CLO2 Generation Panels Overview

Emteq Dosing Systems

Basic Batch Tank System
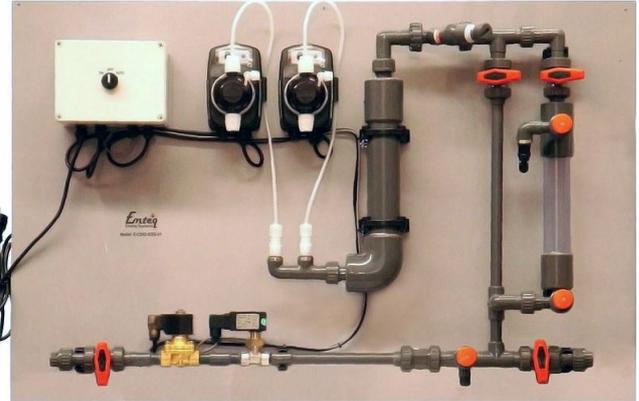
Direct Dilution

Batch Tank with Pump

Direct Dilution with Feedback Control & Data Logging

Description - Basic System

- CLO2 generator mounted on 6mm PVC enclosure with leak detection as option
- 2 AQUA dosing pumps Model HC897 or HC997 to operate in parallel control
- Suction line for HCl & Chlorite dosing pumps
- Both pumps with front adjustment for operating & flowrate set
- CLO2 generator chamber pressurised for a back pressure valve. Generator chamber provides >1 min retention time
- Level switches on the HCl and Chlorite tanks providing interlock & alarm outputs
- Calibration Cylinder on panel to calibrate & match the pumps & to set the volume rate on the supply pump
- Dilution water flow switch for interlock on water supply

Functional Description

On low level in the batch tank the controller will call for solution to be made up & activate the generator. Power is applied to the two dosing pumps & the dilution water solenoid valve. The dosing pumps are interlocked with the dilution water flow meter & low level switches in the raw chemical tanks. The dosing pumps will only operate when dilution water flow is verified by the flow meter switch & the chemical tank level switches verify there is chemical present.

When the generator is activated, the dosing pumps dispense raw chemicals into the reaction chamber which operates under pressure to combine the chemicals & form the chlorine dioxide solution. The chlorine dioxide solution from the reactor combines with the dilution water to produce a diluted solution of chlorine dioxide which flows into the batch tank. When the diluted solution reaches the high level switch in the batch tank the controller will remove power from the two dosing pumps & dilution water valve.

The system includes four alarms that provide status information on the system:

1. Low Batch Tank Level. This indicates that the system has failed to replenish the solution in the batch tank & soon there will be no chlorine dioxide solution available.

2. High Batch Tank Level. This indicates that the batch tank is over filling which would be a consequence of malfunction in the system.

3. Low Chlorite Level. This indicates the level in the chlorite chemical tank is low & if not replenished soon the system will stop producing chlorine dioxide solution.

4. Low Acid Level. This indicates the level in the Acid raw chemical tank is low & if not replenished soon the system will stop producing chlorine dioxide solution.

Panel Versions:

- Direct Dilution (No batch tank)
- Batch tank with auto fill level control

Dispensing Options:

- On / Off via separate control
- Timed Control using cycle or 7 day timer
- Proportional Control from water meter
- Feed back measurement & control
- Measurement of dispersed Flow Rate & Total

Capacities:

- Size 1 - up to 8 l/hr of undiluted reacted solution
- Size 2 - up to 12 l/hr of undiluted reacted solution
- Size 4 - up to 20 l/hr of undiluted reacted solution
- Size 5 - up to 40 l/hr of undiluted reacted solution

Larger capacities available on request

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Chlorine Dioxide Sensors
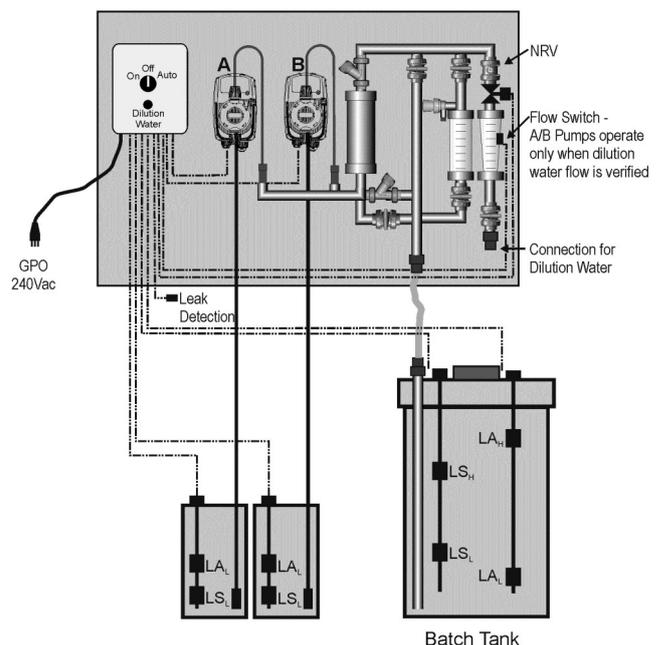
ACG5J:
- With electrolytic cell for amperometric measurement
- With flow sensor for interlock needle valve for flow adjustment
- Non-return flow function
- 80 micron washable filter
- SS earth electrode
- Combination connection for 10/14 tube & with 1/2" BSP-M
- Capability to accept pH probe
- Capability to accept 1/2" CD or temperature probe

ACG6:
- With electrolytic cell for amperometric measurement
- As for ACG5 but with additional module for pH probe

Electrolytic Chlorine Dioxide Sensor
- With membrane & electrolyte.
- Ranges: 0-2 ppm chlorine dioxide
              0-10 ppm chlorine

Note: Requires Simex SRP-94 and/or CMC-99 electronics.

pH Sensors

Barben Immersion, Long Life pH Sensor

- Longer lasting performance
- Minimal maintenance
- Customer convenience
- Immersion or in-line installation
- With temperature compensation
- Poison resistant
- pH range: 1-13pH
- Temp range: 0-100'C
- Max. pressure: 150psig (10 bar or 1000kpag)

Barben Insertion Long Life Probe with Nut Lock Adaptor

- Quick & easy remove & install for checking & calibration
- pH or ORP sensor
- Patented Axial Ion Path™ reference technology increases electrode lifespan in harsh application
- Proprietary low-noise, high temperature signal cable
- Specialized glass formulations
- Universal compatible with all manufacturer's analysers
- Sensor insertion depth from 2.6 to 12 inches (measured rib to tip of sensor)
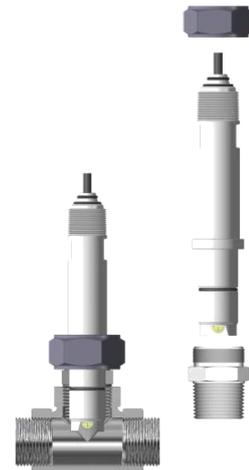
Filters

F4: AP Pro - In line self cleaning 90μm filter

- Manual action flushes & brushes filter
- Cleans filter online without disrupting service
- Transparent housing
- Brass union style connections
- Configurable orientation for vertical or horizontal pipe

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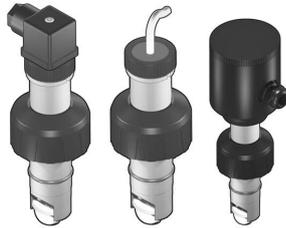
Sensors

FLOWX3 F3.00 Paddlewheel Flow Sensor
- CPVC, PVDF, Brass or SS sensor body.
- Easy insertion system.
- Different versions for remote & compact installations.
- Measurement range over 50:1.
- High chemical resistance.
- Battery powered version.
- 4-20mA output.
- MIN alarm relay output.
- Push-Pull output for universal electrical connection.

FLOWX F3.10 Paddlewheel MINIFLOW Sensor
- IP 68 enclosure.
- ABS body with EPDM or FPM seal.
- ABS 4-blade paddlewheel (no bearings).
- Mono-directional design.
- Installation on standard FIP tees.
- PVDF body version on request.

FLOWX3 F3.80 Oval Gear Flow Sensor
- Compact dimensions.
- Easy installation.
- High chemical resistance.
- High viscosity fluids measurement.
- Low pressure loss.
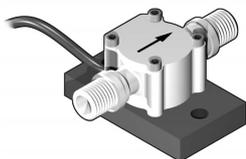
FLOWX3 ULF Ultra Low Flow Sensor
- POM or ECTFE (Halar$^{©}$) wetted parts.
- Two flow ranges available: -1.5-100 l/h
  -6-250 l/h
- High chemical resistance.
- Easy mounting.
- 4-20 mA output.
- MIN alarm relay output.

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Sensors

Tecfluid PTM-01 Flowswitch and AMR Alarm

- Temperature up to 60°C Trogamid, and 90°C Polysulfone.
- Pressure up to 15 bar.
- Simple installation (flanged, threaded or glued connections).
- High and Low Flow Switches.
- 4-20mA Output (18 point max.).

Industrie Technik DB3 Flowswitch

- Sizes 3/8" to 2".
- Low pressure drop.
- Alarm signal of flow shortage (safety switch).
- High reliability.
- IP65, Class I.
- Brass Nickel plated body & SS paddle.

Water Meter

With pulse output for connection to dosing pumps
- 4 impulses/litre
- Sizes 1/2", 3/4", 1", 1 1/4", 1 1/2" & 2"

Flowline FT10

- Rugged Polypropylene-Ryton or PVDF sensor for corrosive liquids and gases
- Adjustable set point with LED for flow or no-flow status indication
- 60VA relay selectable NO or NC via power supply wiring polarity
- Solid state sensor is not damaged by over-ranging flow velocities

FLS F3.05 Flowswitch

- CPVC,PVDF, Stainless Steel or Brass sensor body
- Easy insertion system
- High chemical resistance
- No-Flow alarm relay output
- Highly visible Local Bicolour Status indicator
- Maintenance free
- Very low pressure drop

Gas Detector

- For safety shutdown and/or Alarm when there is unsafe levels of CLO2 present.

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Electronics

Simex SLIK-N118

- Multi-purpose counter with batching function.
- Wall mounted IP 65 case.
- 2 pulse counting inputs.
- 1 programmable function input.
- 1 counter reset input.
- 0 or 2 relay input.

Simex SLIK-94

- Multi-purpose counter with batching function.
- 2 pulse counting inputs.
- 1 programmable function input.
- 1 counter reset input.
- 0, 2 or 4 relay (or OC) outputs.

Simex SLN-94

- Up-down & down-up pulse counter.
- Settable activation threshold.
- 1 pulse counting input.
- 3 control inputs.
- 2 relay (or OC) outputs.

Simex SLC-94

- Timer.
- START/STOP pulse inputs.
- Counter reset input.
- 2 relay / OC outputs.
- RS-485 / Modbus RTU.

Simex SRP-94

- Process meter with a large display.
- Input 0/4-20mA, 0/1-5V, 0/2-10V, 0-60mV, 0-75mV, 0-100mV, 0-150mV.
- 0, 2 or 4 relay outputs (or OC).
- RS-485 / Modbus RTU.
- Option: active current output.

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Electronics
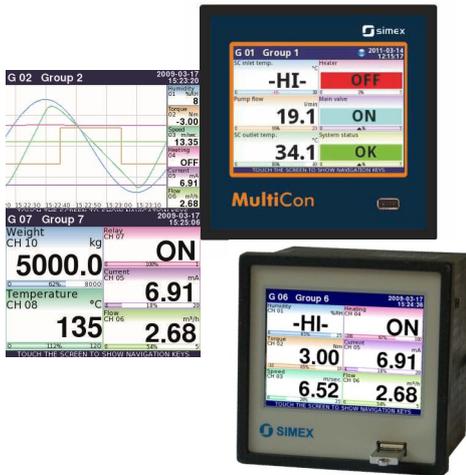
Simex MultiCon

- 3.5" / 5.7" LCD colour touchscreen.
- Up to 72 analog / digital inputs.
- MultiModbus - up to 3 x RS-485 interfaces.
- Ethernet & USB.
- Profiles / timers / math functions.
- Visualisation as digits, needles, bar-graphs, trend-graphs.
- PID process control.
- Logging functions - max. 10 Hz.
- Easy way to implement control process algorithms.
- Free DAQ Manager Software.
- Free Java Applets on-line visualisation.

SMS - Alarm Module

- Option to provide alarm notification via SMS to up to 6 phone numbers.
- User owns the SIM card account.

FLOWX3 F9.50 / F9.51 Batch Controller

- Easy Batch Volume setting.
- Simple & Advanced operating modes.
- External Start, Stop & Resume.
- Self explaining calibration menus.
- Auto-calibration.
- 2 Stage Shutdown Control (F9.50.L)
- Overrun alarm.
- Missing Signal Alarm.
- End-of-Batch Pulse Output.
- Output simulation for system testing.
- Count-up or Count-down batch indication (F9.50.L).
- Permanent & Resettable totalizer.
- 3 line alphanumeric backlight LCD.
- IP65 monolithic packaging.
- 5 button keypad.
- 1 packaging for compact/pipe, panel, Or wall installation.
- Automatic or Manual Overrun Compensation (F9.50.L).
- Advanced Valve Control (F9.50.L)
- Store up to 10 different batch perameters (F9.51L).
- Count-up batch indication (F9.51.L).

Dosing Pumps

Solenoid Pumps

HC897 - ON/OFF Control

- Adjustable stroke rate
- 0-20% 0-100%
- PVDF head
- Input for interlock
- 4 Sizes (l/hr-Bar): 1.) 2 - 8, 5 - 5, 7 - 2
  2.) 7 - 4, 8 - 2, 10 - 0
 3.) 3 - 12, 4 - 10, 5 - 8
  4.) 10– 4, 12 - 2, 14 - 0

HC997 - Proportional Dosing

- PVDF head, viton seals
- Pulse input
- 4-20 mA timer
- 7 Day timer
- 4 Sizes (l/hr-Bar): 1A/1B.) 2 - 8, 5 - 5, 7 - 2
  2A/2B.) 7 - 4, 8 - 2, 10 - 0
  3A/3B.) 3 - 12, 4 - 10, 5 - 8
  4A/4B.) 10– 4, 12 - 2, 14 - 0

HC201 - Proportional Dosing

- PP head, viton seals
- Pulse input & 4-20 mA input
- 7 day timer
- Settable in ppm
- Stroke length & frequency adjustment
- Input for interlock
- Size (l/hr - bar)

HC200PH/RX - Proportional Dosing

- pH & ORP sensor input
- Stroke length & frequency adjustment
- Input for interlock

Motor Pumps

For: - On/Off control, or
  - Proportion by VFD speed control, or
  - Stroke length regulation

Mechanical D Series

- Up to 500 l/hr with Single Head & up to 2,000 l/hr with Multiple Head.

Hydraulic BR Series

- Up to 1,500 l/hr with Single Head & up to 6,000 l/hr with Multiple Head.

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Solenoid Valves

FIP S1 / S2 Plastic Valves

- Integrated manual override can be installed in 3 different positions.
- EPDM or FPM Lever type shutter with SS lever.
- Corrosion resistant: metallic parts isolated from fluids & external environment; all screws protected by PE caps.
- DIN 43650 Electrical connector supplied as standard including LED indicator & rectifier (in case of AC coil).
- Installation & maintenance friendly design: high cycling life time electric solenoid actuator with moving internal components designed to exceed 5 million cycles without maintenance. Slewing round shape coil, IP65 protection class.
- PVC-U unionised body available with 2/2 way (versions S12 & S22). Wide choice of union ends according to different standards.

Other valves available on request.

Batch Tank

- PE Tanks size 200 litres or 300 litres
- 2 x Dual Level Switches for Fill Control, Hi Alarm & Low Alarm
- Suction Lance with integral strainer in all PVC
- Fill port
- Vent port for Panel Calibration Cylinder
- Calibration Cylinder with Valve Manifold

Enclosures

- All PVC for chemical resistance
- Leak detection + Alarm with system interlock

Chemical Tank Level Sensors

Carboy Level Switch

With 3m lead to suit 20 litre carboy with 58mm lid.

With cap for foot filter & 6mm tubing.

(foot filter & tubing not included).

Model: E-LSCB-31: A = Blue Cap, B = Black Cap.

Float material: PP

Extension shaft: PVC

Single Point Tank Level Switch

With tank adaptor & terminal enclosure.

Model: E-LSTA-31

Dual Point Tank Level Switch

With tank adaptor & terminal enclosure.

Model: E-LSTA-PV31A (30/135mm)

E-LSTA-PV31C (30/55mm)
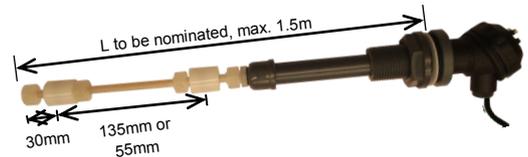
Single and Double Point Tank Level Switch

With 1/2" connector & flying leads.

Single model: E-LS12-31

Double model: E-LS12-PV31A (30/135mm)
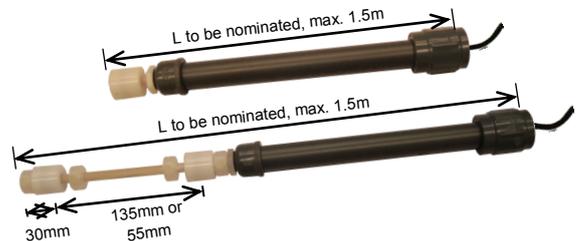
Side Mounted Tank Level Switch

External non-intrusive capacitance level switch.

Model: LP50

Accuracy: +/- 1mm in water

Ultrasonic 4 Point Tank Level Switch

Provides level measurement for up to 1.25m

- with a 4-20mA output (DL10)
- with 4 point relay (DS14)

Bund Tank Level Switch

Provides reliable leak detection in & around secondary containment sumps & tanks.

About PCS

For more than twenty years Process Control Services (PCS) have provided Measurement & Dosing equipment to an extensive range of industries, varying in size, throughout Australasia.

Continuous growth over the past twenty years driven predominately through word of mouth referrals has led to PCS achieving an outstanding market profile. With offices in Sydney, Brisbane and Melbourne combined with a network of over twenty regional sales outlets PCS is able to deliver top quality international brands at very competitive prices, backed by an outstanding level of customer service throughout Australia and New Zealand.

Process Control Services (PCS) are renowned for their industry expertise together with their extensive choice and range of equipment. Their highly trained engineers are able to offer extraordinary levels of expert service and advice through combining their extensive product knowledge with industry experience that extends in many cases beyond the life of the company.

We supply Flow, Level, Pressure, Temperature and Specialty Measurement Equipment and Chemical Dosing Equipment to the following industries:

- Water and Waste Water Treatment

- Mining and Mineral Processing

- Chemical and Petrochemical

- Sugar, Food and Beverage

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