



CAPITAL CONTROLS

Design Features

- Safe for Personnel
- Non Hazardous
- Low Running Cost
- Easy Maintenance
- Environmentally Friendly
- Chief Controller of Explosives exempt
- Requires no special operational skills
- Manufactured from corrosion resistant material
- Metering Pump, Power supply & Hypo chlorite Storage tank included

Introduction

Capital Controls *PDS*® On-Site Sodium Hypo chlorite Dosing system is a very safe means of disinfecting water for potable use by using only Sodium Hypo chlorite as per IS 11673: 1992 which is a proven powerful disinfectant as the chemical to be dosed into a flow of water at a measured rate to be made potable. Sodium Hypo chlorite of grade 2 (Industrial grade) with strength 10% minimum is used for this purpose.

The system is designed for any required capacity of water treatment plant as per the customer's needs.

The system is component based and consists of a modular configuration. This design allows for ease in serviceability and expansion potential.

The system is microprocessor based controller, safety controls, inlet / outlet piping assemblies with flow controls, and piping & instrumentation that makes installation simple and complete.

PDS® HYPOCHLORITE DOSING SYSTEM



Applications

- Drinking Water
- Effluent & Sewage Treatment
- Swimming Pools
- Food & Beverage Industry
- Hospitals
- Odor Control
- Aqua Culture
- Cooling Water Treatment

Capital Controls India Capabilities

Capital Controls India Pvt. Ltd. is capable to engineer customized dosing systems to meet customer's exact requirements. Capital Controls also offer an extensive array of Engineering and technical support services. From consulting to complete turnkey projects and provide any level of assistance.

Operation

The system consists of a reinforced special high grade plastic molded tank of 200 liters capacity, with level controls and sight glass fitted on it along with a hypochlorite-dosing pump of required capacity.

A Microprocessor based enclosure of NEMA 4X to prevent any ingress of dust, dirt and water is supplied with the system. The function of the controller is to vary the output signal in proportion to the variation in the signal inputs as below:

- Feed-forward mode, considering a front panel settable multiplication factor. (Feed forward mode),
- Feedback mode, considering front panel settable set point, Differential and integral and lag-time settings.
- Compound loop mode, that is the combination of the above two modes.

The reinforced special high grade plastic molded tank is filled with Sodium Hypo chlorite whose level is maintained by the level controls provided on the tank. When the level is low an indication on the LCD display of the controller will indicate that the level of hypochlorite is LOW.

When there is a flow of water into the customers reservoir, a flow sensor will transmit a signal proportional to the flow of water to the controller to intimate to controller the rate of flow of raw water, the controller will then process this signal and send a signal to the dosing pump proportional to the rate of flow to disinfect the water.

The dosing pump will start to dose the Sodium Hypo chlorite solution stored in the tank into the water reservoir to disinfect the water in the reservoir. The dosage rate is controlled automatically by means of stroke length of the metering pump from 0 to 100 % to meet the residual chlorine requirement.

On the preset time (user programmable) the controller will activate the inbuilt relays to activate the booster pumps, which feed the disinfected water to the supply lines to the end users.

Controller Features

The Controller has a display 20 x 2 LCD with backlight and a 20 keys, membrane type Keyboard for easy data entry or program change. The input and Outputs are configured as under:

- Analog inputs: 2 Nos., 4-20 mA
- Analog outputs: 1 No., 4-20 mA
- Digital Inputs: 4 Nos. potential-free
- Digital Outputs: 4 Nos. relay outputs

The Controller has an inbuilt 32 KB NVRAM with Real Time Clock, and LED indications, 4 Nos. for Digital Input and 4 Nos. for Digital Output status. Also provided is a serial port for printer interface, to record the operation performed and a watchdog LED to indicate that the electronic circuitry is in working condition.

The Controller has the memory storage capability to store more than 100 programs at a time and will indicate when the memory is full. The Controller can be programmed on a one-year real time sequence basis.

The Controller displays the real time, date, weekday, month and year.

Outputs switches manually or automatically, independently or simultaneously. Outputs can be programmed in any combination as below, with up to 6 operational schedules on a single channel per day:

- Daily
- Date-wise
- Month-wise
- Year-wise

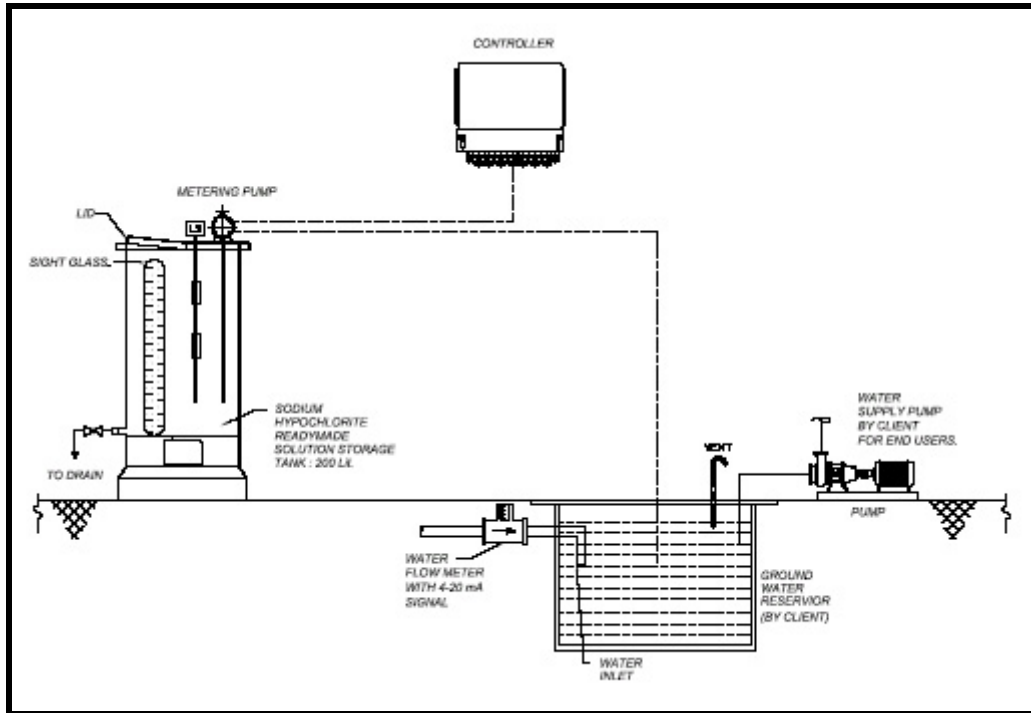
The controller is able to make time compensation for the present program in case of power failure with arrangement to prevent the overlapping of the next schedule program. Facility to bypass the keypad for synchronizing and bypass the water flow sensors (inputs). Facility to control the outputs based on the level (high & low) feedback (2 Nos. Digital Inputs). Facility to bypass level signals by means of keypad.

The Controller also has an inbuilt Audio alarm for tank level low with Acknowledge button and facility to clear all memory.

Facility to modify next days program / subsequent program without disturbing present days program is also available.

The Controller is capable to synchronous with the lifting pumps and vice-versa (Inputs & outputs provided). And has the facility to bypass all the controls. (Manual mode).

Flow Transmitter and / or chlorine residual analyzer supplied as optional as per system requirement.



Typical Installation

Comparisons

	Hypo chlorite Solution	On-Site Generation	Bleaching Powder	Chlorine Gas
Transportation	Costly	Nil	Costly	Inconvenient
Handling	Less Difficult	Very Easy	Difficult	Very Difficult
Dependence	Hypo chlorite Manufacturer	Nil	100% on others	100% on others
Availability	Less Difficult	Very Easy	Less Difficult	Difficult
Strength Loss	Unknown	Nil	Unknown	Nil
User Concentration	Difficult	Known	Difficult	Tricky
Cost	Little Expensive	Cheap	Expensive	Expensive
Storage	Bulky	Convenient	Extra Bulky	Tricky

Specification

Quality Standard: ISO 9001:2000

Controller:

Power: 170 – 290 V, 1pH, 50Hz with Internal battery back up with automatic recharge arrangement.

Output Voltage & Current: 12V/50A Max D.C.

Regulation Line & Load: +/- 5%

Supply & Noise: Less than 10% R.M.S.

Alarm: Buzzer provided inside would give alarm when the process is complete and will continue till the operator acknowledges it.

Display: 20 x 2 LCD with backlight.

Keyboard: 20 key, membrane type.

Memory: 32 KB NVRAM with RTC.

Raw Materials:

Hypo chlorite: 10% ± 0.05% as per IS 11673

Tank:

Hypo chlorite Tank: Tank material is reinforced special high grade plastic molded designed to store contents with specific gravity of 1.5 with High & Low Level switches and level indicator.

Dosing Pumps:

Capacity: 9 liters / hour

Injection Pressure: 20 Kg/cm²

Accuracy: Less than 100 ml/hr

Control: Proportionate control, based on 4-20 mA input signal.

Type: Electronic, microprocessor based, proportionate control.

Housing: Anticorrosive material.

Accessories: Polyurethane suction and delivery tubing, polypropylene strainer.

Design Improvements may be made without notice.

Represented By:



CAPITAL CONTROLS

Capital Controls India Pvt. Ltd.
15/AJ, Laxmi Estate, Link Road,
Andheri (W), Mumbai - 400 053.
INDIA.

Tel: 91-22-2636 0066 • Fax: 91-22-2636 8185
E-mail: capitalcontrols@vsnl.com
Web: www.capitalcontrolsindia.com