



DUET

High MCERT's Class 1 accuracy on flumes, weirs, & area x velocity applications

FlowCERT and Pulsar's unique twin-transducer DUET provides the highest accuracy non-contact ultrasonic flow measurement system available.

This unique product from Pulsar Measurement features a unique twin-transducer DUET design and provides the highest accuracy non-contact ultrasonic flow measurement system available anywhere.

Pulsar's Unique Patented Approach

Only the DUET features Pulsar's unique, patented, approach to the issue of accuracy when temperature and echo reflection time varies. Both transducers fire together, by continuously monitoring the phase difference of the echoes, and because the distance between the transducer faces is known and constant, the speed of sound is continuously updated in real-time on the process. The resulting accuracy and stability are exceptional.

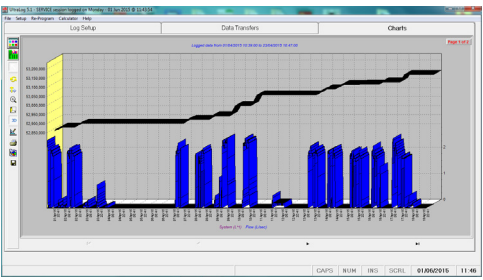
The DUET Transducer & FlowCERT Controller

The DUET Transducer must be supplied with the FlowCERT controller and is ideal for those applications with a Primary Measuring Device (PMD). The FlowCERT controller has the option for lots of different support functions including the UltraLog Software package, which is a powerful tool that



THE RIGHT METER FOR

- High Accuracy Open Channel Flow Measurement
- Environmental Compliance
- Influent/ Effluent Flow Monitoring
- Effluent Discharge Monitoring



UltraLog can program the FlowCERT data logging facility and download any data stored in the unit so that it may be interrogated and viewed and stored.

can be used alongside the Data Logging board. This software package can program the FlowCERT data logging facility and download any data stored in the unit so that it may be interrogated, viewed, and stored. Enabling you to successfully and accurately report the data gathered from both the DUET Transducer and FlowCERT Controller.

Unit Software & Data Logging

The DataLogger records a wealth of information onto the supplied 8GB Micro SD card, enabling the end-user to log a wealth of data for the lifetime of the unit. The log interval is user-selectable and the stored logged files are compatible with most PC spreadsheet software.

Why Does an MCERT Certification Make DUET So Accurate?

MCERTS is the UK’s Monitoring Certification Scheme established by the Environment Agency. The certification promotes public confidence in monitoring equipment and provides a framework for choosing this type of equipment. The devices that achieve MCERT Certification mean that they have all been subjected to the same vigorous independent testing, including solar radiation – which is a key element.

With 0.044% accuracy (MCERTS Class 1 Certified), Pulsar’s DUET combined with FlowCERT is the most accurate open channel flow measurement MCERTS system available. Through these product developments, Pulsar continues to showcase it’s ability to keep accuracy in mind to help end-users and MCERTS inspectors, thus becoming renowned for being an innovator within the water and wastewater industry.

The DUET in a Real-life Application

The high accuracy DUET and FlowCERT combination was deployed into a food company. Businesses are increasingly being asked to report on the volume and quantity of effluent being discharged from production plants and many are failing to appreciate the importance of accurate measurement or simply don’t know how to achieve a high standard of flow measurement accuracy.

Pulsar’s DUET non-contacting ultrasonic transducer array, together with the matching FlowCERT controller was chosen for this project. Ultrasonic systems work by bouncing a sound pulse from the surface being measured and calculating the distance from the time taken for the pulse to return to the transducer. The accuracy of the measurement depends on the speed of sound, which can vary with temperature. Temperature changes can be compensated for, but a temperature compensation circuit can’t respond immediately and there may be temperature variations in the column of air below the transducer face.

The DUET uses two transducers that are a fixed and known distance apart, and by comparing the returning signal from both transducers, variation in the speed of sound are dynamically compensated for.

The installation of the DUET and FlowCERT controller meant that the business was able to successfully manage the effluent of the plant, protecting the environment, and providing significant financial benefit to the company.



DUET Transducers Monitoring Plant Effluent

Technical Specifications

PHYSICAL

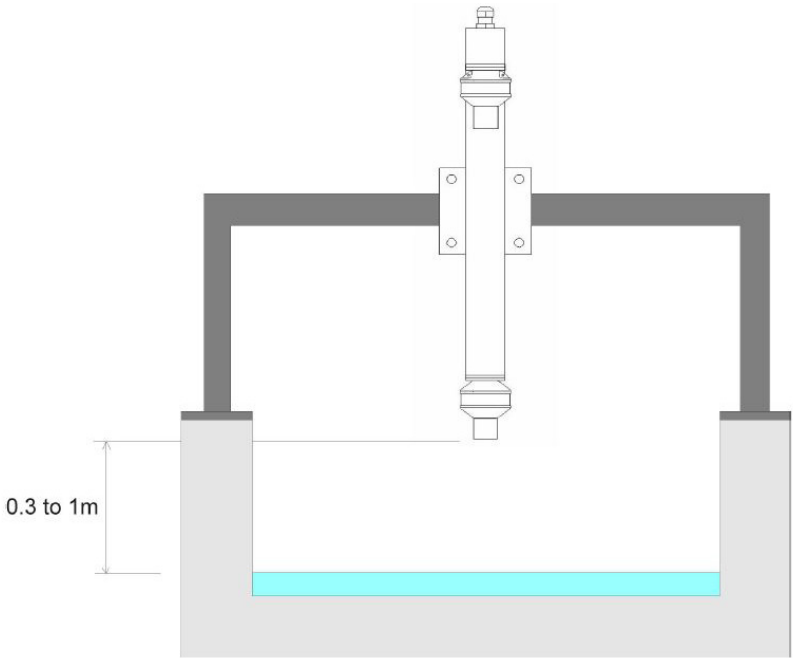
Dimensions:	Nominal 205 mm W x 640 mm H (8.07 in x 25.19 in)
Weight:	Nominal 4.7 kg (10.4 lb)
Materials:	<ul style="list-style-type: none">Transducers: Valox 357 U and syntactic foam faceBracket: 304 stainless steel
Cable Lengths:	Standard = 5 m, 10 m, 20 m, or 30 m (16.4 ft, 32.8 ft, 65.6 ft, or 98.4 ft). Optional: up to 150 m (492 ft) maximum (increments of 10 m (32.8 ft) only)
Maximum Separation:	500 m (1,640 ft)
Mounting Connection:	BSP or 1" NPT

ENVIRONMENTAL

IP Rating:	IP68 / NEMA 6P
Max. & Min. Temperature (Electronics):	-40 °C to +90 °C (-40 °F to +194 °F)
MCERTS Certification:	0.044% combined accuracy — MCERTS Class 1 — Sira MC090154/00
CE Approval:	2014/30/EU — EMC & 2014/34/EU ATEX Directives. Standards applied: EN 60079-0:2012+A11:2013/ EN 60079-11:2012 / EN 60079-18:2009 / EN 60079-26:2007 / EN 61326-1:2013
ATEX Approval:	ATEX EEx m II T6 standard. FM/FMC approval available

PERFORMANCE

Measurement Range:	0.3 m to 2 m (0.98 ft to 6.56 ft) from the face of lower transducer (1.5 m (4.9 ft)) max. for MCERTS certification)
Frequency:	125 kHz
Beam Angle:	<10°
Controller Compatibility:	FlowCERT only



DUET Drawing



DUET Transducer in a Wastewater Application



DUET Transducer in a Wastewater Application

Delivering the Measure of Possibility

Pulsar Measurement offers worldwide professional support for all of our products, and our network of reps and distributors all offer full support and training. Our facilities in Malvern, UK and Largo, USA are home to technical support teams who are always available to answer your call or attend your site when required. Our global presence, with direct offices in the UK, USA, Canada, and Malaysia allow us to create close relationships with our customers and provide service, support, training, and information throughout the lifetime of your product.

By taking a step forward in echo processing technology, Pulsar Measurement addresses applications previously thought to be beyond the scope of ultrasonic measurement. This technology improves signal processing at the transducer head which has made it possible to increase resistance to electrical noise, enabling the transducer to 'zone in' on the true echo.

For more information, please visit our website:

www.pulsarmeasurement.com



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