

The Siemens logo is displayed in a bold, white, sans-serif font. It is positioned in the upper left corner of the page, overlaid on a background image of a water treatment facility. The background image shows large blue cylindrical storage tanks and a network of metal walkways and railings in the foreground, with a clear blue sky in the background.

SIEMENS

PROCESS INSTRUMENTATION

'TOTEX' is key when purchasing instrumentation

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There's a lot to be considered in the price tag of an ultrasonic instrument. Derek Moore from Siemens explains how the historical way of thinking only of capital costs needs to change to the more holistic approach of total expenditures (TOTEX).

For any purchase, a prudent decision involves thorough analysis with the long-term in mind. When buying a car, for example, we don't just look at the price tag, which only represents the initial capital cost. We also consider important operating costs like fuel efficiency, reliability and maintenance.

All of these contribute toward our understanding of the true total expenditure – or "TOTEX" – for the vehicle and we make our purchase decision accordingly. It means the sticker price might be higher on car A than car B, but car A might still be the better deal because its long-term value could be greater when all of the operating costs over the full driving life of both vehicles are taken into account.

It's no different when purchasing an instrument for a water/wastewater facility.

In addition to the initial capital cost there are a number of operating costs that must be considered. But all too often these are overlooked.

It starts with installing the devices. Some instruments have a simpler and less costly installation process than others.

Then there's maintenance, with a number of questions to address in assessing that cost. How often does production need to be shut down for visual inspections and cleaning? For how long must each shutdown last? And what does that all that shutdown time and cleaning work add up to as a total cost for lost operating time over many years?

The cost of energy

It's also important to consider the impact of Energy costs to determine the true operating cost of an instrument. Countries including Canada, UK, Germany, South Africa and Australia have different rates according to the time of day or season energy is consumed. It could cost up to 80 per cent more in peak periods compared to low periods. Since the instrument needs to run at all times, the high-cost periods are unavoidable.



Siemens selection of products provide low cost of ownership when considering the entire product lifespan.



SIMATIC RTU3030C makes it possible to measure level measurement anywhere in the world while providing all the data in your centralized control center.

That's where a special feature such as what is seen with Siemens' ultrasonic controllers can make a big difference to reduce operating costs. The SITRANS LUT430 (Level, Volume, Pump and Flow Controller) and the SITRANS LUT440 (High-Accuracy Open Channel Monitor) both offer a full suite of advanced controls so that in normal operation, the controller will turn pumps on once water reaches the high-level set point, and then begin to pump down toward the low-level set point.

In economy pumping, the controller will pump wells down to their lowest level before the premium rate period starts, which maximizes the well's storage capacity. The controller then maintains a higher level during the higher-cost tariff period by using the storage capacity of the collection network. Pumping in this way ensures minimal energy use in peak tariff periods.

In addition, costs can be saved with these and other devices in the SITRANS LUT400 family through pumped volume and built-in data-logging capabilities. In a closed collection network, it is inefficient and costly to pump rainwater entering the system from degraded pipes that are leaking. The SITRANS LUT400 calculates pumped volumes, which provides useful historical trending information for detecting abnormal increases of pumped water.

Lowering operational costs

A range of Siemens products can bring TOTEX costs down significantly through reduced operational costs. For example:

- All Siemens Echomax ultrasonic transducers are robust and have a self-cleaning face to avoid product build-up which reduces the need to shut down production for cleaning.
- The Siemens HydroRanger 200 and Siemens SITRANS LUT400 have sub-

mergence detection, with an alarm triggered before the device is fully submerged. Pumps can also be activated to attempt to lower the water level. This will avoid the costs associated with an overflow.

- All Siemens level instruments have intelligent echo processing software that continuously adapts to changing environments and conditions in the application. Thanks to sophisticated algorithms at the heart of this innovation, users can rely on accurate readings, so they avoid false readings that lead to costly false alarms.
- The new Siemens SIMATIC RTU3030C is a cost-saving device designed for data communications at remote locations. It's a compact, energy-self-sufficient Remote Terminal Unit (RTU) with optimized energy consumption, so it requires no external power source. Because it is battery operated, and works with any Siemens ultrasonic device, no costly trips are needed to remote places to check on instrumentation, with everything handled from the control centre.

All Siemens instruments can be connected via SIMATIC or other communication protocols, meaning all the needed information is one place – delivering cost-saving efficiency to the entire operation.



Submergence shields protect Echomax transducers under fill conditions, combined with submergence detection in the controller, the operator is confident overfills will be avoided.

The bottom line

To put all of these operational savings into full TOTEX perspective, consider a direct comparison between a given ultrasonic device purchased from the fictitious Zebra company and one bought from Siemens.

The two devices might both have the same purchase price, but the self-cleaning face on the Siemens device alone has a huge impact when looked at across 100 units in your operation over the course of a 15-year lifespan for each instrument. Assume that cleaning feature saves just \$100 per year per device. Over the course of 15 years for 100 devices, that's a difference of \$150,000 in TOTEX.

It's just one simple example to show how a capital cost is only one part of the equation in understanding the true total cost of an instrument.

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