artemis
Pool Automation Systems

**SMART TECHNOLOGY,
PERFECT WATER QUALITY**

# SMART POOL AUTOMATION SYSTEMS

## Advanced Pool Automation Systems

Monitor, control and optimize your pool systems remotely.
More efficient, more secure and more sustainable pool experience.








Control.
Monitor.
Optimize.

REMOTE ACCESS FROM ANYWHERE

REAL-TIME MONITORING

FULL AUTOMATION SMART MANAGEMENT

SAFE & RELIABLE PERFORMANCE

ENERGY EFFICIENCY & SAVINGS

# POOL AUTOMATION SYSTEMS

Pool maintenance and operation require continuous attention and time. To keep your pool consistently clean and healthy, it demands care much like constant supervision. Pools that are not properly maintained on time can quickly react, resulting in poor and unhealthy water quality.

Delays in essential processes such as chemical dosing, backwashing, vacuuming, and brushing will lead to contamination and deterioration of water quality. As a result, this may create an unsafe swimming environment for both your family and your guests.

Just as swimming in a clean and healthy pool is enjoyable and refreshing, swimming in a dirty and unhealthy pool can be unpleasant and undesirable. For a truly healthy swimming experience, pool water quality must meet drinking water standards. Therefore, all maintenance and operational procedures defined by health regulations must be carried out on time, as neglected maintenance can cause immediate fluctuations in water quality.

Pool automation systems take over maintenance tasks that cannot always be performed on time due to workload or other factors. Beyond this, they ensure a consistently healthy pool environment by maintaining water quality at near drinking-water standards, while continuously monitoring the system through real-time automatic control.

With pool automation systems, maintenance becomes significantly easier. The system manages pool operation automatically, while allowing you to monitor and control it at any time via dedicated control screens, or through your smartphone, tablet, or computer. This enables full remote access and control without the need to be physically present. Additionally, the system can be customized according to your specific requirements.

By continuously monitoring all pool operations, the automation system generates alerts whenever intervention is required, enabling timely action by the pool operator and ensuring uninterrupted, efficient performance.

With pool automation systems, all monitoring and control functions can be customized entirely according to your preferences and operational needs.

✓ Filtration Pump Control
✓ Sand Filter Control
✓ Backwash and Rinsing System
✓ Automatic Disinfection System Control
✓ Dosing Pump Control
✓ Chemical Tank Level Monitoring
✓ UV Disinfection System Control
✓ Heating System Control
✓ Lighting System Control
✓ Balance Tank Water Level Control
✓ Pool Cleaning Control
✓ Automatic Motorized Valve Control
✓ Dry-Run Protection Control
✓ System Pressure Safety Control
✓ System Flow Rate Control

## POOL AUTOMATION SYSTEM CONTROLS

**1- FILTRATION PUMP CONTROL:**
Depending on the size of the pool, the number of circulation pumps in the system may vary from one to multiple units. Accordingly, the start-up and shutdown times of the circulation pumps can be adjusted flexibly and without limitation via the system.

Through the PLC, operating schedules can be easily configured for both summer and winter modes, allowing you to define customized time intervals according to your needs. In addition, the system automatically ensures balanced operation of the pumps through an alternation method, activating them within the defined time schedules without requiring manual intervention.

The system is also equipped with additional level sensors to prevent dry running, providing enhanced safety. Furthermore, it monitors pump temperature and automatically shuts down the system in case of overheating, notifying the user via alerts.

By continuously monitoring all these processes in real time, the system effectively eliminates potential issues before they occur, ensuring reliable and uninterrupted operation.

**2- SAND FILTER CONTROL:** Depending on the size of the sand filter, the system may include an automatic multiport valve (six-way) or a five-valve group. Although these systems differ in structure, they serve the same purpose.


This system enables full monitoring and control of the filtration process, including real-time tracking of filter contamination, pressure levels, and inlet/outlet flow rates. Based on the level of contamination, the system automatically switches from filtration mode to backwash and rinsing, and then returns to the initial filtration position.

By continuously monitoring pressure, the system detects potential issues within the filter or piping system before they occur, automatically stopping operation and notifying the pool operator.

Flow meters installed at the inlet and outlet of the sand filter continuously monitor water flow rates. In case of any increase or decrease in flow, the system responds accordingly and informs the operator, ensuring stable and efficient operation.

**3- BACKWASH AND RINSING SYSTEM:**
Sand filters require regular backwashing and rinsing depending on the level of contamination. The system is designed to automatically detect filter contamination and initiate the backwash and rinsing process without manual intervention.

After completing the backwash and rinsing cycles for the preset durations defined via the PLC, the system automatically returns to filtration mode.

In some cases, filter contamination may take a long time to occur. To ensure optimal system hygiene and performance, the system is programmed to perform automatic backwash and rinsing cycles up to four times per month, regardless of contamination levels.

Additionally, the frequency of these monthly cycles can be fully customized through the PLC settings, allowing flexible adjustment from one to four cycles per month based on user preferences.


**4- AUTOMATIC DISINFECTION SYSTEM CONTROL:** pH, Redox, and chlorine regulation are controlled via the PLC system. All parameter values can be monitored in real time through the PLC interface, including smartphones, tablets, or external computers.

**5- DOSING PUMP CONTROL:** Dosing pumps are monitored and controlled based on system parameters, ensuring proper operation and accurate chemical dosing throughout the process.

**6- CHEMICAL TANK LEVEL CONTROL:**

Chemical levels in storage tanks are continuously monitored to ensure uninterrupted system operation. The liquid levels inside the tanks are displayed in real time on the PLC interface. In case of any irregularities, the system automatically stops and notifies the operator via alerts.

**7- UV DISINFECTION SYSTEM:**

The UV disinfection system is continuously monitored in real time. In the event of any malfunction, the system automatically shuts down and informs the operator.

## 8- HEATING CONTROL:

The system maintains pool water temperature at the desired level. When the temperature drops 2°C below the set value, the heating system is activated; when it rises 2°C above the set value, the system stabilizes accordingly. Once the desired temperature is reached, the system maintains it consistently. Pool water temperature can also be monitored in real time via the PLC interface.

## 9- LIGHTING SYSTEM CONTROL:

Pool lighting is designed to operate within user-defined time intervals. Operating schedules can be flexibly programmed through the PLC settings without limitation.

## 10- BALANCE TANK WATER LEVEL CONTROL:

The system maintains the balance tank water level at the desired set point. In case of water loss, the system automatically refills the tank until the required level is reached. If the water level drops to critical levels, the system shuts down the pumps for safety. Water levels can be monitored in real time via the PLC interface, and any issues are reported through system alerts.

## 11- POOL CLEANING CONTROL:

The PLC system automatically switches valves to the vacuuming position to facilitate pool cleaning. This process typically requires operator involvement; however, pool cleaning can also be performed using automatic cleaning robots.

**12- AUTOMATIC MOTORIZED VALVE CONTROL:**

Motorized valves within the pool system automatically open and close according to the required operational mode. The system continuously monitors valve positions in real time and initiates pump operation only after the correct positions are confirmed. If the valves fail to reach the required position, the system prevents pump activation. All valve positions can be monitored via the PLC interface, and any issues trigger system shutdown and alert notifications.

**13- DRY-RUN PROTECTION CONTROL:**

Water levels in both the pool and balance tank are continuously monitored. Pumps are strictly prevented from operating without water. Level sensors installed at critical points ensure system safety by detecting potential issues in advance and preventing damage.

**14- SYSTEM PRESSURE SAFETY CONTROL:**

Sudden pressure increases within the pipeline can damage the system. To prevent such risks, pressure transmitters are installed at critical points to continuously monitor pressure levels. In case of abnormal pressure conditions, the system ensures safety by taking necessary precautions and preventing potential failures.

**15- SYSTEM FLOW RATE CONTROL:**

Flow meters installed at critical points enable continuous monitoring of pump discharge flow rates, as well as sand filter inlet and outlet flow rates. Additionally, flow meters positioned on the main pool supply line allow for tracking of the total pool circulation flow.

The system ensures balanced water flow by maintaining equal inlet and outlet flow rates through the filters. All flow data can be monitored in real time via the PLC interface.

# SMART POOL SYSTEM

If required, the pool automation system can be monitored and controlled in real time from the central control room via a computer. Optionally, the system can also be accessed and managed through any internet-connected device, including touch screens, smartphones, or tablets.

## TOUCH SCREEN CONTROL

The pool automation system can be monito red and controlled in real time from the technical room via a computer interface. All system operation commands and transitions are managed automatically through this screen.
All required components for pool automation—including software, PLC systems, touch screens, and commissioning—are provided by our company as a complete solution.

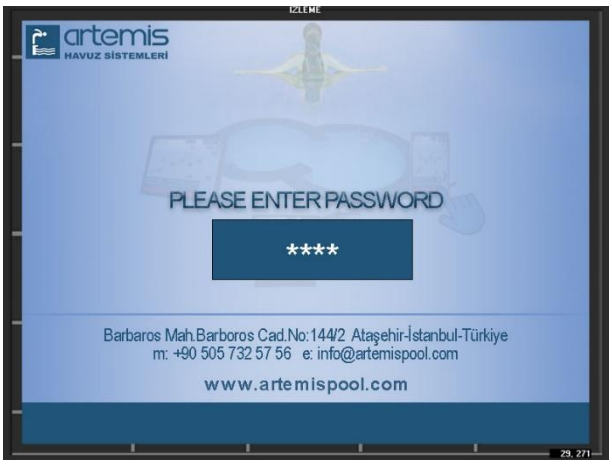
Designed for durability in humid and high-moisture environments, the system is suitable for use in mechanical rooms.

**Technical Specifications:**

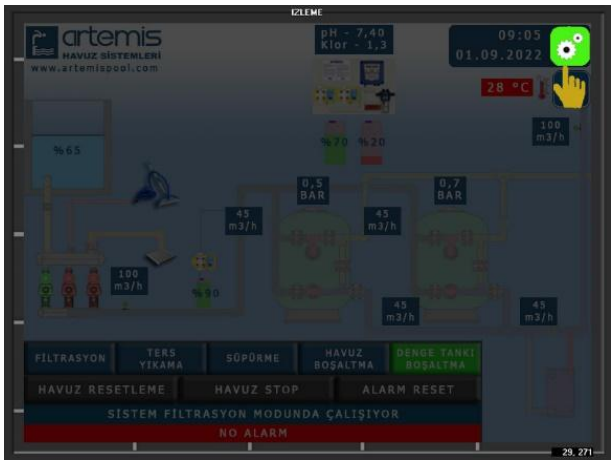
- Resistive touch panel
- 800 × 600 pixels (SVGA) resolution
- 12.1” TFT LCD display
- White LED backlight
- 16-bit color depth
- Adjustable brightness (via touch panel or software)
- Protection class: IP65 / IP66 / NEMA 4X (panel-mounted)

# POOL PLC AUTOMATION CONTROL

**PASSWORD:**
Pool system control is restricted to authorized personnel only. The system is protected by password access on the login screen, allowing unauthorized users to monitor the interface without making any changes.




**SETTINGS:**
All system configurations and adjustments can be accessed through the settings menu by selecting the settings icon on the interface..




After accessing the settings menu, it is essential to verify and configure the date and time settings to ensure proper system operation. The current date and time can be easily entered by selecting the relevant fields on the interface.

Within the defined day and night operating schedules, the system automatically activates the specified number of pumps based on the configured settings. This allows the pool to operate at full capacity during the day and at optimized levels during the night, maintaining stable chemical balance and water temperature.

Additionally, separate operating power levels can be defined for day and night modes. Pump frequency settings can also be adjusted accordingly to ensure efficient and balanced system performance.

During pool vacuuming operations, pump power can be adjusted from this page to prevent hose contraction and to ensure more efficient and effective cleaning performance.


In the second settings section, a **“Red Alarm”** pressure limit is defined, which automatically shuts down the system at 1.4 bar. This parameter is set for monitoring purposes only and is not user-adjustable.


By defining the maximum backwash pressure value, the system automatically initiates the backwash process when this threshold is reached during filter operation. Additionally, the number of filters and pumps to be used during backwash and rinsing, as well as their operating durations, can be configured through the system.


Even if the filters are not contaminated, periodic backwash and rinsing cycles can be scheduled automatically. The system allows up to four cycles per month within a selectable date range (1–28 days), which can be easily configured via the interface. In systems with multiple groups, the sequence timing for each group can also be defined.

On the third settings page, buttons located at the bottom allow individual pumps and filters to be activated or deactivated. In case of maintenance or malfunction, any component can be

taken out of operation until the issue is resolved. Deactivated equipment is clearly indicated on the screen in red.


Pumps operate in a balanced alternation mode with backup functionality, and their operating durations can be monitored directly from the interface.

On the fourth settings page, lower and upper limits for pressure and flow rates can be defined. By setting safe pressure thresholds, the system continuously monitors real-time pressure levels and prevents potential damage caused by sudden pressure increases. Flow meter settings ensure controlled and balanced water circulation throughout the system.


The fifth settings page provides temperature control functionality. By defining the desired pool water temperature, the system maintains a constant temperature level, ensuring a more comfortable and enjoyable swimming experience.

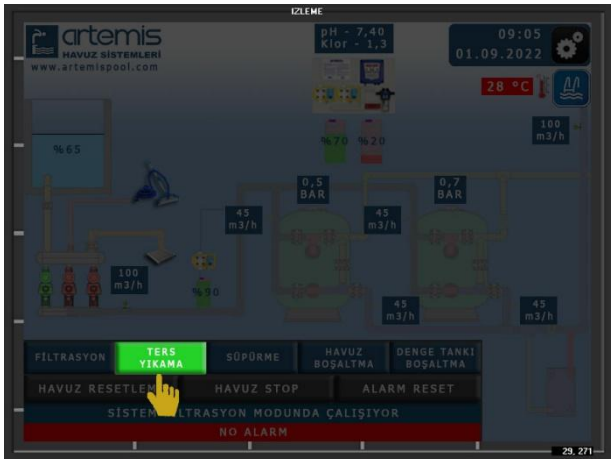
A screen saver function can also be activated, allowing the system to switch to sleep mode. While the display is dimmed, all operations continue automatically in the background. The interface can be reactivated by touching the screen, and if no further interaction occurs, the system will automatically return to sleep mode after 10 minutes.

# SYSTEM OPERATION

## FILTRATION MODE

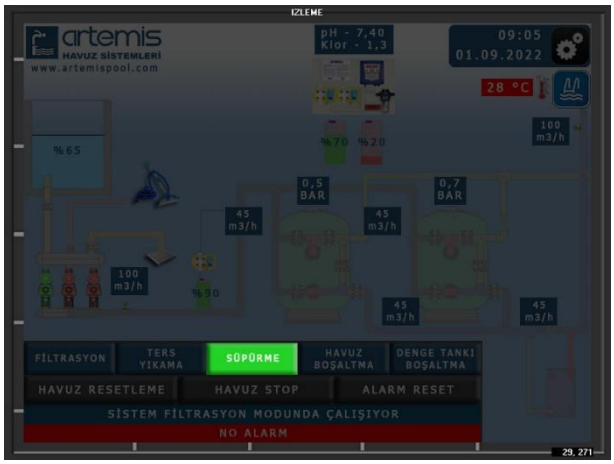

Pressing and holding the **FILTRATION** button on the screen for 3 seconds is sufficient to start the system. Once activated, the system first ensures that all motorized valves are in the correct open/closed positions. After confirmation, the pumps are started according to the predefined settings using an automatic alternation method.

The pool pump reaches full operating capacity within 30 seconds. The same sequence operates in reverse when shutting down. Pumps will not start until all valve positions are correctly confirmed.




## BACKWASH AND RINSING

This process is fully automated and requires only monitoring. When the pressure in the sand filters reaches the predefined threshold, the system automatically initiates backwash and rinsing operations. Once completed, the system returns to filtration mode without requiring operator intervention.



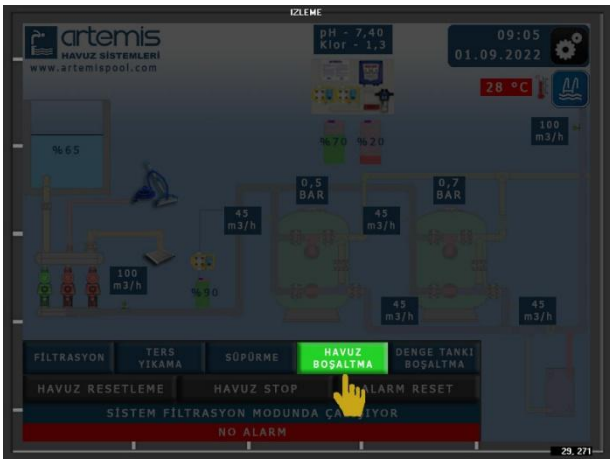

## POOL VACUUMING

Before starting, the vacuum nozzle cover inside the pool must be opened. Pressing and holding the **VACUUM** butto n for 3 seconds activates the system. The system first positions the motorized valves accordingly, then starts the pump.

During vacuuming, pump capacity may be adjusted if necessary. Once set in the settings menu, the system will automatically operate at the defined capacity for subsequent cleaning cycles.

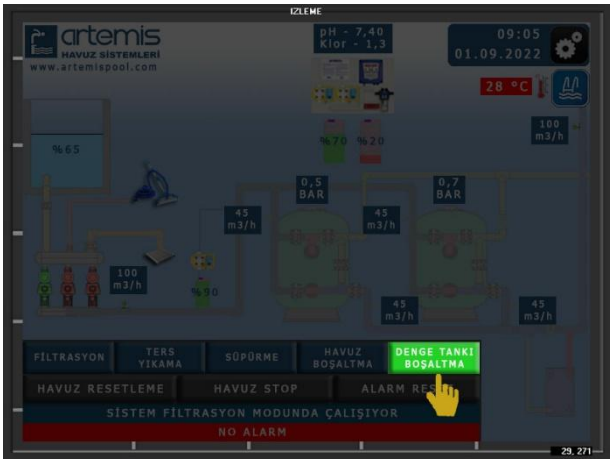
## POOL DRAINING

Press and hold the **DRAIN** button for 3 seconds to activ ate the system. The system first positions the motorized valves and then starts the pumps. Pump activation occurs within 30 seconds. Pumps will not operate until valve positions are correctly confirmed.




## BALANCE TANK DRAINING

Press and hold the **BALANCE TANK DRAIN** button for 3 seconds to initiate operation. The system follows the same sequence: valve positioning followed by pump activation within 30 seconds. Pumps will not start until correct valve positioning is verified.




## SYSTEM STATUS & FAULT INDICATOR

System operation and status can be monitored via the status bar on the interface. The fault indicator provides real-time information regarding the operation and positioning of pumps, filters, and motorized valves.

In the event of a general system fault, all valves, pumps, and filters are automatically switched to the OFF position. T he system remains inactive

until the issue is resolved. Once resolved, the operator can restart the system in the desired mode.

The automation system controls electrically operated equipment. Manual valves may require adjustment by the operator depending on operational needs.

**ADDITIONAL FEATURES**

- Pumps operate with an automatic alternation (equalization) system
- Motorized valve positions, pressure values, and flow rates can be monitored via the interface
- Pool chemical balance is maintained through the automatic disinfection system
- pH, chlorine, and Redox values can be monitored in real time