

Did you know?

SITRANS LT500 has pump control functionality to solve nearly any water/wastewater application. Here's a review of the various pump duty cycles water and wastewater plants use to manage their pumps.

Methods of pump control are dependent on two variables:

Pump sequencing: Indicates in what sequence pumps are started either using Fixed, Alternate, or Service ratio setpoints.

Pump assist or backup: Indicates whether new pumps start and run with any currently running pumps (most common) or whether new pumps start and shut off currently running pump using Assist or Backup duty.

Pump control algorithms

Algorithms are used to provide six modes of pump control. They can be used to start multiple pumps (assist) or one pump at a time (backup). These six modes can be grouped into three main methods of pump control:

Fixed: Starts pumps based on individual setpoints and always starts and stops the same pumps in the same sequence: Use settings "Fixed duty assist", and "Fixed duty backup".

Alternate: Starts pumps based on the duty schedule and always leads with a new pump: Use settings "Alternate duty assist", and "Alternate duty backup".

Service Ratio: Starts pumps based on user-defined ratio of running time: Use settings "Service ratio duty assist", and "Service ratio duty backup".

These duty cycles allow water treatment plants to adapt to varying flow conditions, optimize energy usage, and provide redundancy to ensure continuous and reliable operation of lift stations. The choice of duty cycle depends on the specific requirements and design considerations of the treatment plant.

Setup for pump control can be done easily on the Siemens SITRANS LT500 using the Pump control wizard or guided menu.

SITRANS LT500 HydroRanger
Pump control modes

1	1-2-3	1-2-3	1 _(50%) -2 _(30%) -3 _(20%)
1	2-3-1	1-2-3	2 _(30%) -3 _(20%) -1 _(50%)
1	3-2-1	1-2-3	3 _(20%) -1 _(50%) -2 _(30%)
1	1-2-3	1-2-3	1 _(50%) -2 _(30%) -3 _(20%)
...	...	...	...
Single pump	Alternate duty	Fixed duty	Service ratio
Starts single pump based on level set points	Starts pumps based on the duty schedule and always leads with a new pump	Starts pumps based on individual setpoints and always starts and stops the same pumps in the same sequence	Starts pumps based on user-defined ratio of running time
Mode type			
Assist: Multiple pumps will run at the same time		Back-up: Only one pump will run at a time	