

BL 7916 & BL 7917 pH & ORP Measuring & Dosing System

This series of instruments will mount easily in your plant using a minimum of wall space. The controls and pumphead are located in the front to allow easy access. They offer accurate measurements with unbeatable performance in one compact, affordable unit.



 **Black
Stone**

ISO 9001 Certified

1 Stop Shopping
for All Your Water Treatment Needs

HANNA
instruments
Water Analysis & Control Division

BL 7916

...high performance pH controller and dosing pump.

BL 7916 pH Controller & Pump

- pH controller and dosing pump in one compact unit.
- ± 0.01 pH accuracy with unbeatable performance.
- **Isolated 4 to 20 mA recorder output.**
- **Proportional dosing** slows the pump down when the measured pH level approaches the setpoint which ensures precise dosage and avoids costly waste of chemicals due to overdosage.
- **Alarm contact** is activated whenever the pH value varies by more than 2 pH units from the set point.
- **Auxiliary contacts** allow the user to attach a mixer or priming pump that is activated only when the pump is dosing.
- **Kynar[®], Viton[®] and Teflon[®]** materials are used for all parts that come into contact with liquid.



Accessories and Replacement Parts for BL 7916

HI 1001	.....Plastic in-line pH electrode
HI 721101	.....Pumphead, O-ring & 6 screws
HI 721102	.....Discharge valve assembly
HI 721103	.....Suction valve assembly
HI 721004	.....Injection valve assembly
HI 721005	.....Foot valve assembly
HI 721008	......4 x ceramic weight
HI 7020L	.....ORP testing solution, 16.9 oz. (500 mL)
HI 7091L	.....Reducing solution, 16.9 oz. (500 mL)
HI 7092L	.....Oxidizing solution, 16.9 oz. (500 mL)
HI 7004L	.....pH 4.01 buffer solution, 16.9 oz. (500 mL)
HI 7007L	.....pH 7.01 buffer solution, 16.9 oz. (500 mL)
HI 7010L	.....pH 10.01 buffer solution, 16.9 oz. (500 mL)
HI 767/P	.....Power plug for WM (5pcs)
HI 7671/P	.....Outlet plug for WM (5 pcs)
HI 8427	.....pH & ORP electrode simulator
HI 931001	.....pH & ORP electrode simulator

SPECIFICATIONS

Model	BL 7916U
Range	0.00 to 14.00 pH
Resolution	0.01 pH
Accuracy (@20°C/68°F)	± 0.01 pH
Typical EMC Deviation	± 0.1 pH
Flow Rate	See table on last page
Input	High impedance 10^{12} Ohm
Calibration	Offset: ± 2 pH by offset trimmer Slope: 85 to 115% by slope trimmer
Dosage	Proportional: acid or base. User selectable
Recorder Output	4 to 20 mA, isolated
Dosing Contact	Isolated, 2 A, Max. 240V, resistive load, 1,000,000 strokes
Alarm Relay	Isolated, 2 A, Max. 240V, resistive load, 1,000,000 strokes
Power Supply	110/115V 50/60 Hz $\pm 15\%$ (40W)
Environment	32 to 122°F (0 to 50°C); RH 95% non-condensing
Dimensions	7.1L x 8.7W x 5.6H" (181L x 221W x 142D mm)
Weight	Approx. 11 lb. (5 Kg)

2 ADVANCED INSTRUMENTS IN 1

MEADOS pumps combine the powerful BlackStone dosing pumps with the state-of-the-art controllers that Hanna is famous for. These unique products were developed by BlackStone for measuring and controlling pH or ORP and regulated dosing of various chemicals. This latest innovation eliminates the need for multiple instruments by combining two instruments into one. No more complicated installations, wiring, or compatibility problems. This compact unit features accurate regulation, proportional dosing, alarm and recorder signals and much more all in one meter.

EASY INSTALLATION

Designed with mounting holes in the rugged base, BlackStone pump/controllers are simple to install. There is no need for any additional hardware. All of the controls and pump assemblies are conveniently located on the front of the unit.

Hanna Instruments

If the operator must access the pump head or control panel for any reason, there is no need to uninstall the unit.

RUGGED CONSTRUCTION

BlackStone pump/controllers are housed in rugged, fiber-reinforced polypropylene casings. They are IP55 rated, preventing the intrusion of liquids. The material used for the housing resists corrosion caused by most chemicals, protecting the unit from hazardous spills and splashes.

SUPERIOR MATERIALS

BlackStone pumps use Kynar[®], Viton[®] and Teflon[®] materials for all components in contact with the chemicals being dosed. These materials have properties which enable them to resist even the most corrosive chemicals in the industry. BlackStone's choice of material makes the pump more versatile, allowing it to handle a wider variety of chemicals.

SIMPLE PUMP ACTION

A positive displacement solenoid with few moving parts make BlackStone pumps more reliable than motor driven pumps. With no rotating parts, gears or cams, part wear and oiling associated with motor driven pumps is eliminated, drastically reducing any chance of mechanical failure.

PROPORTIONAL DOSING

The BlackStone controller/pump strokes at full capacity when the measured value deviates by more than 1.5 pH or 150 mV from the set value. A proportional control slows down the stroke rate as the measured value approaches the user-selectable value, avoiding overdosage of chemicals. This feature makes the pump's dosing more accurate, saves chemicals and eliminates unnecessary and costly corrections of your processes, especially with slow reacting chemicals.

Water Analysis & Control Division

BL 7917

...accurate, affordable ORP controller and dosing pump.

BL 7917 ORP Controller & Pump

- ORP controller and dosing pump in one compact unit.
- ± 5 mV accuracy with unbeatable performance.
- **Isolated 4 to 20 mA recorder output.**
- **Proportional dosing** slows the pump down when the measured ORP level approaches the set value which avoids over dosage of oxidizing or reducing agents.
- **Alarm contact** is activated whenever the ORP value varies by more than 200 mV from the set point.
- **Auxiliary contacts** allow the user to attach a mixer or priming pump that is activated only when the pump is dosing.
- **Kynar[®], Viton[®] & Teflon[®]** materials are used for all parts that come in contact with the liquids being pumped.



SPECIFICATIONS

Model	BL 7917U
Range	0 to ± 999 mV
Resolution	1 mV
Accuracy (@20°C/68°F)	± 5 mV
Typical EMC Deviation	± 6 mV
Flow Rate	See table on last page
Input	High impedance 10^{12} Ohm
Dosage	Proportional: oxidizing or reducing. User selectable
Recorder Output	4 to 20 mA, isolated
Dosing Contact	Isolated, 2 A, Max. 240V, resistive load, 1,000,000 strokes
Alarm Relay	Isolated, 2 A, Max. 240V, resistive load, 1,000,000 strokes
Power Supply	110/115V 50/60 Hz $\pm 15\%$ (40W)
Environment	32 to 122°F (0 to 50°C); RH 95% non-condensing
Dimensions	7.1L x 8.7W x 5.6H" (181L x 221W x 142D mm)
Weight	Approx. 11 lb. (5 Kg)

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ISOLATED RECORDER OUTPUT

To enhance troubleshooting and provide the user with the ability to record data while monitoring, BlackStone's controller/pumps provide a recorder output. By simply attaching a recorder to the instrument's 4 to 20 mA output contacts, conveniently located on the front panel, you can obtain a hard copy of the results on demand.

ALARM OUTPUT

When monitoring and controlling pH and ORP levels in a process, it is very important that any potential problem does not go unattended. The Hanna MEADOS units incorporate an alarm system that will alert the user if the reaction is not within certain guidelines. The alarm of the **BL 7916** will be activated if the measured pH value is 2 pH units lower than the set point. If dosing acid, this indicates overdosage, a common symptom of siphoning. The alarm will also activate if the value is 2 pH higher than

the set point. If dosing acid, this is an indication of insufficient dosage, a common symptom of the lack of chemicals. The **BL 7917**'s alarm will activate if the mV value is 200 mV lower than the set point (if dosing reducing chemicals, this indicates overdosage). The alarm will also activate if the value is 200 mV higher than the set point (if dosing reducing chemicals, this is an indication of lack of chemicals).

AUXILIARY DOSING CONTACTS

The auxiliary dosing contacts of the MEADOS units are closed whenever the pump is dosing. This solution offers considerable advantages, especially for small plants where these pumps need to be the only equipment left running. This will spare other equipment such as mixers, priming pumps etc. With this feature activated, a mixer can be automatically started when the pump is dosing.

BL 7916 / BL 7917 FLOW/PRESSURE

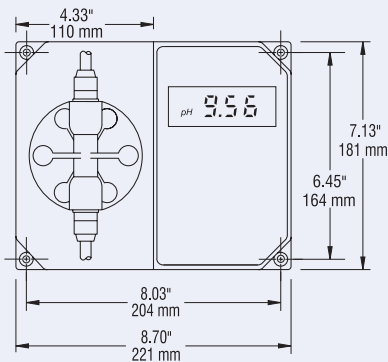
PSI	GPH
7.3	3.5
14.5	3.1
29.0	2.7
43.5	2.4
58.0	2.1

Accessories

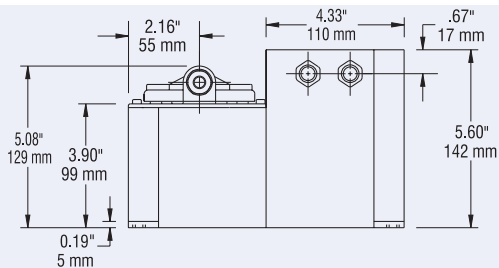
...maximize your efficiency.

Mechanical Dimensions for the MEADOS pH & ORP Measuring and Dosing Systems

Front View



Side View



Accessories

HI 721101

This kit contains the Kynar® pump-head, Teflon® coated O-ring, 6 screws and washers.

HI 721102

This kit contains all the necessary replacement parts for your discharge valve assembly. Complete with a Viton® O-ring, glass valve ball, valve spacer and seat, head nipple and tube nut to secure the assembled parts.

HI 721103

HI 721103 is the suction valve assembly. Complete with a Viton® O-ring, glass valve ball, valve spacer and seat, head nipple and tube nut to secure the assembled parts.

HI 721004

The HI 721004 comes complete with an injection nipple, Teflon® coated spring, glass valve ball and a valve assembly.

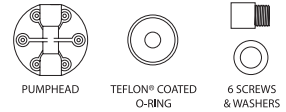
HI 721005

This kit contains a filter with a filter holder and valve assembly.

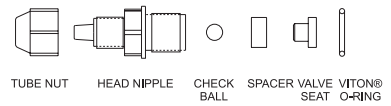
HI 721008

This kit contains 4 ceramic weights.

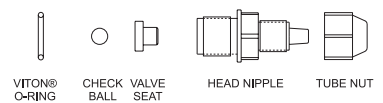
HI 721101



HI 721102



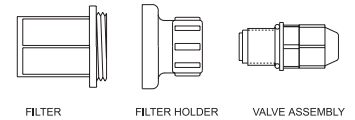
HI 721103



HI 721004

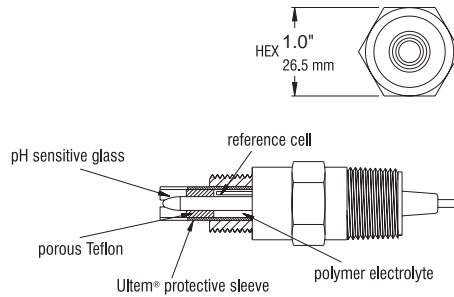
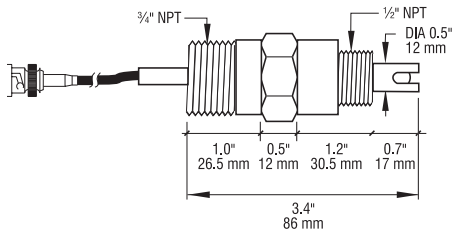


HI 721005



HI 1001

Combination pH Electrode

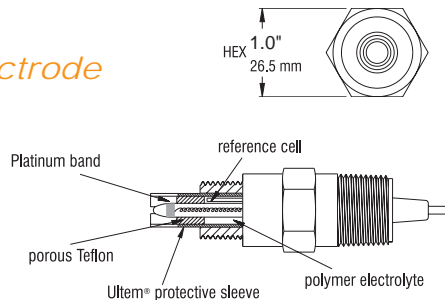
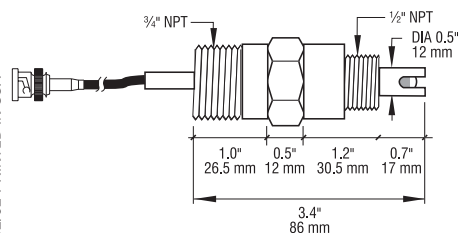


SPECIFICATIONS

Model	HI 1001
Reference System	
Junction	Double
Type	Teflon®
Electrolyte	Polymer
Temperature	23 to 176°F (-5 to 80°C)
Max. Pressure	87 psi (6 bar)
Lead	
Connector	BNC
Cable	10' (3 m)

HI 2001

Combination ORP Platinum Electrode



SPECIFICATIONS

Model	HI 2001
Reference System	
Junction	Double
Type	Teflon®
Electrolyte	Polymer
Temperature	23 to 176°F (-5 to 80°C)
Max. Pressure	87 psi (6 bar)
Lead	
Connector	BNC
Cable	10' (3 m)

Authorized Distributor

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