SULZER

Control and monitoring equipment

Solution for local and remote monitoring

We have the monitoring solution for your wastewater pumping station. We can provide your basic standalone amplifier and your advanced local monitoring. For the advanced user solution, we offer a full remote monitoring with web access including apps for interfacing with smartphones and tablets.

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. Our monitoring solutions let you monitor a single pump or your whole collection system in real time. This gives you the opportunity to collect information about the station status. Service and maintenance of your equipment made in due time will increase your savings and give you peace of mind.

Data given by the monitoring system will give you the guidance needed to make sound business decisions. By taking full advantage of the monitoring system, you will lower your energy consumption and environmental impact.

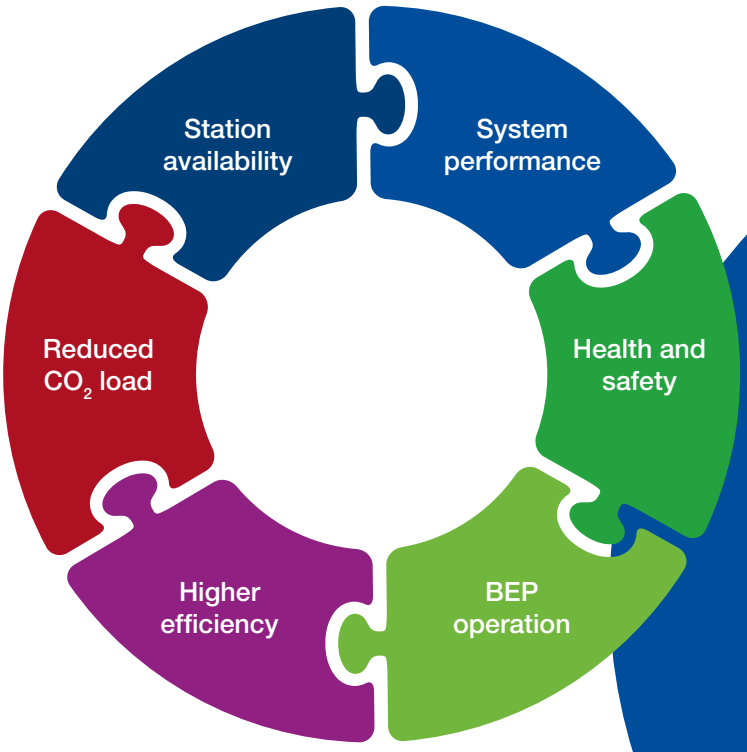
A tailor-made control system

Sulzer control system is customized after your needs, using only the basic settings or more complex to cover all parts of your station. Parameters to control the system can be set for a variety of pump functions such as start/stop levels or empty pump station before “rush hour”.

Information at your fingertips

Best of all, there are many ways to access system data. Configuration can be done on site via the control panel, or remotely using our PC software 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

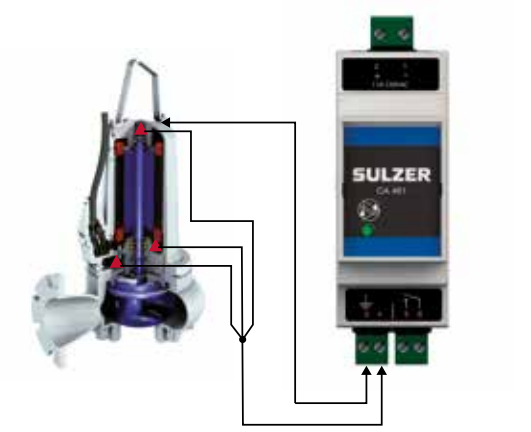
Technicians
Easy installation
Easy configuration
Simple expansion and upgrading

Basic moisture and temperature monitoring for small pumps

Add monitoring devices to your control system to protect your valuable assets with leakage and high temperature monitoring.

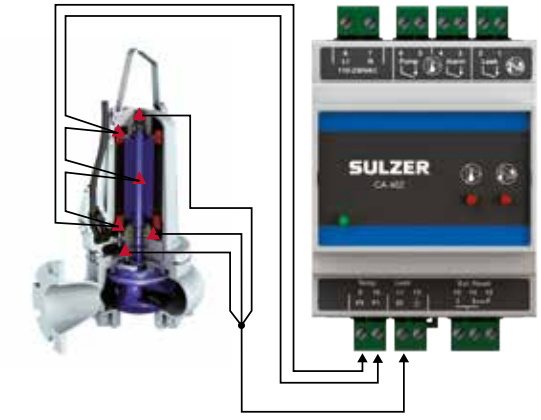
Moisture monitoring with CA 461

Monitoring your pumps plays a vital role for continuous operation and reducing service costs. Leakage control type ABS CA 461 will monitor and detect leakage in pumps and mixers at an early stage, giving you the opportunity to respond quickly and keep your station running.



Temperature and moisture monitoring with CA 462

For additional protection of your equipment, temperature and leakage relay type ABS CA 462 is designed to monitor and detect both a rise in temperature as well as any leakage in pumps and mixers.



Monitoring and logging panel

Extended monitoring as well as logging for one individual pump is possible via the PC 441 unit mounted in the existing control panel or mounted in a separate housing.

Moisture | Temperature | Vibration | Power | Current A

Advanced monitoring and communication for larger pumps

The PC 441 monitoring system can be scaled to provide desired degrees of information, in real-time values and/or historical.

Advanced pump and pump station monitoring

The PC 441 family is a modular concept, designed to fit a wide range of monitoring applications.

The main design criteria are monitoring single sewage pumps or up to a complete 4-pump station. The concept is built up around the main PC 441 unit with possibilities to add additional specialized modules for:

1. CA 441, Moisture monitoring
2. CA 442, Temperature monitoring
3. CA 443, Motor and supply power monitoring
4. CA 622, Monitoring of/via peripheral equipment
5. CA 781, Expansion module adding an additional number of pumps

Log, calculate and take control

By receiving continuous, real-time information about your pump station, you can optimize its performance. PC 441 logs events and alarms, and stores analog trends. It also calculates parameters as: inflow, outflow and pump capacity. This based on the shape of the basin and speed of level change.

PC 441 can re-calculate the signals from mechanical flow meters and precipitation or other equipment generating pulse outputs, to analogue ones and store these trends as well.

Graphical display showing pump status

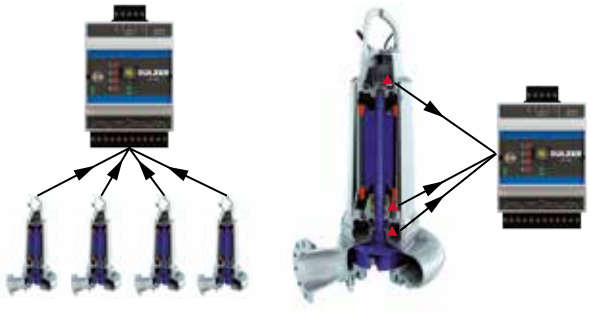
The operator panel CA 511 ensures easy configuration and operation of the PC 441, allowing the operator to see pump status at a glance. Data can be viewed or accessed in several formats: alphanumeric characters, animated graphical symbols or trend curves.

Specialized modules in PC 441 system

Connect advanced monitoring modules to PC 441 for additional functions.

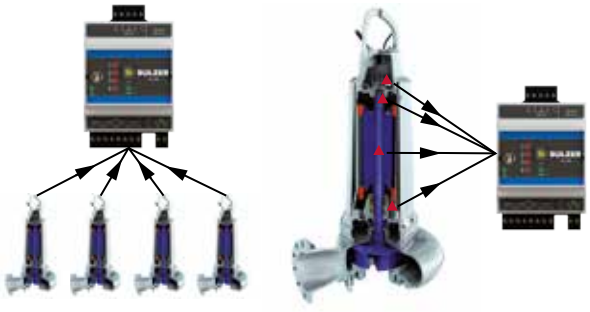
Moisture monitoring module type ABS CA 441

CA 441 can be used in various ways to detect leakage in a range of submersible sewage pumps. Its four signal inputs provide an alarm in the event of moisture detection (Di). It monitors up to four individual pumps with combined alarms indicating general failure, or one individual pump with separate alarms for the cable connection chamber, the motor compartment, and the inspection chamber.



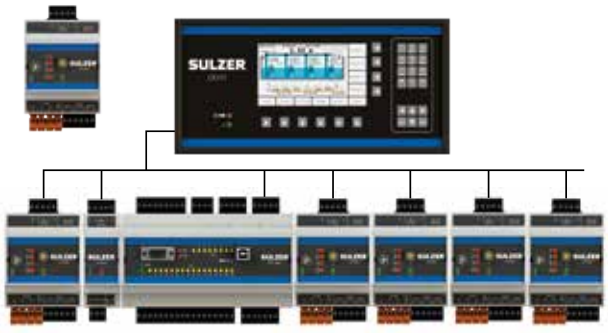
Temperature monitoring module type ABS CA 442

CA 442 allows temperature monitoring of up to four pumps with combined alarms (one alarm in each pump), or up to four separate alarms using one module per pump. It has an extra mA input for connection of a vibration sensor that can be used when one module per pump is connected.



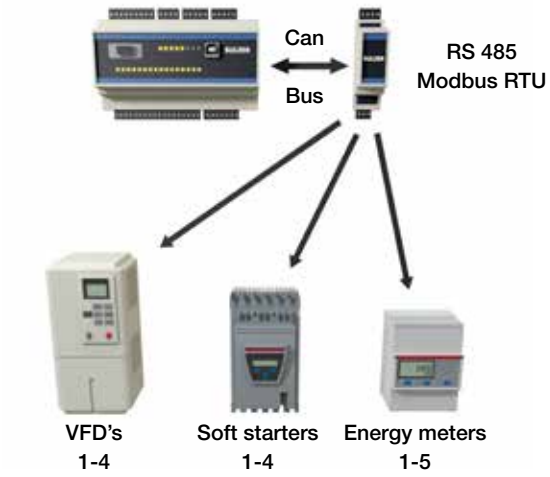
Motor and supply power monitoring module type ABS CA 443

Measure the electrical properties of an entire pumping station and/or one pump. Not only does CA 443 monitor alarms for high/low power supply and phase failure/unbalance, it calculates the energy consumption and power factor.



RS 485 communication module type ABS CA 622

CA 622 enables communication with up to nine peripheral devices such as variable frequency drives, soft starters, energy meters, etc using a RS 485 Modbus interface. When CA 622 is used the CA 443 is not needed in the monitoring system.



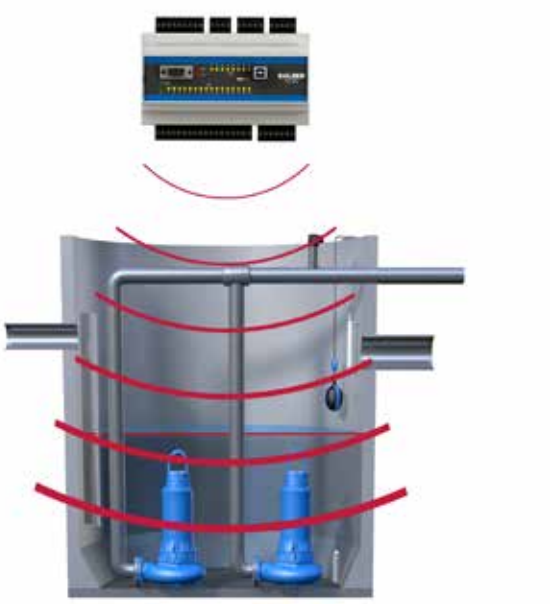
In-/outflow and pump capacity calculation

You can optimize the performance of your pumping station with calculations obtained from advanced functionalities of the PC 441 system.

Functionality included in PC 441

You can save energy by making sure that pumps run with full efficiency by monitoring their performance via PC 441. When you know the status of the pump, you can plan service during normal working hours and before a breakdown. Monitoring is made of both inflow and outflow and no external flow meter is required.

- The inflow is calculated using level change per time unit multiplied by the surface area.
- PC 441 calculates the pump capacity every time one pump runs alone with alarm handling for low pump capacity.
- Pump curves, rpm compensation and system curve should be entered for more exact calculation

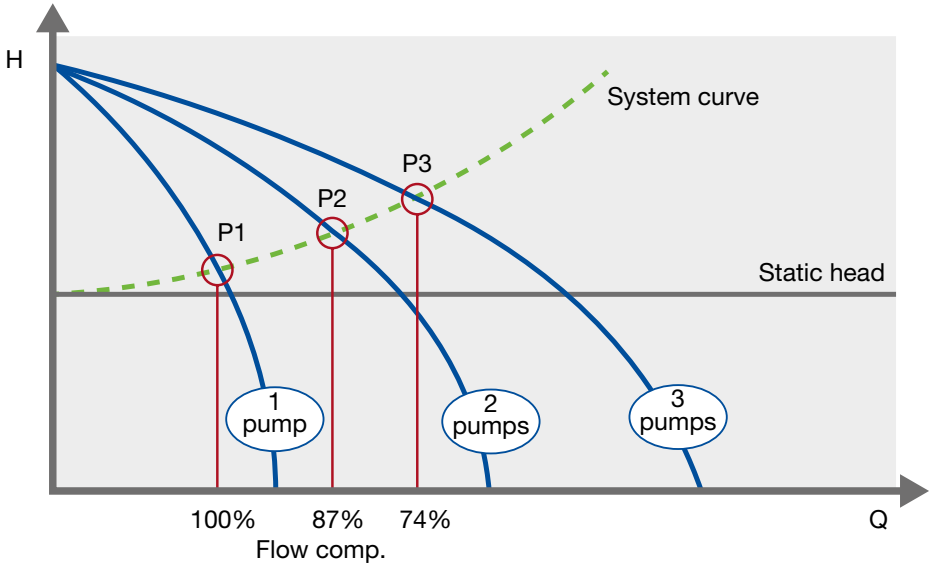


Calculation based on actual head

Instead of using a theoretical system curve the actual head is measured via a pressure sensor mounted on the outgoing mains. This also enables the possibility to detect air entrapment in the mains as well as high load from other stations.

Energy monitoring

With access to the momentary energy consumption, the unit can also calculate the total pump efficiency in kwh/m^3 or gallons.



The information you need, when and where you need it

Sulzer pump controllers provide a wealth of information about the status and operation of pumps and pumping stations. But even more important, wherever you are, Sulzer tools let you see events and easily understand their significance.

Remote access

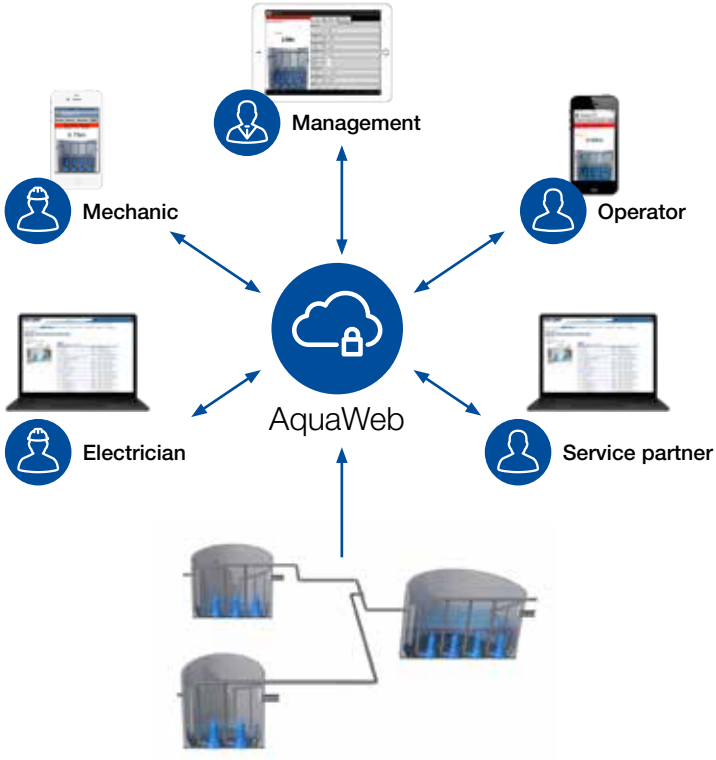
Our monitoring solution can be connected to any SCADA or telemetry system via Modbus UDP / TCP. Our advanced monitoring equipment as PC 441 has special functions that enables a quick and simple communication setup to various systems.

Configure your system online with AquaProg

AquaProg is the PC software hub for configuring and working with every aspect of your monitoring and/or control system, 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 of system components.

AquaWeb makes it all accessible

AquaWeb is a web-based interface that offers access to all the most important information and monitoring functionality. Online monitoring is available in 1 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.



Clear information through graphs and reports gives a complete overview of your station and can easily be exported as an Excel file.

2018-03-26 - 2018-04-01

Name	2018-03-26	2018-03-27	2018-03-28	2018-03-29	2018-03-30	2018-03-31	2018-04-01	Min	Avg	Max	Sum
Average Value Pump Pit Level (m)	1,56	1,56	1,57	1,56	1,58	1,59	1,58		1,57		
Average Value Pump Pit Inflow (l/s)	34,7	42,9	55,5	57,3	76,8	117,0	90,1		67,8		
Average Value Pump Pit Outflow (l/s)	34,5	42,9	55,1	57,0	76,7	116,3	89,4		67,4		
Pumped Volume (m3)	2 979	3 715	4 766	4 915	6 641	9 825	7 717		5 794		40 558
Energy Total (kWh)	87,6	102,5	129,6	133,0	180,0	252,6	203,6	87,6	155,6	252,6	1 088,9
Energy efficiency (kWh/m3)	0,029	0,027	0,027	0,027	0,027	0,025	0,026	0,025	0,027	0,029	
No. of Overflows (No)											
Overflow Volume (m3)											
Overflow time (No)											
Pump 1 No. of pump starts (No)	44	47	54	57	94	59	65	44	60	94	420
P1 running time in hours (hh:mm)	2,51	3,16	4,21	4,21	6,03	8,40	7,08	2,51	5,14	8,40	36,41
Pump 1 Pump Capacity (l/s)	152,6	157,8	160,6	162,1	156,5	171,0	165,1	152,6	160,8	171,0	
Power P1 (kW)	19,4	22,2	29,4	29,6	41,3	62,2	47,5	0,0	35,9	245,0	
Energy Pump 1 (kWh)	46,7	53,6	70,8	71,2	99,7	142,9	114,3	46,7	85,6	142,9	599,2
Pump 2 No. of pump starts (No)	43	49	51	56	71	60	61	43	56	71	391
P2 running time in hours (hh:mm)	2,37	3,08	3,45	3,57	4,58	6,51	5,40	2,37	4,25	6,51	30,55
Pump 2 Pump Capacity Avg. Capacity (l/s)	162,8	163,0	165,8	167,2	172,0	182,5	174,9	162,8	169,7	182,5	
Power P2 (kW)	17,0	20,3	24,3	25,8	33,4	45,9	37,2	0,0	29,1	207,0	
Energy Pump 2 (kWh)	40,9	48,9	58,8	61,8	80,4	109,7	89,3	40,9	70,0	109,7	489,8

Features and benefits in AquaWeb graph

Multiple Y-axes

- Display Y-axes of your choice for optimal resolution of each detail.

Select time frame with slide bar

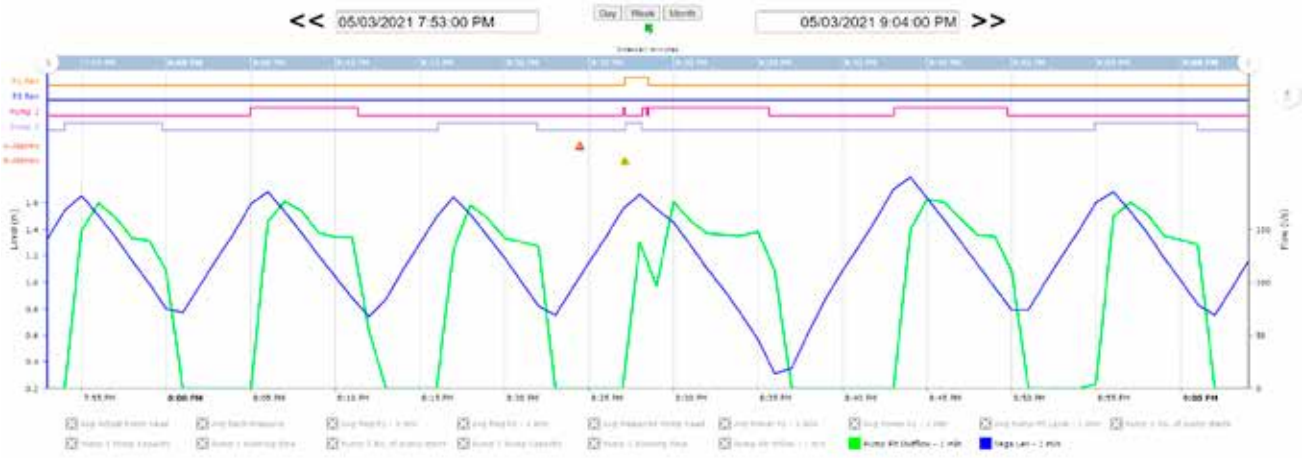
- Get quick access to time frame settings by moving the slide bar.
- Each position display settings and alarms for the time frame chosen.
- Values are indicated direct in chart.

Easy table overview

- Content description of all values for the chosen time frame are displayed in a table.
- Indication curves in chart can be switched on/off via tick boxes.

Clear view of alarms

- Any alarms within the chosen time frame are indicated both in the chart and in a separate table.



Mobile information with AquaApp and AquaPad

When needs arise, you may be far from a computer. AquaApp and AquaPad, Sulzer's solutions for Android and iOS smartphones and tablets, puts key functionality in your pocket. AquaApp and AquaPad offer a graphical pit status display for 1-4 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.

Bring your monitoring equipment with MD 681

Not all pump stations are connected to advanced monitoring. When a problem occurs you need to find out the problem in a simple way. Connect the portable pump monitor unit MD 681 for a full pump monitoring of a single pump or a general performance monitoring of a complete 4 pump station. Included are parameters as flow calculation, performance, efficiency and availability.

MD 681 is accessed locally and remotely via a cellular modem and AquaProg or AquaWeb. When connected, both real-time data as well as historical log data are available.

The portable monitoring concept includes:

- PC 441 pump controller
- CA 511 operator interface
- CA 441 leakage monitoring module
- 2x CA 442 temperature monitoring module
- CA 622 communication module
- CA 524 4G modem including extra antenna
- Power meter
- Isolation amplifiers
- Power supply

Complete wastewater solutions

Control and monitoring equipment form complete solutions with our pumps, mixers and grinders for handling today's and future wastewater challenges, ensuring trouble-free operation and maximum uptime.

Submersible sewage pumps type ABS XFP

- Premium Efficiency IE3 motor in accordance with IEC 60034-30
- Excellent rag handling
- Specially designed impellers for reliable delivery of wastewater containing solids and fibrous material
- Hazardous locations: Approval for ATEX (Ex II 2G k Ex d IIB T4), FM and CSA available
- Quick and easy installation, safe operation, easy maintenance and service

Muffin Monster™, Channel Monster™

- Dual-shafted, slow speed, high-torque design grinds tough solids
- Protects pumps and other critical equipment from clogs and damage caused by large debris
- Grinding separates organic from inorganic materials for more efficient wastewater treatment processes
- Cutter stack heights up to 1'500 mm

Submersible mixer type ABS XRW

- Lowest energy consumption
- Easy upgrade of existing installations supported by a wide range of brackets and adapters
- Operational flexibility with variable speed to match the real mixing task and to manage changes throughout the year
- The robust design and the Premium Efficiency motor give superior reliability and long operating life

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