

PRODUCT CONFORMITY CERTIFICATE

This is to certify that the

Stationary Sampler Liquistation CSF48/CSF28 & CSF33

Manufactured by:

Endress+Hauser Conducta GmbH

*Dieselstrasse 24
D-70839
Gerlingen
Germany*

has been assessed by CSA Group
and for the conditions stated on this certificate complies with:

**Performance Standards and Test procedures for Continuous Water Monitoring Equipment.
Part 1 – Performance standards and test procedures for Automatic Water Sampling
Equipment, Version 4, April 2017
BS EN16479:2014**

Certification Ranges:

CSF48/ CSF28/CSF33 AC power supply
Peristaltic pump: 0 - 8m (10 mm ID tube)
Vacuum pump: 0 - 8m (10 mm ID tube and 13 mm ID tube)

CSF48/ CSF28/CSF33 DC power supply
Peristaltic pump: 0 - 7m (10 mm ID tube)
Vacuum pump: 0 – 6m (13 mm ID tube)
Vacuum pump: 0 - 8m (10 mm ID tube)

Vacuum: Sample line diameter nominally 10mm (0 to 8m) or 13mm (0 to 6m) ID

Peristaltic: Sample line diameter nominally 10mm ID

**Maximum lift height of 7m for DC powered peristaltic version*

Project No.: 80091266
Certificate No: Sira MC100176/08
Initial Certification: 09 November 2010
This Certificate issued: 03 September 2021
Renewal Date: 08 November 2025



Andrew Young
Environmental Team Manager

MCERTS is operated on behalf of the Environment Agency by

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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 Liquistation CSF48/CSF28 and CSF33 samplers are suitable for use on municipal and industrial applications to take and store liquid samples.

The product is designed for mainly outdoor sites where the ambient temperature is between -10°C and +40°C. The sampler is suitable for applications where samples are biological and required to be stored at 4°C.

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.

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	Sira Report number 16W22425 dated 4/10/10
E&H report	CVVT_Event_Triggered_Sampling report dated 04.10.16
E&H report	CSF48_CSP44_TR_MCERTS_POWER_SUPPLY_EN report dated 11.05.16

Product Certified

The Liquistation CSF48/CSF28 & CSF33 sampler consist of the following parts:

- Sample intake system with vacuum or peristaltic pump
- Low voltage refrigeration system with active sample cooling
- Distribution assembly

This certificate applies to all instruments fitted with software version V 01.01.00-0001, Software Version FMSY1 V1.00.00 and FMSY1 Projecting Version V.103 (serial number DA000105D00 onwards). Software version 01.10.00 shall apply to instrument CSF28 and with subsequent instruments, ref. CSF48 and CSF33, thereafter.

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Certified Performance

The instrument was evaluated for use under the following conditions:

Ambient Temperature Range: With temperature control unit: -10°C to +40°C
 Without temperature control unit: 0°C to +40°C

The following results are on the CSF48 sampler and expressed as error % reading, unless otherwise stated.

Test	Results	MCERTS specification
Sample Collection	Flow proportional, timed or quantity sampling available. Options available for single or multiple containers.	Clause 3.1.2
Sample interval <ul style="list-style-type: none"> • Time proportional sampling • Flow proportional sampling 	Possible range from 1 to 5,999 minutes. Increments of 1 minute. 4-20mA and pulse inputs available Number of pulses per sample adjustable	Clause 3.1.2
Sample failure	Fault indicated on display. The meaning of the error can be found in the diagnostic menu. Sample failures recorded.	Clause 3.1.2
Sample line diameter	Vacuum: internal diameter 10mm, 13mm, Peristaltic: internal diameter 10mm	Clause 3.1.2 >9mm
Sample volume	Sample volume adjustable	Clause 3.1.2
Maximum volume of a discrete sample that can be set Total storage capacity both by numbers and volumes of individual bottles and in a composite container	Manual sampling: 10000ml for peristaltic, 350ml for vacuum Automatic: 10000ml for peristaltic, 350ml for vacuum Composite: 30L and 60L <u>PE</u> 1L, 2L, 3L, 5L, 13L, 20L bottles. <u>Glass</u> 1.8L bottles	Clause 3.1.2
Maximum sampling head	Vacuum 6m variant: 6m Vacuum 8m variant: 8m Peristaltic: 8m (0 to 7m for DC power)	Clause 3.1.2

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Test	Results	MCERTS specification
Sample volume error a) Time Proportional	<p style="text-align: center;">U* X*</p> <p>Peristaltic</p> <p>1m - 1.5% 1m - -1.2% 3.5m - 1.1% 3.5m - -2.5% 7m - 2.9% 7m - -4.0%</p> <p>Vacuum 6m</p> <p>1m - 1.3% 1m - 0.7% 3.5m - -0.9% 3.5m - -0.9% 6m - 1.7% 6m - -4.5%</p> <p>Vacuum 8m</p> <p>1m - 1.7% 1m - 1.0% 3.5m - 1.0% 3.5m - -1.9% 7m - 1.2% 7m - -2.7%</p>	<p>Clause 6.4.1.1</p> <p style="text-align: center;"><5%</p>
Sample volume error b) CTVV	<p style="text-align: center;">U* X*</p> <p>Peristaltic</p> <p>1m - 3.6% Peristaltic 3.5m - 3.1% 1m - -0.3% 8m - 2.8% 3.5m - -1.3% 8m - 0.8%</p>	<p>Clause 6.4.1.2</p> <p style="text-align: center;"><5%</p>
Sampling principles c) CVVT impulse	<p style="text-align: center;">U* X*</p> <p>Vacuum</p> <p>1m - -0.6% Vacuum 4m - -3.0% 1m - -0.7% 8m - -4.8% 4m - -3.1% 8m - -5.0%</p> <p>Peristaltic</p> <p>1m - -4.0% Peristaltic 4m - 3.5% 1m - -4.1% 8m - 3.6% 4m - 3.4% 8m - 3.4%</p>	<p>Clause 6.4.2.3</p> <p style="text-align: center;"><5%</p>
Sampling principles	<p>All available sampling principles were tested. Clause 6.4.2.2 was fulfilled using data from 6.4.1.1. Both clause 6.4.2.4 and 6.4.2.5 were fulfilled. No significant timing errors were seen.</p>	<p>Clause 6.4.2.2, 6.4.2.4 & Clause 6.4.2.5</p>

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Test	Results	MCERTS specification																														
Sample line velocity	Vacuum 6m, 10mm 0.65m/s Vacuum 6m, 13mm 0.50m/s Vacuum 8m, 10mm 0.64m/s Vacuum 8m, 13mm 0.58m/s Vacuum 8m, 16mm 0.51m/s Peristaltic, 10mm 0.64m/s	Clause 6.4.3 >0.5 m/s Note 1																														
Power Supply	<table border="0"> <tr> <td></td> <td></td> <td>Smallest Reading</td> </tr> <tr> <td>Peristaltic AC (10mm)</td> <td>0 to 8m</td> <td>0.53m/s</td> </tr> <tr> <td>Peristaltic DC (10mm)</td> <td>0 to 7m</td> <td>0.52m/s</td> </tr> <tr> <td>Vacuum AC (10mm)</td> <td>0 to 6m</td> <td>0.84m/s</td> </tr> <tr> <td>Vacuum DC (10mm)</td> <td>0 to 6m</td> <td>0.80m/s</td> </tr> <tr> <td>Vacuum AC (13mm)</td> <td>0 to 6m</td> <td>0.65m/s</td> </tr> <tr> <td>Vacuum DC (13mm)</td> <td>0 to 6m</td> <td>0.62m/s</td> </tr> <tr> <td>Vacuum AC (10mm)</td> <td>0 to 8m</td> <td>0.64m/s</td> </tr> <tr> <td>Vacuum DC (10mm)</td> <td>0 to 8m</td> <td>0.61m/s</td> </tr> <tr> <td>Vacuum AC (13mm)</td> <td>0 to 8m</td> <td>0.51m/s</td> </tr> </table>			Smallest Reading	Peristaltic AC (10mm)	0 to 8m	0.53m/s	Peristaltic DC (10mm)	0 to 7m	0.52m/s	Vacuum AC (10mm)	0 to 6m	0.84m/s	Vacuum DC (10mm)	0 to 6m	0.80m/s	Vacuum AC (13mm)	0 to 6m	0.65m/s	Vacuum DC (13mm)	0 to 6m	0.62m/s	Vacuum AC (10mm)	0 to 8m	0.64m/s	Vacuum DC (10mm)	0 to 8m	0.61m/s	Vacuum AC (13mm)	0 to 8m	0.51m/s	Clause 6.4.4 >0.5m/s
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Sample integrity	No statistically significant difference was found in the analysis for BOD, COD, suspended solids, total nitrogen and total phosphorus. All F values < Fcrit	Clause 6.4.5 Annex B5																														
Sample timing	Error was 5 seconds \pm 1 sec in 24 hours	Clause 6.4.6 < \pm 10 sec/24h																														
Sample Temperature Control a) Volume	<table border="0"> <tr> <td></td> <td>U*</td> <td></td> <td>X*</td> </tr> <tr> <td>-20°C</td> <td>2.3%</td> <td>-20°C</td> <td>0.8%</td> </tr> <tr> <td>40°C</td> <td>2.4%</td> <td>40°C</td> <td>-1.4%</td> </tr> </table>		U*		X*	-20°C	2.3%	-20°C	0.8%	40°C	2.4%	40°C	-1.4%	Clause 6.4.7 \pm 5%																		
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*X: Mean error

*U: Expanded uncertainty

Note 1: Requirement fulfilled using test data from original certification to previous version of the MCERTS standard

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Description

The Liquistation wastewater sampler is designed for indoor or outdoor use, to collect representative liquid water samples, to monitor influent and effluent waters from municipal and industrial facilities, monitor effluent waters from indirect industrial dischargers for compliance with pre-treatment regulations, and environmental monitoring. The sampler is suitable for the representative collection of toxic and conventional pollutants.

The sampler is available with two sample intake options: Vacuum pump or peristaltic pump for collection of the liquid sample. The method of sample detection is conductive or capacitive (vacuum pump) or pressure (peristaltic pump). The intake air purge is made automatically before and after each sample. The duration automatically compensates for varying intake line lengths. The sample collection cycle is optionally repeated from one to three times if a sample is not obtained on the initial attempt. The intake line is optionally rinsed with source liquid prior to each sample from one to three times (peristaltic only).

The sampling methods with vacuum pump & peristaltic pump include event, single and multiple samples and use of the sampling table, with vacuum pump additionally includes time proportion and volume proportion sampling, and with peristaltic pump additionally includes time, volume and flow proportion sampling.

The sampler comprises a 2 door housing with 4 different cabinet materials to match all application sites. The CSF33 has options of 2 different cabinet materials. The housing is divided into a separately lockable upper sampler compartment, and lower sample collection vessel compartment.

The individual samples can be collected from a wastewater channel, vessel or pipe, according to a predetermined programme. The samples taken using the CSF48/CSF28 are stored into various options of detachable sample collection vessels in polyethylene or glass (60L, 30L, 2x 20L, 4x 13L, 4x 5L, 12x 3L, 12x 2L, and 24x 1L). The samples taken using the CSF33 are stored into various options of detachable sample collection vessels in polyethylene (30L, 4x 13L, 12x 3L and 24x 1L).

The user interface is self-prompting/menu driven program using four function keys, and navigator dial. The graphics display is 9 line high contrast backlit LCD making the measurements visible in direct sunlight. The sampler stores up to 100 sampling program entries while the main program can run up to 24 sub-programs at one time. The memory can store up to 8 data logbooks with each 150000 measured values and dates/times, the stored data can be visualized on the sampler display as graph or table. All other sampling activities are stored in program logbooks, and event logbooks.

The sampling pacing modes include composite and discrete multiple bottle time, multiple bottle flow, single bottle time, single bottle flow, flow with time over ride, variable interval, user start/stop, and external set point. Manual grab sample can be made to deliver a grab sample to a specific bottle location. For worldwide use the refrigerated Liquistation CSF48/CSF28 can be powered by 24VDC or 90...265VAC. The Liquistation CSF33 can be powered by 90...265VAC. The standard configuration includes 2 analogue inputs, 2 binary inputs and 2 binary outputs.

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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 CSA Certificates'.
2. The design of the product certified is defined in the CSA Design Schedule V06 for certificate No. Sira MC100176/08.
3. If the certified product is found not to comply, CSA Group should be notified immediately at the address shown on this certificate.
4. The certification marks that can be applied to the product or used in publicity material are defined in 'Regulations Applicable to the Holders of CSA Certificates'.
5. This document remains the property of CSA Group and shall be returned when requested by CSA Group.

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