calibration facilities are independently certificated, traceable and externally audited by SQS.



## Calibration / Services

Endress+Hauser's modern calibration laboratories and primary facilities are traceable to national and international standards.

- On-site calibration is performed by specialist, highly trained staff. Calibration facilities operate and are accredited to ISO 17025 (accuracy  $\pm 0.05\%$ ).
- Calibration services can include adjustment, repair or replacement of the equipment.
- A comprehensive database of Standard Operating procedures (SOPs) ensures that professional service is maintained around the world.
- Clear and concise calibration certificates
- Local servicing, calibration, verification and commissioning is carried out by the local EMC office
- Repairs (down to component level) are made in our Auckland Electronics workshop



## Tooling / Life Cycle Management – making life easier

From engineering to maintenance by way of calibration and commissioning, Endress+Hauser offers a substantial range of tools dedicated to the management of field instrumentation.

- W@M is a web enabled asset management Life Cycle Management platform offering up-to-date complete information on all instruments (eg. manuals, spare parts list, calibration sheets, latest software versions etc.)
- Applicator is a modular structured selection and sizing software program for easy planning and optimisation of measurement applications
- FieldCheck is a high-performance test and simulation device with which all flowmeters can be verified. All the test functions can be performed directly in-situ without the need to remove the flowmeter



## Cost Effectiveness of Technology Options

### Magnetic Flowmeters

- No moving parts, no maintenance, no ongoing costs
- No restrictions to flow – no pressure loss
- Pre-calibrated (wet calibrated) and supplied with calibration certificate
- In-situ verification with FieldCheck Flowmeter Verification / Simulation system
- High accuracy and turndown
- Wide range of sizes from 2mm to 2000mm
- Simulation of outputs for pre-commissioning checks
- Exchangeable electronics (future proofed)
- Rated to 16 bar line pressure as standard (higher pressures on request)
- Suitable for dirty or clean water
- Bidirectional measurement possible
- Short straight pipe runs
- Outputs will interface to any telemetry / data logging system

### Clamp-On Ultrasonic Flowmeters

- Quick and easy to install - sensors clamp on to outside of pipe (no interruption to flow)
- Ideal for in-situ calibration checks of other meters
- Portable or fixed installations
- Some models with integrated data logging with input for flowmeter being tested
- Unaffected by line pressure
- Suitable for dirty or clean water
- Bidirectional measurement possible
- Outputs will interface to any telemetry / data logging system



## TECHNOLOGY SPECIFICATIONS

### Endress+Hauser Magnetic Flowmeters

Fitting (installation) lengths according to DGWW/ISO standards.  
Local display with push-button operation  
Menu-guided operation  
Settings are password protected  
Self monitoring with error messaging and failsafe operation  
All flowmeter wet calibrated and supplied with calibration certificate  
Sizes from DN2 (1/12") to DN2000 (78")  
In-situ Verification by FieldCheck Tool  
Accuracy better than 0.5% with 0.1% repeatability  
HART digital communication standard

#### Promag 10D



- Specifically designed for Water / Irrigation industry
- Innovative compact and lightweight sensor, ideal for use on plastic pipes...no extra support required
- Integrated Grounding discs...no grounding issues ever
- Short installation lengths
- Easy to install
- Data backup for security
- Integral or remote electronics
- Price competitive
- Polyamide liner with Stainless Steel Electrodes
- Ambient Temperature -20 to +60°C

## Endress+Hauser Ultrasonic Flowmeters

Clamp-on spring loaded sensors ensures contact with pipe even with changing temperatures  
Suitable for use on all sonically conductive pipes (eg. plastic, steel, Fibreglass)  
Local display with push-button operation  
Menu-guided operation  
Settings are password protected  
Self monitoring with error messaging and failsafe operation  
Wet calibrated verification possible  
Suitable for pipes sizes from DN15 (½") to DN4000 (156")  
In-situ Verification by FieldCheck Tool  
Accuracy better than 0.5% plus 1.5% for installation  
HART digital communication standard

### Prosonic Flow 91W



- Specifically designed for Water / Irrigation industry
- Easy / quick to install (transmitter calculates sensor positions)
- Supplied with installation set
- Menu-guided commissioning
- Insensitive to pipe vibration
- Data back-up
- Price competitive

### Prosonic Flow 93T



- Portable Clamp-on Ultrasonic Flowmeter with Data Logging Function
- Supplied with carry case, mains charger, NiMH battery pack, 1GB USB stick
- Records Time, Date, Flowrate, Sound Velocity, Flow Velocity, Signal Strength, Signal to Noise, Totaliser, System Status, Current input
- Easy to install (transmitter calculates sensor positions)
- 8 hour continuous battery operation (or 100...240Vac supply)
- Current input for calibration of in-situ flowmeter
- Pipe wall thickness sensor

## Endress+Hauser Level Measurement Devices

Apart from Flowmeters, Endress+Hauser / EMC offer a complete range of level measurement devices from simple float switches to custody transfer tank gauging systems.

Level Measurement Instrumentation we can offer includes:



**Float Level Switches**



**Conductivity Level Switches**



**Hydrostatic Level**



**Ultrasonic Level – Compact**



**Ultrasonic Level – Remote**



**Radar Transmitters**

Data sheets and operating manuals are available for all products on request.