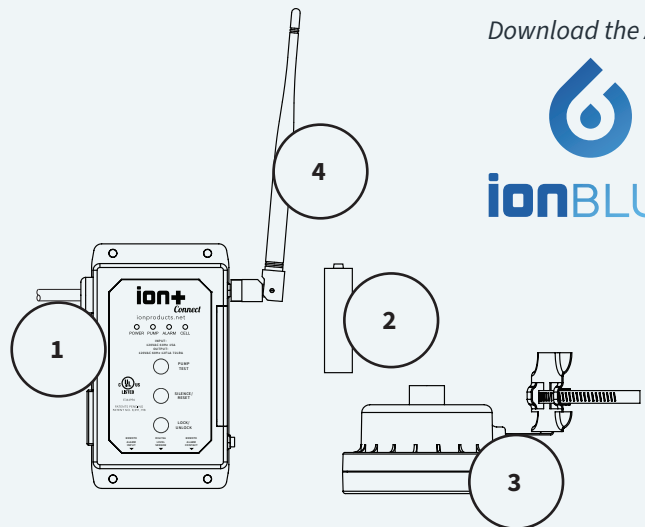# Ion+ Connect™

Operation Manual

The Ion+ Connect is a residential sump/sewage ejector pump controller equipped with the Ion® level sensor and integrated cellular module for communicating with the Ion+ Connect app. The device will run one or two manual pumps up to 12 FLA, can sense up to 72" of water, has customizable start/stop/alarm levels, and provides alarm notifications via push notifications for alarms like high water, pump fail, power fail, and many more.

WHAT'S IN THE BOX

The Ion+ Connect comes with:

1. **Ion+ Connect**
   Pump Controller equipped with 10' 115 VAC cord.

2. **Rechargeable Lithium Ion Battery**
   Powers the Ion+ Connect in the event of power loss.

3. **Ion Sensor with pipe clamp**
   Connects to Ion+ Connect to provide level signal.
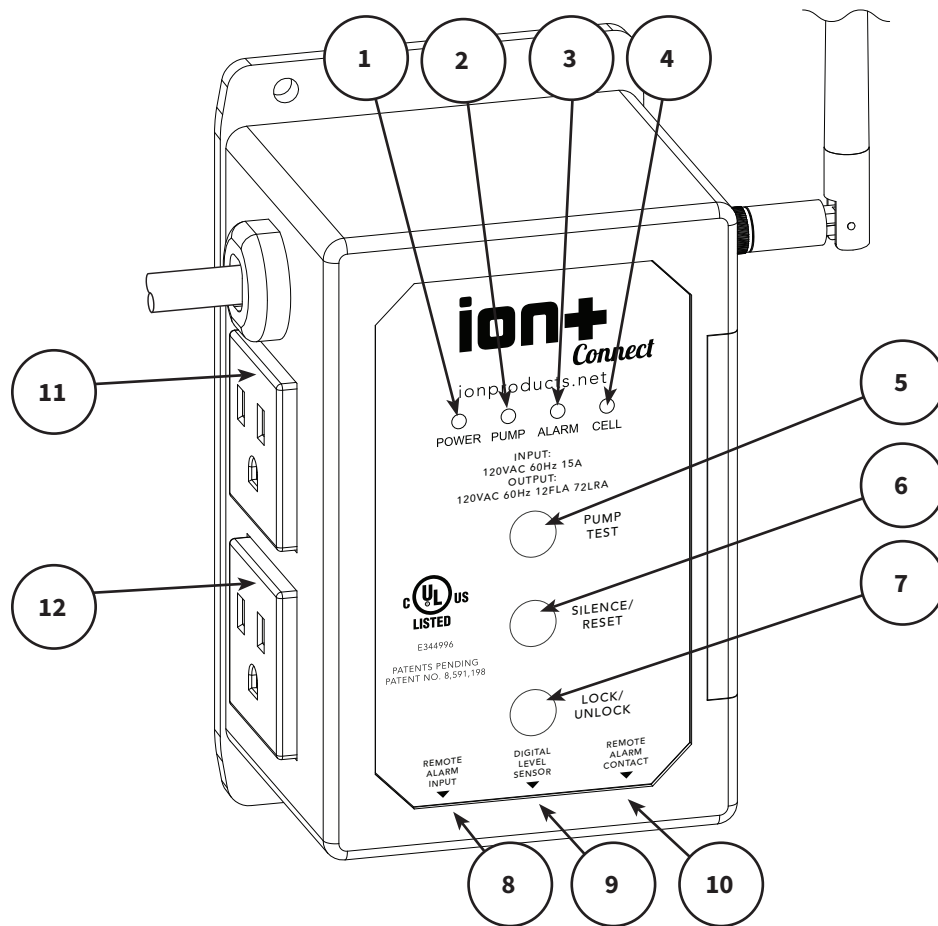
4. **Antenna**

Download the App:

ionBLUE

FEATURES

1. **Power LED**
   Indicates the power status of unit. Refer to the LED section for details.

2. **Pump LED**
   Indicates the pump status. Refer to the LED section for details.

3. **Alarm LED**
   Indicates alarm status. Refer to the LED section for details.

4. **Cellular LED**
   Indicates cellular connectivity status. Refer to the LED section for details.

5. **Pump Test**
   Hold down the button until the device beeps to manually run pump(s).

6. **Silence / Reset**
   Momentarily push for Alarm Silence. Hold to reset unit.

7. **Lock / Unlock**
   Press and hold until the unit beeps twice to unlock it.

8. **Remote Alarm Input**
   Aux alarm input connection via 6P2C (RJ11) jack (must be powered).

9. **Digital Water Level Sensor**
   Connection for Ion Sensor.

10. **Remote Alarm Contact (Output)**
    Normally closed, dry contacts via 6P2C (RJ11) jack.

11. **Pump 1/ Default Outlet**

12. **Pump 2/ Secondary Outlet**

iOn Technologies
A Metropolitan Industries Company

INSTALLING YOUR ION+ CONNECT

⚠ **WARNING:** Do not plug in the device until instructed.

⚠ **WARNING:** Do not install the lithium ion battery in the device until instructed.

⚠ **CAUTION:** The device must be allowed to reach room temperature or you run the risk of the device alarming once it's plugged in. Your Ion+ Connect is equipped with a temperature sensor. If the device is too hot or too cold based on the factory settings (over 110° F or under 45° F) the temperature sensor will alarm. If your Ion+ Connect alarms when it is plugged in, please see **Troubleshooting, Page 18.**

NOTE: IF YOU ARE INSTALLING THE ION+ CONNECT TO AN EXISTING BATTERY BACKUP SYSTEM, PLEASE CONTACT MANUFACTURER FIRST.

1. **Install Ion+ Connect and Ion Sensor**

   a. Mount the Ion+ Connect unit to wall with appropriate screws (not included). **(See Figure A)**
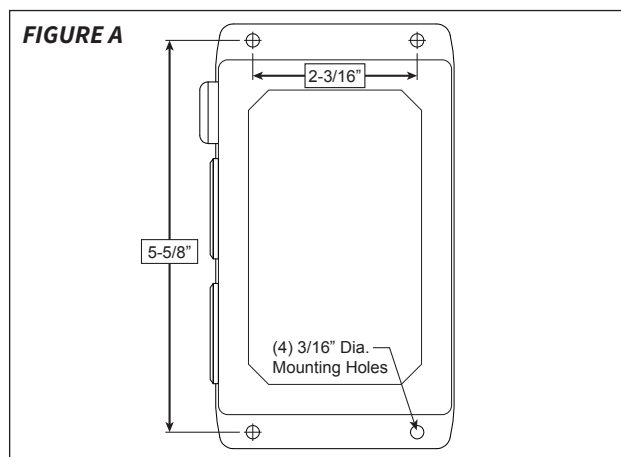
FIGURE A

   b. Determine the preferred pipe bracket mounting orientation for the Ion sensor **(See Figure B)**.

FIGURE B — Optional bracket
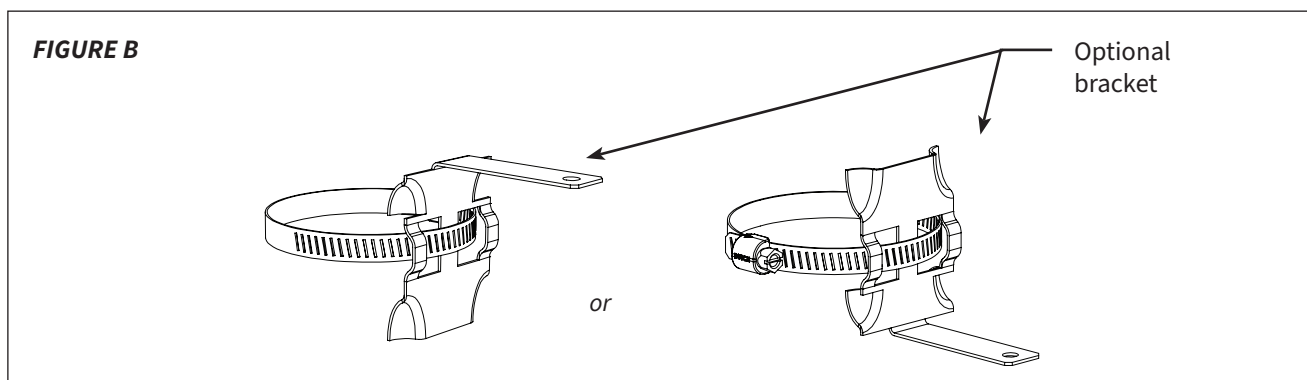
   c. Mount the bracket to the Ion sensor with the screw already provided in the Ion sensor **(See Figure C)**

   d. Mount the hose clamp with attached sensor around the discharge pipe at the predetermined level. The sensor cable should remain outside of the hose clamp **(See Figure D)**. Tighten the hose clamp.

iON Technologies
A Metropolitan Industries Company

FIGURE C

FIGURE D
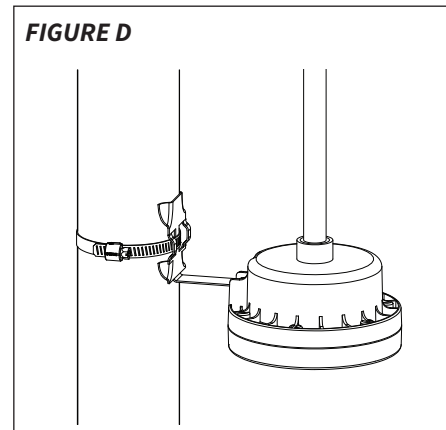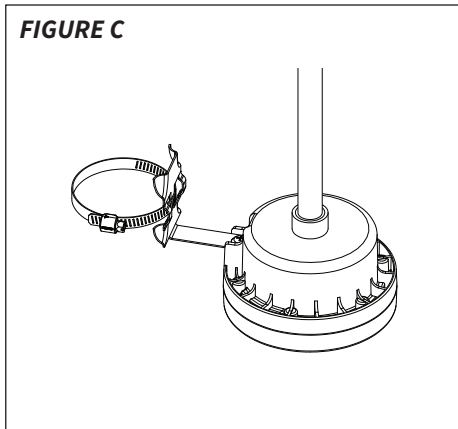
e. Pull the pump power cord and the Ion sensor cord through sump pit lid.

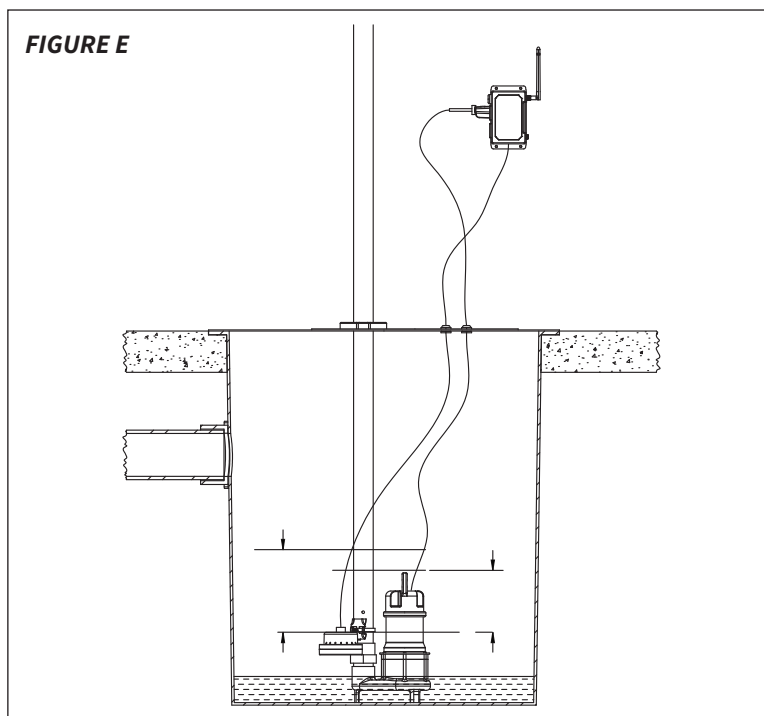f. If you have a simplex pump system (this is only one pump), plug your pump into the top outlet on the left side of the Ion+ Connect. If you have a duplex system, plug the second pump into the bottom outlet on the Ion+ Connect.

g. Plug the Ion sensor into the jack on the bottom labeled "Digital Level Sensor".

Note: The included Ion digital water level sensor has a 72" range. The range of the sensor is the maximum distance between the pump on and off levels. The off level is approximately at the bracket mounting screw of the sensor.

⚠ **CAUTION:** The bottom of sensor should not be mounted lower than the suction inlet of the pump. When installing the Ion sensor with the pipe mounting bracket, be sure not to set the sensor too low (below the inlet of the pump) or too high (allowing water to re-enter the inlet drain tile pipe) on the pump discharge pipe. The Ion sensor must be installed above the inlet of the pump to prevent airlocking as shown in the installation diagram **(See Figure E)**.

To prevent flooding do not set the on point of the pump higher than the top of the basin. This setting is configured in the Ion+ Connect app.



FIGURE E

iOn Technologies
A Metropolitan Industries Company

NOTE: If you purchased a pump with the Ion sensor already mounted to the pump **(See Figure F)** and the installation requires the sensor be mounted to the pipe. You can purchase the pipe-mount bracket separately, **PN:** IN-SPB1-1.

NOTE: The high water alarm level should be set at 2" above the lead pump start setting.

⚠️ **WARNING:** As a reminder, do not install the lithium ion battery in the device until instructed.

FIGURE F

Factory default settings
User adjustable up to 72"

2"

High Water Alarm

4" Range On
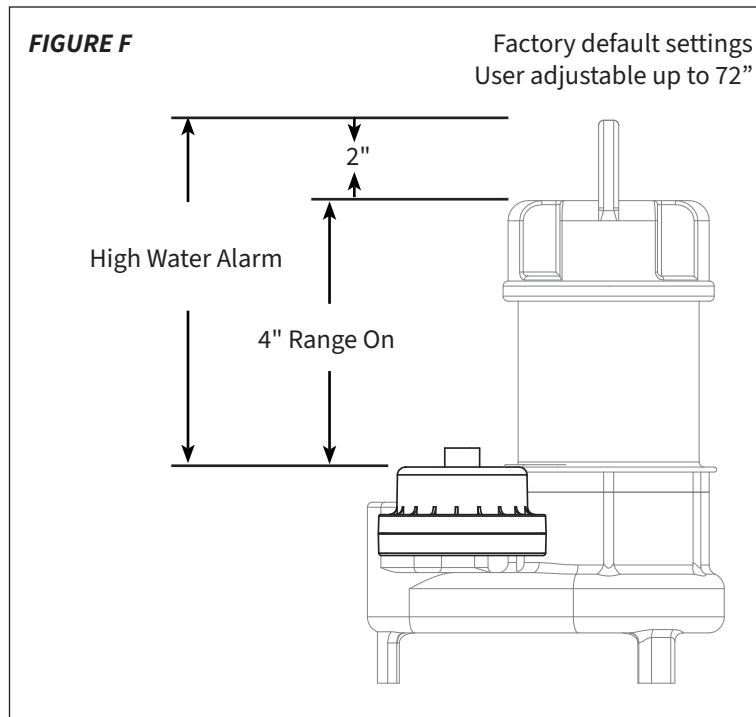
2. Power On

Plug the Ion+ Connect's AC power cord into a dedicated outlet. Alternatively, if you have a UPS/battery backup system plug the Ion+ Connect into it instead.

3. Install Lithium Ion Battery

The Ion+ Connect comes with a rechargeable lithium ion battery to provide backup power in times of power loss. In order to continue to send out alarm notifications and sound the alarms in times of power loss, this must be installed. **Note:** This battery will not run your pump.

   a. The battery should be installed while the LEDs on the front of the Ion+ Connect are still flashing (about 5 seconds).

   b. Remove the slide cover on right edge of unit.

   c. Install battery **(See Figure G)**, observing proper orientation/polarity (positive battery terminal/button toward top).

   d. Reinstall the battery cover.

Ion+® Connect

Digital Level Control Switch and Alarm
with Internal Cellular Module

FIGURE G
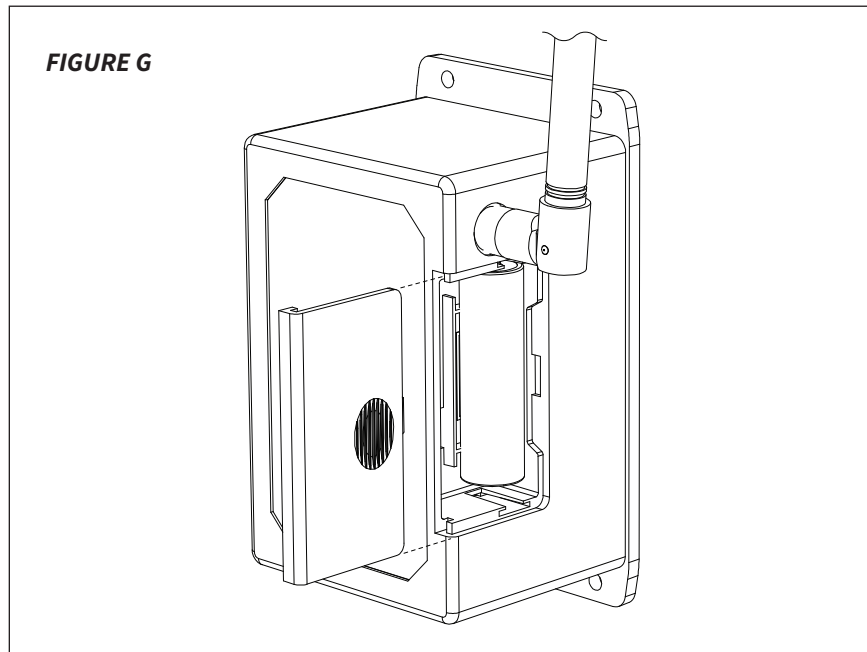
SETTING UP YOUR ION+ CONNECT

Device and Ion Blue App Setup

1. Download the Ion Blue app from the Apple app store or the Google Play store.

ion Technologies
A Metropolitan Industries Company

2. Tap register to create a new account and then proceed to login.
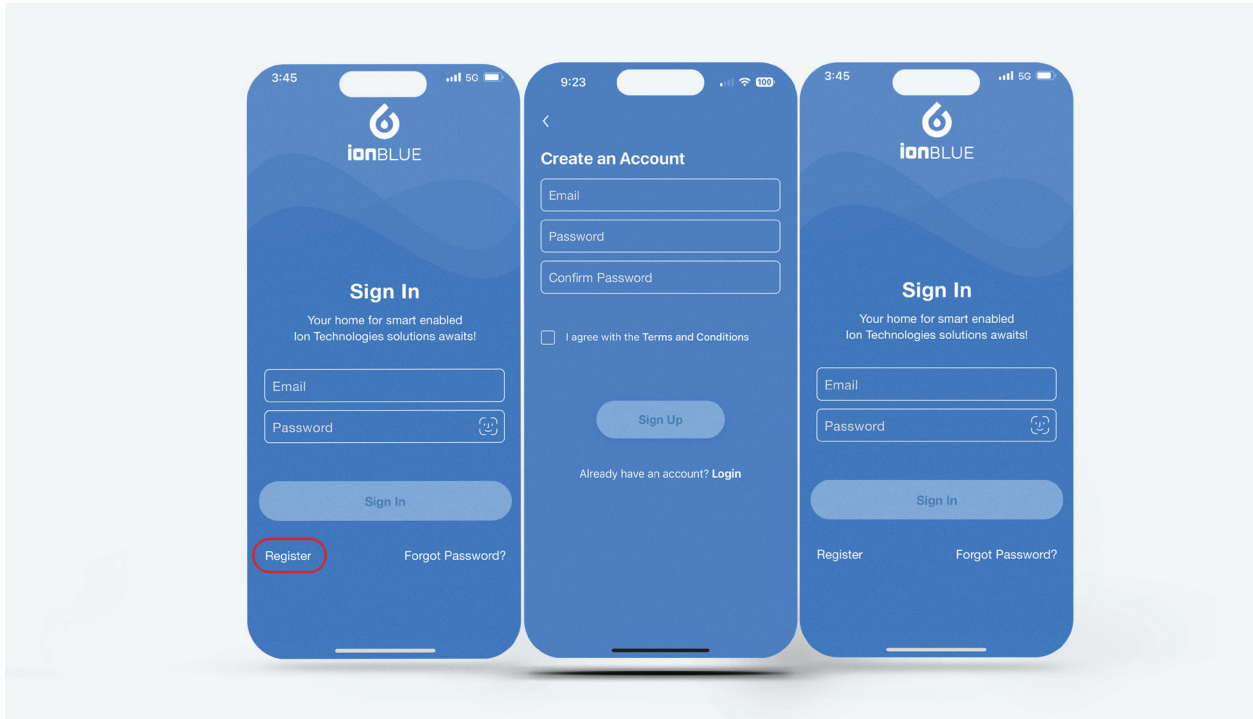
3. Next, Add your device and follow the on-screen instructions. The QR code and number are on the top of your Ion+ Connect. **Note:** Figure H is a sample image, do not scan the QR code in this figure.

Figure H

SCAN QR Code or Enter Product Number Manually

ion Technologies
A Metropolitan Industries Company

4. Afterwards, you will receive confirmation screen, there you will name your device. Next, set your location which will also be your billing address.
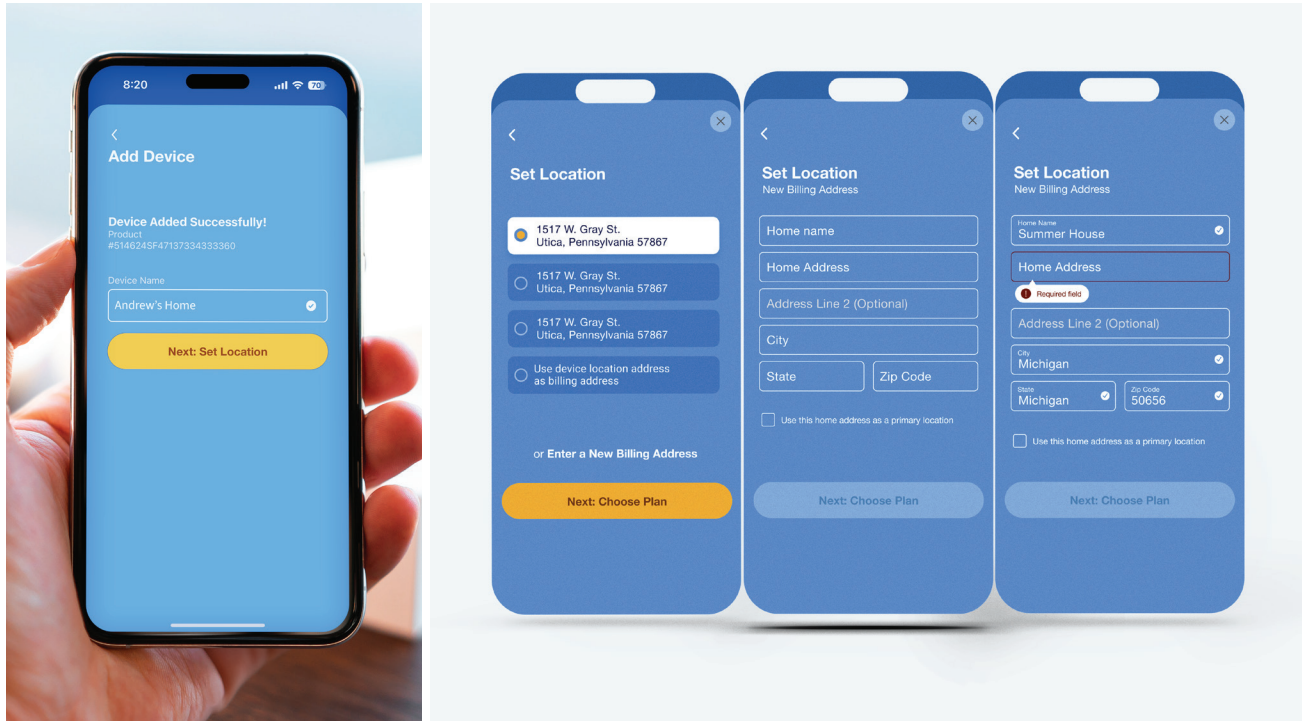
5. Choose your plan and follow the on-screen steps to enter payment information. **Note:** *Billing occours after a succesful activation.*

ion Technologies
A Metropolitan Industries Company

6. Once your Ion + Connect succesfuly connects you can move on to device set up. This infomation will be filled in automatically, for a typical installation you will just hit next.
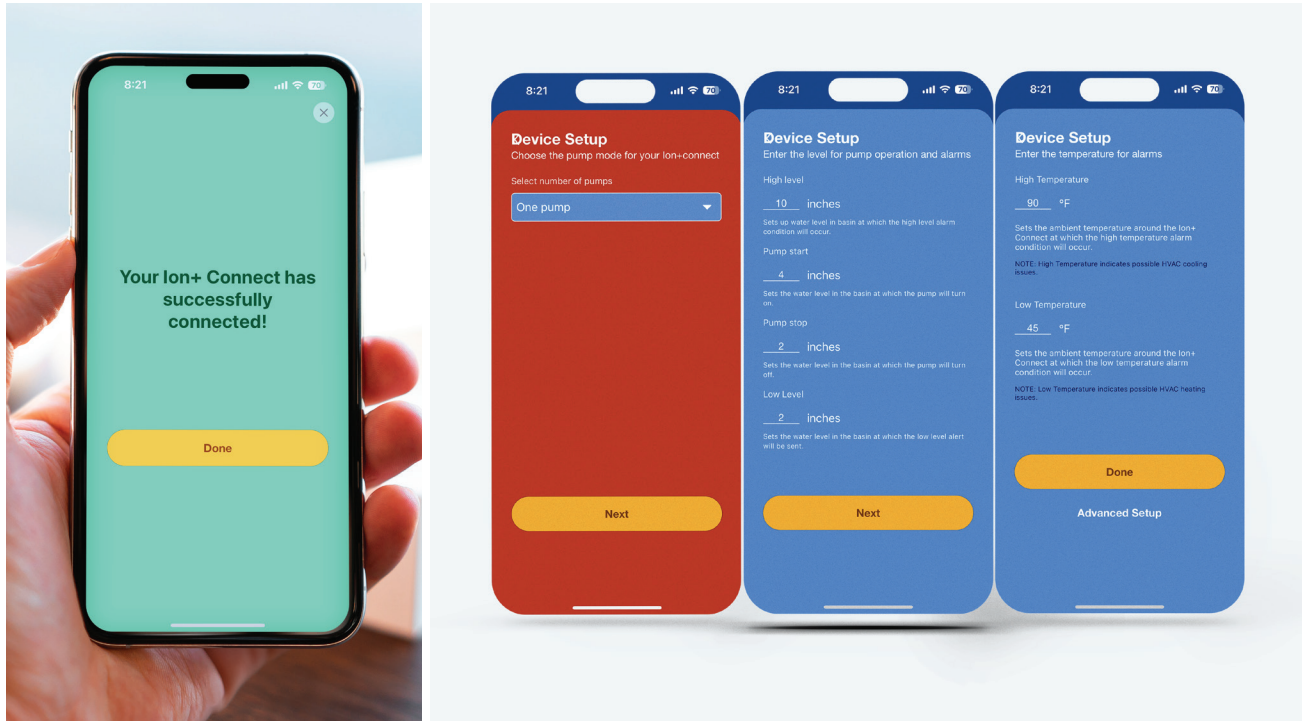
Note: We do not recommend changing these default settings unless recommended by your Certified Installer.

7. Once your device is successfully activated, installation and basic setup of your Ion+ Connect is now complete.

ion Technologies
A Metropolitan Industries Company
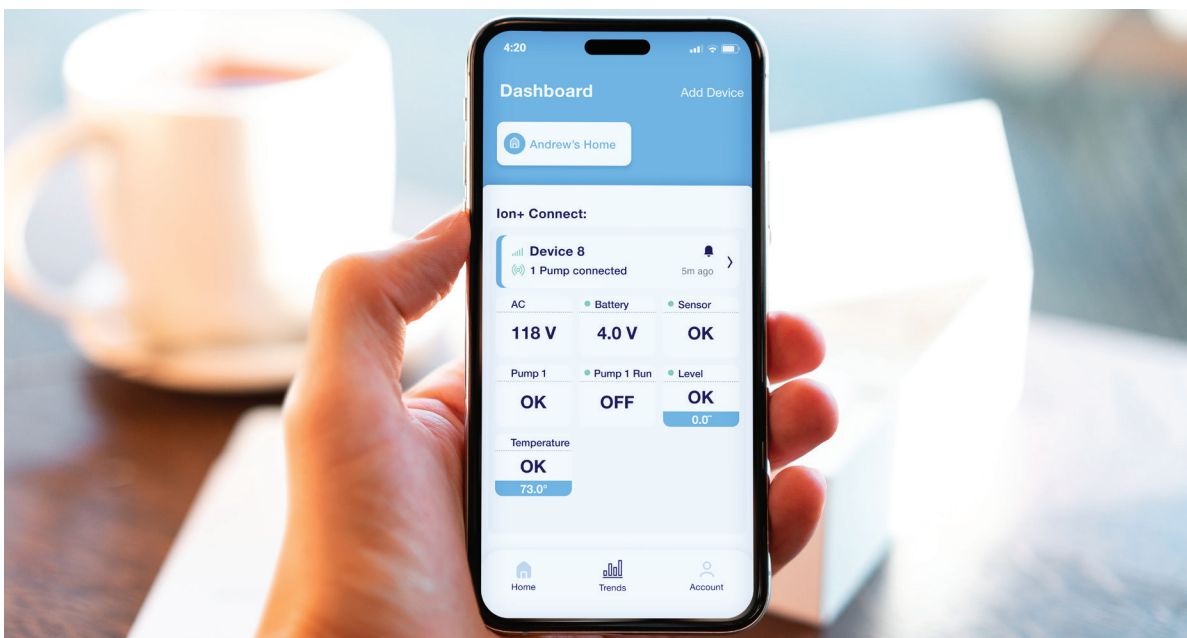
Customer Support

If at any point you are having issues with your setup, please don't hesitate to **contact us at (815) 886-9200**. We are happy to help, just ask our receptionist to speak with **"Ion Support"** and be connected with our experts.

TESTING YOUR ION+ CONNECT

1. **Test Your Pump**

You can test your Ion+ Connect at any time by pressing the "Pump Test" button.

    a. Holding Pump Test will manually run pump.

    b. Hold pump test for 3 seconds to briefly run the pump and test the current. If the pumps are okay, the test will stop with no further notification. If there is an issue, the listed users will receive an alarm notification.

2. **Test Your Ion Sensor**

    a. Fill the sump pit with water.

    b. Confirm the water is pumped out of the pit. No alarms or notifications should be initiated.

3. **Test Your Controller Backup Battery**

    a. Unplug the AC power adapter from the 120 VAC outlet.

    b. Once the Ion+ Connect detects that power was lost, each recipient you configured will receive a notification, and the power LED will blink amber.

    c. Plug the AC power adapter back into the 120 VAC outlet.

NOTE: The backup battery requires approximately 6 hours to fully recharge. The battery has a lifespan of up to 3 years and should be replaced regularly. The battery can last for up to 2 hours without permanent life degradation. If longer, the battery may be damaged and trigger a bad battery alarm later. The battery's voltage/condition is visible in the Ion+ Connect app.

Testing is Complete

    a. Your Ion+ Connect has been tested and is working properly.

    b. You should periodically perform these tests on the Ion+ Connect to ensure you are always protected.

ANTENNA EXTENDER

If the location of your sump pit has a weak cellular signal, you can use the optional antenna extender to improve your signal. Use the included adhesive pads and cable ties to route the cable to a location with better cellular reception. Attach the end of the antanne extender's cable to the Ion+ Connect, and mount the antenna extender to the wall with the attached bracket **(Figure I)**.
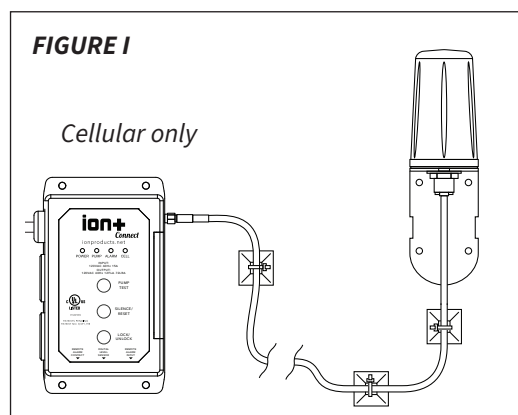
FIGURE I

Cellular only

ion Technologies
A Metropolitan Industries Company

DEFAULT SETTINGS

Your Ion+ Connect is shipped with factory recommended settings. If you decide not to change any settings your Ion+ Connect will function as follows:

High Level: 8"

Pump Start: 4"

Pump Stop: 2"

Lag Pump Start: 6" (Duplex Only)

Lead Pump Start: 4" (Duplex Only)

Lag Pump Stop: 4" (Duplex Only)

Lead Pump Stop: 2" (Duplex Only)

Low Level: 0" (0"- Disabled, other values- Enabled)

Temperature High: 110° F

Temperature Low: 45° F

MODE EXPLANATIONS

WARNING: Changing these settings incorrectly may adversely affect pumping operation. If unsure about the settings, consult the website FAQs and videos or contact technical support.

The controller has a menu of user-configurable settings that may be altered if an unusual pump installation requires it; normally, these settings do not need to be changed. The individual settings are described below and, once saved, will be retained in the event of a complete power failure.

Controller's Operating Mode

The Controller's Operating Mode can be set to one of four modes. "Duplex Similar" means the controller will run one or two pumps together as required. "Duplex Mixed" means the controller will run one or two dissimilar pumps (that is, each drawing much different current) as required. "Simplex Non-alternating" means there is only one pump installed and it is plugged into pump outlet #1. This allows a pump to be installed that uses the entire current available to the controller by the electrical outlet on the wall. "Simplex Alternating" means there are two pumps installed, but they will never run simultaneously. This, too, allows each pump to use the entire current available to the controller by the electrical outlet on the wall since the pumps will never be run together. The default is Simplex Alternating mode.

High Water

2" above lead pump start (Duplex mode) or pump start (Simplex mode) setting.

Lag Start Level (2 pump operation only)

The Lag Start Level is the number of inches *above* the Setpoint that was configured in the Setup section where the *second* pump will turn on. The default is 4 inches.

Excess Run Time

The Excess Run Time is the number of minutes that a pump can run continuously before an alarm is initiated. This alarm feature can be turned off by setting it to zero. The default is 3 minutes.

Emergency Run Time

ion Technologies
A Metropolitan Industries Company

The Emergency Run Time is the minimum number of seconds a pump(s) will run when water has reached the HIGH LEVEL SENSOR. The default is 10 seconds.

OPERATION

The controller will turn one pump on whenever the water level rises above the Setpoint that was configured in the Setup section. If the water continues to rise a few inches above that height (as configured in the Menu), a second pump will be turned on, if it is present and the controller is set to run in duplex mode (see the Menu section). Any running pump will be turned off after the water level is pumped down to the middle of the DIGITAL LEVEL SENSOR.

Note: The controller will operate based on what it is set to as described in the Menu section, under "Controller's Operating Mode".

Under any of the following conditions, the controller will enter a state of alarm:

- A pump failure has been detected

- The water level reaches the HIGH LEVEL SENSOR

- A water level sensor has failed

- A pump has been continuously running but the water level remains above the DIGITAL LEVEL SENSOR for an extended period of time (as determined by the Menu setting)

Once in an alarm state, the controller will notify the user that there may be trouble by:

- Initiating audible and visual cues

- Breaking (electrically opening) the remote alarm contacts which can be connected to another alarming device, allowing it to inform the user remotely (these contacts are normally closed)

- Communicating the alarm based on notification settings in the app.

PUMP FAULT DESCRIPTION

The controller determines pump condition via its built-in electrical current sensor. Whenever a pump draws abnormal current, the controller enters a state of alarm telling the user that pump service is needed.

SPECIFICATIONS

Remote Alarm Contacts:	Normally Closed, 30 VAC/DC @ 1 A
Temperature Range:	-20 °C to 60 °C (-4 °F to 140 °F)
Audible Alarm:	> 90 dB at 2 feet
Enclosure:	NEMA-1 Polycarbonate
Dimensions (controller):	6.125" x 3.25" x 3"
Dimensions (sensor):	4.62" x 4.62", mounting straps: 5.25" x 3.50"
Mounting:	Up to #10 screws

See settings tab in app to change advanced settings - each setting has a description.

ion Technologies
A Metropolitan Industries Company

TROUBLESHOOTING

Your Ion+ Connect alarms as soon as you plug it in.

1. Open the Ion+ Connect app and make note of the device's temperature reading.

2. In the device settings screen, change the temperature setpoint so that the temperature reading is with range. This can be changed at a later time to a different temperature.

3. You can go to the next section to check LED status to see whether any LED indicating errors.

Ion+ Connect Does Not Turn On Pump

1. Test the pump without the Ion+ Connect

   a. Plug the pump directly into the wall outlet, without plugging it into the Ion+ Connect.

   b. If pump still does not run, see the troubleshooting section in the pump manual.

   c. If the pump does run, continue to the next step.

2. Test the Ion+ Connect with the pump

   a. Plug the pump into the Ion+ Connect and plug the Ion sensor plug into the Ion+ Connect.

   b. Push up on the sensing plate on the underside of the sensor. Note that, being an electronic sensor, you will not hear a clicking sound. If it is working, you will see an orange LED come on, along with the green LED.

   c. If the pump does not turn on, the sensor may have to be replaced.

   d. If the pump does turn on, continue to the next step.

3. Verify the pump start/stop settings for the sensor

   a. For a pipe-mounted sensor, see **Page 5, Installation Drawing** to verify that the On level is appropriate for your basin.

      i. Lower the sensor on the pipe so the On level is at a point within the basin, insuring that the Off level does not fall below the minimum level shown in the Installation Drawing.

      ii. If the On level is still too high, adjust the pump start level via app commands.

   b. For a pump-mounted sensor, see **Page 5, Figure F** to verify that the On level is appropriate for your basin.

      i. If the On level is too high, adjust the pump start level via app commands.

Ion+ Connect Does Not Turn Off Pump

1. Unplug the pump from the Ion+ Connect and then unplug the Ion+ Connect.

2. Plug the pump back into the Ion+ Connect and plug the Ion sensor back into the Ion+ Connect.

   a. If the pump does not turn on right away, and the water level is not at the On level, let the pump go through an On / Off cycle a few times to insure that the sensor is functioning properly. The basin may need to be filled with water using a garden hose or bucket.

   b. If the pump turns on right away, and the water level is not at the On level, adjust the level via app or move the sensor higher on the pipe.

iON Technologies
A Metropolitan Industries Company

To Test Ion+ Connect Alarm Mode

1. Applying constant pressure, push on sensing plate past the turn on point. Once the orange LED comes on, continue pushing until you see the orange LED flash. The red LED will turn on next and then the audio alarm will sound.

2. If you can not push the sensing plate hard enough to activate high water alarm mode, the sensor will need to be replaced.

Note: When the Ion+ Connect goes into alarm mode, the orange LED will flash. All LEDs will go blank and it will then go into alarm mode.

The controller keeps reporting a water sensor failure.

Make sure the sensor is securely plugged into its jack in the controller box (see Installation section).

Pump won't turn off even though pit is empty.

The digital level sensor must be mounted above all pump intakes.

Error Reporting, Troubleshooting and Support

For technical support and troubleshooting tips please call 815-886-9200 or visit our website at ionproducts.net. If you are unable to solve your issue using our online support, email info@ionproducts.net with your contact information and a description of the problem, and a support representative will call you within one business day.

Additional Information and Support

For additional information or more detailed instructions on how to use your Ion+ Connect system, as well as installation and setup videos, please visit us on the web at ionproducts.net.

Warranty is VOID if...

1. Using an extension cord.

2. Power cord has been cut or the grounding prong removed or using an adapter fitting.

3. The switch has been disassembled or tampered with.

4. Any tags or labels have been removed.

iON Technologies
A Metropolitan Industries Company

LED EXPLANATIONS

Power LED

Condition	
Normal	
Battery ok, AC ok	Solid GREEN
Battery Charging, AC ok	Blinking GREEN (1s on, 1s off)
Triggered alarm	
Loss of Power	Short-blinking AMBER (0.1s on, 0.9s off)
Battery Low	Short-blinking RED (0.1s on, 0.9s off)
Battery Critically Low	Alternate blinking AMBER and RED (Amber 0.5s on and RED 1.5s on)

Pump LED

Condition	
Normal	
Pump Off	Off
Pump On	Solid Orange
Triggered alarm	
No Pump	Blinking Orange (0.5s on, 0.5s off)
Pump Fail	Blinking Orange (1s on, 1s off)

Alarm LED

Condition	
Normal	
No Alarm	Off
Triggered alarm	
Alarm	Fast-blinking RED (0.5s on, 0.5s off) w/ Buzzer
Silence	Slow-blinking RED (1.5s on, 1.5s off) w/o Buzzer

Buzzer interval same as fast-blinking RED (0.3s on, 0.3s off)

Cell LED

LED Status	Condition
Solid AMBER	Device is either waiting activation or connecting to the cellular network.
Fast Blinking GREEN (0.3s on, 0.3s off)	Successfully connected to the cellular network, opening socket connection
Fast Blinking AMBER (0.3s on, 0.3s off)	Communication with the cloud initiated
Slow Blinking AMBER (1.5s on, 1.5s off)	Communication with the cloud in progress
Solid GREEN	Cellular/cloud complete

ion® Technologies
A Metropolitan Industries Company

OPTIONAL EXTERNAL CONNECTIONS

Ion+ Connect

Remote
Alarm
Input

Two centermost
pins, 5 VDC (2 mA)

Remote
Alarm
Contact

Two centermost
pins, maximum
30 VAC/DC

Optional
External
Device to
be Monitored
by Ion+ Connect
(Device must
be powered)

Optional
External
Alarm System
to Monitor
Ion+ Connect

Either circuit inside the Ion+ Connect may be configured via
cellular phone to be normally open or normally closed (see
Command Summary).

INFORMATION TO USER

Changes or modifications not expressly approved by Metropolitan Industries will void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

ion® Technologies
A Metropolitan Industries Company

NOTES

ion Technologies
A Metropolitan Industries Company

NOTES

ion Technologies
A Metropolitan Industries Company

1 Year Residential Warranty

1. <u>Coverage and Term</u>. Metropolitan Industries, Inc. ("**Metropolitan**") warrants to the original purchaser (the "Buyer") of each Ion Technologies product (the "product"), that any part thereof which proves to be defective in material or workmanship within one (1) year from date of manufacture, will be replaced at no charge with a new or remanufactured part, F.O.B. factory. Buyer shall be responsible for all freight charges and all costs of field labor or other charges incurred in the removal and/or reinstallation of any product, part or component thereof.

2. <u>Exclusions</u>. **THE WARRANTY IS SUBJECT TO THE FOLLOWING CONDITIONS AND EXCLUSIONS:**

    (a)   The Warranty excludes products or workmanship which becomes defective as a result of: (i) earthquake, fire, storms, the elements or any other acts of God; (ii) normal wear and tear from use; (iii) accident, misuse, abuse or neglect; (iv) modifications made by Buyer or any third party, other than **Metropolitan**; and (v) Buyer's failure to properly install, maintain, service and/or operate the product under normal conditions and according to manufacturer's instructions.

    (b)   **Metropolitan** shall not be responsible for, and the Warranty shall not cover, extended damage which occurs because of Buyer's failure to notify **Metropolitan** promptly in writing of apparent defects.

    (c)   Any part or component designated as manufactured by anyone other than **Metropolitan** shall be covered only by the express warranty of the manufacturer thereof.

    (d)   The Warranty shall lapse upon Buyer's failure to fully comply with the terms and conditions of its contract with **Metropolitan**, including Buyer's failure to pay the purchase price for the product or any portion thereof. Buyer's subsequent compliance with the terms and conditions of any such contract, will not cause the term of the Warranty to extend beyond the time period set forth above.

    (e)   No actions taken by **Metropolitan** to correct a defect in a product shall extend the Warranty beyond the period set forth above. **Metropolitan** shall not be obligated to remedy any defect, where otherwise required pursuant to the Warranty unless and until Buyer notifies **Metropolitan** in writing of the defect and then only if such notification is made prior to the expiration of the period set forth above.

3. <u>Process of Claims and Repairs</u>. **Metropolitan** agrees that if the product or any part or component thereof shall fail to conform to the terms of this Warranty, **Metropolitan** shall replace such nonconforming product, part or component at the original point of delivery and furnish instruction for its disposition. Any transportation charges involved in such disposition and all costs of field labor or other charges incurred in the removal and/or reinstallation of any product, part or component thereof shall be the responsibility of Buyer.

4. <u>Limitation on Liability</u>. Notwithstanding any provision to the contrary, **Metropolitan's** entire liability under this Warranty shall not in the aggregate exceed, and Buyer's exclusive and sole remedies are, to the extent permitted by law, shall be to secure replacement of the defective product. **UNDER NO CIRCUMSTANCES SHALL METROPOLITAN BE LIABLE UNDER THE WARRANTY FOR ANY INDIRECT, PUNITIVE, SPECIAL, EXEMPLARY, CONSEQUENTIAL OR INCIDENTAL DAMAGES (INCLUDING LOST PROFITS, REVENUE, USE OR ECONOMIC ADVANTAGE).**

5. <u>Express Waiver of Any Other Warranties</u>. **THE EXPRESS WARRANTY SET FORTH IN THIS WRITTEN WARRANTY IS THE ONLY WARRANTY MADE BY METROPOLITAN, OR ANY OTHER PARTY, IN CONNECTION WITH ANY PRODUCT PURCHASED FROM METROPOLITAN. NEITHER METROPOLITAN, NOR ANY OTHER PARTY, MAKES ANY OTHER EXPRESS OR IMPLIED WARRANTY WHICH IS NOT SET FORTH HEREIN, AND METROPOLITAN HEREBY DISCLAIMS AND BUYER HEREBY WAIVES ALL IMPLIED WARRANTIES, INCLUDING THE IMPLIED WARRANTY OF MERCHANTABILITY AND THE IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.**

6. <u>Not Transferable</u>. The Warranty may not be transferred and shall be void on the sale or other transfer of the product.

7. <u>Products and Warranty Subject to Change</u>. **Metropolitan** reserves the right to make revisions to its products and their specifications, and to revise this Warranty and related information without notice.