

Water level in reservoirs

Water reservoirs vary in size and shape considerably, depending if they are a 'service reservoir' for local storage of treated water, naturally occurring 'lakes' that are used for drinking water or 'manmade' reservoirs by placing a dam across a valley. How water level in reservoirs will be measured will therefore also depend on which type of reservoir is being monitored.



Typically in a service reservoir, the volume of water contained in it is well known and by level monitoring, the flow through the reservoir and the extraction rate of water can be controlled to maintain a stable water supply. The demand for water will cause the water level in reservoirs to fall and level monitoring can control pumps to refill as required. Monitoring not only helps to prevent the service reservoir from overflowing but also from running empty and raising alarms if there is a failure in the pump control.

The instrument for level monitoring, the level probe respectively submersible pressure transmitter is suspended by its cable into the inspection chamber of the service reservoir. This provides easy access for service, calibration and replacements. If the water in the service reservoir is turbulent, then the hydrostatic level transmitter may be installed by suspending it inside a stilling tube within the reservoir instead.



Water level in reservoirs that are formed naturally as lakes or by a man-made dam across a valley will also require monitoring using a submersible pressure transmitter. As these reservoirs can be very large and store vast amounts of water, the highest accuracy level probes are required, as a change of a few millimetres or 1/8" in the water level may represent many thousands of litres or gallons of water. In these cases the shape of the reservoir is charted and a level probe's stability and accuracy is critical in determining the correct amount of water present at any given time. Sometimes the water temperature may also be measured by the hydrostatic level transmitter, to integrate the calculation of thermal effects caused by the temperature behaviour of water and its change of specific gravity.

Water level in reservoirs, that have been formed naturally, is often measured by installing a monitoring system in a stilling tube located in an instrument tower near the pump used for water extraction. This instrument tower will be built at the lowest possible or lowest permitted level of water extraction. In reservoirs that have a dam, the extraction points may even be a part of the dam.

If the monitoring system is then installed in the extraction chamber, it has to be protected from the effects of water flow from the reservoir which can cause inaccurate measurements by turbulence.

Level monitoring of water level in reservoirs using submersible pressure transmitters has proven over time to be the most simple, reliable and accurate method to control the level in reservoirs.

Please find further information on this topic on our information platform www.wika.com/hydrostatic-level



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