HYPOGEN 2.0 and 5.0

Installation, Operation, and Maintenance Manual

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Note: This manual is subject to change at any time based on system improvements, design changes, authorized modifications, or new information. Please consult ChlorKing for the latest revision.

Manufacturer:
ChlorKing Inc
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Atlanta, GA 30360
1-800-536-8180

SECTION 1
DESCRIPTION

1.1 GENERAL INFORMATION

The HYPOGEN system is an on-site hypochlorous acid generator. The HYPOGEN2.0 can produce up to 144 gallons of hypochlorous acid at 1000 ppm and at a pH of 6. The HYPOGEN5.0 can produce up to 360 gallons of hypochlorous acid at 1000 ppm and at a pH of 6. The system manufactures hypochlorous acid continuously from a saturated brine and acid solution. The HYPOGEN is designed for commercial service and will operate 24 hours a day. The basic components of the system are outlined below.

1.2 PRINCIPALS OF OPERATION

Water flows from the inlet through pressure and flow regulating devices to maintain a consistent flow to the electrolytic cell. Saturated brine and acid are injected at metered amounts into the incoming water flow. The electrolytic cells produce a neutral pH hypochlorous acid solution. The hypochlorous acid flows to the product storage tank for use. The power supply provides the current to the electrolytic cells to produce the rated amount of hypochlorous acid. The power supply houses all the safety features to prevent system operation in the event of a malfunction.

1.3 GENERAL SPECIFICATIONS AND PRODUCT USE

	HYPOGEN 2.0	HYPOGEN 5.0
HOCl production per day	144 Gallons @ 1,000ppm FAC / 6.0pH	360 Gallons @ 1,000ppm FAC / 6.0pH
Maximum system pressure	25 PSI	25 PSI
Electrical requirements	3.5 amps @ 120 VAC / 60Hz	8 amps @ 120 VAC / 60Hz

For sanitizing use 200ppm FAC
For disinfecting use 500ppm FAC

Test with high chlorine test strips prior to use.

FACTORY PUMP SETTINGS TO ACHIEVE pH 6.0

	HYPOGEN 2.0		HYPOGEN 5.0	
ACID TYPE	**SALT PUMP SETTING**	**ACID PUMP SETTING**	**SALT PUMP SETTING**	**ACID PUMP SETTING**
ACETIC ACID	30%	17%	85%	50%
MURIATIC ACID				

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SECTION 2
INSTALLATION

2.1 UNPACKING

Units are shipped from the factory. In the event of damages during shipping, it is the responsibility of the customer to notify the carrier immediately and to file a damage claim. Open the crate carefully and examine all material inside.

2.2 STORAGE

When storing units, use the original packaging and store under a shelter to protect the contents from weather.

2.3 SAFETY CONSIDERATIONS

IMPORTANT SAFETY INSTRUCTIONS

READ AND FOLLOW ALL INSTRUCTIONS

SAVE THESE INSTRUCTIONS

WHEN INSTALLING, OPERATING, AND MAINTAINING THIS EQUIPMENT, KEEP SAFETY CONSIDERATIONS FOREMOST. USE PROPER TOOLS, PROTECTIVE CLOTHING, AND EYE PROTECTION WHEN WORKING ON OR INSTALLING THE EQUIPMENT. FOLLOW THE INSTRUCTIONS IN THIS MANUAL AND TAKE ANY ADDITIONAL SAFETY MEASURES APPROPRIATE. BE EXTREMELY CAREFUL IN THE PRESENCE OF HAZARDOUS SUBSTANCES.

THE PERSONNEL RESPONSIBLE FOR INSTALLATION, OPERATION, AND MAINTENANCE OF THIS EQUIPMENT MUST BE FULLY FAMILIAR WITH THE CONTENTS OF THIS MANUAL.

ANY SERVICING OF THIS EQUIPMENT MUST BE DONE WITH THE UNIT FULLY OFF AND DISCONNECTED FROM THE POWER SOURCE AND ALL PRESSURE BLED FROM THE LIQUID LINES.

WARNING

- **CHLORKING® SYSTEMS ARE INTENDED TO BE INSTALLED ACCORDING TO ALL LOCAL AND NATIONAL REGULATIONS.**
- **THE CHLORKING® HYPOGEN SYSTEM MUST BE INSTALLED IN A WELL-VENTILATED AREA.**

- **ONLY A CERTIFIED TECHNICIAN MAY INSTALL AND SERVICE THE CHLORKING® HYPOGEN SYSTEM.**
- **MODIFYING THE CHLORKING® HYPOGEN SYSTEM IN ANYWAY MAY CAUSE BODILY INJURY AND WILL VOID THE WARRANTY.**
- **DO NOT ALLOW CHILDREN OR ANYONE NOT CAPABLE TO OPERATE THE CHLORKING® HYPOGEN SYSTEM.**
- **ONLY REPLACE COMPONENTS WITH THOSE SPECIFIED BY THE MANUFACTURER.**
- **ALL ELECTRICAL ENCLOSURES ON THE CHLORKING® HYPOGEN SYSTEM CONTAIN HIGH VOLTAGE COMPONENTS. NEVER OPEN ANY ENCLOSURE WHILE THE POWER IS ON.**
- **THE SYSTEM HAS THE POTENTIAL TO RELEASE HIGH DOSES OF CHORINE. USE CAUTION WHEN HANDLING, SERVICING, OR OPERATING THE EQUIPMENT.**
- **DO NOT ENERGIZE OR OPERATE THE SYSTEM IF THE CELL HOUSING IS DAMAGED OR IMPROPERLY ASSEMBLED.**
- **CORD CONNECTED AT TIME OF MANUFACTURE**
- **DANGER RISK OF INJURY, REPLACE DAMAGED CORDS IMMEDIATELY, DO NOT BURY CORD.**

2.4 PLAN AHEAD

WARNING

The HypoGen system must be installed in a well-ventilated area.
Almost installation encountered is different. It is imperative to have prior knowledge of the facility in which the unit is to be installed and to evaluate what type of tools, wall hardware, etc. will be needed to make the installation as problem free as possible.

2.5 POWER SUPPLY ELECTRICAL CONNECTIONS

Connect the power cord to a 120V, minimum 15-amp electrical outlet protected by a ground fault circuit interrupter.

2.6 PLUMBING CONNECTIONS AND CHEMICAL FEEDERS

WATER INLET

Connect the water inlet to a water source. A 5/8 female hose connection is provided.

STORAGE TANK OVERFLOW

Plumb the storage tank overflow to waste. The overflow is located on the bottom of the storage tank and is shipped with a ½ inch tubing connector.

SATURATED SALT FEEDER

Place the Saturated Salt Feeder for easy access when adding salt. Connect the Salt Feeder suction line to the brine metering pump located on top and labeled salt pump. The suction line is installed to the pump tube fitting with a compression type seal consisting of the connecting nut and ferrule. The beveled end of the ferrule should face the tube fitting and the suction line should bottom into the tube fitting.

Plumb the water supply from the valve below the pressure gauge to the Salt Feeder fitting labeled water supply.

Plumb the Salt Feeder overflow to waste.

Fill the Salt Feeder with rock or pellet salt that is at least 99% pure salt with no additives. Do not use granular salt. Granular salt will clog the feeder. Add salt as needed. The feeder will use 1.9 gallons of fluid and 4.1 lbs of salt for every 144 gallons of hypochlorous acid produced.

ACID FEEDER

Place the Acid Feeder under the right side of the system. The tank will need access for adding water and acid on a continuous basis. Connect the Acid Feeder suction line to the acid metering pump located on the bottom and labeled acid pump. The suction line is installed to the pump tube fitting with a compression type seal consisting of the connecting nut and ferrule. The beveled end of the ferrule should face the tube fitting and the suction line should bottom into the tube fitting.

WARNING

Read all cautions and directions provided with the acid used. Always add acid to water. Use only with adequate ventilation. If strong odor is noticed, STOP, ventilation is inadequate. Leave area immediately. If the work area is not well ventilated, you MUST use a properly fitted and maintained NIOSH approved respirator for acid fumes.

Fill the Acid Feeder with 3:1 water and 56% acetic acid solution. Add 3 parts water and then 1 part 56% acetic acid. The ratio is critical to system performance. Acetic acid is critical to system performance. Use of any other acid may produce harmful chemicals, void the warranty and may cause bodily injury or death. The feeder will use .6 gallons of solution for every 144 gallons of hypochlorous acid produced.

2.7 PREPARING THE pH NEUTRAL MONITORING SYSTEM

The pH probe is shipped strapped to the unit but not installed to protect the glass bulb from damage. Before use, remove the pH probe from the frame and remove the cover from the end of the pH probe. Install the probe in the T fitting on the side of the vent pipe.

SECTION 3
OPERATION

3.1 START-UP PROCEDURES AND CHECKS

Check that all components are mounted securely. Check that all plumbing is secure and tight. Check that all plumbing and electrical connections are connected in the proper place. Be sure the Saturated Salt Feeder is filled with pure rock or pellet salt. **Do Not Use Granular Salt.** Open the Saturated Salt Feeder valve and water supply valve. Ensure the acetic acid container is filled with a 75% water to 25% acetic acid solution.

3.2 ADJUSTING SYSTEM PRESSURE

Adjust the system pressure regulator to 10 psi.

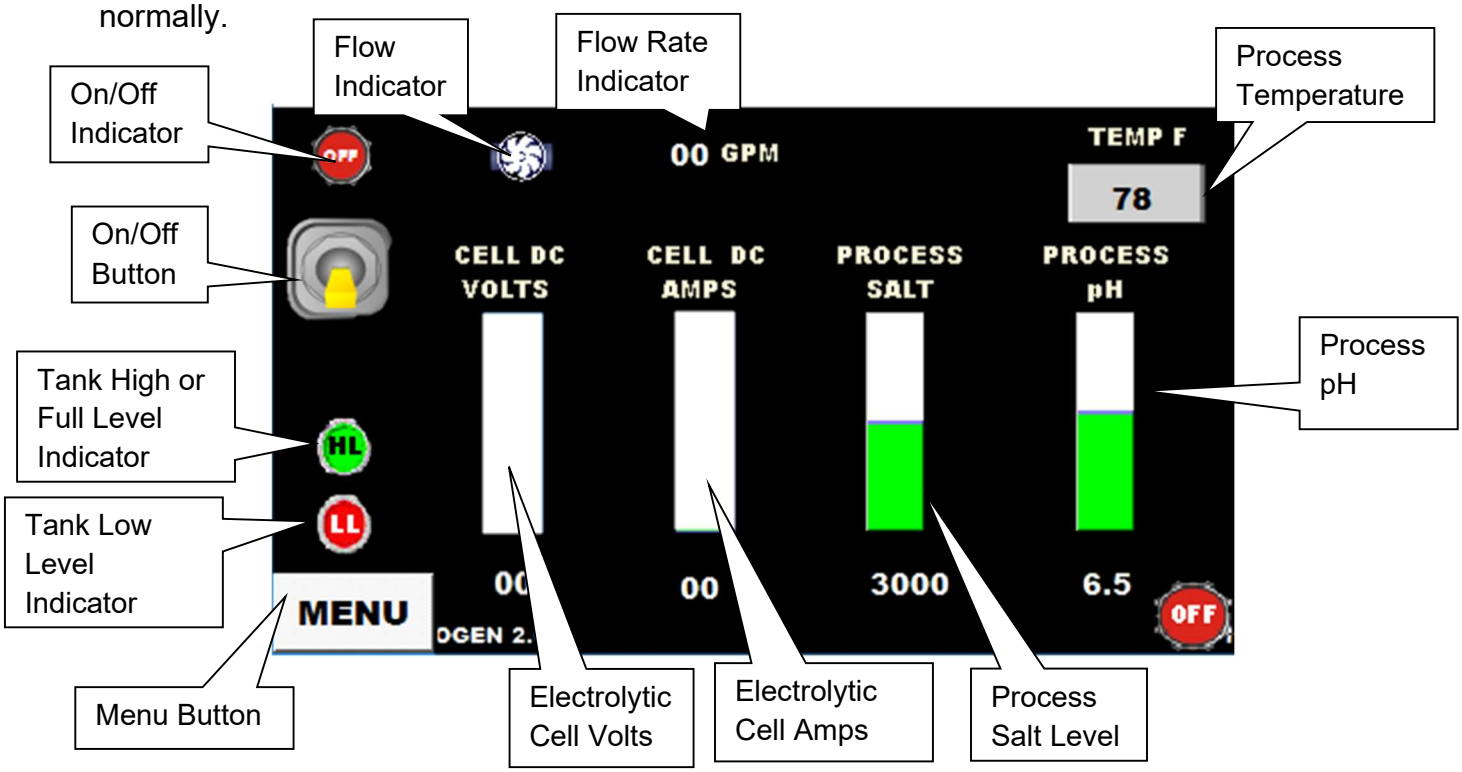
3.3 ADJUSTING SYSTEM FLOW

System flow adjusts automatically to .1 GPM on a HYPOGEN2.0 and .25 GPM on a HYPOGEN5.0.

3.4 USING THE TOUCHSCREEN

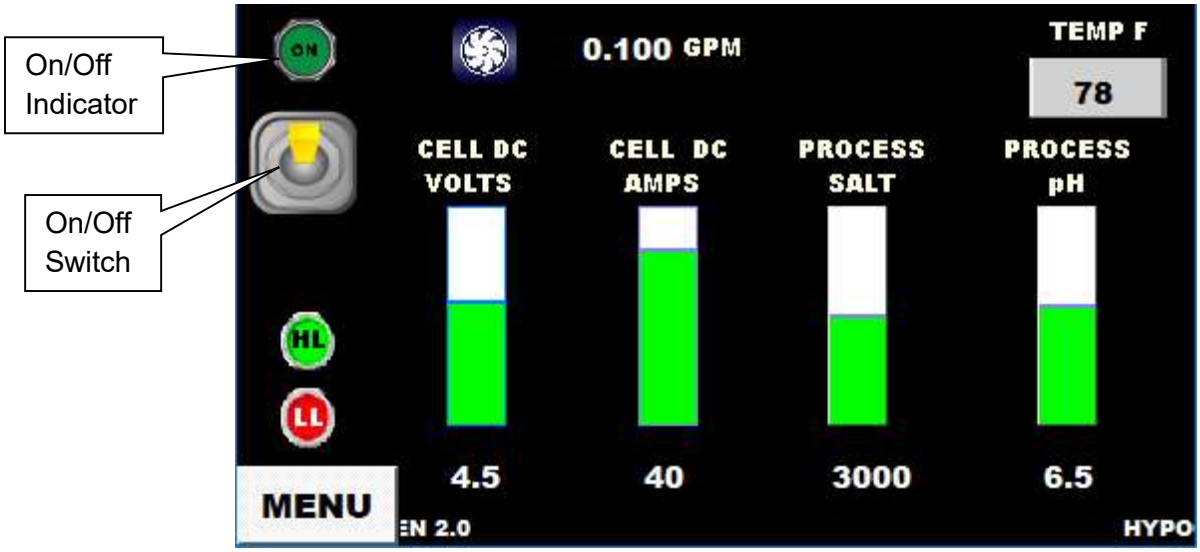
Home Screen

Below is the HOME screen that will be displayed any time the HYPOGEN is operating normally.



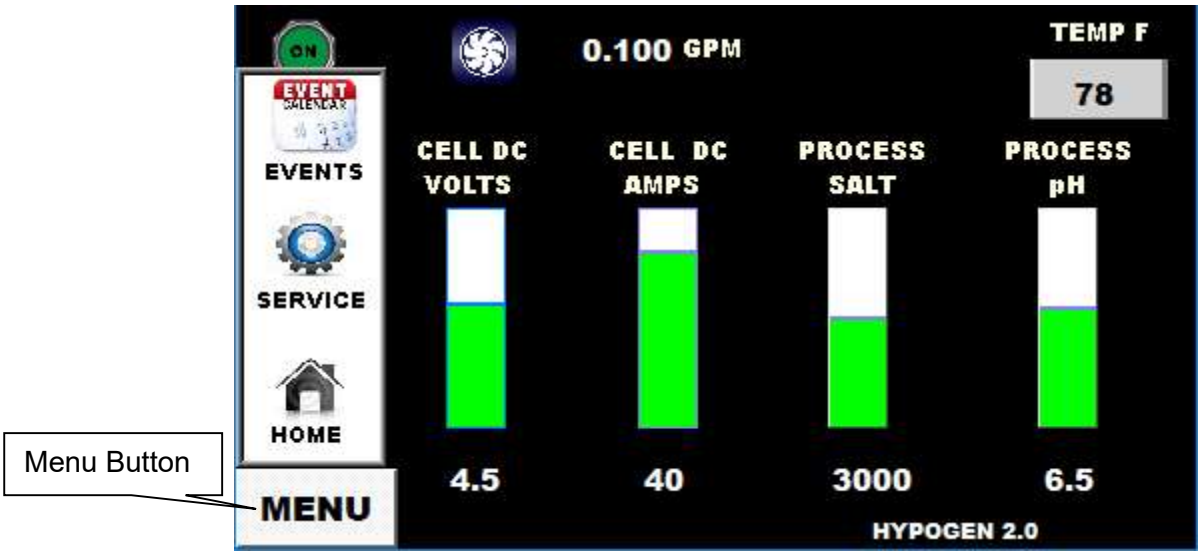
Turning the HYPOGEN On or Off

To turn the system on or off, press and hold the ON/OFF button until the desired ON/OFF indicator is displayed.



The Menu

Press the MENU button to access the HOME, SERVICE and EVENTS buttons.



The Service Screen

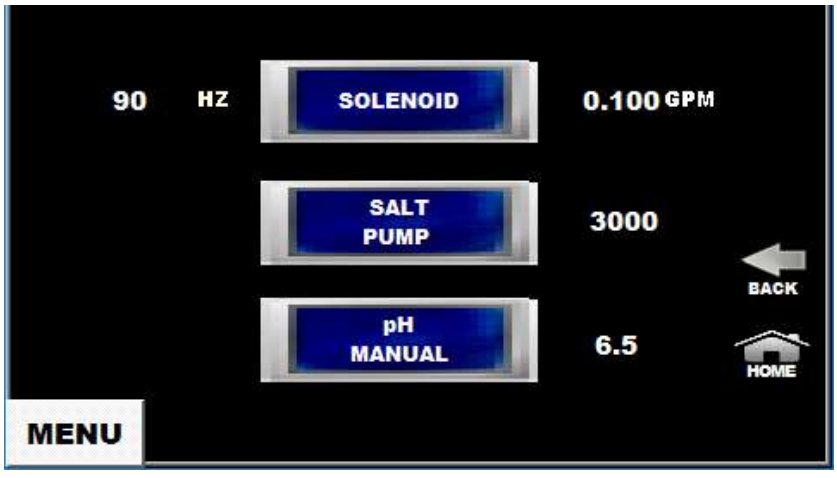
Press MENU then SERVICE to access the SERVICE screen. The service screen has the option to manually TEST system outputs and to view recorded data.

System Tests

Note: Selecting the TEST screen will turn the HYPOGEN system off.

Press MENU then SERVICE then TEST to view the test screen. The following components can be manually operated for testing from this screen.

Water Flow Solenoid
Salt Metering Pump
Acid Metering Pump

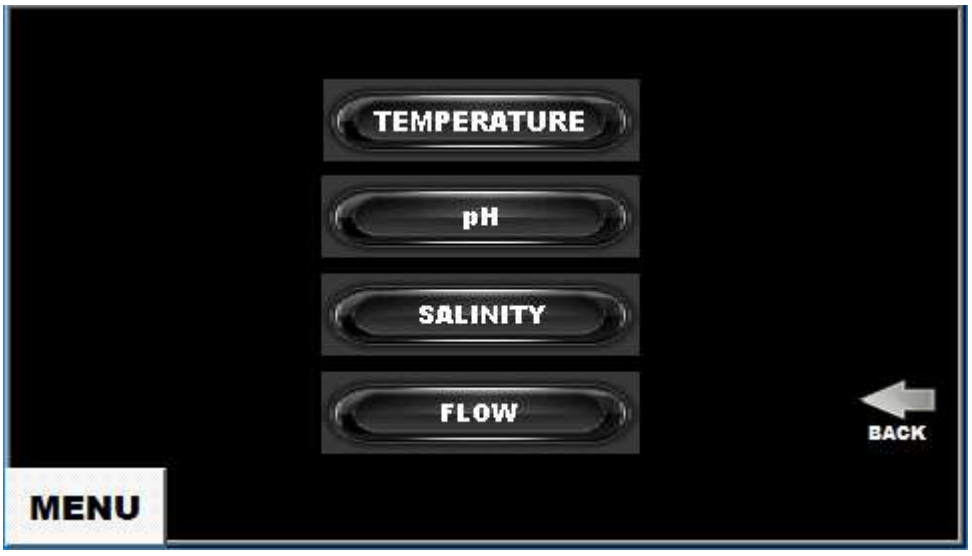


Accessing the Recorded Event Log

Press MENU then SERVICE then RECORD to access the event log screen. The event log will store every system event that has occurred by date and order.

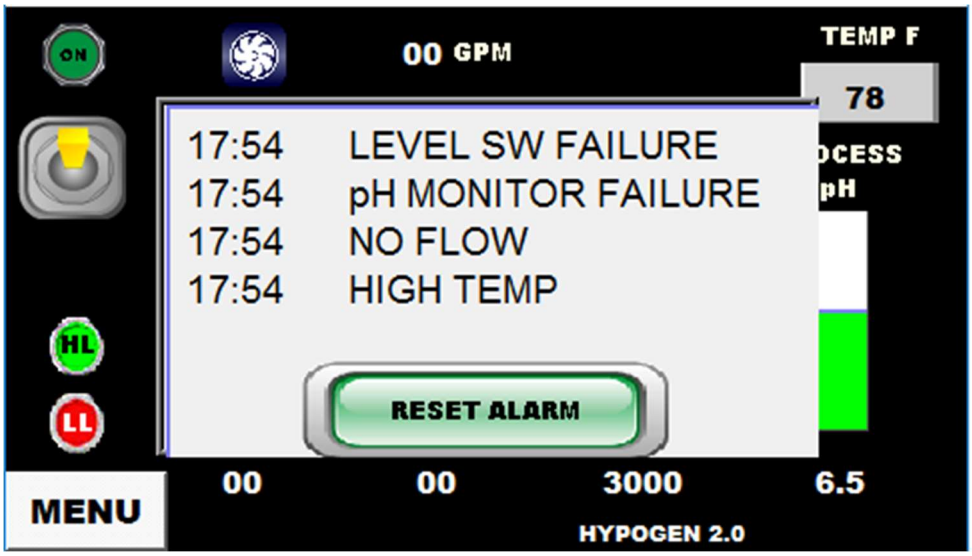
Accessing Graphs

Press MENU then SERVICE then GRAPHS to access the graphs screen. From this screen process temperature, process pH, salinity, and flow rate can be seen over history.



Accessing the Current Event Log

Press MENU then EVENTS to access the current event log. This screen lists current events or faults. This screen will also activate automatically whenever a fault occurs. Pressing the RESET ALARM button will reset all alarms.



SECTION 4
MAINTENANCE

4.1 ROUTINE MAINTENANCE

Daily

Confirm system operation with a visual inspection. Check flow rate, cell amps and volts, salt concentration and pH to ensure they are in range. Check that the Saturated Salt Feeder and Acid Feeder are full.

Monthly

Check the system filter and clean as necessary. Check the cell condition and clean as necessary.

SECTION 5
FAULT DESCRIPTIONS

pH Monitor Failure

If the system is on and pH is 0 for 30 seconds, the message above is displayed. The system will shut off until the fault is corrected and cleared.

Check Power Supply

If the system has enabled the power supply and salt is greater than 2500 ppm but the cell amps and volts are both low for 4 minutes, the message above is displayed. The system will shut off until the fault is corrected and cleared.

Salt Sensor Disconnected

If the salt concentration is less than 80 ppm and the temperature is equal to 32 degrees F for 8 seconds, the message above will be displayed. The system will shut off until the fault is corrected and cleared.

No Flow

If the system water solenoid is open and flow is equal to 0 for 15 seconds, the message above will be displayed. The system will shut off until the fault is corrected and cleared.

Low pH

If pH is less than 5.0 and salt is greater than 2500 ppm for 7 minutes, the message above will be displayed. The system will shut off until the fault is corrected and cleared.

Low Salt

If salt is less than 2500 ppm and flow is greater than 0 for 7 minutes, the message above will be displayed. The system will shut off until the fault is corrected and cleared.

Low Flow

If flow is less than the minimum set-point selected from the set-point screen for 1 minute, the message above will be displayed. The system will shut off until the fault is corrected and cleared.

Check Cell

If salt is greater than 2500 ppm, cell volts are greater than 4.7 (HYPOGEN2.0) or 14.5 (HYPOGEN5.0), and cell amps are less than 10, the message above will be displayed. The system will shut off until the fault is corrected and cleared.

Level SW Failure

If the high-level switch is open and the low level switch is closed for 5 seconds, the message above will be displayed. The system will shut off until the fault is corrected and cleared.

High pH

If pH is greater than 8.0 for 7 minutes, the message above will be displayed. The system will shut off until the fault is corrected and cleared.

High Temp

If process temperature is greater than 110 degrees F for 20 seconds, the message above will be displayed. The system will shut off until the fault is corrected and cleared.

High Flow

If flow is greater than the maximum set-point selected from the set-point screen for 1 minute, the message above will be displayed. The system will shut off until the fault is corrected and cleared.

SECTION 6
WARRANTY INFORMATION

The ChlorKing® HYPOGEN system carries a limited 3-year warranty

1. 3-year warranty on assembly of the system.
2. 1 year on all electrical items, cell tubes, and production tanks.
3. 2 years pro-rated monthly, on titanium electrodes. (Year 1 is warranted fully, thereafter pro-rated warranty applies, applicable over the full 2-year period. Applicable on electrode stacks where full price has been paid.)

- **ChlorKing®** advises that titanium electrodes will have to be replaced approximately every 15,000 hours of operating time.

- **ChlorKing®** warranties will not be honored should it be shown that the operating and maintenance procedures have not been followed, particularly with regard to the cleaning frequency program.

- **ChlorKing®** warranties of the titanium electrodes will not be honored if the system is operated in water temperatures lower than 59 degrees F.

- During the warranty period the customer shall return the defective component, freight prepaid, accompanied by the original invoice or proof of purchase, and **ChlorKing®** shall at its sole discretion elect to repair or replace the defective component and return it to the customer, freight pre-paid.

ChlorKing® accepts no responsibility other than to repair or replace a defective component, and this warranty specifically excludes product failure due to accidental damage, abuse, misuse, and negligence, damage due to non-compliance of the operating manual or unauthorized alterations or modifications to the system. **ChlorKing®** accepts no responsibility and is not liable for any extended warranties or variations to this warranty offered by re-sellers of **ChlorKing®** systems.