



## CAPITAL CONTROLS

The ADVANCE™ Automatic Switchover system Series 1041 provides safe, reliable switching between two gas (pressure or vacuum) or two liquid (pressure or level) sources assuring an uninterrupted supply of chemical to the application. Automation of all functions (switchover, system initialization, configuration, lamp test, and safety functions) is done with an internal programmable logic controller for operational flexibility, enhanced reliability, and ease of use. If needed, local manual override is conveniently available for operator control to maintain continuous operation.

A unique graphic “mimic” panel simplifies system operation. Included on the graphic panel are four multi-colored status lights for each supply source. Red light indicates valve open and dispensing, green light indicates valve closed, amber light indicates full source in stand-by, and white light indicates empty source. Four front panel switches provide for selection of automatic switchover or manual override, manual valve override, initiation of program functions, and manual reset of the latching alarm circuit.

An automatic switchover system when used for pressure operation, consists of low pressure switches for each source, motorized ball valves, optional manifolds and bypass valves, and three expansion chambers for liquid sources. When used for vacuum operation, the system consists of motorized ball valves, high vacuum switches that signal when the source becomes depleted, and optional bypass valves.

## ADVANCE™ Automatic Switchover Series 1041

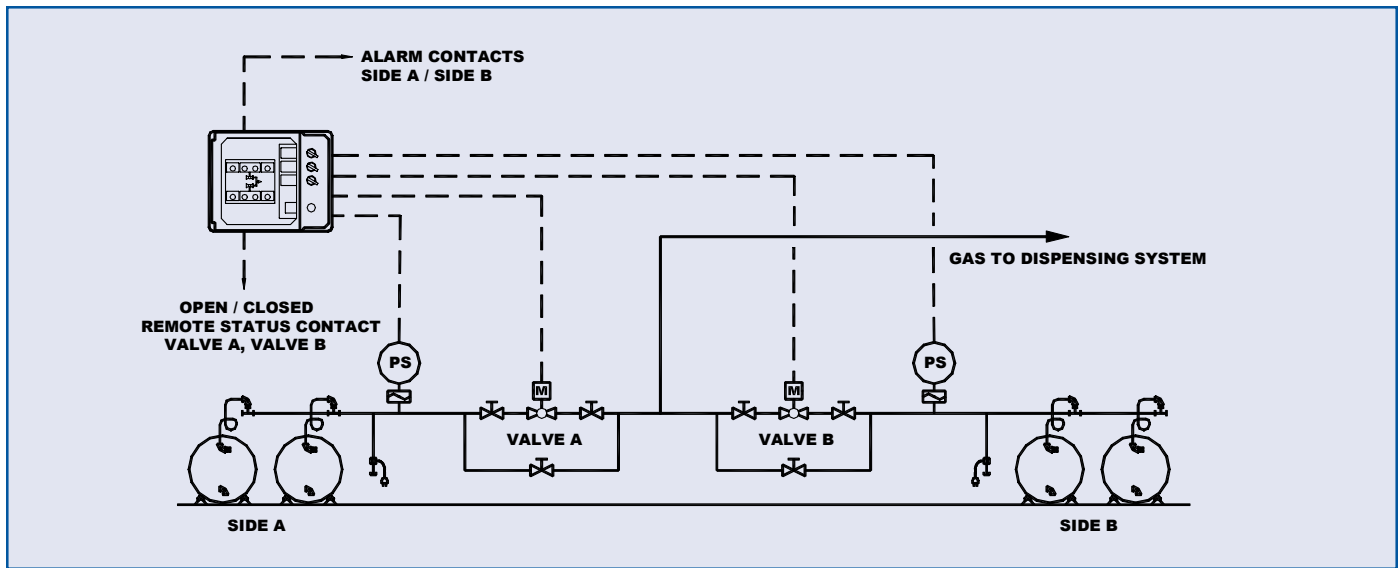


- ◆ Automatic Switchover with Manual Override
- ◆ Programmable Logic Controller
- ◆ Graphic “Mimic” Panel
- ◆ Field Configurable
- ◆ Flashing Status/Warning Lights
- ◆ Safety Interlocks
- ◆ Latching Alarm Circuit
- ◆ Automatic Remote Shutdown
- ◆ Remote Indication of Source Depletion and Valve Status
- ◆ NEMA 4X Enclosure

## Design Features

- ◆ Safety features, unique to the automatic switchover system, reduce or eliminate the probability of operational problems occurring and guarantee the highest levels of safety for personnel and plant.
  - ◆ A unique interlock scheme that prevents both valves from opening or being open at the same time.
  - ◆ Latching alarm circuits with manual reset prevents the effect of “bounce-back” which can occur with pressure or vacuum alarm switches.
  - ◆ Flashing panel lights indicate one of several conditions to the operator; Empty source has been replaced but latching alarm circuit has not been reset; Valve is not set in the desired position; Valve malfunction.
  - ◆ Automatic remote shutdown of both valves (initiated by external sensors; e.g. for gas, fire, or smoke).
  - ◆ Auxiliary contacts for remote indication of source depletion and valve status.
- Controller packaging and design offers flexibility in locating the switchover, protection from harsh environments, and ease of installation and servicing. Compact design minimizes space needed for wall mounting the switchover. NEMA 4X enclosure and NEMA 4X industrial grade switches protect the switchover from water and corrosion permitting installation indoors, outdoors and near pressurized sources.

## Gas Pressure Service System Components



Note: Gas supply may be cylinders, ton containers or a combination of both. All container in use must be at the same temperature.

Component Description	Quantity
Automatic switchover unit, 120 Vac, 50/60 Hz	1
Automatic switchover unit, 240 Vac, 50/60 Hz	1
<b>Chlorine Gas Service</b>	
3/4" Manual valve	6
3/4" Motorized ball valve, 120 Vac actuator and limit switch	2
3/4" Motorized ball valve, 240 Vac actuator and limit switch	2
<b>Sulfur Dioxide Gas Service</b>	
3/4" Manual valve	6
3/4" Motorized ball valve, 120 Vac actuator and limit switch	2
3/4" Motorized ball valve, 240 Vac actuator and limit switch	2
Gas pressure switch, chlorine or sulfur dioxide gas, with diaphragm protector (range: 5-150 psig)	2
Manifold (required for cylinder or ton container withdrawal)	2

## GENERAL

**Quality Standard:** ISO 9001

**Operation:** Automatic switchover with manual override

**Source Supply:** Liquid or gaseous chemicals under pressure or vacuum

**Control:** Programmable logic controller

**Field Inputs:** 24 Vdc source supplied

**Field Outputs:** Contacts rated 5/10 amps at 120 Vac, resistive load

**Control Selector Switches:** Mode (Auto/Manual), Side A (Open/Closed), Side B (Open/Closed), Reset

**Control Panel Design:** Graphic mimic panel

**Control Indicators:** Steady state or flashing indicators (Empty, Open Closed, Stand-by) for Side A and Side B

**Flashing Indications:** Valve action, operator error, switchover malfunction, remote shutdown

**Failure Alarms:** Field configurable

**Safety Features:** Safety interlocks, latching alarm circuit with manual reset, automatic remote shutdown

## Technical Data

### ADVANCE™ Automatic Switchover

**Power Requirements:** 120 Vac or 240 Vac, 50/60 Hz, single phase

**Power Rating:** 240 VA @2 amps steady state, 4.5-5.0 amps instantaneous current when valve is actuated

**Shipping Weight:** 45 lbs (20 kgs)

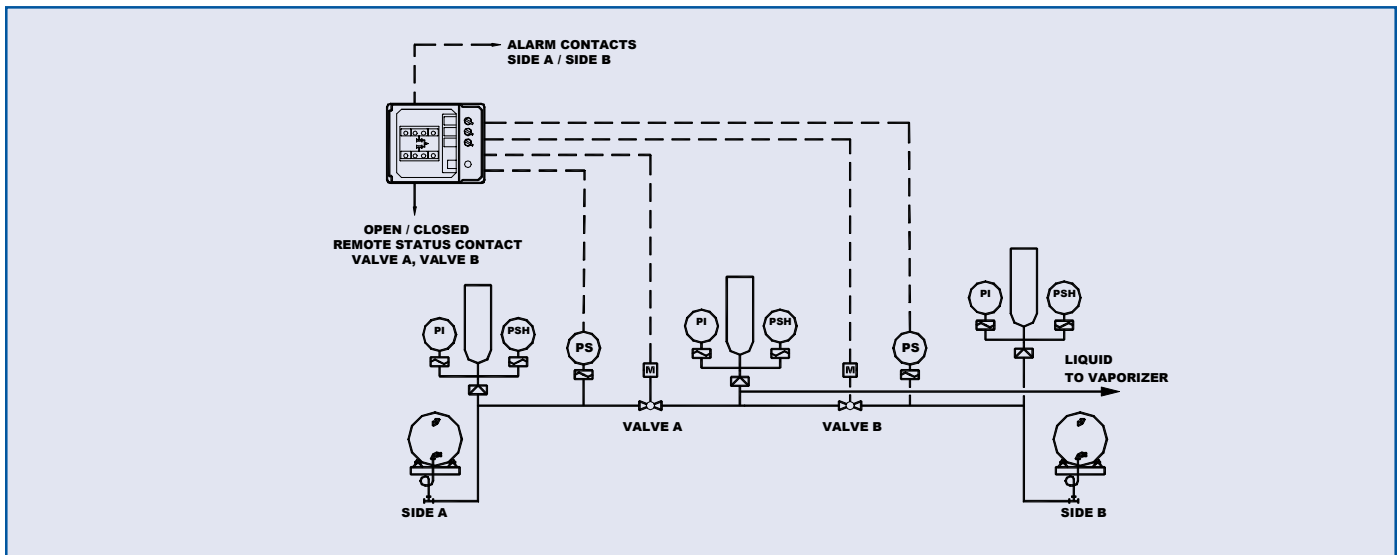
**Enclosure:** NEMA 4X

**Switches:** NEMA 4X, industrial grade

**Mounting:** Wall

**Standard Equipment:** Automatic switchover, two (2) pressure switches, two (2) motorized ball valves

**Optional Equipment:** Three (3) expansion chambers (liquid systems only), six (6) manifold bypass valves (gas system only)



Note: Liquid supply shall be ton containers. All containers in use must be at the same temperature and elevation.

Component Description	Quantity
Automatic switchover, 120 Vac, 50/60 Hz	1
Automatic switchover, 240 Vac, 50/60 Hz	1
<b>Liquid Chlorine Service</b>	
1" Motorized ball valve, 120 Vac actuator and limit switch	2
1" Motorized ball valve, 240 Vac actuator and limit switch	2
Pressure switch with diaphragm protector, range: 10-300 psig	2
Liquid expansion chamber with rupture disc, pressure indicator and pressure switch	3
<b>Liquid Sulfur Dioxide Service</b>	
1" Motorized ball valve, 120 Vac actuator and limit switch	2
1" Motorized ball valve, 240 Vac actuator and limit switch	2
Pressure switch with diaphragm protector, range: 10-300 psig	2
Liquid expansion chamber with rupture disc, pressure indicator and pressure switch	3
Manifold (required for liquid withdrawal)	2

## Warranty and Capability

Capital Controls offers a one (1) year warranty on the automatic switchover system.

Capital Controls is ISO 9001 certified to provide quality and precision materials. Disinfection technologies, water quality monitors and instrumentation for water and wastewater are areas of specialization. Over 35 years of industrial and municipal application experience in the water and wastewater industries is incorporated into the equipment design to provide high quality comprehensive solutions for the global market.

### Brief Specification

The Automatic Switchover System shall be capable of switching between two (liquid) (gas) sources and be suitable for (pressure) (vacuum) (liquid level) operation. System shall consist of an automatic switchover, motorized ball valve for each supply line, and (low pressure) (high vacuum) (low level) switch for each supply line. Automatic switchover shall be accomplished using a programmed logic controller with provision for manual override. Switchover shall be field configurable. Switchover shall include safety interlocks to prevent both valves from being open at the same time, and a time delay that prevents both valves from opening simultaneously at the time of power-up.

A latching alarm circuit with manual reset shall be provided as part of the safety interlocks. System initialization, configuration, lamp test, and safety functions shall be provided by programmable logic controller action. Front panel design shall incorporate a graphic "mimic" panel that presents switchover system status through the use of steady state or flashing, multi-colored indicator lights. Automatic remote shutdown and auxiliary contacts for remote indication of source depletion shall be provided.

Switchover shall be housed in a single NEMA 4X enclosure suitable for wall mounting. Industrial grade, NEMA 4X control switches shall be provided for selecting automatic or manual operation, manually opening and closing valves, and reset of latching alarm circuit. System shall operate from (120 Vac) (240 Vac), 50/60 Hz power source.

Optional Automatic Switchover System equipment shall include (gas manifolds) (liquid manifolds) (six manifold bypass valves) (three expansion chambers).

Design improvements may be made without notice.

Represented by:



## CAPITAL CONTROLS

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