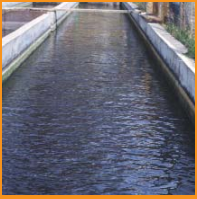


# Panel Mount pH, ORP & Conductivity Controllers

**The Hanna line of controllers have been designed to give outstanding performance with the latest innovative technology. Hanna controllers are precise, rugged, easy-to-use, economical and reliable.**



ISO 9001 Certified



**1 Stop Shopping**  
for All Your Water Treatment Needs

**HANNA**  
instruments  
Water Analysis & Control Division

# Panel Mounted Controllers

...complex sophistication coupled with user-friendly simplicity.

## Hanna pH, ORP & Conductivity/TDS in-line process controllers

Recalls the calibration data to insure accuracy and compliance with procedures

Displays the various parameters and returns to normal operation mode

A 4-digit password protects the setup parameters to prevent tampering

Simple automatic calibration and temperature compensation with visual prompts

Hi-tech microprocessor puts a host of variables at your disposal to fine tune your process, save on chemicals and meet regulatory requirements

17 mm high 4 1/2 digit primary display visible from a distance

10 mm high 3 1/2 digits secondary display showing temperature or calibration data

Fixed or intermittent red, green and yellow LED's signal status from a distance

CFM key confirms calibration data and acts as the ENTER key



The Hanna line of industrial microprocessor-based controllers offer a multitude of possibilities such as single and dual setpoints, ON/OFF, proportional and PID control, relay outputs, user-selectable zoom, bidirectional isolated RS 232, 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) or EC/TDS and temperature, it 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 process ID.

### 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 most 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 and in both cases, red LED's will also provide a visual warning signal.

### Save Money with Custom Programs

The pH 500, mV 600 and HI 700 series of controllers put a host of parameters at your disposal 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. These advanced series of controllers also include models featuring PID (Proportional Integrative Derivative) control. The instrument can be set to P, PI and PID to suit your application.

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.

### Galvanically Isolated Outputs with Zoom

Some models incorporate hardware selectable isolated current or voltage output. These can drive auxiliary devices, chart recorders and provide remote monitoring. Users can also zoom on to any 2 points from the full measurement scale. These lines of industrial controllers include models that provide control through analog output. Now any compatible device such as electrovalves or pumps may be driven with these advanced controllers.

### 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.

# pH 500 Series

...state-of-the-art pH controllers.



## pH 500 pH Controllers

The pH 500 series controllers with its microprocessor technology are highly sophisticated yet easy to use. A 34-level program menu offers standard features such as password protection, control relay enabling/disabling, high/low setpoint and adjustable hysteresis for custom control. The 500 series controllers have a 4-20 mA output with a zoom function to allow better resolution on any two points between 0 and 14 pH. The fully programmable microprocessor comes complete with a 3 month back-up power supply to maintain all setpoint and parameters during power interruptions. Easy 1, 2, or 3 point calibration using pH buffers 4.01, 7.01, and 10.01 ensure accuracy and reliability. An additional standard feature of the 500 series is a differential circuit which eliminates ground loops from the process being monitored and significantly extends the life of the electrode.

- **Fail Safe Alarm System**
- **Fully Programmable Microprocessor Memory**
- **3 Month Back-up Power Supply**
- **Simple Wiring with Removable Terminal Modules**

### Options Available:

- **PID Control**
- **RS232 Output**
- **Solid State Relays**
- **Analog Output for Pump Control**
- **Models Available with 230V Power Supply**

### SPECIFICATIONS

Model	pH 500111	pH 500121	pH 500211	pH 500221
Range	0.00 to 14.00 pH / -9.9 to 120°C			
Resolution	0.01 pH / 0.1°C			
Accuracy (@20°C/68°F)	±0.02 pH / ±0.5°C			
Typical EMC Deviation	±0.02 pH / ±0.5°C			
Input	High Impedance 10 <sup>12</sup> ohm			
Calibration	1, 2 or 3 points at pH 4.01, 7.01 and 10.01			
Temp. Comp.	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	Analog: galvanically isolated 0 to 1 mA, 0 to 20 mA & 4 to 20 mA (max. resistive load 1 KΩ), 0 to 5 VDC, 1 to 5 VDC and 0 to 10 VDC ( min. resistive load 1 KΩ)			
Setpoint Relay(s)	1 SPST NO contact output 5A-250 VAC, 5A-30 VDC (resistive load)	1 SPST NO contact output 5A-250 VAC, 5A-30 VDC (resistive load)	2 SPST NO contact outputs 5A-250 VAC, 5A-30 VDC (resistive load)	2 SPST NO contact outputs 5A-250 VAC, 5A-30 VDC (resistive load)
Dosage	ON/OFF control	Proportional control	ON/OFF control	Proportional control
Power Supply	115V ±10% VAC; 60 Hz			
Environment	32 to 122°F (0 to 50°C); max RH 85% non-condensing			
Dimensions	1/2 DIN 5.7 x 5.7 x 6.7" (144 x 144 x 170 mm)			
Panel Cutout	5.5 x 5.5" (140 x 140 mm)			
Weight	3.5 lb. (1.6 Kg)			

### Ordering Information

HI 500111 .....pH controller with single setpoint, ON/OFF control and analog output.  
 HI 500121 .....pH controller with single setpoint, proportional control and analog output.  
 HI 500211 .....pH controller with dual setpoints, ON/OFF control and analog output.  
 HI 500221 .....pH controller with dual setpoints, proportional control and analog output.

### Accessories

HI 1002/5 .....pH electrode with 16.5' (5 m) cable  
 HI 1003/5 .....pH electrode with matching pin (for grounding) with 16.5' (5 m) cable



## mV 600 ORP Controllers



The mV 600 series controllers with their microprocessor technology are highly sophisticated yet easy to use. A 34 level program menu offers standard features such as password protection, control relay enabling/disabling, high/low setpoint, and adjustable hysteresis for custom programming control. The 600 series controllers have a 4-20 mA output with a zoom function to allow better resolution on any two points between the 0 and 2000 mV. The fully programmable microprocessor comes complete with a 3 month back-up power supply to maintain all setpoint and parameters during power interruptions. Easy 1 or 2 point calibration at 0, 350 and 1900 mV ensures accuracy and reliability. An additional standard feature of the 600 series is a differential circuit which eliminates ground loops from the process being monitored and significantly extends the life of the electrode.

- **Fully Programmable Microprocessor Memory**
- **3 Month Back-up Power Supply**
- **Fail Safe Alarm System**
- **Simple Wiring with Removable Terminal Modules**

### Options Available:

- **PID Control**
- **RS232 Output**
- **Solid State Relays**
- **Analog Output for Pump Control**
- **Models Available with 230V Power Supply**

### SPECIFICATIONS

Model	mV 600111	mV 600121
Range	-2000 to 2000 mV	
Resolution	1 mV	
Accuracy (@20°C/68°F)	±2 mV	
Typical EMC Deviation	±30 mV	
Input	High Impedance 10 <sup>12</sup> ohm	
Calibration	At 0 and 350 or 1900 mV	
Readout	4 1/2 digit dual level LCD with graphic symbols and messages	
Outputs	Analog: galvanically isolated 0 to 1 mA, 0 to 20 mA & 4 to 20 mA (max. resistive load 1 KΩ), 0 to 5 VDC, 1 to 5 VDC and 0 to 10 VDC ( min. resistive load 1 KΩ)	
Setpoint Relay	SPST NO contact output 5A-250 VAC, 5A-30 VDC (resistive load)	
Dosage	ON/OFF control	Proportional control
Power Supply	115V ±10% VAC; 60 Hz	
Environment	32 to 122°F (0 to 50°C); max RH 85% non-condensing	
Dimensions	1/2 DIN 5.7 x 5.7 x 6.7" (144 x 144 x 170 mm)	
Panel Cutout	5.5 x 5.5" (140 x 140 mm)	
Weight	3.5 lb. (1.6 Kg)	

### Ordering Information

HI 600111 .....ORP controller with single setpoint, ON/OFF control and analog output.  
 HI 600121 .....ORP controller with single setpoint, proportional control and analog output.

### Accessories

HI 2002/5 .....ORP Pt electrode with 16.5' (5 m) cable  
 HI 2003/5 .....ORP Pt electrode with matching pin (for grounding) with 16.5' (5 m) cable



## HI 710 Conductivity & TDS Controller

The HI 710 conductivity and TDS controller offers state-of-the-art technology for your process control. The HI 710 can be configured for ON/OFF, Proportional, PI or PID control. Thanks to Hanna's exclusive technology, they can be customized to best fit your application. A menu driven display aids the user throughout the operations with running messages and clear prompts. All relevant parameters can be simply adjusted and will remain memorized until overwritten. Bright LED lights show the current status even from a distance. With self-diagnostic features and extractable terminals, installation and maintenance are rapid and simple. Password protection guarantees that the calibration and predetermined parameters cannot be altered unnecessarily. The controllers can operate with 4-ring probe or 4-20 mA signal. They accept probes with or without a built-in Pt 100 temperature sensor. HI 710 monitors and controls both conductivity and TDS. If you only need conductivity or TDS, then order HI 700 or HI 705, respectively.

- **Accurate, Reliable and Simple-to-install**
- **Extensive Range for Both Conductivity and TDS**
- **Completely Programmable Through Menu Driven Display**
- **Selectable Isolated Output in mAs and Volts**
- **On/Off, Proportional, PI and PID Controls**
- **Automatic or Manual Temperature Compensation**

### SPECIFICATIONS

Model	HI 710	
Range	$\mu\text{S}$	0.0 - 199.9/0 to 1999
	mS	0.00 to 19.99/0.0 to 199.9
	ppm	0.0 to 100.0/0 to 1000
	ppt	0.00 to 10.00 ppt/0.0 to 100.0
	$^{\circ}\text{C}$	-10.0 to 100.0 $^{\circ}\text{C}$
Resolution		0.1/1 $\mu\text{S}$ ; 0.01/0.1 mS; 0.1/1 ppm; 0.01/0.1 ppt; 0.1 $^{\circ}\text{C}$
Accuracy (@20 $^{\circ}\text{C}$ /68 $^{\circ}\text{F}$ )		$\pm 0.5\%$ F.S. (cond. & TDS); $\pm 0.5^{\circ}\text{C}$ (0 to 70 $^{\circ}\text{C}$ ); $\pm 1^{\circ}\text{C}$ (outside)
Typical EMC Deviation		$\pm 2\%$ F.S. (cond. & TDS); $\pm 0.5^{\circ}\text{C}$
Calibration		Automatic or manual single point
Temp. Comp.		Automatic (with Pt100) or manual from -10 to 100 $^{\circ}\text{C}$ with coeff. from 0.00 to 10.00%/ $^{\circ}\text{C}$
TDS Ratio		Adjustable from 0.00 to 1.00
Display		Dual level LCD with graphic symbols and messages
Output		Analog: isolated 0 to 1 mA, 0 to 20 mA and 4 to 20 mA (max. resistive load 1K $\Omega$ ) 0 to 5 VDC, 1 to 5 VDC and 0 to 10 VDC (min. resistive load 1 K $\Omega$ )
Analog Input		4 to 20 mA
Set Relay		2 SPDT 5A-250 VAC contact outputs, 5A-30 VDC (resistive load)
Alarm Relay		SPDT 5A-250 VAC contact outputs, 5A-30 VDC (resistive load)
Power Supply		115V $\pm 10\%$ or 230V $\pm 10\%$ VAC; 50/60 Hz
Environment		32 to 122 $^{\circ}\text{F}$ (0 to 50 $^{\circ}\text{C}$ ); max. RH 85% non-condensing
Dimensions		1/2 DIN 5.7 x 5.7 x 6.7" (144 x 144 x 170 mm)
Panel Cutout		5.5 x 5.5" (140 x 140 mm)
Weight		3.5 lb. (1.6 Kg)

### Ordering Information

HI 710 .....EC and TDS controller, double setpoint, ON/OFF and PID control, analog output.

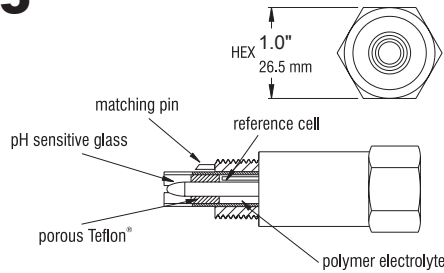
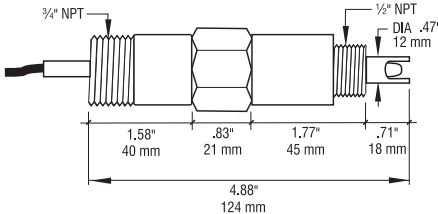
### Accessories

HI 3011 .....Flow-thru, 4-ring conductivity probe with platinum sensor + 10' (3 m) cable  
 HI 7639 .....Cond./TDS Pt100 probe + 10' (3 m) cable  
 HI 5001/5 .....Steel Pt100 probe

# Electrodes

...quality electrodes for high pressure industrial applications.

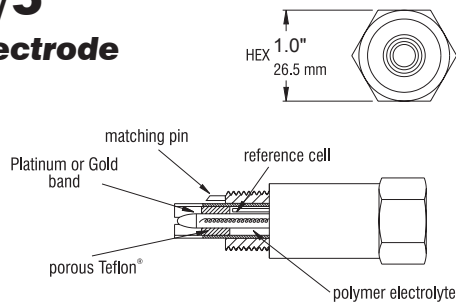
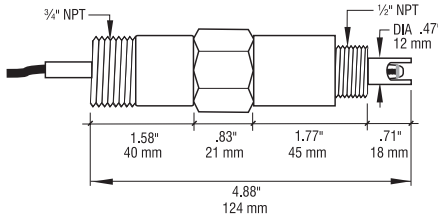
## HI 1002/5 • HI 1003/5 Combination pH Electrode



### SPECIFICATIONS

Model	HI 1002/5 • HI 1003/5
Reference System	
Junction	Double
Type	Teflon®
Electrolyte	Polymer
Temperature	23 to 176°F (-5 to 80°C)
Max. Pressure	6 bar (87 psi)
Lead	
Connector	BNC
Cable	16.5' (5 m)

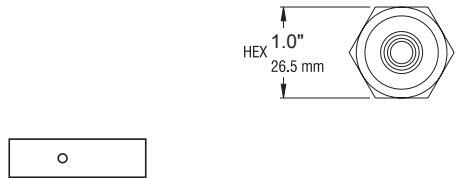
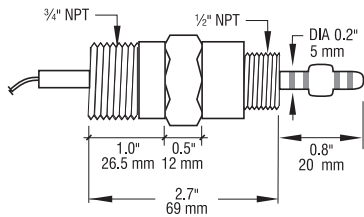
## HI 2002/5 • HI 2003/5 Combination ORP Platinum Electrode



### SPECIFICATIONS

Model	HI 2002/5 • HI 2003/5
Reference System	
Junction	Double
Type	Teflon®
Electrolyte	Polymer
Temperature	23 to 176°F (-5 to 80°C)
Max. Pressure	6 bar (87 psi)
Lead	
Connector	BNC
Cable	16.5' (5 m)

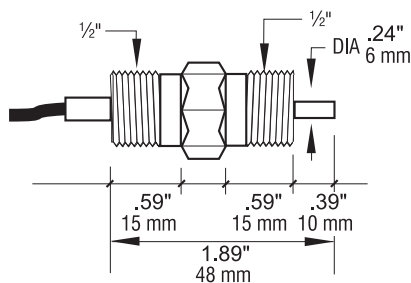
## HI 3011 Flow-thru Conductivity Probe



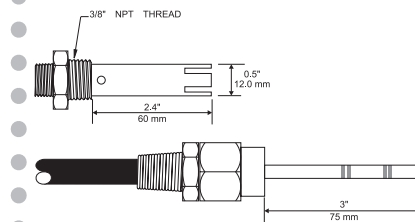
### SPECIFICATIONS

Model	HI 3011
Body Material	Ultem®
Working Temperature	32 to 176°F (0 to 80°C)
Max. Pressure (@25°C/77°F)	6 bar (87 psi)

## HI 5001/5 Stainless steel Pt 100 probe



## HI 7639 Submersion/in-line conductivity probe



### SPECIFICATIONS

Model	HI 7638
Temp. Comp.	Automatic 32 to 122°F (0 to 50°C)
Body Material	Ultem®
Working Temperature	32 to 248°F (0 to 120°C)
Max. Pressure (@25°C/77°F)	5 bar (72.5 psi)

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For more information contact: Clarkson Laboratory Inc.  
350 Trousdale Drive Chula Vista, CA 91910  
Phone 619-425-1932 • Fax: 619-425-7917  
email: [sales@clarksonlab.com](mailto:sales@clarksonlab.com) • [www.clarksonlab.com](http://www.clarksonlab.com)