Equipment controller EC 531

Control and monitoring of pumps and pumping stations

Years of operational pumping experience packed in one easy to use controller

There are many ways to improve the efficiency and reliability of your collection network – even without changing a single pump. The equipment controller EC 531 is an easy, all-in-one solution that can boost and safeguard a 2-pump station and collection network performance.

A versatile pump station control solution

All functionality you need, based on longtime experience, is built-in to the EC 531 equipment controller. Included are standard funtionality to help monitor the equipment condition as well as to optimize and reduce risk of overflow, reduce energy costs and cleaning costs etc. The controller is easy to use and configure with no need for any special code to be written.

Save time, effort and money

When you can see events in your network as they happen, you can make decisions in time to make a difference. The EC 531 offers possibilities for monitoring your collection system in real time, as well as the tools to control it.

The EC 531 gives you instant access to alarms, pump status, level information and trends – both on site and remotely. Added to this are functions that help to prevent downtime and flooding, as well as to reduce maintenance and energy costs. Pumps can be automatically started and/or stopped in many smart ways.

By taking full advantage of the EC 531, you can increase pumping station availability, minimize energy consumption and even reduce stress on the network downstream.

One easy-to-use solution

The EC 531 provides a smart and flexible control and monitoring in a single unit. Regardless if the control logic is based on a simple float technology or an advanced VFD control, the EC 531 offers a set of easily configured standard settings which gets you up and running in no time!

The EC 531 can be used with one or two pumps and is easy to connect and configure. Ideal for smaller pumping stations, it can be used in a collection network together with the pump controller type ABS PC 441. The PC 441 is an expandable system that works with one to four pumps.

Information at your fingertips

Best of all, there are many ways to access the EC 531. Configuration can be done on site via the control panel, or remotely using our PC software type ABS AquaProg. Thanks to our app solutions for Android and iOS, it can even be done via smartphone or tablet.

Alarms, logs, trends and other information can also be accessed remotely, either through our PC software or AquaApp. By making the most important functions available from your phone, AquaApp puts your whole network right in the palm of your hand.

How you can benefit

Collection network managers
- Reduced risk during peak loads
- Reduced equipment and labor costs
- Reduced tankering and energy costs

Collection network operators
- Fewer emergency call-outs
- Reduced service needs
- Clear information for correct decisions

Technicians
- Easy installation
- Easy configuration

On sight operator
- Easy fault tracking
- Access to all settings
- Easy access to run time data

How it works in practice

Here are just a few examples of how you can use equipment controller EC 531 to increase availability while reducing maintenance, energy use and costs.

Saving energy by pumping no more water than needed

When there is less rain, there is less risk of a sudden rise in water level. With smart on/off controls and/or specific energy run logic energy can be saved during dryer periods by setting higher start/stop levels, so that the pumps run less often. With the EC 531, this change can be made via the operator panel or a PC using Sulzer monitoring and configuration software AquaProg.

Lowering the risk of total stops and repeated blockage

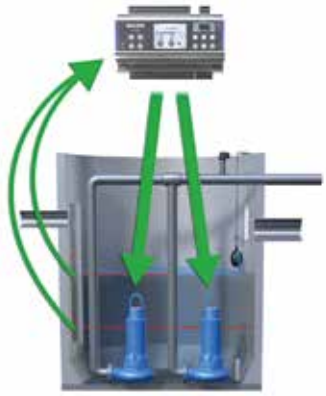
Using the asymmetric start function of the EC 531, one pump can be run for fewer hours than the other. This increases availability by reducing the risk of simultaneous breakdowns.

Alternatively, a pump that frequently clogs due to flows within the pumping station can be run more frequently, which will help to keep it blockage-free. If a breakdown does occur, the controller will can an SMS alert.

Cutting electricity costs by running pumps at off-peak hours

Using the EC 531, pumps can be assigned start/stop levels that differ by day and by night. This function can be used to empty the station during off-peak hours, when electricity costs less.

The same function can be used to temporarily lower the stop level and minimize sludge build-up, or to temporarily increase the difference between start and stop level for a pipe-flushing effect.

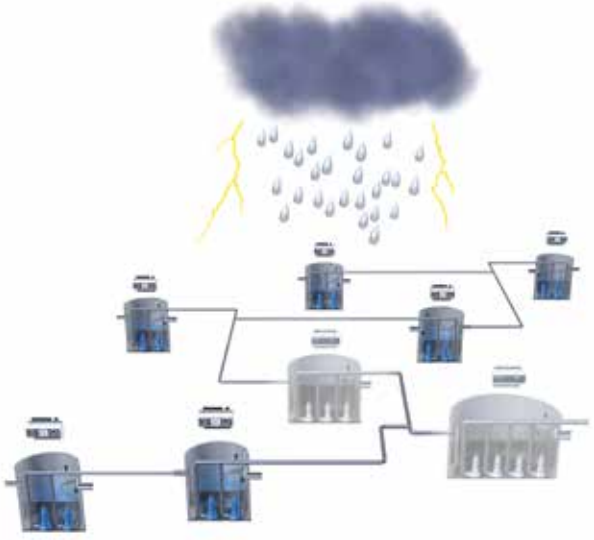


Avoiding water hammer and network choking

Using the EC 531 to set individual start and stop levels for pumps and pumping stations puts less pressure on hydraulic and electrical networks. Each pump starts at the optimal time, thereby avoiding water hammer and preventing flooding in the most efficient way. If the risk of flooding arises, the EC 531 sends an SMS alert.

Preventing clogging with individual pump exercise runs

The control functions of the EC 531 allow the pumps in a station to be run independently, with different start/stop levels and different start/stop delay times. If one pump is not used for a period of time, the controller can force an exercise run to prevent it from clogging due to disuse.



Preventing flooding through intelligent level control

During heavy rainfall, the EC 531 can start and stop the pumps based on the speed of level change. If the water level rises more quickly than normal, pumping will begin before the set start point. If the water level drops more quickly than normal, pumping will stop before the stop point is reached.

This function prevents peak stress in both the pumping station and the network, because it spreads out the pumped volume over time.

Detecting flow deviations between pumping stations

Leakages and overflows are not limited to pumping stations. Leakage can occur out of a pipeline, just as water can leak into a pipeline and add load downstream.

Using the EC 531 to measure the outflow at one station and the inflow at the next, any problem between can be quickly identified. If the pump energy consumption is also monitored, the actual pumping efficiency can be calculated as well.

Equipment controller EC 531 in overview

EC 531 is the next generation 2-pump monitoring and control unit. The software included in the EC 531 is a further development of the PC 441 advanced surveillance systems.

Main applications

The equipment controller EC 531 is an all-in-one unit for monitoring and control of one or two pumps. It is designated primarily for municipal pumping stations.

Key control parameters

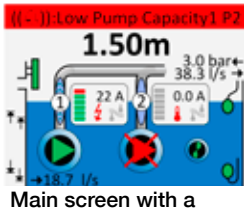
- Level set-point, including time delays
- Speed of level change
- Random start levels
- Tariff control
- Maximum runtime
- VFD control logic, including flow calculation, day set points, night set-points and adjustable pump reversal speed
- BEP (Best Efficiency Point)

Data communication

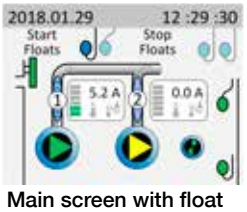
- Communication via Modbus (RTU / TCP) protocol with other telemetry or SCADA systems
- I/O and register cross-reference tables for efficient communication setup
- Ethernet communication support

Operator panel

The built-in operator panel with graphical display and keypad ensures easy configuration and operation of the EC 531. It allows the operator to see pump status at a glance. Graphical symbols (high temperature, leakage, electric fault, vibration fault) will turn red when an alarm is activated. Detailed information about the behavior of the float controls is displayed in a separate view.

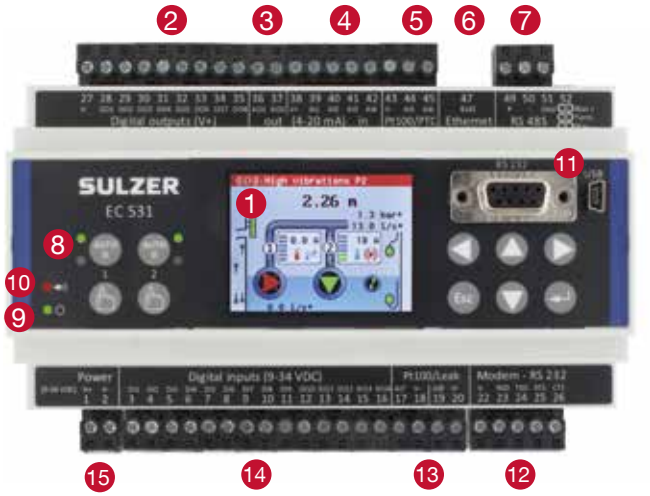


Main screen with a level sensor



Main screen with float control

Data from the panel can be viewed or accessed in different formats: alphanumeric characters or animated graphical symbols.



1. Graphical operator panel
2. Digital outputs (8)
3. Analog outputs (2)
4. Analog inputs (4)
5. Temperature inputs PTC / Klixon / Pt 100 (2)
6. Com port for Modbus on TCP, RJ-45 Ethernet
7. Com port for Modbus on RS 485
8. Off - auto and forced start buttons
9. Power indicator
10. Alarm indicator
11. Service port for PC connection, RS 232 and USB
12. Com port for modem connection, RS 232
13. Leakage sensor inputs or temp. inputs Pt 100 (2)
14. Digital inputs (14)
15. Power connection 9-34 VDC

Always in control, wherever you are

The equipment controller EC 531 offers many ways to reduce maintenance, energy use and costs. You have easy access to all of them, whether on site or off.

Monitoring and configuration software type ABS AquaProg

AquaProg is the PC software hub for configuring and working with every aspect of your EC 531 unit, either locally or remotely. Using AquaProg, you can view, transfer and restore all settings, status data and logged values, as well as perform firmware upgrades. You can even view trends online with a range of time frame options, allowing you to analyze and improve the performance of pumps and pumping stations.

AquaWeb makes it all accessible

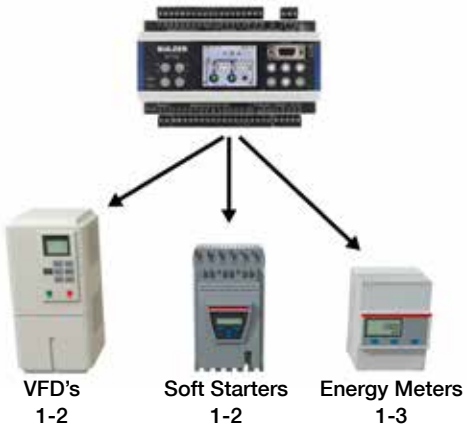
AquaWeb is a web-based interface that offers access to all the most important information and EC 531 functionality. It provides a complete range of options for remote access. Online monitoring is available in one second intervals in a window up to 48 hours. Tools for viewing and analyzing the status of pumps and pumping stations, as well as operating trends, are also included.

Mobile information with AquaApp

When needs arise, you may be far from a computer. AquaApp, Sulzer's solution for Android and iOS smartphones, puts key functionality in your pocket. AquaApp offers a graphical pit status display for the pumps, including inflow, outflow and alarms, plus the ability to change start/stop levels or reset the motor protector. Events, running hours and electrical properties can also be reviewed, and there is even a tablet-optimized version of the app: AquaPad.

Alarms and trends for connected units with RS 485 Modbus communication

Alarms and status data from non-Sulzer devices can also be viewed with a EC 531 unit – even if they lack web functionality. When variable frequency drives, soft starters, energy meters or other devices are connected to the EC 531, they can be accessed in the same way as Sulzer's own equipment.



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