PRODUCT CONFORMITY CERTIFICATE

This is to certify that the

Rosemount Analytical Model 54e Analyser With Model 399, 399VP and 381+ pH sensors

manufactured by:

Rosemount Analytical Inc

(a division of Emerson Process Management)
2400 Barranca Parkway
Irvine
CA 92606
USA

(Certification applies to products manufactured at the above site and Mexico site)

has been assessed by Sira Certification Service
and for the conditions stated on this certificate complies with:

MCERTS Performance Standards for Continuous Water Monitoring Equipment, Version 2.1 (July 2006)

Certification Range :

pH units 0 to 14

Note: The MCERTS product certification is only valid for use on non-pressurised applications.

Project No:	674/0203A
Certificate No:	Sira MC 070111/00
Initial Certification:	07 June 2007
This Certificate Issued	07 June 2007
Renewal Date:	06 June 2012

Technical Director

MCERTS is operated on behalf of the Environment Agency by

Sira Certification Service
12 Acorn Industrial Park, Crayford Road, Crayford
Dartford, Kent, UK, DA1 4AL
Tel: 01322 520500 Fax: 01322 520501

Approved Site Application

Any potential user should ensure, in consultation with the manufacturer, that the water monitoring system is suitable for the process on which it will be installed.

On the basis of the assessment this instrument is considered suitable for use on non-pressurised treated wastewater, untreated wastewater and receiving water applications. The MCERTS product certification is not valid for use on pressurised applications.

Basis of Certification

This certification is based on the following Test Report(s) and on Sira's assessment and ongoing surveillance of the product and the manufacturing process:

Sira Report	Report Number: C1246 dated January 2007
Field Assessment	Report summary dated 06/06/07

Product Certified

This certificate applies to all instruments fitted with software version 1.18 onwards (serial number J03-211223 onwards).

Certificate No:	Sira MC 070111/00
This Certificate Issued	07 June 2007

Certified Performance

The instrument was evaluated for use under the following conditions:

Ambient Temperature Range: -10^0C to $+55^0$C

Unless otherwise stated the evaluation was carried out on the certification range 0 to 14 pH units. The following evaluation was performed on 1055 analyser with 399 pH sensor. The 54e analyzer was considered to be equivalent to the 1055 analyser for the majority of the tests.

Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<4		
Combined performance characteristics					0.13	<2.0
Mean error					-0.10 pH units	<0.2 pH units
Linearity					0.04 pH units	<0.1 pH units
Repeatability					0.02 pH units	<0.1 pH units
Drift					0.04 pH units	<0.1 pH units
Output impedance					0.00 pH units	<0.05 pH units
Supply voltage					0.02 pH units	<0.05 pH units
Ambient temperature					0.04 pH units	<0.1 pH units
Relative humidity and temperature					0.05 pH units	<0.1 pH units
Sample temperature					-0.10 pH units	<0.1 pH units
Sample flow rate					0.004 pH units	<0.05 pH units
Sample pressure					See note 1	<0.05 pH units
Response time (lab)					13.7 s	To be reported
Initial warm up					65 s	To be reported
Loss of power					Pass	To be reported

Note 1: Test not applicable as the products are only certified for use on non-pressurised applications.

Certificate No: Sira MC 070111/00
This Certificate Issued 07 June 2007

Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<4		
Field Accuracy Note 4					90% Note 2	>90%
Response time (field) Note 4					Note 3	To be reported
Up-time Note 4					99.9%	>90%

Note 2: The assessment of the field data made no allowance for the test measurement uncertainty.
Note 3: Test was not appropriate to this instrument. In general pH response time is not a significant issue with instruments operating on this principle except in heavily fouling fluids where more frequent cleaning may be required.
Note 4: Field test: 1055 analyser and 399 sensor was assessed on the basis of one year field test installed on power station application (drum water and saturated steam sampled at a chemical rack with a sample cooling system).

The following evaluation was performed on Model 54e analyser with mV input.

Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<4		
Mean error					<0.01 pH units	<0.2 pH units
Linearity					<0.01 pH units	<0.1 pH units
Repeatability					<0.01 pH units	<0.1 pH units
Drift					0.002 pH units	<0.1 pH units
Output impedance					0.004 pH units	<0.05 pH units
Supply voltage					0.014 pH units	<0.05 pH units
Ambient temperature					0.00 pH units	<0.1 pH units
Relative humidity and temperature					0.048 pH units	<0.1 pH units
Response time (lab)					1.8 s	T o be reported

Certificate No: Sira MC 070111/00
This Certificate Issued 07 June 2007

Description:

The Model 54e is a mains powered analyser designed to monitor and control pH in a variety of process applications. The analyser/controller is housed in an IP65 weatherproof, corrosion resistant epoxy-painted aluminium enclosure with a hinged front panel. The large back-lit dot-matrix liquid crystal display continuously indicates the measured variable in large numerals, along with temperature, output value and two programmable process parameters (e.g. alarms or sensor diagnostics variables). All functions including configuration, calibration, output range, alarm set point adjustment and advanced configuration may be accessed through the front panel membrane keyboard but protected by three levels of pass code security. Menu screens using plain language text prompts and guide the user through the procedures for calibrating and configuration. All operations and descriptive messages can be field selected for English, French, German, Italian, or Spanish. Two 4-20mA outputs may be independently programmed to correspond to any selected measurement or temperature. Output damping and linear or log output may also be field selected. The two independent, isolated outputs provide 4-20mA or 0-20 mA signals for the process measurement and temperature. Manual control of the output may also be selected for routine maintenance and tests. Three independent process alarms are standard each programmable for high/ low activation, independent set points, adjustable hysteresis (dead band), and time delay. One relay may be configured as a timer relay to activate external/customer systems e.g. chemical cleaning, back wash etc. An over-feed timer feature is also selectable for any one process relay. The 54e control option allows each alarm to be assigned as a Time Proportional Control relay. The controller option also allows PID control choices acting on process measurement or temperature.

The Model 399 is a combination pH sensor (pH measurement, reference, and temperature elements within the sensor body) designed to measure pH of aqueous solutions in pipelines, open tanks, or ponds. The Model 399 is housed in a moulded Tefzel body with Viton o-rings and is fully encapsulated. The manufacturer states that the sensor is designed so that it does not require electrolyte (KCl) replenishment. An optional preamplifier converts the high impedance pH signal into a signal where greater separation is required between the sensor and analyser. The 399 has 1 inch (MNPT) front and rear facing connections for insertion, submersion, or flow-through applications.

The manufacturer states that the Rosemount Analytical Model 381+ Sensor measures the pH of aqueous solutions in pipelines, open tanks, or ponds and the sensor is suitable for use in most industrial applications, including water and waste treatment plants. The sensor is housed in a moulded PES body and has two O-ring seals with breach lock threads to secure the PES cover and provide a waterproof union.

General Notes

1. This certificate is based upon the equipment tested. The Manufacturer is responsible for ensuring that on-going production complies with the standard(s) and performance criteria defined in this Certificate. The Manufacturer is required to maintain an approved quality management system controlling the manufacture of the certified product. Both the product and the quality management system shall be subject to regular surveillance according to 'Regulations Applicable to the Holders of Sira Certificates'. The design of the product certified is defined in the Sira Design Schedule for certificate No. Sira MC 070111/00.

2. If certified product is found not to comply, Sira Certification Service should be notified immediately at the address shown on this certificate.

3. The Certification Marks that can be applied to the product or used in publicity material are defined in 'Regulations Applicable to the Holders of Sira Certificates'.

4. This document remains the property of Sira and shall be returned when requested by the company.