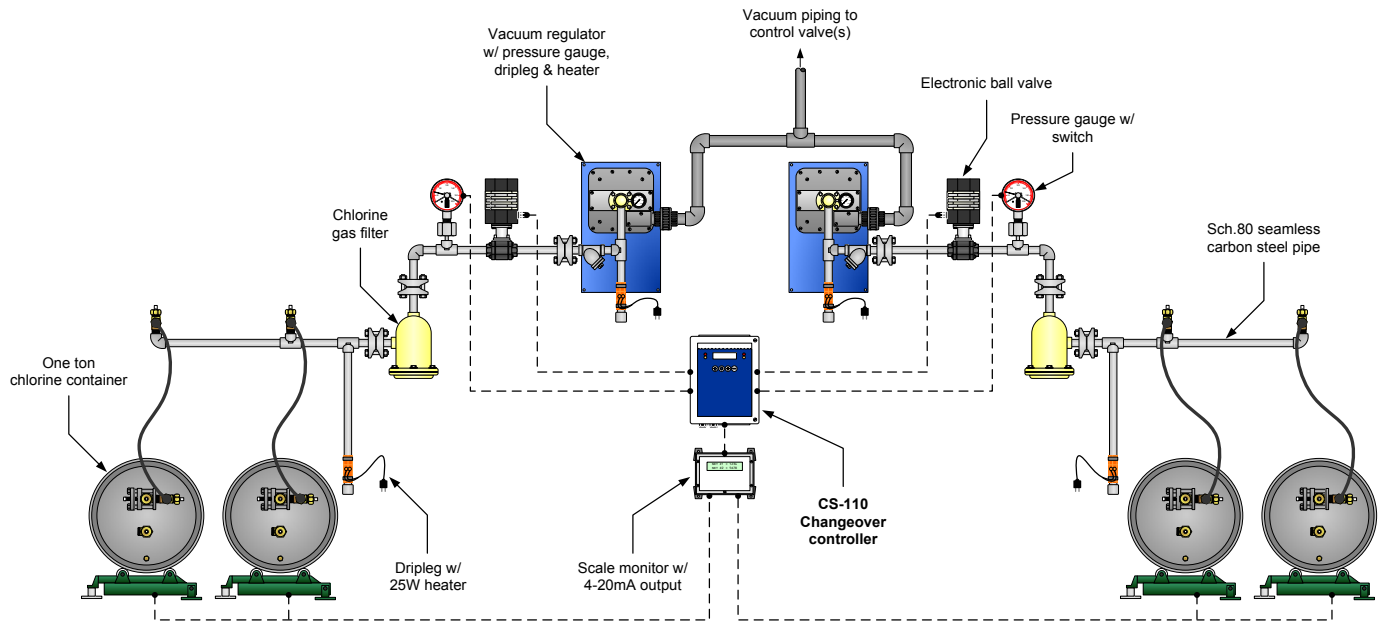


The Hydro Instruments Series CS-110 automatic changeover system is designed to allow continuous supply of chlorine gas (or sulfur dioxide, ammonia, etc.) when using a duty/standby gas container system layout.



Operation

The system consists of a dedicated controller Model CS-110, two pressure switches, and two electronically actuated ball valves. In normal operation the Model CS-110 controller will keep one of the ball valves open (duty) and the other closed (standby). Upon receiving a low pressure alarm relay signal indicating that the duty gas supply source is nearly depleted the controller will close the duty ball valve and open the standby ball valve. After such a changeover event, the operator will be required to silence the changeover alarm, change the empty containers and then silence the container empty alarm.

Features

- Manually select which ball valve is in operation or close both ball valves simultaneously.
- Records the time that each ball valve has been in the duty condition.
- Displays the time-of-day, day-of-the-week and date-of-the-year.
- LEDs on the controller also indicate operation and container empty status for both sides.

Series CS-110 Automatic Changeover System

General Specifications

Controller Specifications

Enclosure:	12"x10"x5" (301mm x 248mm x 128mm)
Enclosure Rating:	IP65, NEMA4X
Power:	100-250VAC 50/60Hz
Display Type:	LCD 2 line x 20 character
Display Content:	Run time, Time of Day, Date, Scale weight
Interface:	4 push button
Communication:	Modbus (RS-485)
Inputs:	Remote acknowledge (2) Optically isolated pressure switch inputs (2) Optional 4-20mA scale inputs
Outputs:	(2) Relays for electronic ball valves (4) Alarm relays

Electronic Ball Valve Specifications

Material:	Body—Carbon Steel, Monel or Hastelloy <i>[recommended]</i> Ball & Stem—Monel or Hastelloy <i>[recommended]</i> Seal—Teflon (PTFE) <i>[recommended]</i>
Power Limit:	10W max.

NOTE: The ball valve voltage must match the voltage supplied to the CS-110 controller.

Pressure Switch Specifications

Chemical Protection:	Tantalum diaphragm for Cl ₂ (<i>Consult Hydro Instruments for other chemicals.</i>)
Power Rating:	15 Amps 125/250/480 VAC resistive
Relay:	SPDT Normally open

CS-110 Ordering Information

Model: CS-110—A

Position	Feature	Description
A. Power	1	120 VAC 50/60Hz
	2	240 VAC 50/60Hz

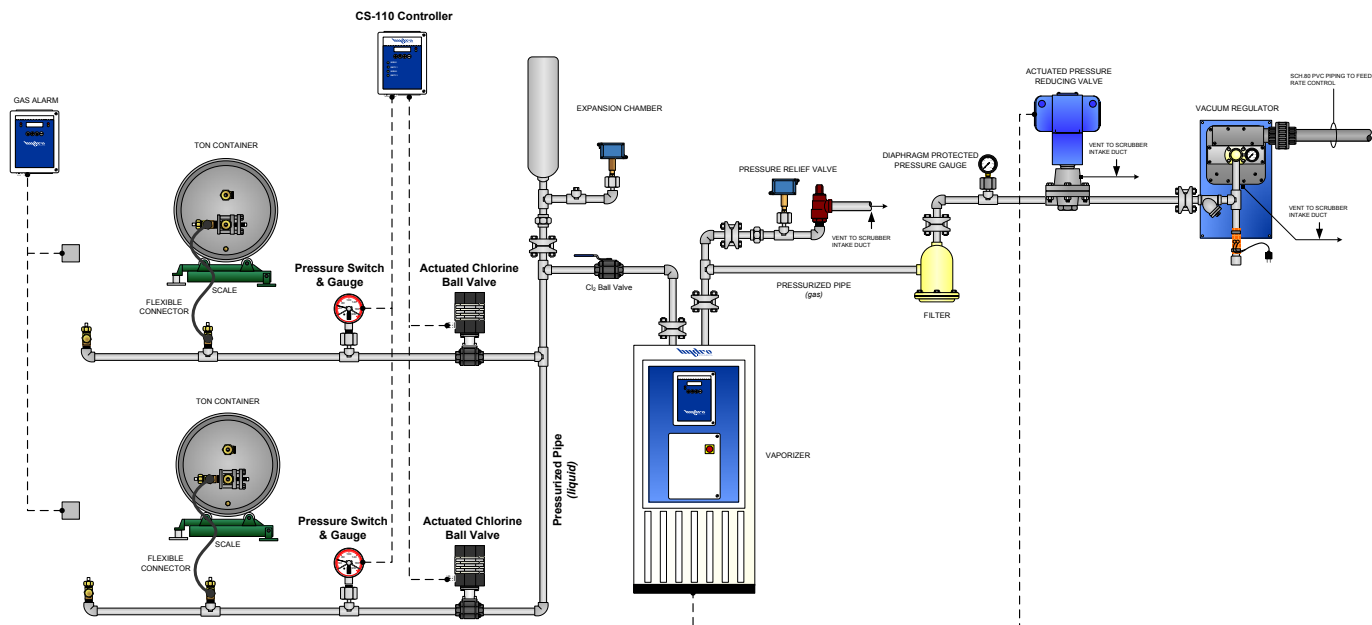
NOTE: A complete changeover system is composed of the following items:

- (1) Controller
- (2) Pressure switches
- (2) Electronic ball valves

- There are several options to consider when ordering the electronically actuated ball valves, such as; power type, material of construction, chemical service and point of application (i.e. pressure or vacuum).
- When ordering pressure switches they must be selected with a diaphragm protector for the appropriate chemical service and have an adjustable pressure alarm level within the desired range for the application.



The Hydro Instruments Series CS-110 automatic changeover system is designed to allow continuous supply of chemical (dry chlorine gas, dry chlorine liquid, sulfur dioxide or ammonia) when using a duty/standby system layout.



Operation

The system consists of a dedicated controller Model CS-110, two pressure switches, and two electronically actuated ball valves. In normal operation the Model CS-110 controller will keep one of the ball valves open (duty) and the other closed (standby). Upon receiving a low pressure alarm relay signal indicating that the duty chemical supply source is nearly depleted the controller will close the duty ball valve and open the standby ball valve. After such a changeover event, the operator will be required to silence the changeover alarm, change the empty container and then silence the container empty alarm.

Features

- Manually select which ball valve is in operation or close both ball valves simultaneously.
- Records the time that each ball valve has been in the duty condition.
- Displays the time-of-day, day-of-the-week and date-of-the-year.
- LEDs on the controller also indicate operation and container empty status for both sides.

Series CS-110 Automatic Changeover System

General Specifications

Controller Specifications

Enclosure:	12"x10"x5" (301mm x 248mm x 128mm)
Enclosure Rating:	IP65, NEMA4X
Power:	100-250VAC 50/60Hz
Display Type:	LCD 2 line x 20 character
Display Content:	Run time, Time of Day, Date, Scale weight
Interface:	4 push button
Communication:	Modbus (RS-485)
Inputs:	Remote acknowledge (2) Optically isolated pressure switch inputs (2) Optional 4-20mA scale inputs
Outputs:	(2) Relays for electronic ball valves (4) Alarm relays

Electronic Ball Valve Specifications

Material:	Body—Carbon Steel, Monel or Hastelloy <i>[recommended]</i> Ball & Stem—Monel or Hastelloy <i>[recommended]</i> Seal—Teflon (PTFE) <i>[recommended]</i>
Power Limit:	10W max.

NOTE: The ball valve voltage must match the voltage supplied to the CS-110 controller.

Pressure Switch Specifications

Chemical Protection:	Tantalum diaphragm for Cl ₂ (<i>Consult Hydro Instruments for other chemicals.</i>)
Power Rating:	15 Amps 125/250/480 VAC resistive
Relay:	SPDT Normally open

CS-110 Ordering Information

Model: CS-110—A

Position	Feature	Description
A. Power	1	120 VAC 50/60Hz
	2	240 VAC 50/60Hz

NOTE: A complete changeover system is composed of the following items:

- (1) Controller
- (2) Pressure switches
- (2) Electronic ball valves

- There are several options to consider when ordering the electronically actuated ball valves, such as; power type, material of construction, chemical service and point of application (i.e. pressure or vacuum).
- When ordering pressure switches they must be selected with a diaphragm protector for the appropriate chemical service and have an adjustable pressure alarm level within the desired range for the application.

