

# LDS-650-06

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# Fully Automatic Changeover Station For High Purity Applications SPECIFICATION

## **Fully Automatic Changeover Station**

The BeaconMedaes laboratory fully automatic changeover station accommodates multiple gas cylinders equally divided into two banks for a specific gas service. The cylinder banks provide an uninterrupted supply of gas for the specific application. The manifold is cleaned, tested and prepared for the indicated gas service and constructed following NFPA, ASME B31.3 and CGA guidelines.

#### **Description**

The FCS3000 Series Stations provide fully automatic system control. The manifold monitors cylinder bank pressure electronically, controlling changeover and eliminating the need to manually reset levers and valves. Easy to read analog gauges show the line and individual bank pressure. A series of lights for each bank indicates whether the bank is "in service," "ready for use," or "bank depleted." At a preset pressure, the system automatically changes from the supply bank to the reserve bank without an interruption in gas supply. FCS3000 Series Fully Automatic Changeover Stations operate on 24 VAC power (power transformer provided by BeaconMedæs), but will continue to function during a power failure (without changeover capabilities).

#### **Operation**

The fully automatic changeover station consists of a regulator module (containing regulators, valves and pressure switches), a control module and two supply bank headers, one service and one reserve supply, to provide an uninterrupted supply of gas for the specific application.

The control module includes the following components and features: green "In Service", yellow "Ready for Use", and red "Bank Depleted" indicator lights, a buzzer and a silence button. The regulator module is composed of analog cylinder pressure gauges, regulators, pressure relief valves and normally open solenoid valves. Each supply bank consists of a header bar with flexible hoses and cylinder connections.

After initial power-up and with both banks empty, the red light will be illuminated. The bank that is pressurized first will be considered the "in service" bank. The cylinder bank that supplies the piping system is known as the "Service" supply (as indicated by the green "in Service" light), while the cylinder bank on standby is referred to as the "Secondary" supply (as indicated by the yellow "ready for use" light). On the service bank, the gas flows into the changeover station inlet to the bank pressure switch, then into the primary regulator before heading to a solenoid valve followed by a check valve and the final line regulator. Delivery pressure is controlled by one line regulator and is field adjustable (See Delivery Line Adjustment Section). The gas exits the line regulator and proceeds past the pressure gauge and into the delivery piping.

The gas on the secondary bank flows into the changeover station inlet to the bank pressure switch. The gas then

flows through the other primary regulator. The gas is then stopped by a solenoid valve. Since this is the secondary bank, the valve is closed, preventing the secondary bank from flowing. Changeover from the "Service" to "Secondary" side is accomplished when the service bank pressure drops below a predetermined point (this changeover pressure is determined by the pressure switch). The control module then signals the secondary bank solenoid to open while closing the service bank solenoid valve at the same time, allowing it to start flowing without any interruption in line delivery pressure. There are three definite indicators as to which a gas cylinder bank should be changed; (1) the red "Bank Depleted" light, (2) the cylinder bank pressure readout (gauge) and (3) both the green light and the yellow light of the depleted side are extinguished.

After replacing empty cylinders, open the cylinder valves. The control module will read this pressure and automatically place the fresh bank of cylinders into reserve (stand by/ready for use) mode, making it the secondary bank. The yellow light will come on indicating that the new bank is ready for use, and the red "Bank Depleted" light will be extinguished. Replacing the empty cylinders is all that is required to reset the changeover station.

Technical Data		
Maximum Inlet Pressure	3000 psig [207 Barg]	
Delivery Pressure	30-125 psig [2 Barg to 8.6 Barg]	
Flow	Cv : 0.06	



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# **Standard Configuration**



# Wetted Components







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**Dimensions** 

# STATION WETTED COMPONENTS







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## **Ordering Information**



FCS3000 Series Fully Automatic Changeover Station Number Chart			
Variable	Definition	Allowable Value	Description
А	Inlet Pressure	3000	3000 psig [207 Barg]
В	Material	B C S	Brass Chrome-Plated Brass Stainless Steel
с	Gas	346 580A 580H 350H 350M 580N 580N	Air Argon Helium Hydrogen Methane Nitrogen Oxygen
D	No. of Cylinders	2 4 6	1 x 1 2 x 2 3 x 3
E	Cylinder Leads	тсн ssh	Teflon Core Hose Stainless Steel Hose
G	Gas Outlet Type	CGA BS DIN NEN	CGA - United States BS341 - Great Britain DIN 477 - Germany NEN 3268 - The Netherlands
F	Option	VV	Vent Valve

Notes: Manifolds that use four (4) or six (6) cylinders (2 x 2 or 3 x 3) with the vent valve option will require header bars.

Example: Manifold FCS, 3000 psig inlet, chrome-plated brass, argon service, 2 x 2 cylinders, stainless steel hoses, Great Britain

Example Model Number: FCS3000C-580A-4-SSH-BS

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