



BL 7916 • BL 7917

pH & ORP Measuring & Dosing System

- Accurate and affordable
- Controller and dosing pump in one compact unit
- Proportional dosing
- Corrosion resistant housing
- Easy to install



This series of instruments will mount easily in your plant using a minimal amount 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.



High Performance pH & ORP Controller & Dosing Pump to Maximize Efficiency

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 HANNA 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 the controls and pump assemblies are conveniently located on the front of the unit. 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 PVDF, FPM/FKM and PTFE 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.

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 setpoint.
- Auxiliary contacts allow the user to attach a mixer or priming pump that is activated only when the pump is dosing.
- PVDF, FPM/FKM & PTFE materials are used for all parts that come into contact with liquid.

Specifications	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 next page
Input	High impedance 10^{12} Ohm
Calibration	Offset: ± 1 pH by offset printer; 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	115V $\pm 15\%$ (40W)
Environment	0 to 50°C (32 to 122°F); RH 85% non-condensing
Dimensions	7.1 x 8.7 x 5.6" (181 x 221 x 142 mm)
Weight	11 lb. (5 Kg)

Accessories and Replacement Parts for BL 7916

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



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 overdosage 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.
- PVDF, FPM/FKM & PTFE materials are used for all parts that come into contact with liquid.

Specifications	BL 7917U
Range	± 999 mV
Resolution	1 mV
Accuracy (20°C/68°F)	± 5 mV
Typical EMC Deviation	± 6 mV
Flow Rate	See table below
Input	High impedance 10^{12} Ohm
Calibration	Offset: ± 2 pH by offset printer; Slope: 85 to 115% by slope trimmer
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	115V $\pm 15\%$ (40W)
Environment	32 to 122°F (0 to 50°C); RH 85% non-condensing
Dimensions	7.1 x 8.7 x 5.6" (181 x 221 x 142 mm)
Weight	11 lb. (5 Kg)

Accessories and Replacement Parts for BL 7917

HI 2001	Plastic in-line ORP 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 weights
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)

BL 7916 & BL 7917 FLOW/PRESSURE

PSI	GPH
7.4	3.5
14.7	3.0
29.4	2.6
44.1	2.3
58.8	2.0



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.

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.

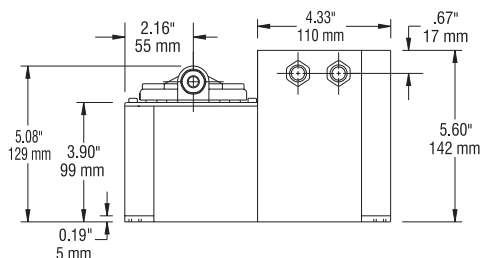
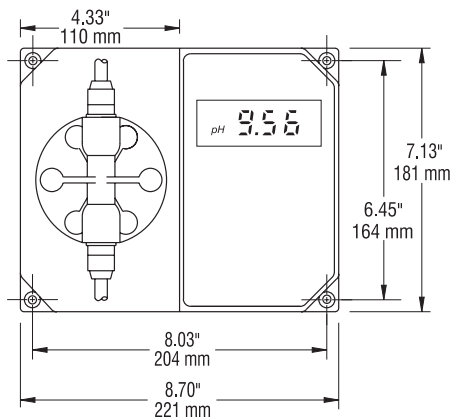
Alarm Output

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 setpoint (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 setpoint (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 setpoint (if dosing reducing chemicals, this indicates overdosage). The alarm will also activate if the value is 200 mV higher than the setpoint (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.

Mechanical Dimensions for the Meados pH & ORP measuring & dosing systems

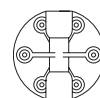


Accessories

HI 721101

This kit contains the PVDF pumphead, PTFE coated O-ring, 6 screws and washers.

HI 721101



PUMPHEAD



TEFLON® COATED
O-RING



6 SCREWS
& WASHERS

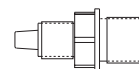
HI 721102

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

HI 721102



TUBE NUT



HEAD NIPPLE



CHECK
BALL



SPACER VALVE



VITON®
SEAT O-RING

HI 721103

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

HI 721103



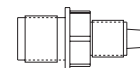
VITON®
O-RING



CHECK
BALL



VALVE
SEAT



HEAD NIPPLE

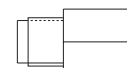


TUBE NUT

HI 721004

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

HI 721004



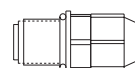
INJECTION NIPPLE



KYNAR®
SPRING



CHECK
BALL

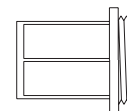


VALVE ASSEMBLY

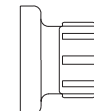
HI 721005

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

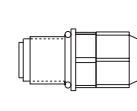
HI 721005



FILTER



FILTER HOLDER

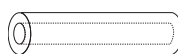


VALVE ASSEMBLY

HI 721008

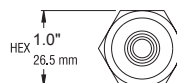
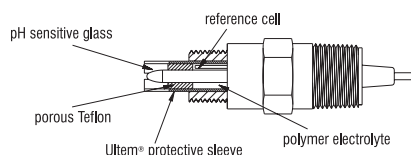
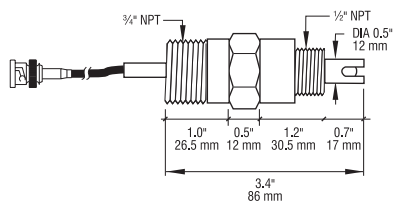
This kit contains 4 ceramic weights.

HI 721008

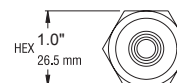
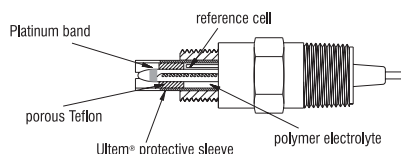
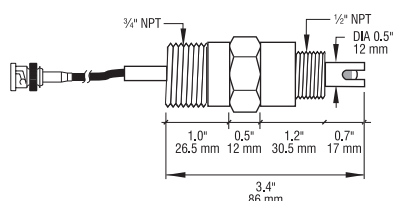


CERAMIC WEIGHT

HI 1001 Combination pH Electrode



HI 2001 Combination ORP Platinum Electrode



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

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