



DELTA²

Medical Gas Equipment

**AUTOMATIC CHANGEOVER MANIFOLD CONTROL SYSTEM
C-SR-2210M-2251M-HTM SERIES COMPLYING TO
HTM02-01 STANDARD**

The AUTOMATIC CHANGEOVER MANIFOLD CONTROL SYSTEM C-SR-2210M-2251M-HTM complies to HTM02-01, ISO 7396-1 and ISO 10524-2 standards.

The AUTOMATIC CHANGEOVER MANIFOLD CONTROL SYSTEM C-SR-2210M-2251M-HTM manifold control system is able to provide an uninterrupted supply of a specific medical gas from equally sized high pressure cylinder banks . In addition the system is provided with an Emergency Reserve manifold to supply the pipeline in case of a Primary supply failure.

An electronic warning and alarm system provides to monitoring the manifold operational parameters, and it also gives alarm warnings in case of malfunctioning. The manifold is housed in a zinc-plated steel box. The manifold is supplied fully assembled and tested.

Two versions are available:

-STANDARD VERSION C-SR-2210M-2251M-HTM/S: with an external varnished zinc-plated cover box

-ECO VERSION C-SR-2210M-2251M-HTM/S: with the same operational functions of the standard version , but without a cover box. This version is mounted on a stainless steel support panel

Working principles

The AUTOMATIC CHANGEOVER MANIFOLD CONTROL SYSTEM C-SR-2210M-2251M-HTM is a high capacity manifold designed to ensure a capacity of 120 m³/h.

There are two separated stages of regulation: First stage and Second stage.

The First stage ensures a regulation from 200 bar to 10-12 bar.

The Second stage ensures a regulation from 10-12 bar to 5 bar.

First stage's regulators are protected from over-pressure by relief valves.

There is a pneumatic switch that ensures the changeover from duty bank to stand-by bank.

Two inductive sensors detect the switch's position ,and after the detection the changeover occurs.

There are two pressure gauges on the frontal panel, indicating the left bank's pressure level and the right bank's pressure level.

A third pressure gauge indicates the line's pressure status.

An electronic control panel ensures the monitoring of the system and provides to notice alarm conditions by means of visual and audible signals.

The control panel is provided with three-colour LEDs indicating the following conditions of manifold:

- Green : Normal status
- Yellow: Warning condition
- Red : Emergency Alarm
- LED display : Right bank's, Left bank's and Line pressure

In the event of mains power failure a battery pack ensures the power supply to the "ALARM SYSTEM FAULT" indicator for a minimum period of 4 hours.

Technical Data

- Fully automatic manifold control panel
- Complying to **HTM02-01, ISO 7396-1 standards**
- Suitable for following gases:
O₂, N₂O, CO₂, AIR, N₂
- Max flow rate: 120 Nm³/h
- Max input pressure: 200 bar
- Output pressure: 5 bar (adjustable)
- Two stage regulation system complying to ISO 10524-2
- Automatic switch from duty bank to stand-by bank
- Housed in a zinc-plated steel box 1070x680x210 mm (STANDARD VERSION)
- Mounted on a stainless steel support panel 1030x 640mm(ECO VERSION)
- VIE and NIST connection
- Alarm system controlled by microprocessor complying to **HTM02-01 Standard**
- Alarm's electrical features: 115/230 Va.c. 50-60 Hz
- Alarm's battery features: NiMh, 600 mAh, sealed, exchangeable, automatically rechargeable within 72 hours, 4 hours of life
- All components of systems which can be exposed to cylinder pressure in normal or single fault condition have passed the test for resistance to ignition in accordance with ISO10524-2 and ISO 15001

Note: Refers to TS-01-ENG for Datasheet

Note: Delta P reserves the right to change the technical features of the described devices without any notice.



Fig.1 STANDARD VERSION Closed door view



Fig.2 STANDARD VERSION Open door view

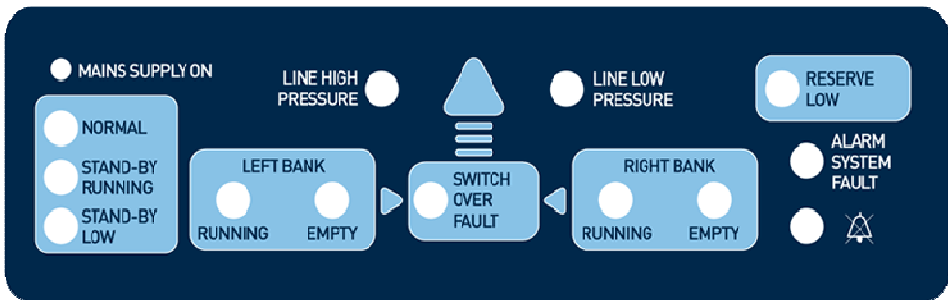


Fig.3 Control Panel

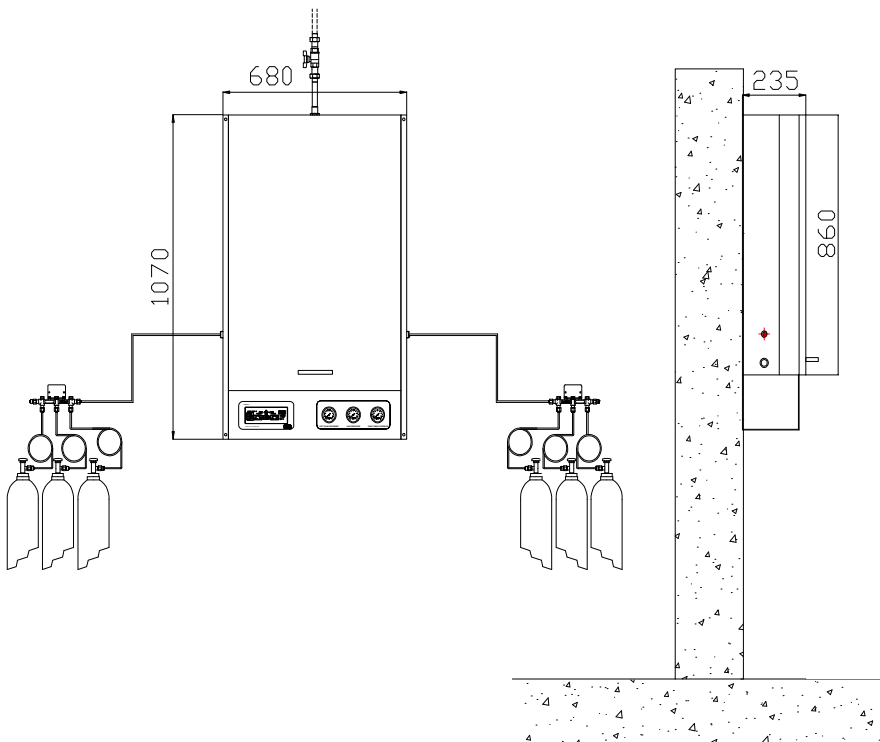


Fig. 4 C-SR-2210M-2251M/S HTM STANDARD Typical scheme of installation

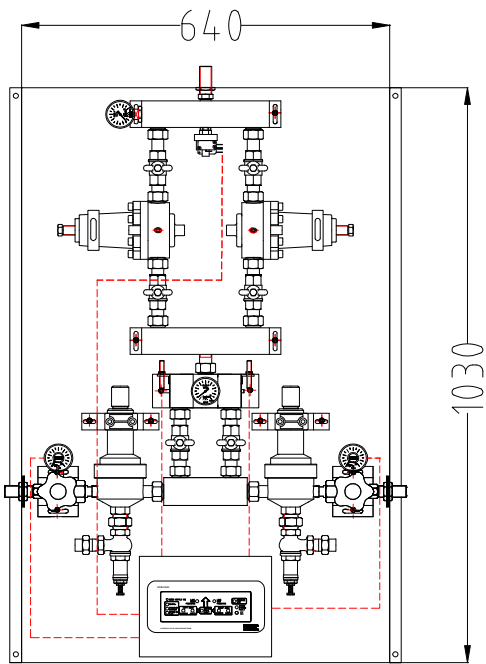


Fig. 5 C-SR-2210M-2251M HTM ECO

C-SR 2210M-2251M/S HTM STANDARD VERSION

PRODUCT CODE	DESCRIPTION
10366H-2002M	AUTOMATIC CHANGEOVER SUPPLY UNIT C-SR-2210M-2251M/S O2 HTM STANDARD
10422H-2002M	AUTOMATIC CHANGEOVER SUPPLY UNIT C-SR-2210M-2251M/S AIR HTM STANDARD
10423H-2002M	AUTOMATIC CHANGEOVER SUPPLY UNIT C-SR-2210M-2251M/S N2O HTM STANDARD
10424H-2002M	AUTOMATIC CHANGEOVER SUPPLY UNIT C-SR-2210M-2251M/S CO2 HTM STANDARD
10425H-2002M	AUTOMATIC CHANGEOVER SUPPLY UNIT C-SR-2210M-2251M/S CO2 HTM STANDARD

C-SR 2210M-2251M/E HTM ECO VERSION

PRODUCT CODE	DESCRIPTION
10443H-2002M	AUTOMATIC CHANGEOVER SUPPLY UNIT C-SR-2210M-2251M/E O2 HTM ECO
10444H-2002M	AUTOMATIC CHANGEOVER SUPPLY UNIT C-SR-2210M-2251M/S AIR HTM ECO
10445H-2002M	AUTOMATIC CHANGEOVER SUPPLY UNIT C-SR-2210M-2251M/S N2O HTM ECO
10446H-2002M	AUTOMATIC CHANGEOVER SUPPLY UNIT C-SR-2210M-2251M/S CO2 HTM ECO
10447H-2002M	AUTOMATIC CHANGEOVER SUPPLY UNIT C-SR-2210M-2251M/S CO2 HTM ECO

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