



PRODUCT CONFORMITY CERTIFICATE

This is to certify that the

FlowCERT with DUET transducer

manufactured by:

Pulsar Process Measurement Ltd

*Cardinal Building
Enigma Commercial Centre
Sandy's Road
Malvern, Worcestershire
WR14 1JJ*

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

**MCERTS Performance Standards for Water Monitoring
Equipment Part 3, Version 3 dated July 2018**

Certification Range:

0 to 1.5m (nominal)

Certification is awarded in respect of the conditions stated in this certificate

Project No: 674/0363
Certificate No: Sira MC090154/08
Initial Certification: 03 September 2009
This Certificate issued: 07 November 2018
Renewal Date: 02 September 2019

Emily Alexander
Deputy Certification Manager

MCERTS is operated on behalf of the Environment Agency by

Sira Certification Service

Unit 6, Hawarden Industrial Park
Hawarden, Deeside, CH5 3US
Tel: +44 (0)1244 670 900



*The MCERTS certificate consists of this document in its entirety.
For conditions of use, please consider all the information within.
This certificate may only be reproduced in its entirety and without change
To authenticate the validity of this certificate please visit www.csagroupuk.org/mcerts*

Certificate Contents

| | |
|--------------------------------|---|
| Approved Site Application..... | 2 |
| Basis of Certification | 2 |
| Product Certified..... | 2 |
| Certified Performance | 3 |
| Description..... | 5 |
| General Notes | 5 |

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.

A field trial was conducted on the inlet to a works flume at a municipal waste water treatment plant.

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 Evaluation Report 6740363, dated 20 August 2009

Product Certified

The measuring system consists of the following parts:

- FlowCERT controller
- DUET twin transducer

This certificate applies to all instruments fitted with software version 7.1.9 onwards, serial number 267229 (FlowCERT) 105160 (dB3 transducer), onwards.

Certificate No : Sira MC090154/08
This Certificate issued : 07 November 2018

*This certificate may only be reproduced in its entirety and without change
To authenticate the validity of this certificate please visit www.csagroupuk.org/mcerts*

Certified Performance

The instrument was evaluated for use under the following conditions:

Ambient Temperature Range: -20°C to +50°C

The instrument meets MCERTS Class 1 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, with a user level and a service level | | | | | Clause 3.1.2 |
| Units of measurement | The indicating device and output are scaled in metric units | | | | | Clause 3.1.6 |
| Indicating device | The flowmeter incorporates an indicating device, analogue and digital output signal | | | | | Clause 3.1.3 |
| Flow computation | The flowmeter incorporates a facility for a user defined stage/discharge curve to be entered | | | | | Clause 3.1.11 |
| Combined performance characteristic | 0.044 | | | | | ±0.2% Class 1 ±0.5% Class 2 ±1.5% Class 3 Table 7 |
| Mean error | -0.002 | | | | | Clause 6.3.2 ±0.1% Class 1 |
| Repeatability | 0.005 | | | | | Clause 6.3.2 0.05% |
| Resolution | 0.017 | | | | | Clause 3.1.15 <2mm Class 1 |
| Supply voltage | 0.013 | | | | 22-28 V dc 100-110 V ac 200-240 V ac | Clause 6.3.3 0.025% Class 1 |
| Output impedance | 0.002 | | | | 50-500Ω | Clause 6.3.4 0.025% Class 1 |
| Ambient air temperature | 0.016 | | | | -20 to +50°C | Clause 6.3.6 0.025% Class 1 0.075% Class 2 |
| Accuracy of computation | 0.013 | | | | | Clause 6.3.11 0.025% Class 1 0.075% Class 2 0.25% Class 3 |

Certificate No : Sira MC090154/08
This Certificate issued : 07 November 2018

*This certificate may only be reproduced in its entirety and without change
To authenticate the validity of this certificate please visit www.csagroupuk.org/mcerts*

| Test | Results expressed as error % of certification range | | | | Other results | MCERTS specification |
|---|--|------|------|------|--|--|
| | <0.1 | <0.2 | <0.5 | <1.5 | | |
| User defined stage-discharge equation | 0.011 | | | | result not included in combined performance characteristic | Clause 6.3.12 0.025% Class 1 0.075% Class 2 0.25% Class 3 |
| Warm up time | the unit stabilises after energising within 60 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 | 0.019 | | | | result not included in combined performance characteristic | Clause 6.3.6 0.025% Class 1 0.075% Class 2 0.25% Class 3 |
| Direct Solar Radiation | 0.0215 | | | | | Clause 6.3.10 1.0% Class 1 2.0% Class 2 4.0% Class 3 |
| Response time | | | | | <25s | Clause 6.3.19 <30 seconds |
| Error under field test conditions | error range -0.15% to +0.10% field test error is <0.2% for 100% of readings | | | | | Clause 7.3 0.2% Class 1 0.5% Class 2 1.5% Class 3 |
| Up time | | | | | 100% | Clause 7.4 >95% |
| Maintenance | | | | | none | Clause 7.5 to be reported |

Note 1: 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 | | |

Certificate No : Sira MC090154/08
This Certificate issued : 07 November 2018

*This certificate may only be reproduced in its entirety and without change
To authenticate the validity of this certificate please visit www.csagroupuk.org/mcerts*

Description

The FlowCERT open channel controller has five volt free contacts for use as flow or level alarms, control functions, or assignable to pulse by volume or time units for remote recording or sampler operation. The controller is housed in a polycarbonate IP65 enclosure has 2 independent isolated mA outputs proportional to 'flow rate' or 'level' (user selectable) and an RS232 connection for parameter upload and downloading through a PC should it be required. Easy prompt led set up, with preset worldwide weirs and flumes configured, and it offers a 32 point linearisation to suit head / flow calculations. FlowCERT has 2 internal totalisers as standard, one resettable, the other master totaliser being non-resettable.

Other communication options are Modbus or Profibus V0 or V1 via 485 connection and optional 256 kb flexible bulk data logging should it be required (one year at 10 min intervals).

The non-contacting DUET twin transducer assembly (Duel Ultrasonic Echo Transducer) allows both transducers to fire simultaneously; the lower transducer sees a return from the liquid surface from both transducers. The distance between the two transducers is fixed. The resulting readings are taken throughout the path from transducer face to liquid surface, all air density variations are taken into account in the resulting high-accuracy reading. This is updated continuously throughout the operational process, providing flow measurement unaffected by solar radiated effects or air temperature fluctuations. The DUET is IP68 and ATEX EEx m certified.

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 MC090154/08
3. If certified product is found not to comply, Sira Certification Service 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 Sira Certificates'.
5. This document remains the property of Sira and shall be returned when requested by the company.

Certificate No : Sira MC090154/08
This Certificate issued : 07 November 2018

*This certificate may only be reproduced in its entirety and without change
To authenticate the validity of this certificate please visit www.csagroupuk.org/mcerts*