



HI 21 • HI 22

Advanced Wall-Mounted pH and ORP Controllers

- Computer compatibility
- Alarm relay
- ON/OFF, proportional & PID control
- Automatic Temperature Compensation
- Rugged, fiber-reinforced, ABS housing.



Advanced Microprocessor-based industrial controllers for optimal performance.

Our new line of industrial controllers offers a wide range of features and functions such as single and dual setpoints, ON/OFF, proportional and PID control, relay outputs, user-selectable zoom, bidirectional isolated RS485, isolated recorder outputs in mAmps and volts, differential input, control through analog output and Fail Safe Features.

Simple-to-use

The large, dual-level LCD shows both pH (mV) and temperature and guides operators through calibration and programming with step-by-step prompts. The choice of ON/OFF, proportional and PID control provides extra versatility and makes it possible to pick the process controller that best fits your application. Keeping track of multiple controllers in different plants is made easy. These advanced controllers can be identified with both a factory and a process ID.

Save Money with Custom Programs

The new HI 21 and HI 22 help to prevent overdosing or costly system failures. You can set your high and low setpoint hysteresis bands independently to fine tune dosing processes with the ON/OFF controllers. Similarly, the proportional band and time period are user-programmable to save on slow reacting chemicals which are commonly overdosed.

All models offer an adjustable timer from 10 minutes to 7 days as the maximum time that

the relay contacts may remain closed, an important feature in case of sudden chemical depletion, truncated intake or discharge tubing and other calamities. With these silicon guardians, users can rest assured that processes are operating efficiently and safely.



Fail-Safe Protection

The Fail-Safe alarms protect processes against critical errors arising from power interruptions, surges and human errors. The sophisticated yet easy-to-use system resolves these problems on two fronts: hardware and software. To eliminate blackout and line failure problems, the alarm function operates in a "Normally Closed" state and goes off if the wires are accidentally tripped, or when the power is down. This is an important feature since with many meters the alarm terminals close in abnormal situations, but no alarm is sounded with a line interruption,

causing extensive damage. With our controllers, software is employed to set off the alarm in abnormal circumstances. For example, if the dosing terminals are closed too long (as with line interruption), red LED's will also provide a visual warning signal.

Control through Analog Output

The HI 21 and HI 22 series include models that provide control through analog output. Now any compatible device such as electrovalves or pumps may be driven with these advanced controllers.

Differential Input

All Hanna controllers in this family now come with a differential input to prevent problems due to ground loop current. With this new feature, the life of the electrodes will be greatly extended.

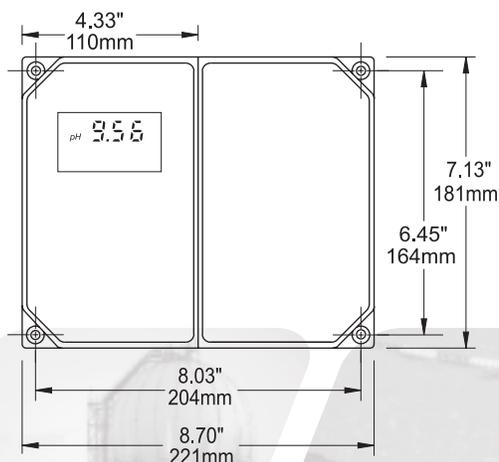
PID Control

HI 21 and HI 22 can be configured with P, PI or PID controlling. This feature allows the user to set the controller according to the needs of the application, ensuring the best system performance in terms of steady state error and response time to changes.

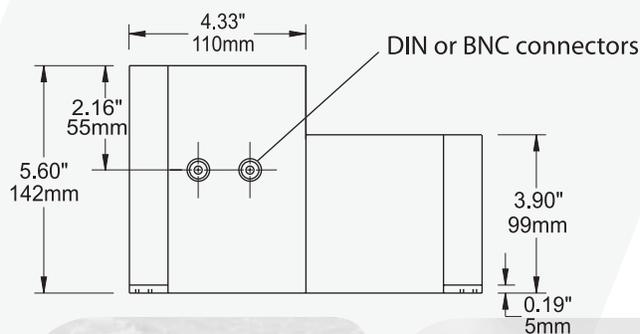
Password Protection

Hanna's password protection feature keeps these controllers safe from tampering. Only users with the proper password can change the settings of these hi-tech controllers.

General Dimensions for HI 21 and HI 22



Front View



The modular design isolates electrical connections in a closed compartment while the control settings are accessible and can be made through the adjacent compartment.

Side View



Advanced pH Controller

HI 21 controllers are simple-to-operate, microprocessor-based process meters packed with features. For more flexibility and better resolution for chart recorders, any two points between 0 and 14 pH can be chosen to correspond to the analog output spans. Some HI 21 models are equipped with a bi-directional RS485 port. Push-button password programming prevents tampering. The microprocessor memory is fully programmable and has 3 months backup power supply. The Fail-Safe Alarm system protects the HI 21 against the pitfalls of process control, like power interruption or line failure. With HI 21 quick 1, 2 or 3 point calibration at pH 4.01, 7.01 and 10.01 comes standard. The temperature can be manually or automatically compensated for. Models with RS485 output allow computer compatibility, a necessity for process control instrumentation. You can also choose from ON/OFF, Proportional and PID control to save on chemicals.



Advanced ORP Controller

HI 22 controllers have been engineered with the same outstanding features as the HI 21 meters. The microprocessor memory is fully programmable and has a 3-month backup power supply. The Fail-Safe Alarm system protects these meters against the pitfalls of process control. User-selectable timing capability safeguards against overdosing and saves money while protecting the environment. These instruments have a differential input, extending electrode life by eliminating ground loop current through the reference. Users can choose between ON/OFF and Proportional control as well as selectable current and voltage outputs. For more flexibility and better resolution for chart recorders, choose any two points between 0 and 2000 mV to correspond to the analog output spans. An RS485 port makes one model PC compatible. Wiring the controllers is simple with extractable terminal modules. A host of self-testing features and user-friendly functions make HI 22 a great value.

Specifications	HI 21	HI 22
Range	0.00 to 14.00 pH/-9.9 to 120°C	±2000 mV/-9.9 to 120°C
Resolution	0.01 pH/0.1°C	1 mV/0.1°C
Accuracy (@20°C/68°F)	±0.02/±0.5°C	±2 mV/±0.5°C
Typical EMC Deviation	±0.05 pH/±1.0°C	±4 mV/±1.0°C
Calibration	1, 2, or 3 points at pH 4.01, 7.01, and 10.01	At 0 and 350, or 1900 mV
Temp. Compensation	Automatic (with Pt100) or manual from -9.9 to 120°C	
Readout	4 1/2 digit dual-level LCD with graphic symbols and messages	
Outputs	Digital: RS485 bi-directional opto-isolated; or Analog: galvanically isolated 0 to 1 mA, 0 to 20 mA, and 4 to 20 mA (max resistive load 1KΩ), 0 to 5VDC, 1 to 5VDC, and 0 to 10VDC (min. resistive load 1KΩ)	
Setpoint Relay(s)	1 or 2: SPDT contact outputs, 5A-250VAC, 5A-30VDC (resistive load). Fuse protected: 5A, 250V fast fuse	
Alarm Relay	Electromechanical relay SPDT contact output, 5A-250VAC, 5A-30VDC (resistive load). Fuse protected: 5A, 250V fast fuse	
Power Consumption	15 VA	
Max. Oscillation Frequency	4 MHz	
Over Current Protection	400 mA, 250V, fast fuse	
Environment	32 to 122°F (0 to 50°C); max. RH 85% non-condensing	
Power Supply	230V ±10%VAC; 50/60Hz or 115V ±10%VAC; 60 Hz	
Enclosure	Fiber-reinforced, self-extinguishing ABS with IP 54 protection. 181L x 221W x 142H mm (7.1L x 8.7W x 5.6H")	
Weight	3.1 lb. (1.4 Kg)	

Ordering Information

- HI 21111 pH Controller with single setpoint, ON/OFF control and analog output.
- HI 21211 pH Controller with dual setpoint, ON/OFF control and analog output.
- HI 21221 pH Controller with dual setpoint, proportional and ON/OFF control with analog output.
- HI 21222 pH Controller with dual setpoint, proportional and ON/OFF control with RS485 output.
- HI 21523 pH Controller with single setpoint, control through analog output, PID and ON/OFF control with analog and RS485 output.
- HI 22111 ORP Controller with single setpoint, ON/OFF control and analog output.
- HI 22122 ORP Controller with single setpoint, proportional and ON/OFF control and RS485 output.

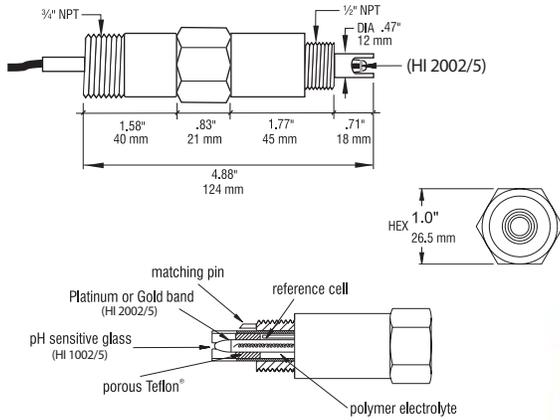
Recommended Accessories

- HI 6101405 Amplified Flat-tip combination pH electrode with matching pin, 5 m (16.5') cable, & BNC connector
- HI 6200405 Amplified Flat-tip platinum combination ORP electrode with matching pin, 5 m (16.5') cable, & BNC connector
- HI 1002/5 Combination pH electrode with 16.5' (5 m) cable
- HI 2002/5 ORP Pt electrode with 16.5' (5 m) cable
- HI 5001/5 Stainless steel Pt100 probe
- HI 7004L pH 4.01 buffer solution, 500 mL
- HI 7007L pH 7.01 buffer solution, 500 mL
- HI 7010L pH 10.01 buffer solution, 500 mL
- HI 7020L ORP testing solution 200/275 mV, 500 mL
- HI 7091L Reducing solution, 500 mL
- HI 7092L Oxidizing solution, 500 mL
- HI 70300L Storage solution, 460 mL
- HI 8427 pH and ORP electrode simulator
- HI 931001 pH and ORP electrode simulator

Hanna Solutions are available in different sizes to fit any application.

HI 1002/5 • HI 2002/5
Combination pH & ORP electrodes

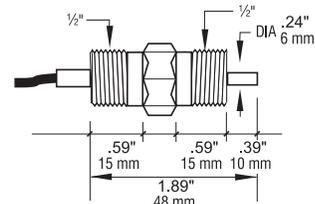
Quality electrodes for high pressure industrial applications.



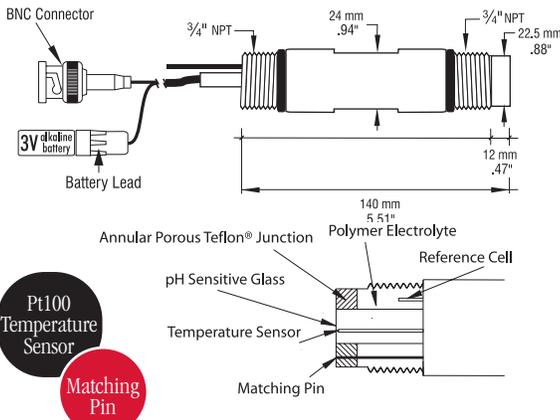
Specifications		HI 1002/5 (pH) • HI 2002/5 (ORP)
Reference System		
Junction Type	Double Teflon®	
Electrolyte	Polymer	
Temperature	23 to 176°F (-5 to 80°C)	
Max Pressure	87 psi (6 bar)	
Lead		
Connector	BNC	
Cable	16.5' (5 m)	



HI 5001/5
Stainless Steel Pt 100 probe



HI 6101405
Amplified combination flat-tip pH electrode

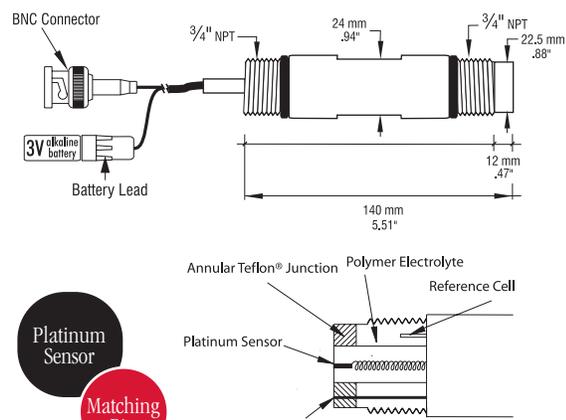


Pt100
 Temperature
 Sensor
 Matching
 Pin



Specifications		HI 6101405
Reference System		
Junction Type	Double Teflon®	
Electrolyte	Polymer	
Temperature	-5 to 80°C	
Max Pressure	87 psi (6 bar)	
Lead		
Connector	BNC	
Cable	16.5' (5 m)	

HI 6200405
Amplified combination flat-tip platinum ORP electrode



Platinum
 Sensor
 Matching
 Pin



Specifications		HI 6200405
Reference System		
Junction Type	Double Teflon®	
Electrolyte	Polymer	
Temperature	-5 to 100°C	
Max Pressure	87 psi (6 bar)	
Lead		
Connector	BNC	
Cable	16.5' (5 m)	

Authorized Distributor:

