



Open channel flow measurement

MCERTS for VEGA radar system



Looking Forward **VEGA**

Why use radar level?

Radar is an interesting level technology for open channel flow measurement as it is unaffected by wind, surface turbulence, gases, vapours, condensation, fog, rain or temperature changes between the sensor and water level.

VEGA already has tens of thousands of VEGAPULS WL series radars installed in applications as diverse as water supply and sewage treatment works, pumping stations, CSO's, AD units, sludge tanks, open channel flow measurement, remote flood, river and reservoir telemetry gauging stations, to name but a few.

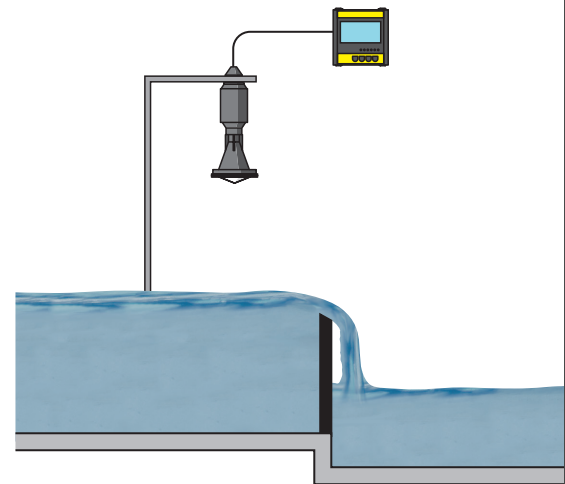
Now the VEGAPULS WL 61 is available with MCERTS for open channel flow measurement as part of a system with the VEGAMET 391 flow computer. If you want accurate flow measurement and metering unaffected by heavy condensation on a misty morning, gale force winds with loss of echo, or suffer temperature drift on a bright sunny day, it is worth exploring radar technology for yourself.

Open channel flow with radar

In open channel flow measurement, due to the exponential nature of flow calculations, a level to flow conversion error of 10 % or more can easily arise with an inaccurate level measurement. This can be caused by sun on the transducer versus ambient air temperature (known as solar gain) or undetected air temperature gradients between sensor and water. Radar remains accurate and does not need 'work arounds' such as sun shades, external temperature sensors or stilling tubes, particularly for exposed sites.

The first radar based MCERTS

The VEGAPULS WL 61 and VEGAMET 391 controller has MCERTS approval for open channel flow measurement. The MCERTS scheme, overseen by the Environment Agency, ensures high quality, approved equipment is available to maintain reliable, accurate flow measurements by end users. VEGA sensors and controllers have met the rigorous quality, performance and system tests that are undertaken to attain this standard.



VEGAPULS WL 61 radar level radar

Introduced in 2011, and recently updated to include a Bluetooth communication option for set up and maintenance, it offers a range of communication protocols, ATEX certification, as well as MCERTS as part of a system. With a range up to 15m, it delivers high accuracy and is extremely capable - proven in tens of thousands of water industry applications worldwide.

Powerful, performance, versatile capability

WL series radars are ruggedly designed for the water industry with IP68 (2 Bar/20m submersible) housings and fully encapsulated antennas. They meet the Level Probing Radar (LPR) EN standard approved for use outside. Their focused signal assures accurate measurement and monitoring. A range of mounting options enables easy deployment and installation. Powerful capability with internal 32 point and user defined flow curves means that it can also be used as a 'compact' open channel flow sensor.

An alternative sensor for the MCERTS system is the VEGAPULS 61B, with a longer 35m range, IP66/7/8 housing and optional integrated back lit sensor display. It has identical antenna system design, performance and certification characteristics.






VEGAMET 391 MCERTS controller and flow computer

Designed to provide display, relays, fault, level and impulse outputs for samplers and totalizers required for an MCERTS system. Internal data logger and event memory aids operational diagnostics. With Internet and Ethernet capability with its own built in Web server, it can send e-mails and text alarms.

VEGAMET 391 uses standard 2-core cable and digital communication with the sensor for mm precision, maximising the accuracy of the flow system. Programming for flow structures and curves is easy, using free to download PACTware FDT/DTM software and a standard USB cable. The flow set up is by a simple step by step wizard - just input dimensions of your flow structure, select the outputs needed and the set up is done, or import your own 32 point curve and the 391 will do the rest.

System specifications and options

	VEGAPULS WL 61	VEGAPULS 61 B	VEGAMET 391
			
Measuring range	15 m	35 m	2500m+* sensor to controller (4-20mA/HART) cable distance *acc. to pf/m cable specification
Deviation / Resolution	2 mm / 1 mm	2 mm / 1 mm	1 mm
Output signal <small>*Option. Please note: only HART communication to VEGAMET 391 is covered by MCERTS</small>	4 ... 20mA / HART, Profibus PA*, Foundation Fieldbus*, Bluetooth*	4 ... 20mA / HART, Profibus PA*, SDI12, Modbus, Foundation Fieldbus*, Bluetooth*	4/20ma, Modbus, Ethernet, data logger, 6 relays for level (high/low), impulse, sampler/totaliser. Fault relay, data logger, event memory, e-mail and text message server.
Approvals <small>*As part of system</small>	LPR, ATEX, IEC, MCERTS*	LPR, ATEX, IEC, MCERTS*	ATEX, IEC, MCERTS*
Process temperature	-40 ... +80 °C (-40 ... +176 °F)	-40 ... +80 °C (-40 ... +176 °F)	Instrument -20 ... +60 °C (-4 ... +140 °F)
Process pressure	-1 ... +2 bar/-100 ... +200 kPa (-14.5 ... +29.0 psig)	-1 ... +3 bar/-100 ... +300 kPa (-14.5 ... +43.5 psig)	
Protection	Valox PBT body, PP Antenna, IP68 (2 bar) - encapsulated cable gland, fitted with PUR cable Std. lengths 6, 12, 18m. Optional longer lengths on cable drum.	Valox, Stainless steel or aluminium, IP66/7 (IP68 optional) housings, PP Antenna, with M20 or NPT cable glands.	IP 65 Front panel, IP 20 Inside panel (IP65 wall-mount enclosure option).
Voltage	9.6 ... 36 V DC 12 ... 36 V DC with Bluetooth	9.6 ... 36 V DC 12 ... 36 V DC with Bluetooth	20 ... 253 V AC, 50/60 Hz, 20 ... 253 V DC
Display and features		PLICSCOM plug-in back-lit display and programmer with optional Bluetooth communication.	Back-lit Flow, Level, Bargraph, Totaliser

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