

# Installation & Operating Manual

## A COMPLETE GUIDE TO YOUR CO<sub>2</sub>ntrol WATER BALANCE MANAGEMENT SYSTEM





# CONGRATULATIONS ON THE PURCHASE of YOUR INSNRG CO<sub>2</sub>ntrol WATER BALANCE MANAGEMENT SYSTEM.

**THIS MANUAL HAS BEEN CAREFULLY  
DEVELOPED TO GIVE YOU ALL THE  
INFORMATION YOU NEED TO GET THE BEST  
VALUE FROM YOUR PURCHASE.**

It is important that you read through the manual to identify the key areas you need to understand, particularly the following:

- Health and Safety Concerns
- Installation requirements
- How to operate the major features of the unit
- The importance of maintenance
- If you have a problem, what to trouble shoot before you contact your professional
- Finally, your entitlements under your product warranty.

Insnrg have developed their product to provide you with the ultimate experience and are sure you will be delighted with your purchase.

# THE IMPORTANT BITS

- Page 5**    **Pre Check List for Pool Owner**
- Page 6**    **Warnings**
- Page 7-8**    **Installation**
- Page 8-9**    **Dosing Settings**
- Page 9-11**    **New Pool Start Up – concrete pools**
- Page 13**    **Recommended Water Balance**
- Page 14**    **Exchanger Cylinders**
- Page 14**    **Transportation**
- Page 15**    **Cylinder Connection**
- Page 16**    **Warranty**

# POOL OWNER PRE CHECK FOR CO<sub>2</sub>ntrol WATER BALANCE MANAGEMENT SYSTEM

**BEFORE INSTALLING YOUR CO2NTROL REGULATOR AND SOLENOID ASSEMBLY PLEASE CHECK THE FOLLOWING:**

Requirements:

1. The Regulator Assembly and CO2trol cylinder are installed in a well ventilated area.
2. The cylinder is not exposed to direct or indirect sources of heat.
3. The cylinder is not installed in a pit, basement, or pool shed unless a CO2 alarm is fitted low to the ground.
4. If installed in a garage or shed, ensure there is ventilation under the door to outside air or ventilation to outside at ground level.
5. Ensure there is sufficient space to install the cylinder and regulator with access to the cylinder for removal and replacement.
6. Ensure there is easy access to the cylinder. Cylinders weigh 21 kg when full.

**What equipment works with Insnrg's CO2ntrol water balance system?**

CO2ntrol integrates with Insnrg's Vi Chlorinator and Ri Dosing system which regulates dosing time to automatically adjust your pH by injecting food grade CO2 into your pool water. The CO2, once in contact with pool water creates a gentle carbonic acid. This prevents potential overdosing and excessively low pH. It is non fuming and non-interactive with other chemicals.

These instructions should be read in conjunction with the Vi Chlorinator, Ri Dosing unit or Insnrg Expansion Box.

# WE CARE ABOUT YOUR SAFETY



## IMPORTANT WARNINGS

**WARNINGS:** Please read and follow all instructions in this owner's manual and on the equipment. Failure to follow instructions can cause severe injury and/or death.

**INSTALLERS:** Insnrng highly recommend the installation of all their equipment by suitably qualified pool professional who will ensure your high performance Insnrng products are installed to your local standards and codes to ensure optimum safety and performance.



**KEEP AWAY FROM HEAT SOURCES, RISK OF EXPLOSION FROM PRESSURISED CYLINDER.**



**ENSURE THE CYLINDER IS EASILY ACCESSIBLE WITHOUT CLIMBING OR BENDING OVER OTHER OBJECTS TO REMOVE AND REPLACE CYLINDER.**

# INSTALLATION

The CO<sub>2</sub>ntrol is supplied with the following:

- An enclosure containing a preassembled regulator and solenoid valve, 3 meters of 2 core low voltage cable and plug to connect to an Insnrg Vi Chlorinator or Ri Dosing System, 3 metres of UV resistant nylon dosing tube which includes mini non return valve and PVC 50mm dosing port.
- 4 x 10g x 1 ¼" Philips head 316 SS screws
- 4 x plastic wall plugs

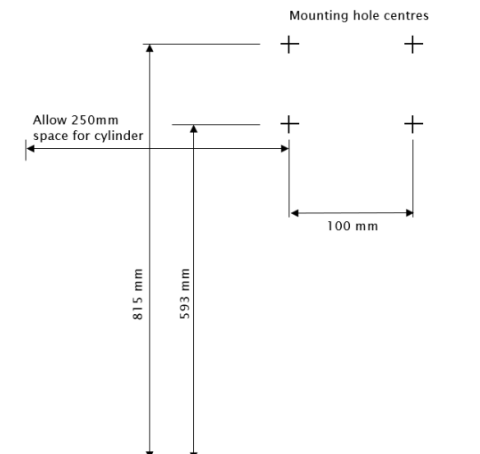
Ensure the Cylinder and CO<sub>2</sub>ntrol is installed out of direct sun and mounted so that water cannot ingress the underside (cable connection point).

The portal will obtain its power from the Cat 5e or Cat 6e data cable that connects it to the Insnrg equipment system.

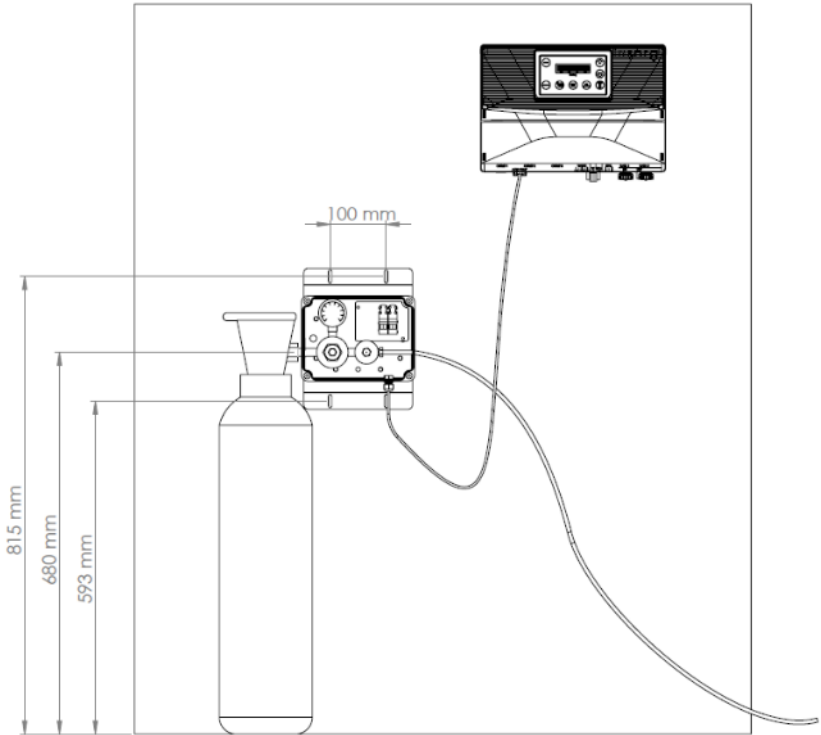
Plan the location of your CO<sub>2</sub>ntrol and cylinder so that it is within 2m of the Vi or Ri dosing system. Ensure it is accessible for future cylinder changes.

Choose flat solid base, preferrably concrete, to install the CO<sub>2</sub>ntrol system.

1. Drill mounting holes into brick, masonry or secure wall.
2. Use the Enclosure Mounting Template supplied in the carton to centre mounting holes taking care to get the height to the bottom holes correct.



3. Mount CO2ntrol regulator and solenoid assembly firmly to secure wall within 2.5 metres of the Vi Chlorinator. The CO2ntrol regulator and solenoid assembly, if secured to a masonry or brick wall will secure the cylinder when attached.
4. Assemble CO2ntrol Cylinder to Regulator Connection and tighten firmly with spanner.



5. Plug lead from Regulator and Solenoid Assembly underneath Chlorinator or Ri Doser.

# NEW POOL START UP

## Objective

To ensure a smooth start-up for a new concrete pool while using an automatic CO<sub>2</sub> injection system, allowing the pool surface to settle and maintaining proper water balance before switching to CO<sub>2</sub> for pH control.

Concrete Pools: Fully tiled, pebbled, rendered and painted concrete pools have a reactive surface finish that will take many months to cure fully. New concrete pool shells release calcium hydroxide (Ca(OH)<sub>2</sub>) which raise both pH and total alkalinity (TA). CO<sub>2</sub> lowers pH and not TA because it does not remove bicarbonates. This is great in the long run as you are not continually adjusting your TA.

While the concrete shell is still curing, the leaching of calcium hydroxide is likely to contribute to the TA rising above desired levels.

A hybrid approach to adjusting pH and TA levels is necessary on a new pool shells to ensure long term pH and TA stability. Please follow the procedure below when starting up a new or renovated concrete pool.

---

## Step 1: Initial Pool Fill and Water Chemistry Adjustment

1. Fill the pool with fresh water, ensuring a slow and even fill to minimize surface stress.
2. Test initial water parameters:
  - Calcium Hardness (CH) – Typically low in fresh water, adjust to 100 - 200 ppm.
  - Total Alkalinity (TA) – Adjust to 120 ppm to 150 ppm using sodium bicarbonate.
  - pH – Expect a natural rise due to concrete curing.
3. **DO NOT ADD SALT OR TURN ON CHLORINATION YET.** Leave the chlorinator power lead disconnected from the controller until salt or minerals have been added to the pool water. Wait at least 4 to 8 weeks before adding salt to allow the concrete to cure and stabilize. If using

Magnesium minerals, it is good practice to wait 8 to 12 weeks before adding magnesium to allow the pool shell to cure.

4. Manually dose hydrochloric acid (HCl) to maintain pH between 7.6 and 7.8. This will help control alkalinity and prevent excessive pH rise from new concrete.
- 

### Step 2: Monitoring and Stabilization (First 4 to 8 Weeks)

1. Test pH and TA daily for the first two weeks, adjusting with small doses of HCl as needed.
  2. Brush all pool surfaces daily to remove any calcium deposits or dust from curing.
  3. Ensure TA remains within 120 ppm to 150 ppm—if it exceeds 150 ppm, continue using HCl until it stabilizes.
  4. Monitor Langelier Saturation Index (LSI) to prevent surface etching or scaling.
- 

### Step 3: Adding Salt and Preparing for CO<sub>2</sub> Injection (After 4 to 8 Weeks)

1. Test water balance again before adding salt:
    - CH: 100 - 200 ppm
    - TA: 120 - 150 ppm
    - pH: 7.6-7.8
    - LSI: Between 0 and +0.5
  2. Add salt to 4000 ppm gradually, allowing it to dissolve fully before activating the salt chlorinator.
  3. Continue manual HCl dosing for another 1-2 weeks while salt chlorination stabilizes pH trends.
- 

### Step 4: Transitioning to Automatic CO<sub>2</sub> Injection

1. Once TA is stable at 120-150 ppm and pH remains steady with minimal HCl demand, turn on the CO<sub>2</sub> system.

2. Set initial CO<sub>2</sub> dosing rate conservatively, adjusting to maintain a pH of 7.6–7.8.
  3. Monitor pH daily for the first week to ensure the CO<sub>2</sub> system maintains stability without excessive pH swings.
  4. Adjust CO<sub>2</sub> flow rate if needed: (See page 12 and 13 adjusting Pool and Spa Size to adjust CO<sub>2</sub> flow rate).
    - If pH rises too quickly, increase pool size slightly in the Set Up Menu..
    - If pH drops too low, reduce the pool size significantly in the Set Up Menu. The pool size can always be increased if pH set point is not achieved.
  5. Check LSI weekly to confirm water remains balanced.
- 

### Ongoing Maintenance

- Test pH and TA weekly to ensure stability.
- Check CO<sub>2</sub> cylinder pressure regularly to avoid unexpected depletion.
- Continue brushing and inspecting surfaces for calcium deposits.
- Adjust CO<sub>2</sub> flow seasonally based on temperature and bather load.

By following this procedure, you will ensure a smooth start-up, protect the pool interior, and optimize CO<sub>2</sub> dosing for long-term water balance and clarity.

## DOSING SETTINGS IN Vi or Ri CONTROLLER

Your pH and ORP sensors should be crucial in maintaining your pool water pH balance and chlorine levels within the correct range. However, they are only able to sense accurate pH and chlorine levels when all your pool water chemistry is kept within the recommended ranges (See Table on Page 13). Sensors will require replacement periodically. Refer Vi and Ri Manuals. Your Controller will automatically cease dosing if the pH reaches 8.4 or drops to 6.8. This is a safety measure and pool water balance should be checked by a pool professional to ensure sensors are operating correctly.

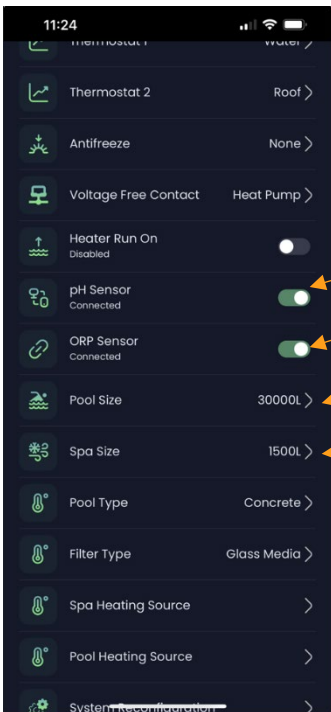
## Using Insnrg App to set dosing rate

If an Insnrg Wi-Fi Portal has been installed and connected to the homeowners Wi-Fi and you have access to the system on the inTouch App.

Tap the top left drop down menu, select System Setting, then System Installation. Enter the 4 digit code. This will enable the system to be set up and configured to run your equipment.

Scroll up until Pool Size and Spa Size are displayed. Insnrg recommend you set your pool and spa size at least 20% smaller than actual. This will minimise the amount of CO<sub>2</sub> injected and extend the life of each cylinder fill. If the dose is insufficient to lower the pH to desired levels, another dose will occur in approximately 15 minutes.

Increase pool and spa size will increase the CO<sub>2</sub> flow rate. Decreasing the pool and Spa Size will decrease the CO<sub>2</sub> flow rate.



Enable pH Sensor

Enable ORP Sensor

Select Pool Size – 20% smaller than actual pool size

Select Spa Size – 20% smaller than actual spa size

On home screen select POOL CHEMISTRY and adjust the pH to the desired setting. Refer to the Vi or Ri Manual for recommended pH settings.

## DOSING SETTINGS IN Vi or Ri CONTROLLER

### Using Vi or Ri Controller to set dosing rate

Press the top left button MENU about 4 times until the Screen displays INSTALL MENU.

Press CONFIRM.

Press CONFIRM about 14 times until POOL SIZE is displayed. The factory default will be 45,000 litres. Using the UP OR DOWN buttons select a pool size that is approximately 20% small than the actual pool size. Press CONFIRM.

The screen will now display SPA SIZE. Using the UP or DOWN buttons select the spa size which is about 20% smaller than the actual SPA SIZE.

Use the BACK ARROW to go the CHANGE SETTINGS. Press CONFIRM. Using the UP or DOWN buttons select the desired pH and Press CONFIRM. Use the BACK arrow to return to the home screen.

## RECOMMENDED POOL WATER CHEMICAL BALANCE

	Pool Type					
	Concrete		Fibreglass		Vinyl Liner	
	Low	High	Low	High	Low	High
Total Alkalinity (TA)	120	150	120	150	120	150
Calcium Hardness (CH)	100	150	80	120	80	120
pH	7.6	7.8	7.4	7.6	7.6	7.8
Salinity	3500	4000	3500	4000	3500	4000
Combined Chlorine	0	0.5	0	0.5	0	0.5
Free Chlorine	1.5	3	1.5	3	1.5	3
Cyanuric Acid (Outdoor Pools Only)	30	50	30	50	30	50

## POOL CHEMISTRY AND THE BENEFITS OF CO<sub>2</sub>ntrol

Pool Acid (hydrochloric or Sulfuric) is conventionally used to lower the pH in pool and spa water. pH is important because your sanitiser becomes ineffective at high or low pH levels (below 7.4 or 7.8 and above) and many people suffer allergic reactions from incorrect pH levels.

However, pool acid, will lower the Total Alkalinity (TA) in pool water. Total alkalinity is a buffer or stabiliser for pH so as more acid is added, TA reduces, the pH is less stable, and you are required to add Sodium Bicarbonate (usually referred to as buffer) to increase the TA.

Insnr's CO<sub>2</sub>ntrol does not lower the TA. As it converts to Carbonic Acid when mixed with pool water it gently lowers the pH without affecting TA or other chemicals.

## FULL CYLINDER LIFE BEFORE EXCHANGE

In most pools, the amount of CO<sub>2</sub> used to control the pH will be about 21 mg per 10,000 litres per day. The actual amount required will vary according to the dilution rate (how much rain or fresh water is added to your pool), how much chlorine is added to your pool, and the pH set point of your system. A pool with a pH set point of 7.2 will use a lot more CO<sub>2</sub> than a pH set point of 7.6 or 7.7. However, you should take note of your pool manufacturer or installers recommendation for the pH set point.

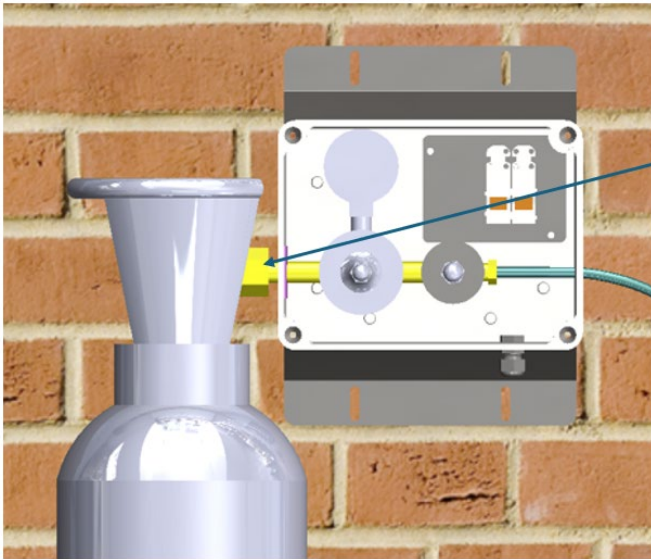
In general, a 50,000 litre pool will require around 110 gm of CO<sub>2</sub> each day. Therefore, Insnr's 6kg CO<sub>2</sub>ntrol cylinder should last for around 60 days. This will vary from summer to winter, with cylinders likely to last 3 or 4 months in winter and 6 to 8 weeks in summer.

## WHEN TO CHANGE CYLINDERS?

If you have the Insnr inTouch Automation App, the App will give you a notification that your pH has reached 8.0. This is a strong indication that you CO<sub>2</sub> cylinder is empty. Check the Pressure Gauge inside the clear lid of the Regulator and Solenoid Assembly which will display the needle on empty.

## HOW TO CHANGE CYLINDERS?

1. Turn the valve at the top of the cylinder to OFF.
2. With a shifting spanner loosen the connection from the cylinder to the Regulator and Solenoid assembly.



Turn Anti Clockwise  
to loosen and  
remove cylinder

3. Remove Wrapper from replacement Cylinder. Locate Cylinder so that connection will be attached to the Regulator and Solenoid Assembly. Tighten firmly in a clockwise direction with a shifting Spanner.
4. Open valve on top of Cylinder and spray connections with soapy water to ensure there are no leaks.

## TRANSPORTING CYLINDERS

Cylinders should be transported upright so that the valve cannot be damaged and tied back securely.

## WHERE DO I GET MY CO<sub>2</sub>ntrol CYLINDERS?

Your Insrgr Pool Builder Dealer, Retailer or Service Technician can organise an exchange cylinder, or fit for you if you would prefer. Alternatively, contact Insrgr directly.

# WARRANTY

## Australian Consumer Law

Our goods come with guarantees that cannot be excluded under the

Australian Consumer Law. You are entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

## Warranty Period and Conditions

Insnrge Pty. Ltd. (hereinafter “the Company”) is pleased to warrant to the original retail purchaser that CO2ntrol Regulator and Solenoid Assembly shall be free of manufacturing and material defects for a period of three (3) years from the original invoice date subject to the following conditions:

1. The product is purchased new from an authorised Insnrg dealership in Australia or New Zealand.
2. This warranty is not assignable and applies to the original retail purchaser only and the original receipt, invoice or any other proof of purchase must be retained and produced if requested by the Company.
3. Nothing in this warranty shall apply to any defects caused by misuse or abuse, neglect, accident, extremes of climate, dampness, humidity, running pump dry, reasonable fair wear and tear and/or any causes other than defects in manufacturing and materials. Pool water chemistry must be checked and maintained within Australian Standards. Pump must not be allowed to run dry.
4. Where a defect is identified, the Company must be notified as soon as possible.
5. If the product is bought as a demonstration, refurbished, ex-rental, discontinued or otherwise previously unboxed unit, the warranty applicable shall be limited to twelve (12) months only. Replacement parts are warranted for 12 months or until the 3-year warranty period expires.

## WARRANTY CLAIM PROCEDURE

To exercise your rights under this warranty, you must:

As soon as you are aware of a defect, please report the following:

- Your name, address, email address and contact number.
- Model, and serial number of the product; and
- A detailed description of the defect.

By:            Calling Insnrg on 1800 635 781  
                  Contact us through our website [www.insnrg.com](http://www.insnrg.com)  
                  Writing to us at [sales@insnrg.com](mailto:sales@insnrg.com)

On receipt of the above information, the Company will log a service call.

Depending on the model type, your location, how it is installed, and the defect reported, we will allocate a service to our in house technicians or delegate to one our authorised service agents. This could include, but not limited to, return of product to the service agent, return of product to the company, or a visit by a service technician to your poolside.

If advised to return the product, place the defective product in secure packaging, clearly label it with your name, address, contact details and description of fault.

The Company will not be liable for any transportation costs, or in the event that a poolside call is arranged with an authorised service technician, costs of technician's travel time will be charged to you if the defect is found not to be covered by the consumer warranties.

In the case of returned product, the authorised service technician or  
will contact the purchaser when the product has been repaired and is ready for collection.

The Company will repair or replace at its absolute discretion your product at no cost for parts or labour in accordance with the terms stated in this warranty provided that the reported defect is able to be located by the technical staff assigned to the product. If the technical staff is unable to

locate the defect, you may be liable to pay for the cost of the technician's travel time and labour.



## We know that you will get many years of enjoyment from this product.

Insnrng strives to provide you with innovative, high end pool equipment systems that clean, filter, sanitise and heat your pool and spa perfectly. And with so many appliances operating your pool we bring them all together to operate in synergy with our inTouch Automation App.

We pride ourselves on developing products that are specifically created for your backyard lifestyle. We are continuously developing new products and ideas to make pool ownership easier and fun.

Should you wish to keep updated with our progress and hear first hand our new products and developments, please feel free to stay in touch by using any or all of the below methods:

### **MAIL**

57-59 Nantilla Road,  
Clayton, VIC, 3168

### **LANDLINE**

1800 INSNRG (1800 467674)

### **WEBSITE**

[www.insnrg.com](http://www.insnrg.com)

### **EMAIL**

[sales@insnrg.com](mailto:sales@insnrg.com)

### **InTouch APP**

[www.insnrgapp.com](http://www.insnrgapp.com)

A vertical orange bar with a rounded top edge, located on the left side of the page.

## POOL AND SPA APPLIANCES

20

Y:\Installation and Operating Manuals\Draft IO Manuals\IO Manual  
CO2ntrol regulator and solenoid.docx