The Strantrol[®] MG/L 5 controller was specifically designed for the measurement and control of swimming pool water chemistry, including free available chlorine, ORP, pH conductivity and temperature. Its modular design accepts up to seven analyzer input modules expanding its control capability to include three fully programmable milliamp (mA) input modules. Measurement data, limit values and set points are shown on the graphic display as figures, bar graphs or trend lines. The sensors are easily calibrated with liquid standards allowing for quick calibration verification. The ChemWeb Server allows for easy communication with the controller via the Internet and/or a local Ethernet.

Design and Function

The Strantrol[®] MG/L 5 consists of the electronics, flow cell assembly, and the input modules:

The primary role of the electronics module is the process management and visualization of input data.

The controller inputs can include complete input modules for pH, free available chlorine, ORP, conductivity, pool circulation flow rate, system pressure and recirculation pump vacuum, as well as, three configurable digital inputs. Utilizing "Plug-and-Play" technology, the input modules are easily configured avoiding complicated configuration or programming. The controller outputs for metering pumps, pulse pumps, solenoids and electronic positioners can be easily configured in the set-up menu. The alarm contacts are fully programmable including multiple assignments of events such as general alarm for measured values and sample water flow failure.



Water Technologies

Strantrol[®] MG/L 5 Controller

Product Sheet

SIEMENS

Integral safety functions include safety shutdown in the case of circulating pump failure and/or supply tank empty alarm and sample water failure. The controller monitors feed times and feed time delays as a safety function. The flow cell assembly allows for the simultaneous installation of 4 sensors. Stable measurements are ensured by:

- Constant sample water flow via the incorporated flow control valve
- Quartz grit hydro mechanical cleaning of the chlorine sensors measuring electrodes.

The controller inputs for pH, ORP and conductivity are easily verified using liquid standard solutions, thereby providing additional peace of mind that the controller is calibrated correctly.

Benefits of the Strantrol[®] MG/L 5 Controller Include:

- Adaptation mode helps prevent chemical overfeed
- Backlit display for measured values, limit values and graphical trend lines.
- Self-cleaning PPM sensor
- Dynamic Chlorine-Redox Relationship (DCRR) calculation for control of UV and ozone systems (patent-pending)
- The ChemWeb server allows for easy communication with the controller via the Internet and/or a local Ethernet.
- Critical control inputs are easily calibrated with factory supplied liquid standards, allowing for easy and accurate calibration verification by anyone.



Retro-fitting sensor measuring module is simple and user-friendly

Electronic Module

Display:

Back-lit LCD graphic display Resolution 240 x 64 Pixel

Measuring inputs:

For sensor measuring modules 1x chlorine (free) 1x pH 1x ORP 1x conductivity*

Programmable inputs:

3x fully programmable milliamp Inputs* (These inputs can be utilized for pool flow, filter pressure etc.)

Integrated features:

1x temperature Pt 1000 1x feed rate display (feedback signal of positioner)

Digital Inputs:

1x digital input of sample water flow 1x external stop such as pool water circulation

1x freely selectable, for example controller stop; mode change-over, second set point or other control parameter

Output contacts:

Four fully selectable alarm contacts / general alarm signal as well as controller outputs for free chlorine, combined chlorine, pH-value, ORP, and conductivity Max. 115/230V @ 5/3 AMP

Special output contacts:

1x flocculent metering 1x Economic Mode for disinfectant feed* Each output contact is visualized by a signal LED 1x UV system control*

Analog outputs (optional):

4x 0/4...20 mA, fully configurable Resistive load £1000 Ohms Accuracy < 0.5% FS Galvanically isolated up to 50 V relative to earth

Interfaces:

RS232 for direct control of printer or configuration download or firmware update

RS485 for connection to

ChemWeb Server*

Infrared-interface for remote calibration via the Siemens P42 j-cal photometer

Power supply: 115/230 V ± 10%, 50/60 Hz, .25/.13A

Ambient temperature: 0...122°F (-18...50°C)

Enclosure: NEMA[®] 4X (IP 67)

Tests and Marks: UL® 61010 / CSA® / CE Listings

Weight (incl. Packing): 12.1 pounds (5.4 Kg)

Dimensions of electronics module (W x H x D):

12.6 x 12.2 x 6.9 inches (32 x 31 x 17.5 cm)

Flow Cell Module

The flow cell module is housed in a plastic enclosure. The **transparent** flow body provides a good visual check of all sensors used. **Up to 4 sensors**, pressurized or gravity drained can be installed.

The following components are integrated in the flow cell module:

Flow control valve:

- Controlled sample water flow: 9 GPH (34 LPH)
- Control range 3...58 psig (.2...4 bar) at valve inlet
- Maximum back pressure: From ambient up to 22 psig (1.51 bar) at valve outlet
- Maximum sample water temperature: 122°F (50°C)

"Multi-sensor":

- Monitoring of correct sample water flow switching point: 4.75 GPH ± 1 GPH (18 LPH) Hysteresis: 0.5 GPH (1.9 LPH)
- Measurement of sample water temperature by Pt 1000 sensor
- Protection against external electrical noise by a stainless steel sleeve (grounding of sample water)

Additional functions:

- Sample water valve
- Isolating valves at sample water inlet and outlet of the flow cell

- Ball check valve at sample water inlet
- Simple flow cell drain
- Integral bracket for sensor / buffer solution for calibrating the instrument

Sample water connections:

PVC tubing 3/8" or PE tubing 3/8"

Weight (incl. Packing): Approx. 4.4 pounds (2 Kg)

Dimensions (W x H x D): 8.5 x 14.8 x 6.1 inches

(21.6 x 37.6 x 15.6 cm)



Flow cell with flow control valve and Multi-Sensor

Display

The back-lit graphic display shows all parameters simultaneously. Their respective limit values are visualized by bar graphs. The measuring point's description (e.g. name of pool) can be entered in the display and is consequently maintained during the whole data logging and communication process. All measured data is continuously recorded. A line graphic (6-hour trend) gives an overview for up to 4 parameters over the past 7 days.



Economic Mode

he economic mode allows the controller to operate at a reduced set point as well as at a lower flocculent feed rate. The economic mode can be utilized when the pool is circulating but does not have a bather load present.

Integral Controller

The Strantrol[®] MG/L 5 controller operates according to specially developed control algorithms for the control of metering equipment.

Setting chlorine control parameters is automated via the "adaption" program sequence that analyzes pool hydraulics and sets up the feed proportioning accordingly. The feature eliminates time-consuming manual adjustments that can last several days. The program automatically computes optimized control parameters and thus ensures a high-quality control.

	Cl ₂	рН	mS
Electronic positioner without feedback signal	х	х	
Electronic position with feedback signal	х		
Solenoid diaphragm metering pump	х	х	х
Metering pump	х	х	х
Continuous positioners	х	х	

Feed Rate Display

Direct feed rate control of gas feeders can be achieved via a feedback system from the electronic positioners and their feed rate can be accurately indicated. Compensation is automatic.

Sensor Measuring Modules

A measuring module comprises of a sensor, a sensor cable and a pre-calibrated and tested card. The special cable is designed for a waterproof cable bushing.

Sensor Measuring Module for Free Chlorine:

Rugged 3-electrode chlorine sensor with integral electrolyte salt supply.

Potentiostatic 3-electrode amperometric system

Measuring range 0 to max 20 ppm, scale fully selectable

Resolution up to 20 ppm - 0.1 ppm

Temperature compensation 0-122°F (-18...50°C)

Sensor plug connection NEMA® 6x (IP 67)

Sensor Measuring Module for pH-value:

Measuring pH range is 0 to 14, scale fully selectable in 1.0 steps

pH Resolution 0.01

Temperature compensation 0 to $122^{\circ}F$ (-18...50°C)

Sensor plug connection NEMA® 6x (IP 67)

Sensor Measuring Module for ORP:

Measuring range 0 to 1000 mV, scale fully selectable in 100 mV steps

Resolution 1 mV

Sensor plug connection NEMA[®] 6X (IP 67)

Sensor Measuring Module for Conductivity:

Measuring 10, 20, 50 100 mS/cm

Resolution 0.1 mS/cm can be switched over to NaCl display in mg/l and %

Temperature compensation 0 to122°F (-18...50°C)

Sensor for Temperature:

With the integral Pt 1000 temperature sensor the temperature of the sample water is measured and used for the temperature compensation of the chlorine and pH-value measurement.

Measuring range 0 to 122°F (-18...50°C)



Sensor with measuring module for free chlorine

Optional Connectors

ChemWeb Server

Simple connection to Web technology via the **Siemens** ChemWeb Server. Complete display and operation of the Strantrol[®] MG/L 5 controller via pre-defined Internet pages.

Support Services

On-site Service Annual Service Contract Special Financing Programs

General Information

Operation / Installation Manual Strantrol[®] MG/L 5 Controller Specification

Warranty

24 months on Strantrol[®] MG/L 5 Controller 12 months on Sensor



Dedicated Service Professionals

You get top-quality service for your new Strantrol[®] water chemistry control system from your local, factory-authorized service professional.

Our factory-trained technicians are certified commercial recreational water sales and service providers, respected throughout the world. They are dedicated to providing solutions for recreational water facilities through state-ofthe-art technologies and ongoing support.

All technicians service every product they sell and provide education and training to help you get the most from your system.

All our technicians regularly attend meetings and seminars around the world to keep up with the latest technologies in recreational water facility construction, chemistry, design, equipment selection, and performance. They work closely with a community of experts including health department officials, design consultants, competitive coaches and recreational leaders.

Cumulative experience with thousands of commercial recreational water facilities gives our technicians a bank of ideas unrivaled in the industry.

Standards & Certifications

Strantrol[®] controllers exceed the highest industry standards in the United States and abroad. Standards include UL[®], CSA[®], FCC, OSHA, and the newest European standard, CE.

Siemens Aquatic Quality Products

The Strantrol[®] MG/L 5 controller is part of a full line of Siemens Water Technologies commercial pool and spa products. These include acid-free pH control systems and other water chemistry controllers.

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