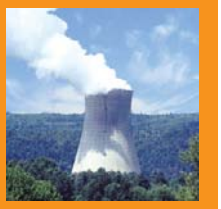
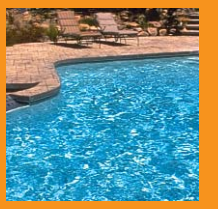
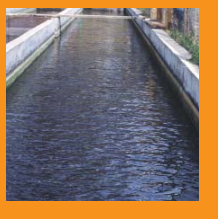






Panel Mount pH, ORP & Conductivity Controllers

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

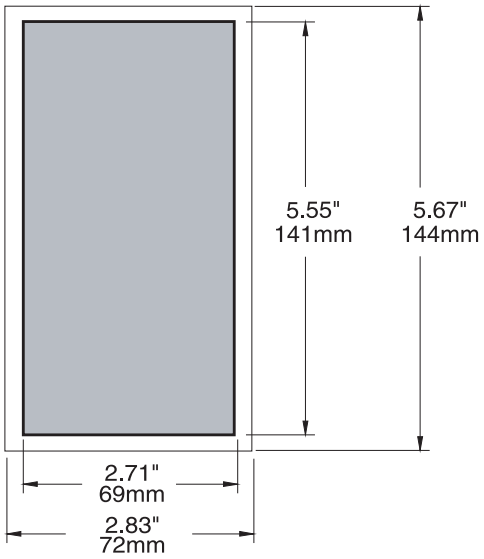
HANNA instruments
Water Analysis & Control Division

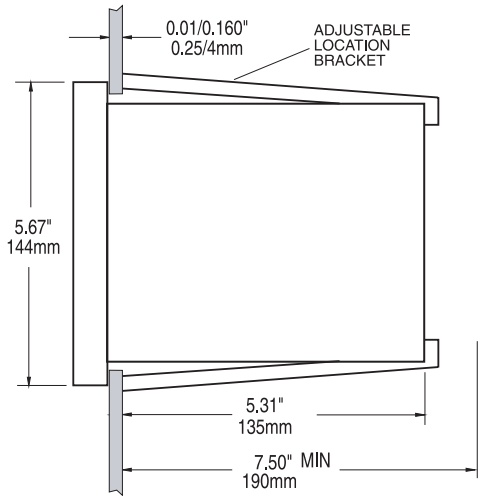
Panel Mounted Controllers

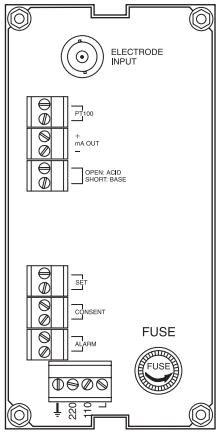
...technical superiority.

General dimensions panel mounted controllers:

Front view of the panel-mounted indicator. Dimensions show the cutout size for installation and also the outside dimensions of the indicator panel.







TECHNICAL SUPERIORITY

Hanna panel mount pH, ORP and Conductivity controllers are designed to meet your most demanding process control requirements. Standard features include calibration and self diagnostic from the front panel touch pad, 4-20 mA output, 2 amp 240 volt dry-contact control relay (controllers only) and a large LCD display. When applications require a long distance between the sensor and controller, a controller with a 4-20 mA input from a transmitter is available.

The controllers utilize a sophisticated built in self-diagnostic function that allows operators to check whether a malfunction originated in the controller or from an outside connection. This unique self-diagnosis system saves troubleshooting time and costly process interruptions.

ALARM FEATURES

Hanna controllers incorporate an additional 2 amp 240 volt dry contact relay to provide alarm warning capabilities. When the solution being monitored passes the setpoint value of the control relay, this second relay will trigger and activate a customer supplied device such as an alarm, light or a process emergency shut down contact. The alarm feature is necessary when an installation is in a remote location and corrective action must be taken immediately.

RECORDER OUTPUT

The ability to record data from the process you are monitoring greatly enhances process troubleshooting. By simply connecting a recorder to the controller's output terminals (choose between 0 to 20 mA or 4 to 20 mA according to your needs), you are able to acquire a hard copy for demonstrative or analytical purposes.

LOW OR HIGH IMPEDANCE INPUT

Hanna's pH and ORP controllers come in two different models to meet all requirements. The "E" model, has a high impedance 10^{12} Ohm direct input from an electrode. Ideal for connections with a distance of up to 33 feet (10 meters). The "T" model, however, is recommended for distances greater than 33 feet (10 meters) and should be used with a 4 to 20 mA transmitter. The greater the distance between the controller and the sample, the greater the chance you have of line noise causing erroneous readings. Using a transmitter greatly enhances the input signal, thus allowing high accuracy at distances of up to 1000 feet (300 meters).

CONSENT FEATURE

The consent contact allows you to be sure that the ORP dosing occurs only when the pH value is correct. This assures that the pH is within a specified range before any dosing of oxidizing or reducing agents occurs. This will prevent any overdosing of chemicals, a very important cost-effective feature in many applications, especially in pools, spas and hot tubs.

QUALITY CONSTRUCTION

The controller electronics are held in a sturdy aluminum housing with a shock resistant ABS plastic front control panel. All controllers come complete with easy-to-install mounting brackets and a transparent protective front panel cover.

LED INDICATORS

The LEDs on the front panel light up to indicate the correct operational mode. The LEDs also blink at different rates to indicate multiple modes occurring simultaneously. This feature allows the user to evaluate the controller from a distance and clearly read which mode it is in.

HI 8500 Series

...accurate monitoring of pH and ORP.

HI 8510
Panel Mounted pH Indicator

- Ideal for constant monitoring of pH in industrial process control.
- Accurate measurements from 0.00 to 14.00 pH with a 0.01 resolution displayed on a large, easy-to-read LCD.
- Designed with DIN standard panel-mount for easy installation (mounting brackets are also included).
- A unique auto-diagnostic test can be performed to check the pH electrode and instrument status.
- Two models are available, one with direct input from a pH electrode ("E" type) and another for a 2-wire current loop of 4 to 20 mA from a pH transmitter ("T" type).
- Isolated recorder output in either 0 to 20 mA configuration or 4 to 20 mA.
- LED indicators positively identify operational mode.
- Protected behind a removable splash-proof transparent cover.

SPECIFICATIONS

Model	HI 8510E
Range	0.00 to 14.00 pH
Resolution	0.01 pH
Accuracy (@20°C/68°F)	±0.02 pH
Typical EMC Deviation	±0.1 pH
Input	High Impedance 10^{12} ohm
Calibration	Offset: ±2 pH by ΔO trimmer / Slope: 80 to 110% by slope trimmer
Temp. Comp.	Fixed or automatic with Pt100 from 0 to 100°C (32 to 212°C)
Readout	4-digit LCD plus graphic symbols
Recorder Output	0 to 20 mA (**HI 8510E020**) or 4 to 20 mA (**HI 8510E420**) (**isolated**)
Power Supply	110/115V or 220/240V; 50/60 Hz
Enclosure	DIN 43 700 144 x 72 mm (5.67 x 2.83") in black anodized aluminum. Front and back with shockproof ABS plastic and transparent cover.
Environment	14 to 122°F (-10 to 50°C); RH 95% non-condensing
Weight/Panel Cutout	2.2 lb. (1 Kg)/5.55 x 2.71" (141 x 69 mm)

Accessories for HI 8510E

HI 1002/5	pH 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 8427	pH and ORP electrode simulator
HI 931001	pH and ORP electrode simulator

HI 8512
Panel Mounted ORP Indicator

- Provides constant monitoring of ORP in process control.
- Easy to install DIN standard panel-mount with mounting brackets included.
- LED indicators display operational mode.
- Measures ORP from -1000 to +1000 mV.
- Built-in auto-diagnostic tests check the indicator's status with LED indicators.
- Two models are available, one with direct input from an ORP electrode ("E" type) and another for a 2-wire current loop of 4 to 20 mA from an ORP transmitter ("T" type).
- Isolated recorder output in either 0 to 20 mA configuration or 4 to 20 mA.
- Splash-proof transparent cover protects the keyboard from liquids.
- The body is constructed of Aluminum. The front is made of rugged ABS for maximum strength.

SPECIFICATIONS

Model	HI 8512E
Range	-1000 to 1000 mV
Resolution	1 mV
Accuracy (@20°C/68°F)	±5 mV
Typical EMC Deviation	±6 mV
Input	High Impedance 10^{12} ohm
Calibration	Slope: 90 to 110% by slope trimmer
Readout	4-digit LCD plus graphic symbols
Recorder Output	0 to 20 mA (**HI 8512E020**) or 4 to 20 mA (**HI 8512E420**) (**isolated**)
Power Supply	110/115V or 220/240V; 50/60 Hz
Enclosure	DIN 43 700 144 x 72 mm (5.67 x 2.83") in black anodized aluminum. Front and back with shockproof ABS plastic and transparent cover.
Environment	14 to 122°F (-10 to 50°C); RH 95% non-condensing
Weight/Panel Cutout	2.2 lb. (1 Kg)/5.55 x 2.71" (141 x 69 mm)

Accessories for HI 8512E

HI 2002/5	ORP Pt electrode with 16.5' (5 m) cable
HI 7020L	ORP testing sol. 200/275 mV (500 mL)
HI 7091L	Reducing solution (500 mL)
HI 7092L	Oxidizing solution (500 mL)
HI 8427	pH and ORP electrode simulator
HI 931001	pH and ORP electrode simulator

HI 8700 Series

...excellence in pH control.

HI 8710
Panel Mounted pH Controller

- Single set point version with selection of acid or alkaline dosage.
- The alarm band is user-selectable from 0.1 to 3 pH and will be activated when the pH level deviates from the set point by more than the selected alarm value.
- When used in conjunction with the **HI 8720** ORP controller, ODCD** ensures that ORP dosage will only start when the pH is at the correct level.
- Two models are available, one with direct input from a pH electrode ("E" type) and another for a 2-wire current loop of 4 to 20 mA from a pH transmitter ("T" type).
- Isolated recorder output in either 0 to 20 mA configuration or 4 to 20 mA.
- Sophisticated auto-diagnostic functions make it easy to check and troubleshoot malfunctions from the front panel.

SPECIFICATIONS

Model	HI 8710E
Range	0.00 to 14.00 pH
Resolution	0.01 pH
Accuracy (@20°C/68°F)	±0.02 pH
Typical EMC Deviation	±0.1 pH
Input	High Impedance 10^{12} ohm
Calibration	Offset: ±2 pH by ΔO trimmer / Slope: 80 to 110% by slope trimmer
Temp. Comp.	Fixed or automatic with Pt100 from 0 to 100°C (32 to 212°F)
Readout	4-digit LCD plus graphic symbols
Recorder Output	0 to 20 mA (**HI 8710E020**) or 4 to 20 mA (**HI 8710E420**) (**isolated**)
Setpoint Relay/ Alarm Relay	One, isolated, 2 A, Max. 240V, resistive load, 1,000,000 strokes
Power Supply	110/115V or 220/240V; 50/60 Hz
Enclosure	DIN 43 700 144 x 72 mm (5.67 x 2.83") in black anodized aluminum. Front and back with shockproof ABS plastic and transparent cover.
Environment	14 to 122°F (-10 to 50°C); RH 95% non-condensing
Weight/Panel Cutout	2.2 lb. (1 Kg)/5.55 x 2.71" (141 x 69 mm)

HI 8711
Panel Mounted pH Controller

- Dual set point with 2 independent dosing outputs, one for acid and another for alkaline dosage.
- Auto-diagnostic feature is incorporated to verify offset and slope calibration as well as electrode contamination/deterioration.
- The alarm band is user selectable from 0.1 to 3 pH and will be activated when the pH level deviates from the set point by more than the selected alarm value.
- When used in conjunction with the **HI 8720** ORP controller, ODCD** ensures that ORP dosage will only start when the pH is at the correct level.
- Two models are available, one with direct input from a pH electrode ("E" type) and another for a 2-wire current loop of 4 to 20 mA from a pH transmitter ("T" type).
- Isolated recorder output in either 0 to 20 mA configuration or 4-20 mA.
- Splash proof transparent cover protects the controls of the instrument from liquids.

SPECIFICATIONS

Model	HI 8711E
Range	0.00 to 14.00 pH
Resolution	0.01 pH
Accuracy (@20°C/68°F)	±0.02 pH
Typical EMC Deviation	±0.1 pH
Input	High Impedance 10^{12} ohm
Calibration	Offset: ±2 pH by ΔO trimmer / Slope: 80 to 110% by slope trimmer
Temp. Comp.	Fixed or automatic with Pt100 from 0 to 100°C (32 to 212°F)
Readout	4-digit LCD with graphic symbols
Recorder Output	0 to 20 mA (**HI 8711E020**) or 4 to 20 mA (**HI 8711E420**) (**isolated**)
Setpoint Relay	Two, isolated, 2 A, Max. 240V, resistive load, 1,000,000 strokes
Alarm Relay	One, isolated, 2 A, Max. 240V, resistive load, 1,000,000 strokes
Power Supply	110/115V or 220/240V; 50/60 Hz
Enclosure	DIN 43 700 144 x 72 mm (5.67 x 2.83") in black anodized aluminum. Front and back with shockproof ABS plastic and transparent cover.
Environment	14 to 122°F (-10 to 50°C); RH 95% non-condensing
Weight/Panel Cutout	2.2 lb. (1 Kg)/5.55 x 2.71" (141 x 69 mm)

Accessories for HI 8710E & HI 8711E

HI 1002/5	pH 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 8427	pH and ORP electrode simulator
HI 931001	pH and ORP electrode simulator

HI 8720/HI 943500

...easy to install ORP and conductivity controllers..

HI 8720

Panel Mounted ORP Controller

- Single set point version with selection of reducing or oxidizing dosage.
- Automatic diagnostic controls can be user activated to check 0 mV and offset status.
- The alarm band is user-selectable from 10 to 200 mV and will be activated when the mV level deviates from the set point by more than the selected alarm value.
- When linked to the consent contacts of the **HI 8710** pH controller, PDCD* ensures that ORP dosing will start only when the pH level is corrected.
- Two models are available, one with direct input from an ORP electrode ("E" type) and another for a 2-wire current loop of 4 to 20 mA from an ORP transmitter ("T" type).
- Isolated recorder output in either 0 to 20 mA configuration or 4 to 20 mA.

*pH Dosing Consent Device

SPECIFICATIONS

Model	HI 8720E
Range	-1000 to 1000 mV
Resolution	1 mV
Accuracy (@20°C/68°F)	±5 mV
Typical EMC Deviation	±6 mV
Input	High Impedance 10^{12} ohm
Calibration	Slope: 90 to 110% by slope trimmer
Readout	4-digit LCD plus graphic symbols
Recorder Output	0 to 20 mA (**HI 8720E020**) or 4 to 20 mA (**HI 8720E420**) (**isolated**)
Setpoint Relay/ Alarm Relay	One, isolated, 2 A, Max. 240 V, resistive load, 1,000,000 strokes
Power Supply	110/115V or 220/240V; 50/60 Hz
Enclosure	DIN 43 700 144 x 72 mm (5.67 x 2.83") in black anodized aluminum. Front and back with shockproof ABS plastic and transparent cover.
Environment	14 to 122°F (-10 to 50°C); RH 95% non-condensing
Weight/Panel Cutout	2.2 lb. (1 Kg)/5.55 x 2.71" (141 x 69 mm)

Accessories for HI 8720E

HI 2002/5	ORP Pt electrode with 16.5' (5 m) cable
HI 7020L	ORP testing sol. 200/275 mV (500 mL)
HI 7091L	Reducing solution (500 mL)
HI 7092L	Oxidizing solution (500 mL)
HI 8427	pH and ORP electrode simulator
HI 931001	pH and ORP electrode simulator

HI 943500

Panel Mounted Conductivity Controller

- Direct connection of up to 67' (20 m) without the need of intermediate amplifiers to the **HI 7638** conductivity probe.
- An auto-diagnostic test of the offset and slope determines the status of the instrument.
- Available in four models with different ranges to cover conductivity measurement from deionized water to brine.
- Recorder output in 4 to 20 mA configuration.
- LED indicators identify whether the controller is in operational mode or selection mode.
- The Hanna **HI 7638** potentiometric conductivity probe provides automatic temperature compensated measurements.

SPECIFICATIONS

Model	HI 943500A	HI 943500B	HI 943500C	HI 943500D
Range	0.0 - 199.9 mS/cm	0.00 - 19.99 mS/cm	0 - 1999 µS/cm	0.0 - 199.9 µS/cm
Resolution	0.1 mS/cm	0.01 mS/cm	1 µS/cm	0.1 µS/cm
Accuracy (@20°C/68°F)	±2% F.S.			
Typical EMC Deviation	±2.5% F.S.			
Temp. Comp.	Automatic from 32 to 140°F (0 to 60°C) with 2% temperature coefficient			
Readout	4-digit LCD plus graphic symbols			
Recorder Output	4 to 20 mA (**isolated**)			
Setpoint Relay	One, isolated, 2 A, Max. 240V, resistive load, 1,000,000 strokes			
Alarm Relay	One, isolated, 2 A, Max. 240V, resistive load, 1,000,000 strokes			
Power Supply	110/115V or 220/240V; 50/60 Hz			
Enclosure	DIN 43 700 144 x 72 mm (5.67 x 2.83") in black anodized aluminum. Front and back with shockproof ABS plastic and transparent cover.			
Environment	14 to 122°F (-10 to 50°C); RH 95% non-condensing			
Weight/Panel Cutout	2.2 lb. (1 Kg)/5.55 x 2.71" (141 x 69 mm)			

Accessories for HI 943500

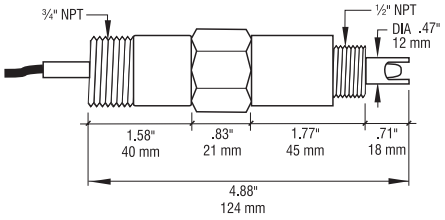
HI 7638	Platinum conductivity probe	**HI 7033L**	84 µS/cm calibration sol. (500 mL)
HI 7030L	12880 µS/cm calibration sol. (500 mL)	**HI 7034L**	80000 µS/cm calibration sol. (500 mL)
HI 7031L	1413 µS/cm calibration sol. (500 mL)		

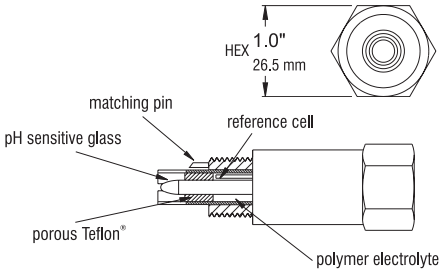
Electrodes

...quality electrodes for high pressure industrial applications.

HI 1002/5

Combination pH Electrode



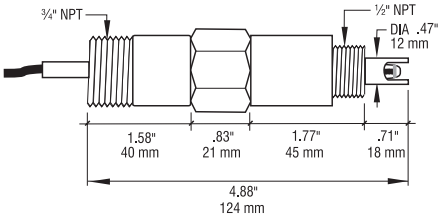


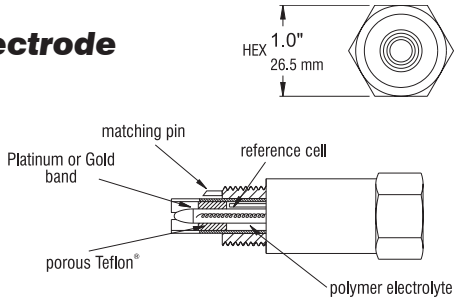
SPECIFICATIONS

Model	HI 1002/5
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

Combination ORP Platinum Electrode



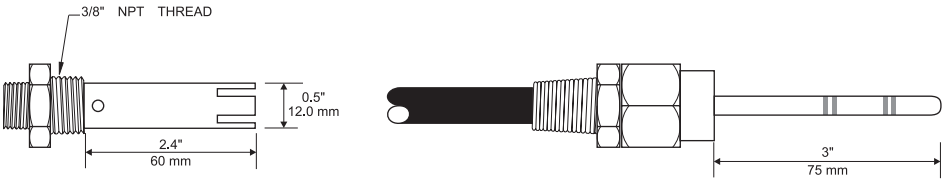


SPECIFICATIONS

Model	HI 2002/5
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 7638

Submersion/in-line conductivity probe

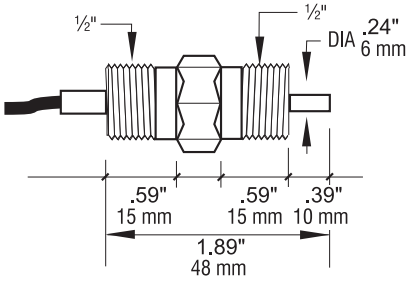


SPECIFICATIONS

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)

HI 5001/5

Stainless steel Pt 100 probe



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