PRODUCT CONFORMITY CERTIFICATE

This is to certify that the

Ultra 4 with dBR8 radar level sensor

Manufactured by:

Pulsar Process Measurement Ltd
Cardinal Building
Enigma Commercial Centre
Sandy's Road
Malvern
Worcestershire
WR14 1JJ

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 3: Performance standards and test procedures for water flowmeters, Environment Agency, version 4, March 2020

The combined performance characteristic (U_c, the expanded uncertainty) is as follows:
Ultra 4 with dBR8 radar level sensor 0.02**% (Class 1)**

Certification Range:

0 - 8 metres

Project No.:	80253639
Certificate No:	CSA MC250379/00
Initial certification:	11 September 2025
Certificate issued:	11 September 2025
Renewal date:	10 September 2030

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Environmental Team Manager

MCERTS is operated on behalf of the Environment Agency by

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Form 3005
Issue 6

Certificate Contents

Approved Site Application

Any potential user should make sure, 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 guidance 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 field test was carried out between the 29th November 2024 and 28th February 2025 at WRc's level sensor field test rig in Swindon, UK.

Basis of Certification

This certification is based on the following test report(s) and on CSA Group's assessment and ongoing surveillance of the product and the manufacturing process:

WRc Group test report, ref. "UC15114", dated March 2021
WRc Group test report, ref. "UC18521" V1.1, dated March 2025
CSA Group evaluation report, ref. 80253639, incorporating reports for the laboratory and field test data, dated 13th May 2025

Product Certified

The Ultra 4 with dBR8 radar level sensor flowmeter system consists of the following parts:

- Ultra 4 controller with polycarbonate, flame resistant to UL94-V0 enclosure of typical dimensions 150mm x 130mm x 64mm (depending on mount type)

- dBR8 radar level sensor, of Valox 357U body material, with a diameter face of 90mm and height of 130mm

This certificate applies to all instruments fitted with software version 1.01.05, sensor serial number 31879/2024, onwards.

Certified Performance

The instrument was evaluated for use under the following conditions:
Ambient Temperature Range: -20°C to +50°C
Instrument IP rating: Ultra 4 IP67 (Standard), dBR8 radar level sensor IP68
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 the reading, unless otherwise stated.

Test	*Result expressed as % of the certification range*				*Other results*	*Class*	*MCERTS specification*
	<0.5	*<1*	*<2*	*<5*			
LABORATORY TESTS							
General requirements/initial checks							
Protection against unauthorised access	Access to control and calibration functions protected by pass code						cl. 3.1.2
Indicative device and/or analogue digital output signal	Verified						cl. 3.1.3
Units of measurement	The units are settable and default is cubic metre per second						cl. 3.1.6 & 3.1.7
Comparison of output values	Verified						cl. 6.1.4
Resolution	0.1mm						cl. 3.1.14, Table 4 ≤1mm, class 1
Loss of power							cl. 6.3.1 - no specification assigned, to be reported
Ultra 4	No changes in preset data						
Combined performance characteristic (Uc)							cl. 6.4 - Table 7 - class specific
dBR8	**0.02%**					**1**	
Performance requirements for level sensors							
Mean error, x							cl. 6.3.2 - Table 7 - class specific
dBR8							
Test point 1 (0.48m)	0.0					1	
Test point 2 (2.06m)	0.0						
Test point 3 (4.04m)	0.0						
Test point 4 (6.02m)	0.0						
Test point 5 (7.60m)	0.0						
Repeatability, U_R							cl. 6.3.2 - Table 7 - class specific
dBR8 (0.48 to 7.6m)							
Test point 1 (0.48m)	0.0					1	
Test point 2 (2.06m)	0.0						
Test point 3 (4.04m)	0.0						
Test point 4 (6.02m)	0.0						
Test point 5 (7.60m)	0.0						

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Test	Result expressed as % of the certification range				Other results	Class	MCERTS specification
	<0.5	<1	<2	<5			
Supply voltage, X_V (AC 200 - 240V) * (note 1)							
Ultra 4	0.011					1	cl. 6.3.3.1 - table 7 - class specific
Output impedance, X_O (50Ω to 500Ω) *							cl. 6.3.4 - Table 7 - class specific
Ultra 4	0.002					1	
Ambient air temperature, X_T (-20°C to +50°C)							cl. 6.3.6 - Table 7 - class specific
dBR8	0.06					1	
Relative humidity, X_{RH} (>95%, 20°C to 50°C)							cl. 6.3.6 - Table 7 - class specific
dBR8	0.06					1	
Computation accuracy, X_{AC} *							cl. 6.3.11 - Table 7 - class specific
Ultra 4	0.026					2	
User defined equation, X_U *							cl. 6.3.12 - Table 7 - class specific
Ultra 4	0.004					1	
Maximum Response Time (either increasing or decreasing flow)							cl. 6.3.19 - Table 7 ≤30 seconds
dBR8	≤15 secs						
Warm up							cl. 6.1.2 - Table 7 - no specification assigned, to be reported
dBR8	120 - 150 secs						

Test	Parameter	Result	Class	MCERTS specification
FIELD TESTS				
Error under field conditions	Maximum error (%)	-0.438	2	cl. 7.3 - Table 7
	Minimum error (%)	0.012		
	Mean error (%)	-0.111		
	Proportion of errors ≤1.5%	100%		
	Proportion of errors ≤0.5%	100%		
	Proportion of errors ≤0.2%	75.0%		
Up-time (%)		100		cl. 7.4 >95%
Maintenance (note 2)		None		cl. 7.5 - to be reported

Note 1: Tests denoted '*' are taken from the Ultra 4 MCERTS test data (ref. certificate CSA MC140269).

Note 2: The measuring system was installed in a field test environment with data acquired from 29th November 2024 to the 28th February 2025 with a total scheduled operating time of 129,600 minutes (90 days). No maintenance was required. Of the total operating time 129,600 minutes, 0 minutes were attributed to power outages.

Description

The Ultra 4 open channel controller has four 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 which has an isolated mA output proportional to 'flow rate', 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 they offer a 32-point linearisation to suit head/flow calculations. Internally there are 3 totalisers, two non-resettable, the other being resettable in the field if needed. Other communication options are Hart modem, Modbus via 485 connection, and SD card data logging.

The non-contacting dBR8 radar uses electromagnetic waves to measure liquid level to a depth of 8m from the transducer face. The narrow beam angle transducer is IP68 ATEX certified and can be separated by up to 1000m from the controller.

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 for certificate No. CSA MC250379.

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.