PRODUCT CONFORMITY CERTIFICATE

This is to certify that the

HydroRanger 200 Controller
(segmented display or HMI display)
with Echomax XRS-5 ultrasonic level transducer

Manufactured by:

Siemens Canada Ltd.
Siemens Milltronics Process Instruments
1954 Technology Drive, P.O. Box 4225
Peterborough
Ontario
K9J 7B1
Canada

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 – Part 3, version 4, dated March 2020

The combined performance characteristic (U_c, the expanded uncertainty) is **0.47%** (Class 2)

Certification Range:

0 to 2 metres (nominal)

Project No.:	16W0430/80058884
Certificate No:	Sira MC050057/07
Initial Certification:	29 June 2005
This Certificate issued:	16 November 2020
Renewal Date:	28 June 2025

Andrew Young
Environmental Team Manager

MCERTS is operated on behalf of the Environment Agency by

Sira Certification Service
Unit 6, Hawarden Industrial Park
Hawarden, Deeside, CH5 3US
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Form 3005
Issue 2

Certificate Contents

Approved Site Application

Any potential user should ensure, in consultation with the manufacturer, that the monitoring system is suitable for the intended application. For general guidance on monitoring techniques refer to the Environment Agency Monitoring Technical Guidance Notes available at www.mcerts.net

The product is suitable for use, where it is appropriate, for regulated applications such as abstraction, effluent discharge, ultraviolet disinfection and industrial processing.

The manufacturer states that the HydroRanger 200 is suitable for indoor and outdoor use up to a maximum altitude of 2000m. The enclosure is IP65 rated (wall mount version) and IP54 rated (panel mount version).

The optional TS-3 temperature sensor is suitable for use in ambient conditions of -40°C to 100°C (-40°F to 212°F) while the intrinsically safe hand-held programmer is suitable for use in potentially explosive atmospheres as per certificate No. SIRA 01ATEX2147.

The Echomax XRS-5 Transducer is suitable for indoor and outdoor use up to a maximum altitude of 2000m. The XRS-5 enclosure is IP68 rated.

A three month field test was performed to meet the MCERTS requirements.

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	Reference No: C 1223 dated July 2005
Sira Report	Reference No: C 1266 dated June 2010
WRc Report	Reference No: UC 8313 dated May 2010
WRc Report	Reference No: UC10720 v.10 dated March 2015

Product Certified

The HydroRanger 200 measuring system consists of the following parts:

- HydroRanger 200 controller (segmented display or HMI display)
- XRS-5 ultrasonic transducer

This certificate applies to all instruments fitted with software version 1.07 onwards (serial number PBD/A7060001 onwards).

Certified Performance

The instrument was evaluated for use under the following conditions:

Ambient Temperature Range: -25°C to +55°C (Note 1)

The instrument meets MCERTS **Class 2** requirements for the combined performance characteristic as specified in Table 7 of the MCERTS performance standard. Details of individual performance characteristics are summarised below:

Results are expressed as error % of certification range, unless otherwise stated.

Test	**Results expressed as error % of certification range**				**Other results**	**MCERTS specification**
	<0.1	<0.2	<0.5	<1.5		
Protection against unauthorised access	The unit is password protected					Clause 3.1.2
Units of measurement	The indicating device and output are scaled in metric units					Clause 3.1.3
Indicating device	The flowmeter incorporates an indicating device, analogue and digital output signal					Clause 3.1.4
Flow computation	The flowmeter incorporates a facility for a user defined stage/discharge curve to be entered					Clause 3.1.11
Combined performance characteristic(U_c)					**0.47**	Table 7 ±0.5**% Class 2**
Mean error		-0.15				Clause 6.3.2 ±0.3% Class 2
Repeatability	0.019					Clause 6.3.2 0.05% Class 1
Resolution					2mm	Clause 3.1.14 <2mm Class 1
Supply voltage 99 to 121 V AC / 207 to 253 V AC	-0.025					Clause 6.3.3 0.025% Class 1
Output impedance 1 to 750Ω	-0.006					Clause 6.3.4 0.025% Class 1
Ambient air temperature -25°C to +55°C			0.22		Note 1	Clause 6.3.6 0.025% Class 1
Accuracy of computation	-0.014					Clause 6.3.11 0.025% Class 1
User defined stage-discharge equation	-0.041				result not included in combined performance characteristic Note 2	Clause 6.3.12 0.075% Class 2

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Test	Results expressed as error % of certification range				Other results	MCERTS specification
	<0.1	<0.2	<0.5	<1.5		
Warm up time	the unit stabilises after energising within 5 seconds					Clause 6.1.2 to be reported
Loss of Power for electronic flowmeters	no changes in pre-set data					Clause 6.3.1 to be reported
Relative humidity		0.2			result not included in combined performance characteristic Note 3	Clause 6.3.6 0.25% Class 3
Direct solar radiation			0.25			Clause 6.3.10 0.5% Class 3
Response time					25s	Clause 6.3.19 <30 seconds
Error under field test conditions	error range -0.6% to +0.9% field test error is <0.2% for 56.1% of readings field test error is <0.5% for 93% of readings field test error is <1.5% for 100% of readings					Clause 7.3 0.5% Class 2
Up time					100%	Clause 7.4 >95%
Maintenance					None	Clause 7.5 to be reported

Note 1 : The manufacturer specifies an ambient temperature of -20 °C to +50 °C

Note 2 : User defined curve 1 (f= 38537.5, n+ 1.55) & User defined curve 2 (f = 21481.8, n= 2.50)

Note 3 : Test performed at 35ºC and 93% RH and not 40ºC and 93% RH as specified in the MCERTS standard

Note 4 : The following tests are not applicable to the flowmeter:

6.3.5	Fluid temperature	6.3.15	Ancillary devices
6.3.7	Incident light	6.3.16	Effect of conduit material
6.3.8	Sensor location	6.3.17	Effect of conduit size
6.3.9	Presence of stray currents	6.3.18	Fill level
6.3.13	Bi-directional flow	6.3.20	Vibration
6.3.14	Flow reversal		

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Description

The HydroRanger 200 is a non-contact level monitoring controller that features advance relay alarming, differential level measurement, open channel flow monitoring, and volume conversion. It is housed in a polycarbonate enclosure; the segmented display version comes with a hand held infra-red programmer while the HMI display version can be programmed using the pushbuttons provided on the lid. As a system, it is used in conjunction with a remote ultrasonic transducer and an optional TS-3 temperature sensor.

The HydroRanger 200 transmits a pulse signal to the transducer that is then emitted as ultrasonic pulses. The pulses echo off the water surface and are then sensed by the transducer. The time for a pulse to echo back from the water surface is temperature compensated and converted into a measurement of head. It uses an algorithm to convert the head measurement into flow rate. The flow rate is totalised and stored in a data log to provide detailed flow analysis.

The remote control device supplied with the segmented display version is a hand-held, infra-red programming unit that offers access to the configuration parameters of Siemens Milltronics products, including the HydroRanger 200. When in use, the programmer should be pointed at the instrument display window. The programmer is powered by a non-replaceable 3V lithium battery.

Note: The XRS-5 transducer incorporates an integral temperature sensor that reports ambient temperature to the HydroRanger 200, allowing it to automatically compensate the speed of sound for varying temperatures. In situations where the transducer is exposed to direct sunlight, or where variation in temperature of the sound medium is expected, use of a TS-3 temperature sensor will increase overall accuracy.

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 V08 for certificate No. Sira MC050057/07

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.