



INTELLICHEM[®] WATER CHEMISTRY CONTROLLER

CO2 SMART pH KIT



INSTALLATION and USER'S GUIDE

IMPORTANT SAFETY INSTRUCTIONS
READ AND FOLLOW ALL INSTRUCTIONS
SAVE THESE INSTRUCTIONS

Overview

This CO2 Dispense kit is designed for use with the IntelliChem® Chemical Controller, Acu-Trol™ AK600 Pool and Spa Controller and Acu-Trol AK110 Pool and Spa Controllers. This dispense kit provides pH control for pools without the use of acid. The regulator kit and IntelliChem senses the pH level in the pool water and if required, the CO2 Dispense kit will inject CO2 into the pool water. CO2 lowers the level pH in your swimming pool water.

CO2 / Smart pH with Differential Regulator Soliniod and Check Valve (P/N 714000070) - See page 7 for details

First Balance Your Pool Water

It's important to test and adjust your pool water chemistry to the recommended pool industry levels found in this manual. If you are using a salt chlorine generator, adjust the salt levels to the recommended levels in the manufacturer's owner's manual.

IMPORTANT: To help keep your pool water balanced follow these steps:

1. Use a Test Kit (with fresh testing reagents) to measure the **pH, alkalinity, and calcium** hardness of the pool water. For greater accuracy, Pentair recommends the AcuCheck3 Test Kit to measure pH, chlorine ppm, and alkalinity levels (P/N 745000110). "Balanced" water has proper levels of pH, Total Alkalinity and Calcium Hardness. This "balanced" water is neither corrosive or scaling. The pH (0-14) value is the scale of relative acidity or alkalinity. Recommended pH range is from 7.2 to 7.6. The IntelliChem default pH value is 7.5 (see page 12).
2. Be sure the pool chlorine level is balanced. Ideal free chlorine level should be between 1.0 - 3.0 parts per million (ppm).
3. Use the online **Langelier Saturation Index (LSI)** calculator to diagnose the water balance in your pool or the IntelliChem built-in LSI calculator (see page 24-27). Refer to:
<http://www.pentairpool.com/pool-owner/resources/calculators/langelier/>

*Note: A Saturation Index value of 0 indicates the water is chemically in balance. If the Index is a **minus (-) value, corrosive tendencies are indicated.** If the Index is a **plus (+) value, scale-forming tendencies are indicated.** A Saturation Index value between **+0.5 to -0.5** is considered satisfactory in a swimming pool.*

Installing the CO2 Dispense Kit


Note: For CO2 tank mounting and placement, refer to the CO2 tanks manufacturer's recommendations.

Installing the CO2 Dispense Kit

⚠ DANGER

Risk of Electrical Shock or Electrocution!

Servicing IntelliChem must be performed by a licensed or certified electrician or a qualified pool professional in accordance with the National Electrical Code and all applicable local codes and ordinances. Improper CO2 Dispense Kit installation will create an electrical hazard which could result in death or serious injury to pool users, installers or others due to electrical shock, and may also cause damage to property.



⚠ DANGER

BE SURE TO DISCONNECT ALL SUPPLY CONNECTIONS BEFORE SERVICING INTELLICHEM. AC Power may be supplied to the relay terminals Ex_Relay1 and Ex_Relay2 from other sources.

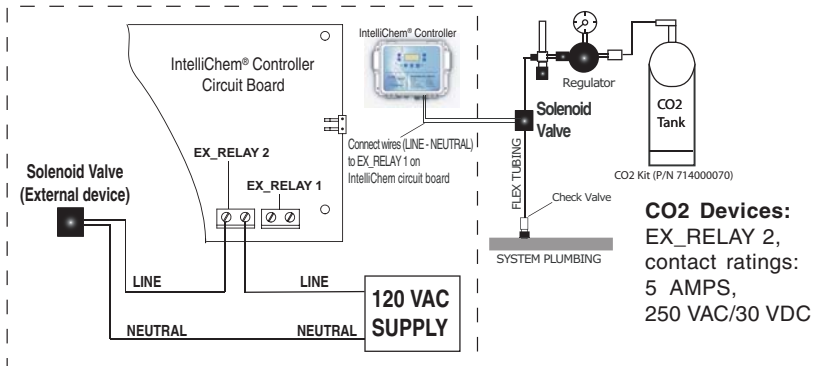
Connecting to Solenoid Valve to IntelliChem

External Devices such as pumps, CO2 devices and alarms can be connected to either of the dry contact relays (**EX_RELAY 2**). Relay contact ratings: 5 AMPS, 250VAC/30VDC located on the IntelliChem circuit board. See CO2 External Device Wiring Diagram below and Plumbing Installation on page 4.

⚠ WARNING

Wiring external devices must be performed by a licensed electrician or a qualified pool professional in accordance with the National Electrical Code (NEC), NFPA 70 or the Canadian Electrical Code (CEC), CSA C22.1. All applicable local installation codes and ordinances must also be adhered to. Improper installation will create an electrical hazard which could result in death or serious injury to pool users, installers or others due to electrical shock, and may also cause damage to property.

1. Connect the CO2 solenoid valve two-wire cable to the **EX_RELAY 2** screw terminal block on the IntelliChem controller circuit board. See wiring diagram below.



CO2 External Device Wiring Diagram

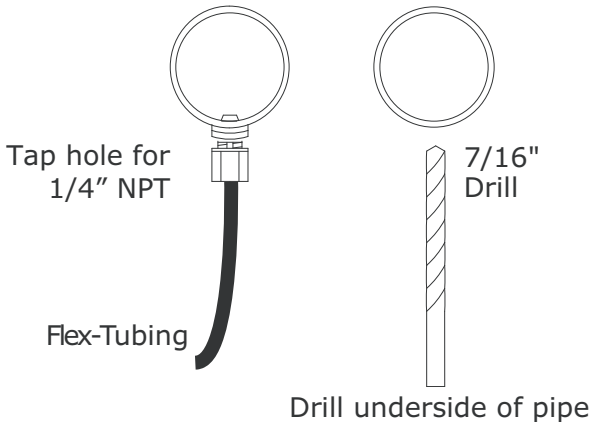
Installing the Check Valve

The check valve must be installed at the pool's return line; **after** the heater and **after** the salt chlorine generator.

⚠ WARNING Be sure to have a licensed plumber perform all plumbing; this is important, as they will be familiar with all of the codes in the local area.

To install the check valve:

1. **Check Valve:** Install the check valve injector into the pool's return line on the underside of the pipe. Be sure the injection point is free of air pockets.
 - a) Turn off pool filter pump.
 - b) Drain water from the return line.
 - c) Drill a 7/16" hole in the bottom side of the return line AFTER the heater and salt chlorine generator.
 - d) Tap the hole for a 1/4-in NPT. DO NOT tap the tapered threads too deeply into the pipe.
 - e) Apply plumber's threaded seal tape to check valve threads and screw into tapped hole. DO NOT OVERTIGHTEN.
 - f) Connect one end of the provided 3/8" flexible tube to the check valve and the other end to the solenoid valve.
 - g) Turn the pool filter pump ON and check for water leaks.
 - h) Open CO2 tank valve. Apply soapy water around the to check for CO2 leaks at regulator fitting.
 - i) Apply power to the solenoid and use soapy water to check for CO2 leaks at the ends of the tubing fittings. Remove power when finished.



Configure IntelliChem for CO2 Device

To configure the IntelliChem controller for the CO2 tanks, refer to page 5.

IntelliChem CO2 Installation Plumbing Diagram

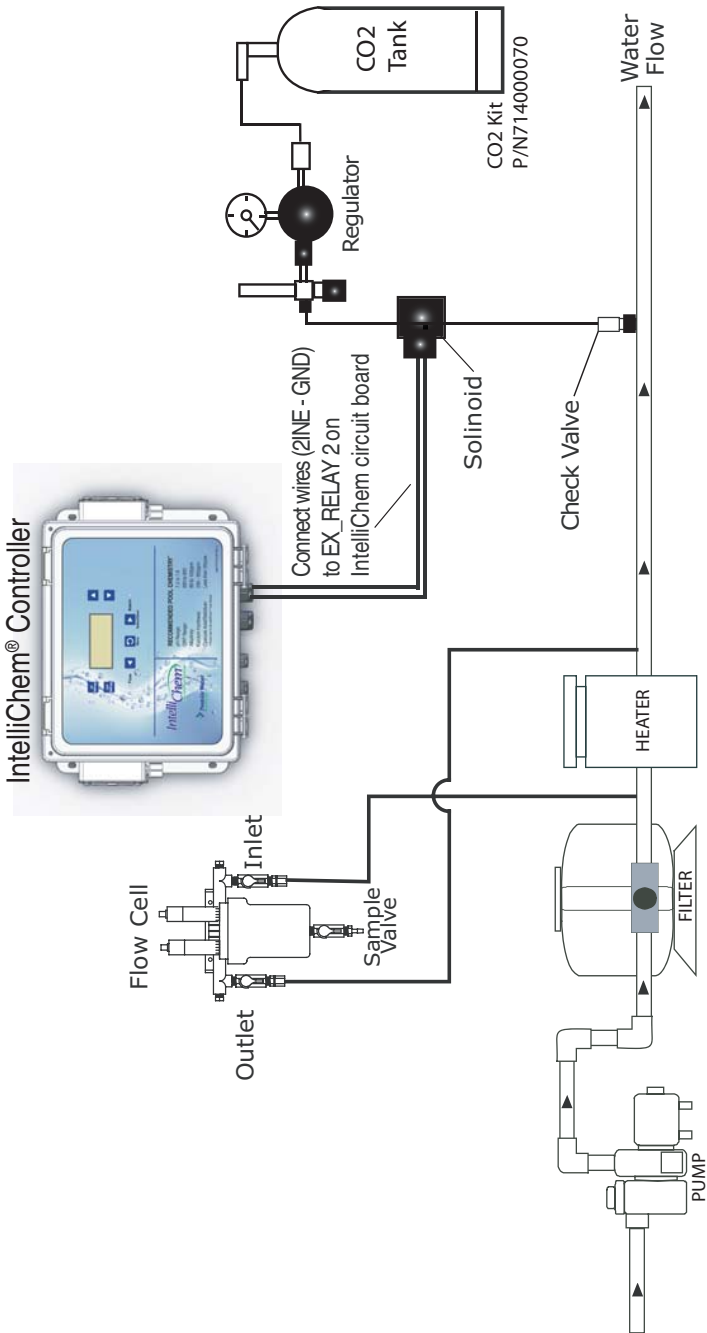


Figure 2: IntelliChem Plumbing Installation Diagram

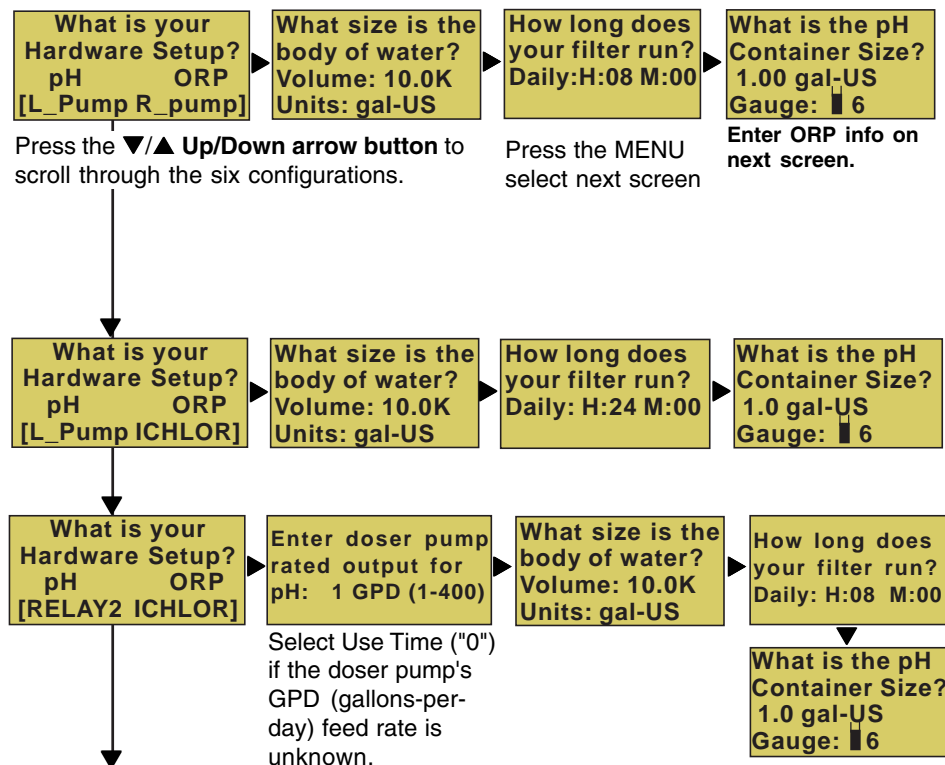
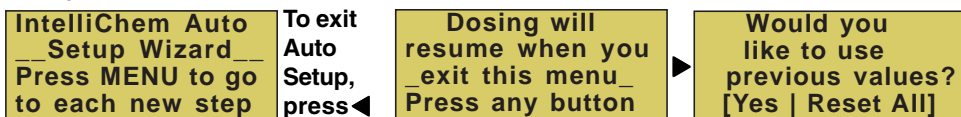
IntelliChem CO2 Auto Setup

Use the IntelliChem "Auto Setup" feature for first-time CO2 setup or standard configurations. Follow the on-screen prompts and enter information about your system configuration (hardware CO2 setup, internal or external pumps, pool size, filter time, chemical container size etc). IntelliChem uses this information to automatically setup reminder times, calculate feed times, proportional limits and alarms. The following describes the Auto Setup screen. Press the **MENU button** to access the Auto Setup menu. To change a menu setting or value press the **▼/▲ Up/Down arrow button**. Press the MENU button to save each selection.

Press **MENU ▼/▲ Auto Setup ►**

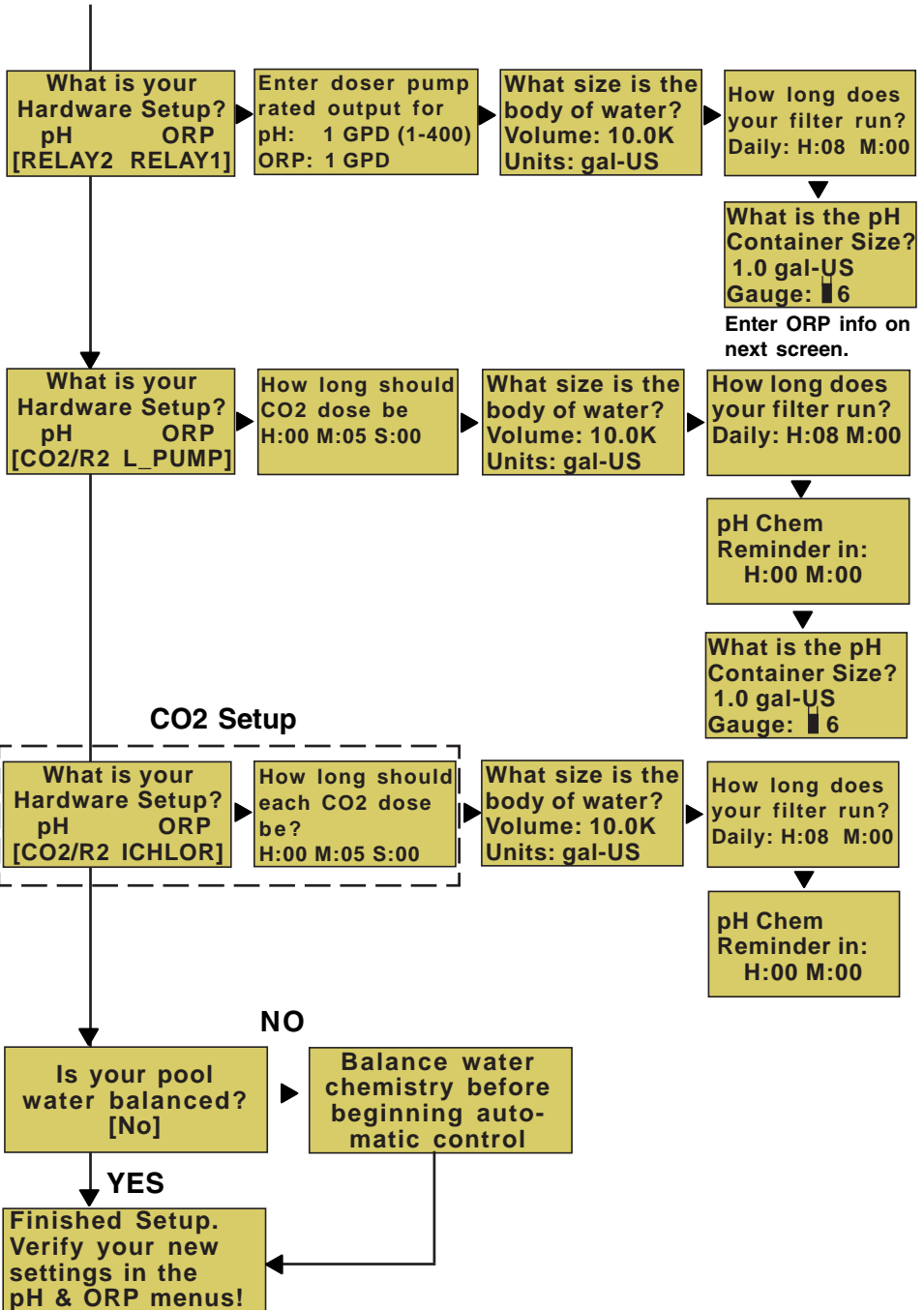
Previous Values: Use to recalculate new dose times etc., if no custom settings exist. Not recommended for custom settings; use the menu directly to make these changes.

Reset All: Make major configuration changes that may have conflicts with previous settings.

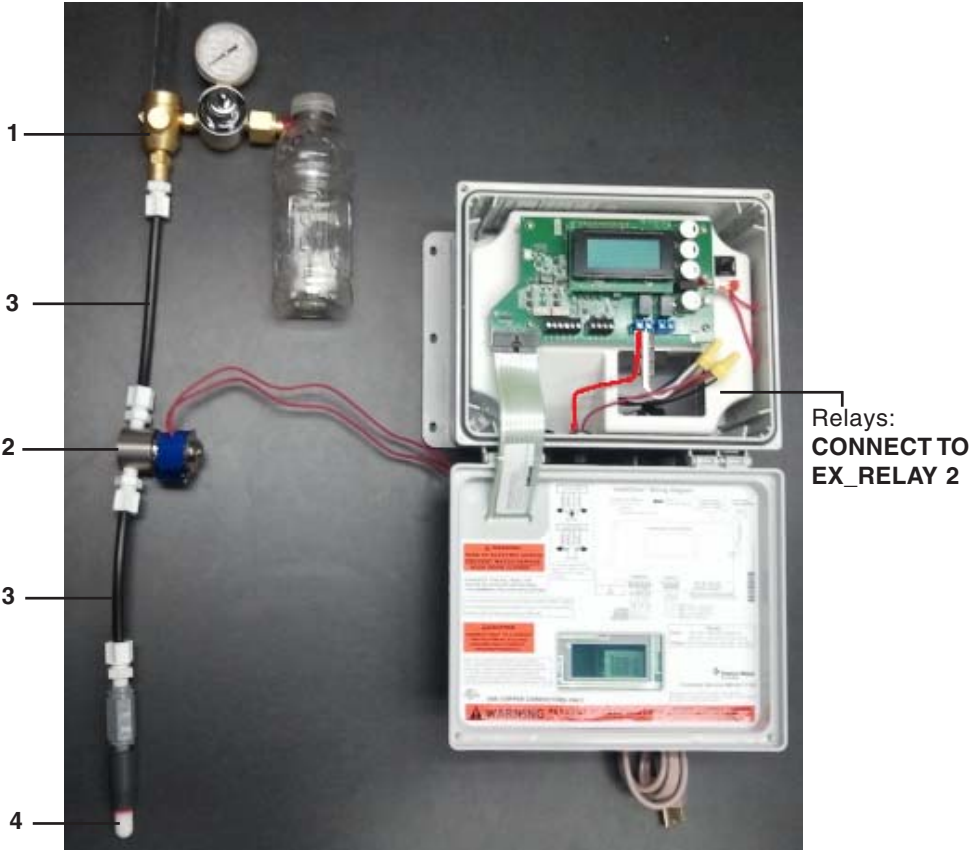


Continue on next page

IntelliChem CO2 Auto Setup (Continued)



CO2 Smart pH Kit Contents



1. 50 psi, Regulator
2. Solinoid 115 VAC with 6 ft. 2 conductor cord
3. 15 ft black flex-tubing (UV resistant)
4. Check Valve with injector assembly
5. Installation and User's Guide (not shown)

NOTES



1620 HAWKINS AVE., SANFORD, NC 27330 • (919) 566-8000
10951 WEST LOS ANGELES AVE., MOORPARK, CA 93021 • (805) 553-5000
WWW.PENTAIRPOOL.COM

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