

# BIO-MAX II

14 DAY EVENT, MICROPROCESSOR BASED, DUAL BIOCIDES TIMER

## INSTALLATION AND OPERATING MANUAL



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# GENERAL INFORMATION

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## I. SYSTEM DESCRIPTION

The Bio-Max II is a timer control for automatic operation of devices, such as pumps used for chemical feed operations. The Bio-Max II Timer is used to automatically control the addition of one (1) or two (2) microbiocides. Unchecked microbiological growth can cause equipment damage and excessive energy consumption. The Bio-Max II has many other practical uses for time control applications as well. The benefits of using the Bio-Max II system include completely automatic operation, added safety through product additions directly from the shipping container and optimum use of the treatment program to prevent system fouling, resulting in greater cooling system efficiency. This system operates on a 24 hour, 14 day cycle and includes a bleed lockout feature.

## II. STANDARD SPECIFICATIONS

Bleed Lockout Timer .....	10-990 minutes
Timers .....	1-99 minutes
Outputs .....	Pump 1, Pump 2, Lockout
Net Weight .....	9.12 lbs.
Enclosure Type .....	NEMA 4X Thermoplastic
Dimensions (overall) .....	10"H x 8" W x 4" D
Power Requirements .....	115 VAC, 60 Hz
Ambient Temperature .....	140°F Max.
Humidity .....	0-100% RH Non-Condensing
Power Output .....	115 VAC, 60 Hz, 10 Amperes (Combined Maximum Load)

# INSTALLATION

## I. MOUNTING

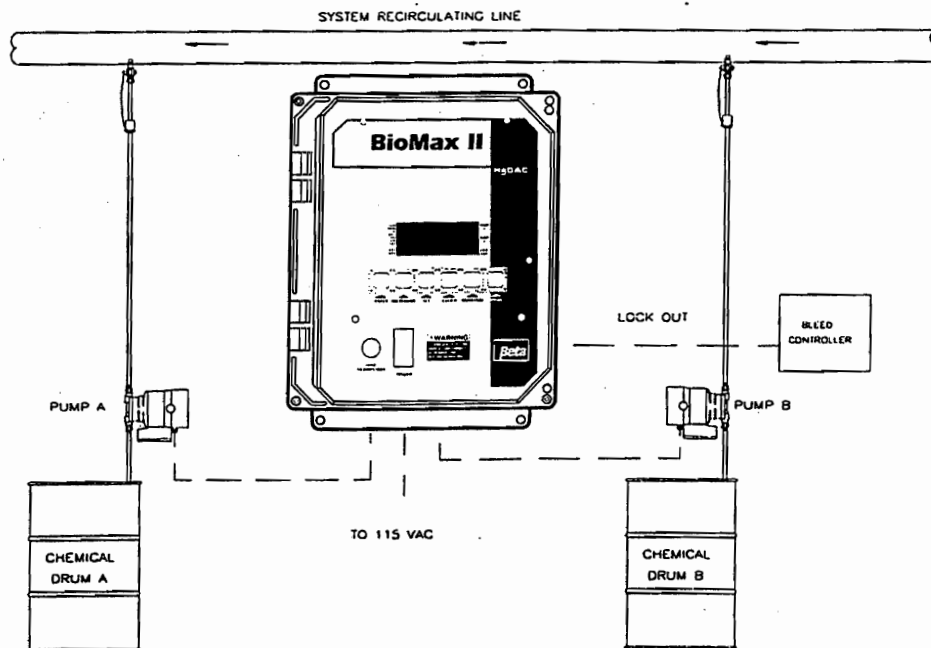
The Bio-Max II should be installed so that the display is at eye level in an accessible, well lighted, dry location. The panel may be bolted to a wall or any flat surface by means of four holes on the back flange. It is not recommended for outdoor installation.

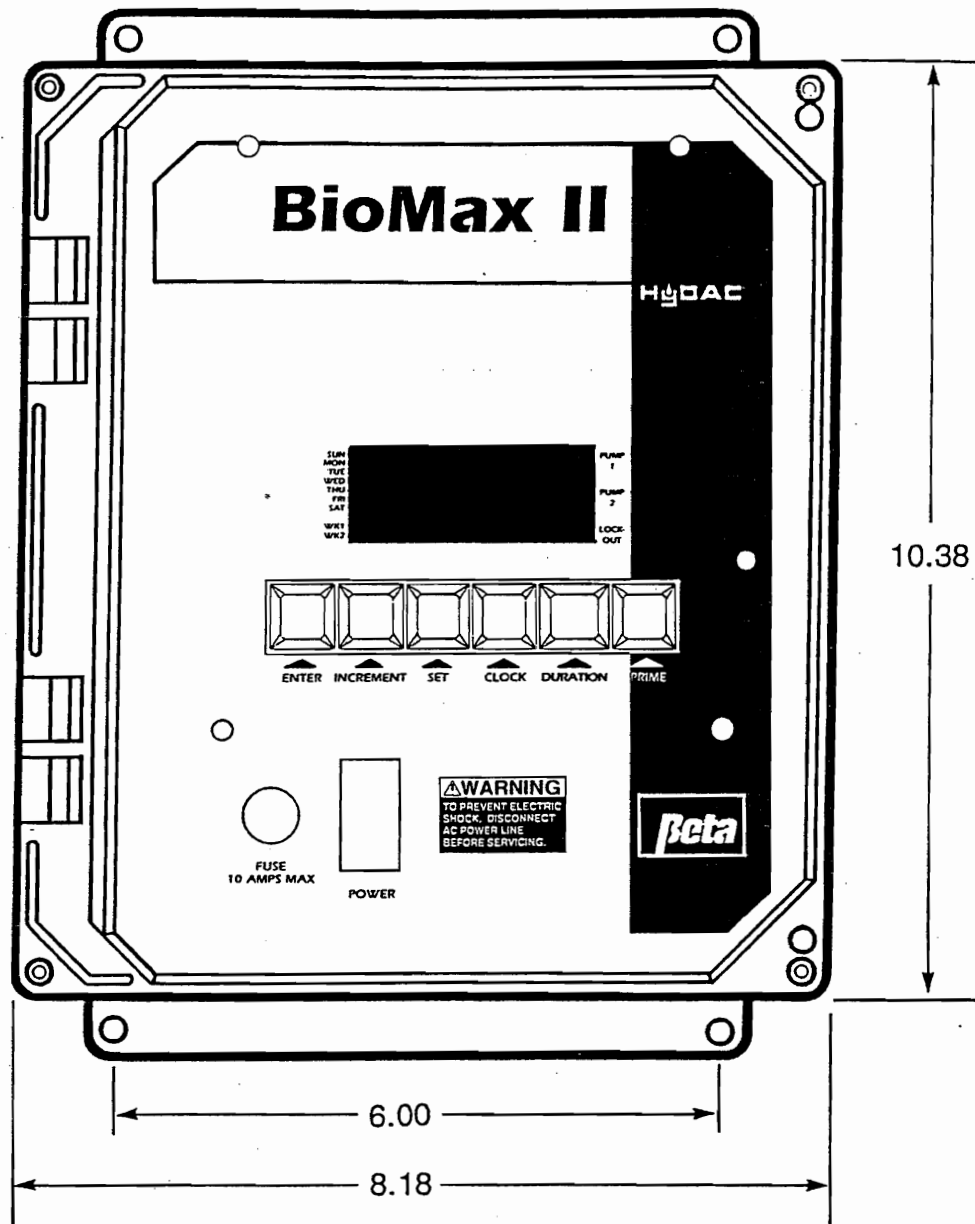
*Refer to enclosure mounting drawing on Page 6.*

## II. CHEMICAL FEED POINTS

Survey the water system and locate a convenient access point for the addition of chemical treatment. If the main circulating pump is turned OFF frequently, the controller should be programmed to add biocide only when the circulating pump is ON. If this is not possible, a flow interlock arrangement should be used to interrupt input power to the chemical pump(s) when the main circulating pump is OFF.

An alternate approach would be to use the LOCK-OUT output to automatically activate the circulating pump during programmed feed period(s).





# PRE START-UP PROCEDURE

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## I. CHECKLIST

Before placing system into operation, check the following:

- All chemical pump fittings and connections are tight.
- All wiring is correct and terminals are tight.
- All internal wiring harnesses are in the correct place and connections are tight.
- Turn power switch to ON position. LED display will light.

## II. PRIMING THE PUMPS

- Depress and hold the PRIME button.
- Press and hold the ENTER button. If PUMP 1 was OFF, it will start. If it was ON, it will stop.
- Press the INCR button. If PUMP 2 was ON, it will stop. If it was not OFF, it will start.

If a pump is started using this method, it will run only for the length of time set in DURATION, plus some fraction of 1 minute, depending on when during the current minute priming started. Thus, if the pump time is set to 0, the pump will run for no more than 1 minute and perhaps as little as 1 second. LOCK-OUT is not affected by the PRIME operation.

## III. INTERRUPTING LOCK-OUT

- If LOCK-OUT is engaged and if it is desired to disengage it, setting the LOCK-OUT duration to 00 will cause LOCK-OUT to disengage at the end of the current minute. If PUMP 1 is ON and you wish to turn OFF LOCK-OUT, turn OFF PUMP 1 by pushing PRIME and ENTER, then turn ON PUMP 2 by pressing PRIME and INCR.
- Turn ON PUMP 2 by pushing PRIME and INCR again. This will also turn OFF LOCK-OUT. Turn ON PUMP 1 by pressing PRIME and ENTER. The same holds true if only PUMP 2 is ON except replace PUMP 1 information as stated above. If both pumps are ON, the same applies except PUMP 2 is already ON.

# START-UP PROGRAMMING

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## I. SETTING THE CLOCK

Anytime the unit is powered, the system clock runs. Should the power be interrupted, the clock stops. It resumes when the power is again applied continuing from when it had stopped, therefore it will need to be reset.

- Depress and hold the **CLOCK** button. The display will show **HOURS** and **MINUTES**, with the **HOURS** blinking.

While continuing to depress the **CLOCK** button:

- Press and hold the **INCR** button. The **HOURS** will advance at about 2 hours per second. The advance will stop whenever the **INCR** button is released. Set the **HOURS** to the current hour of the day.
- Press and release the **ENTER** button. The display will change to **MINUTES** blinking.
- Press and hold the **INCR** button. The **MINUTES** will advance at about 2 minutes per second. The advance will stop whenever the **INCR** button is released. Set the **MINUTES** to the current minutes of the hour.
- Press and release the **ENTER** button. Both the **HOURS** and **MINUTES** will stop blinking.
- Press and hold the **INCR** button. The **DAYS** will advance at about 2 days per second. The **WEEK** display will change from **WEEK 1** to **WEEK 2** as appropriate. The advance will stop whenever the **INCR** button is released. Set the current **DAY** and **WEEK**.
- Release the **CLOCK** button. The set **TIME** and **DAY** are now stored for immediate use. Whatever time is showing at that instant will be stored.

## II. SETTING THE START TIME AND DAYS OF ACTIVATION

PUMP 1, PUMP 2 or both pumps may be selected to start on any or all of the 14 days of the 2 week cycle. However, there is only one start time. The Pump(s) will always start at the same time on any selected day.

Press and hold the SET button while performing the following:

- Press and hold the INCR button. The HOURS will advance at about 2 hours per second. The slow advance will immediately return if the INCR button is momentarily released.
- Press and release the ENTER button. The display will change to MINUTES blinking. Press and hold the INCR button. The MINUTES will advance at about 2 minutes per second. The slow advance will immediately return if the INCR button is momentarily released.
- Press and release the ENTER button. The display will show 1P1, the WEEK 1 display will be lit and the DAY display may have some days lit. If the SUN bar is lit, it will be blinking. This means that PUMP 1 will start at the time set on that day.
- Press and release the ENTER button. If SUN was blinking, it will stop blinking and remain dark. This means that PUMP 1 will not start on that day. Every time the ENTER button is pressed and released, the selection will change, alternating between blinking and dark. Select the desired action. Blinking means PUMP 1 will start. Dark means PUMP 1 will NOT start on that selected day.
- Press and release the INCR button. The display will show 2P1. WEEK 1 will be lit and the DAY display may have some days lit. If the MON bar is lit, it will be blinking. This means that PUMP 1 will start at the time set on that day.

- Press and release the ENTER button. If MON was blinking, it will stop blinking and remain dark. This means that PUMP 1 will NOT start on that day. Every time the ENTER button is pressed and released, the selection will change, alternating between blinking and dark. Select the desired action. Blinking means PUMP 1 will start. Dark means PUMP 1 will NOT start.
- Press and release the INCR button. The display will advance to 3P1 and every time the INCR button is pressed, the display will advance, until it shows 14P1. This means the SAT, WEEK 2, for PUMP 1. Also, when the day advances from SAT to SUN, the week display will change from WEEK 1 to WEEK 2.
- After 14P1, the display will show 1P2. This indicates that PUMP 2 is now being set. The same blinking or not blinking of days is shown. Remember, if it shows #P1, that is PUMP 1 and if it shows #P2, that is PUMP 2.

If INCR is pressed when the display shows 14P2, it will return to 1P1, and so on. Release the SET button. The selected settings are immediately stored for use.

The INCR button may be released anytime during the setting operations and the selected settings will be stored. It is NOT NECESSARY to step through the entire routine.

### III. SETTING THE PUMP AND LOCK-OUT DURATIONS

- Depress and hold the DURATION button. The display will show #P1, where # is the number of minutes PUMP 1 is to run. The DURATION number may be from 0 to 99 minutes.
- Press the INCR button. The number of MINUTES shown on the display will increase, at about 2 per second. Release the button when the desired PUMP 1 minutes are set. After the minutes reach 99, they will return to 0.

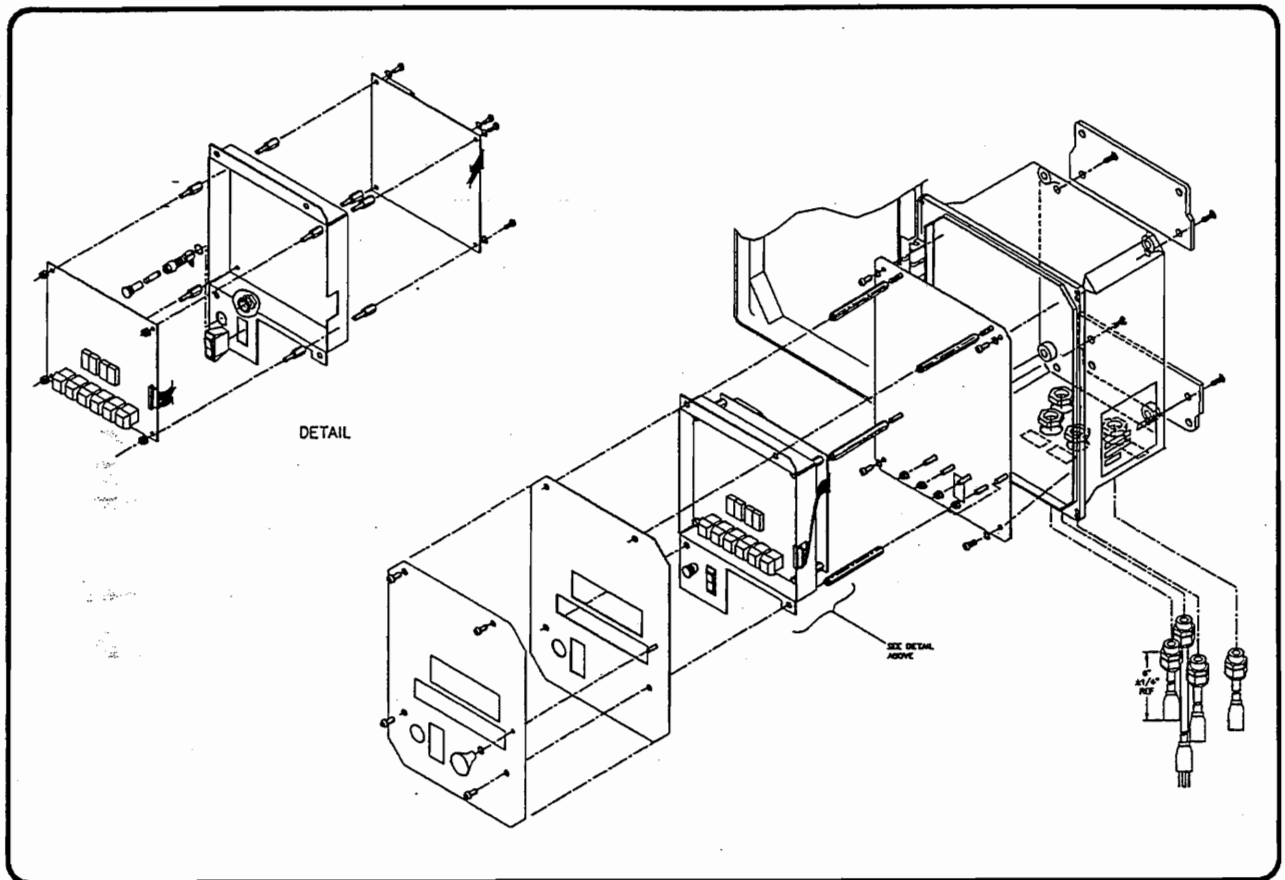
- Press and release the ENTER button. The display will now show #P2 where # is the minutes PUMP 2 is to activate.
- Using the INCR button, the time PUMP 2 is to run is set the same way as PUMP 1 was set.
- Press and release the ENTER button. The display will now show #0L, where #0 is the minutes of LOCK-OUT time.
- Using the INCR button, the LOCK-OUT time is set in the same fashion as pump time was set. However, the LOCK-OUT time increments in 10 minute steps and returns to 00 when the minutes reach 990.

# MAINTENANCE

## I. TROUBLESHOOTING

SYMPTOM	POSSIBLE CAUSE	REMEDY
Time and Day of the week display does not light	Blown fuse in the controller	Replace fuse
	No power to controller	Check main circuit breakers/fuses & wiring
	Defective display	Return for repair or replace control panel
	Defective controller	Return for repair or replace control panel
Pump 1 & Pump 2 lights do not come ON	Defective panel	Return for repair or replace control panel
Pump(s) do not come ON	Defective pump	Check pump in wall receptacle, 115 VAC
	Defective relay	Return for repair or replace control panel
	Defective module	Return for repair or replace control panel
	Loose wiring	Check wiring connections
Unable to set Clock and/or Day of Week	Defective controller	Return for repair or replace control panel
Indicated Time is different when power is switched back on	None (unit resumes Time when power is reactivated)	None - Normal Operation
Controller fails to follow program	Defective controller	Return for repair or replace control panel

## II. REPLACEMENT PARTS



Item	Part No.	Description
	016666	Fuse 10 AMP 125 VAC

## WARRANTY

Beta Technology Incorporated (Beta) warrants each new item of HyDAC brand equipment manufactured and sold by Beta to be free from defects in materials and workmanship under normal use and operation in accordance with Beta instructions and use directions for a period of twenty-four (24) months from date of delivery to the original purchaser. Exception: pH probes are only guaranteed to be operational at the time of delivery. All claims must be submitted in writing within 30 days from the date of shipment from Beta. Beta's obligations under this warranty are limited to the repair or replacement of any such item of equipment (or part thereof) shown to be defective or, at Beta's opinion, to refunding the purchase price of any such defective item of equipment less a reasonable allowance for prior use. Each item of equipment for which warranty claim is asserted shall, at the request of Beta, be returned on a prepaid basis to Beta's factory at the expense of the purchaser. Replacement parts furnished by Beta shall be warranted as stated above for the unexpired portion of the original twenty-four (24) month warranty. This does not extend to any item or part repaired or altered outside of Beta's factory without the express prior authorization of Beta. The foregoing warranty of merchantability or the warranty of fitness for particular purpose. It is expressly understood that purchaser's sole and exclusive remedy is limited to enforcement of Beta's obligation as set forth above and Beta shall not be liable to purchaser or others for loss of use of the equipment or for other direct, special, indirect, incidental or consequential damages.