

ZENITH

Introduces advanced & sophisticated control functions to pumping stations without the need for additional PLC programming.



Intelligent Pumping Station Controller

The Zenith is designed to work alongside the dB range of transducers to provide versatile and in-depth control with a choice of functionality. Featuring DATEM analysis, an easy prompt-led setup, and the peace of mind that comes from many thousands of successful applications all over the world.

Digital inputs allow the unit to respond to no-flow conditions and the Tariff-guard routines ensure that energy costs are minimized through periods of maximum electricity tariff.

The Tariff Guard

All intelligent pump controllers by Pulsar Measurement operate in a highly intelligent and predictive manner: with the objective to have a 'full' or 'empty' well as the tariff changes.

The liquid level and the inflow rate is continually measured and assessed in the well. Both these variables are then related to the time the next tariff charge occurs. If the next tariff charge is for a higher cost rate, the well will be filled first to enable pump down immediately prior to moving onto the higher tariff charge. This then provides maximum storage capacity in the well during the higher tariff period, once in the lower tariff cost period the level is pumped down as normal using the minimum number of pumps.

The level and inflow condition of the well is continuously monitored to optimize the liquid level and intelligently control the purpose of the pumps according to the impending tariff charge. By doing this, high tariff charge pumping may be reduced significantly, or avoided entirely, to provide real cost savings on pump energy charges, especially during higher energy cost periods.

THE RIGHT METER FOR

- Small Pump Station Control
- Tariff Charge Monitoring
- Energy Savings
- Well Monitoring
- Pump Control & Monitoring
- Well Capacity & Performance

Ten set points for tariff variations may be installed, these can be assigned per day, week, or other reoccurring periods to be site-specific.

It is important to note that the normal pump on and off points are maintained in storm conditions, eliminating the possibility of spills.

Actual energy savings achieved will depend on the capacity of the wet well, the frequency of the tariff charges, the size of the pumps, and the relative tariff charges applied. However, cost savings are usually significant.

Simple Calibration

Calibration is via the unique, simple, integrated menu-driven system, or if there are several typical pumping stations the unit may be assigned a factory setup routine to enable the operator to simply select three menu options as follows:

- The pumping routine that is required
- Transducer type being used
- The working span required

This saves time-on-site and also reduces the potential for any errors during the setup process. This also removes the necessity for other control devices or complicated setup routines.

Digital Inputs

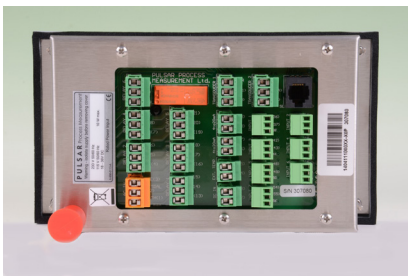
Intelligent pump controllers give the operator the ability to replace costly PLC control systems on simple pumping stations, providing many of the functions that would otherwise be provided by the PLC. Having 7 discrete digital inputs provides the ability to detect a 'no-flow' signal from a switch or other source and then create an alarm output as well as taking the defective pump out of service while changing the duty of the pumps as a result. Pumps may be placed on over-ride or inhibit at any time via a digital input. Communication and resulting control are via outputs including volt-free contacts, an isolated 4-20mA signal, and RS485.

Pulsar Measurement's controllers remove the necessity for other control devices by carrying out full control of a wet well and providing the diagnostic feedback to enable confident management of a site.

Manual switches may be linked via the digital inputs enabling choices of pump overrides to reset alarms or pumps back into service.

Volume Throughput

Conversion of the level measurement into stored volume throughput, with the ability to accommodate a variety of good shapes and to custom linearize for non-standard wells, is included. This feature is useful for monitoring local flow changes and for well capacity performance when part of an integrated system.



Pulsar Measurement Zenith stainless steel enclosure.

Convenient Installation

The fascia mount is a convenient size for panel front mounting. Having only a 90 mm (3.5 in) internal projection this package allows reduced panel or MCC sizes.

A rectangular cut-out with four holes to suit the rear fastening is convenient and easy to produce.

The rear of each unit has a stainless steel enclosure with clip-on electrical connections giving safe and easy access to the power and control terminals to suit the specific site. The integral keypad on the IP64 front panel makes set-up easy and the back-lit display provides useful information during calibration and run mode.

The rear connectors include an RS232 port local for uploading and downloading of stored information via Pulsar Ultra PC Software, part of PC Suite, and an RS485 connection for optional communication purposes.



Pulsar Measurement Zenith controller in a real-life panel.

Technical Specifications

PHYSICAL

Mounting Option:	Fascia Mount:
Controller Body Dimensions:	200 mm x 112 mm (7.9 in x 4.4 in) front, 165 mm x 105 mm (6.5 in x 4.1 in) cut-out
Weight:	Nominal 1 kg (2.2 lb)
Enclosure Material / Description:	Stainless steel and polycarbonate, flame resistant to UL94 V0
Transducer Cable Extensions:	Twin Screened
Maximum Separation:	1,000 m (3,280 ft)

ENVIRONMENTAL

IP Rating:	IP64
Max. & Min. Temperature (Electronics):	-20 °C to +55 °C (-4 °F to +131 °F)
Flammable Atmosphere Approval:	Safe area: compatible with approved dB transducers allowing installation to zone 0
CE Approval:	EMC approval to BS EN 50081-1:1992 for emissions and BS EN50082:1995 for immunity, and to BS EN61010-1:1993 for low voltage directive
UL Approval:	UL Listed. UL Listed to Canadian safety standards. Certificate Number: E257330
Power Supply:	115 V AC +5%/ -10% 50/60 Hz, 220 V AC +5%/ -10%, 18-36 V DC

PERFORMANCE

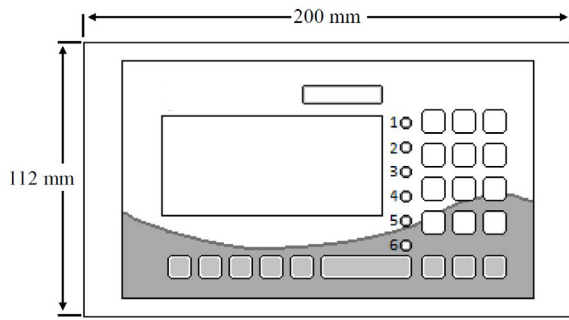
Accuracy:	+0.25% of the measured range or 6 mm whichever is greater
Resolution:	dBMACh3 0.3 mm (0.01 in), dB3 0.5 mm (0.02 in), dB6 and dB10 1 mm (0.04 in), dB15 1.5 mm (0.06 in), db25 2.5 mm (0.1 in), dB40 5 mm (0.2 in)
Range:	Depending upon transducer, from 125 mm to 40 m (4.9 in to 131.2 ft)
Echo Processing:	Patented DATEM (Digital Adaptive Tracking of Echo Movement)
Digital Communications:	RS485 Modbus RTU or Profibus DP V0 or V1

PROGRAMMING

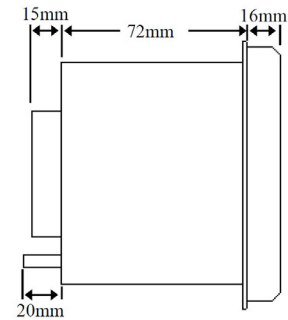
Onboard Programming:	Standard with integral keypad
PC Programming:	Via RS232 (RJ11 port)
Programming Security:	Via password (user selectable and adjustable)
Programmed Data Integrity:	Via non-volatile RAM, plus backup

INPUTS / OUTPUTS

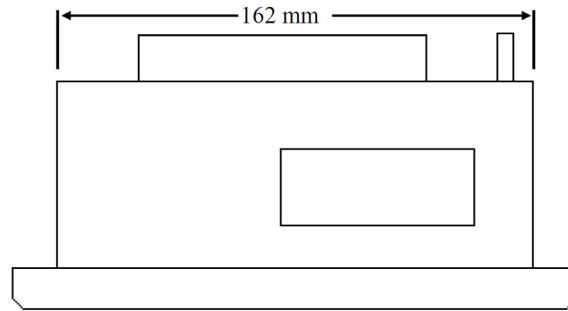
Volt-free Contacts:	6 form "C" (SPDT) 5A, 220 V AC
Digital Inputs:	7 NO or NC with 24 V DC internal supply, available max. 20mA
Analog Output (Adjustable):	Isolated output of 4-20mA or 0-20mA into 500 Ω (user programmable and adjustable) 0.1% resolution
Analog Input:	Isolated input for loop-powered device. 4-20mA source
Serial Output:	RS232 via RJ11 port
Display:	6 digits plus 12 character text, plus bar graph with direction indicators, remote communicator identifier, and program / run / test mode indicators



Zenith Drawing Front



Zenith Drawing Side



Zenith Drawing Top

Delivering the Measure of Possibility.

Pulsar Measurement offers worldwide professional support for all of our products, and our network of global partners 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, allows 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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