



Product	1510 Side Mounted Level Switch
Application	Wellhead Control Panel Hydraulic Fluid Levels
Industry	Oil & Gas

Challenge After an oil well has finished being drilled, a “Christmas tree” is installed on top of the wellhead and serves as an interface between the drilling platform and production equipment. The Christmas tree and wellhead are comprised of spools, valves, and fittings – it is very common that the Christmas tree and wellhead valves are hydraulically actuated which is achieved using a Wellhead Control Panel (WHCP). The primary function of the WHCP is to provide automated, sequential opening of the wellhead valves resulting in controlled oil/gas flow out of the well. Additionally, in the event of an emergency shutdown the WHCP provides safe and reliable operation of the Christmas tree valves to quickly react and contain the oil/gas beneath the surface.

Basic hydraulic WHCP systems consist of: a wellhead control module, main and return hydraulic reservoirs, a hydraulic pump, a strainer, and an accumulator. Hydraulic supply lines connect the accumulator to the Christmas tree and hydraulic return lines take the hydraulic fluid from the valves and send it back to the return hydraulic reservoir. The hydraulic pump builds up sufficient pressure in the accumulator to open and close the Christmas tree and wellhead valves. However, if the system does not have the correct working volume of hydraulic fluid it will be unable to build pressure to control the valves and can run the pump dry, causing damage to the equipment and unexpected downtimes in production. Furthermore, if the WHCP does not have a satisfactory level of hydraulic fluid it can result in a catastrophic event if it inhibits the Christmas tree valves from closing during an emergency shutdown.

Solution By installing an SOR® 1510 Side Mounted Level Switch at the bottom of the main hydraulic reservoir, the system will shut down if the hydraulic fluid level in the main reservoir reaches a dangerously low threshold. This notifies an operator to manually refill the system with hydraulic fluid, bringing it back to a normal level and allowing the WHCP and process to continue running efficiently. Similarly, adding an SOR 1510 Side Mounted Level Switch at the top of the return hydraulic reservoir signals for the recirculation pump to activate if the level in the return reservoir becomes too high; the recirculation pump then drains the hydraulic fluid from the return reservoir back to the main reservoir. By monitoring the level of hydraulic fluid in the system, the user is able to reduce costs associated with repairing and replacing the hydraulic pumps due to running dry. Moreover, it ensures the WHCP is able to open and close the Christmas tree valves accordingly to rapidly respond to an emergency shutdown.