HYDROGUARD® HG-302 TurbiPlus®

3-in-1 Colorimetric Analyzer & Multi-Parameter System

Take your pool a step ahead in water quality, health and safety

Free chlorine / Total chlorine / Combined chlorine / Turbidity
Measured on one sample for accuracy and reliable monitoring

Customized Multi-Parameter System

HYDROGUARD® HG-302 TurbiPlus® brings lab-test accuracy to online monitoring and control for swimming pools, sea water pools and thermal pools. Free and total chlorine are measured using the proven colorimetric DPD chemistry that is not affected by pH changes or stabilizers. Multi-angle nephelometry white light (90°) turbidity measurement is performed on the same water sample for higher precision and control.

A combination of additional measurements is available in the same system: pH, ORP, temperature, flow.

Reliable Communication

Wireless communication allows for remote alarm monitoring and control, increasing safety and reducing site visits.

HG-302 TurbiPlus® parameters and alarms can be viewed from any Internet connection or mobile phone.

Proven Results: Constantly Clear Water

Based on HYDROGUARD®'s proven platform, the HG-302 is performing successfully in thousands of pools around the world. HG-302 TurbiPlus® provides the best monitoring and control with fast response time. Featuring ready-to-measure operation immediately upon setup or following electrical shutdown.

Reduced Total Cost of Ownership

Minimize maintenance visits: Self-calibration, self-cleaning and long-term stabilization.

HG-302 TurbiPlus® provides efficient control and optimization of filters as well as longer maintenance intervals. Detailed maintenance reminders and alarms provide useful information on events, timing and causes, so that pool personnel can respond effectively.

- **Accurate and reliable measurements**
- **Multiple parameters in a single system**
- **Free and/or total chlorine: 0-10 ppm**
- **Turbidity: 0-20 NTU**
- **Configurable measurement interval (2 to 10 minutes)**
- **Low reagents (DPD) consumption (~0.03 ml/sample)**
- **Automatic zero calibration measurement before each reading, enables "0" reading**
- **Reagent mixing, sample de-bubbling and cell cleaning are all performed by one unit**
- **Dependable in varying pool environments (swimming pools & spas, sea water, thermal pools)**

Your Water Quality Partner

Automated monitoring and dosing saves chemicals

HYDROGUARD® HG-302 TurbiPlus® SPECIFICATIONS

MECHANICAL DATA	
Dimensions (controller) (W x H x D)	670 x 330 x 130mm (26.4" x 13" x 5.1")
Dimensions (mounting board)	800 x 550 x 5 mm (31.5" x 21.7" x 0.2")
Cable fittings	Pg 7 cable glands
Max. ambient temperature	2°C to 50°C (35.6°F to 122°F)
Weight approx.	11 kg (24 lbs)
ELECTRICAL CONNECTION	
Power supply	100-115 VAC/1A; 200-230 VAC/0.5A; 50Hz/60Hz
Power consumption	Approx. 60 VA
Power supply for RTC	3.6V lithium battery
DATA SERIAL OUTPUT / SIGNAL OUTPUT	
RS 485	Standard half-duplex
RELAYS	
Chlorine set point 1	250VAC/DC 4A Max
Chlorine set point 2	250VAC/DC 4A Max
pH	250VAC/DC Max
Turbidity control	250VAC/DC 4A Max
General alarm	250VAC/DC 4A Max
Temperature control	250VAC/DC 4A Max
DISPLAY	
Measured value displays	Chlorine, pH, ORP, Temperature, Turbidity, Flow*, Total chlorine*, Combined chlorine*
Function indicator	Auto, off/on mode for chlorine pH and dosing indication by red and green LEDs
2 line 24 character LCD with background light For secondary parameters, program alarms and status	
2 x 7 segment red display 3 digits	For Chlorine and pH
CHLORINE MEASUREMENT	
Measurement	Free and/or Total chlorine and Combined chlorine
Sensor	Colorimetric sensor
Cell cleaning	Automatic self-cleaning mechanism (patent)
Mixing technology	Inner solenoid activated active mixer (patent)
Measurement range	0 to 10ppm
Measuring Interval	2 to 10 minutes using the adaptive measurement™ method
Max. inlet Operating Pressure	1 bar (14.5 psi)
Flow rate colorimetric cell	3 to 12 LPH @ 1bar (0.75 to 36 GPH @ 14.5 psi)
Working Temperature	1°C to 45°C (33.8°F to 113°F)
Colorimeter body material	PP
REAGENTS	
Reagent type	DPD1, DPD3, DPD4
Reagent consumption	Min ~0.033 ml per sample
Shelf life	Unmixed DPD1 &DPD4 3 years, DPD3 15 months Mixed: Recommended 60 days

*Optional Feature

TURBIDITY MEASUREMENTS	
Sensor	White light nephelometry (90° and 180°)
Measuring range	0 to 20 NTU
Accuracy	2-4% FS
Resolution	0.01
Bubble removal	Automated internal mechanism
Cell cleaning	Automated internal mechanism
pH MEASUREMENT	
Measurement Range	4 to 10
Sensor	Ceramic diaphragm and gel filling
Input impedance	0.5 . $10^{12}\Omega$
ORP (REDOX) MEASUREMENT	
Measurement range	0 to 900mv
Sensor	Ceramic diaphragm and gel filling
TEMPERATURE MEASUREMENT*	
Sensor	PT-100
Measuring range	0°C to 50°C (32°F to 122°F)
MEASURING CELL	
Working temperature	1°C to 45°C (33.8°F to 113°F)
FLOW REQUIREMENTS	
Measuring cell flow rate	35L/h - 60l/h
Inlet pressure	0.3 bar (4.4 psi) to 1 bar (14.5 psi)
Outlet pressure closed cell	Up to 0.9 bar (13 psi)
Flow switch type	Rotary switch
FLOW MEASUREMENT	
Frequency input or 4-20mA input	via I/O card via NTU card
Measurement range	0-1,000 m3/hour
pH VALUE CONTROL	
Control function	Proportional or On/Off
Characteristics	Normal / Inverted
Relay function	Pulse length proportional controller Pulse frequency proportional controller
CHLORINE CONTROL #1	
Control function	Proportional or On/Off
Proportional band	Yes
Relay function	Pulse length proportional controller Pulse frequency proportional controller
CHLORINE CONTROL #2	
Control function	On/Off
Proportional band	No
Integral action time	No
DATA LOGGER	
Memory	256 Kbit
Lines	1000
Recording interval	1-360 min
Event logger	Yes
Total relay on time	Yes
SECURITY	
Operation password	Yes
Technician password	Yes

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