



**MEDICVENT**

*Cleaning air in healthcare*



**190022 Control Panel Display DM/SG  
Installation and Use**

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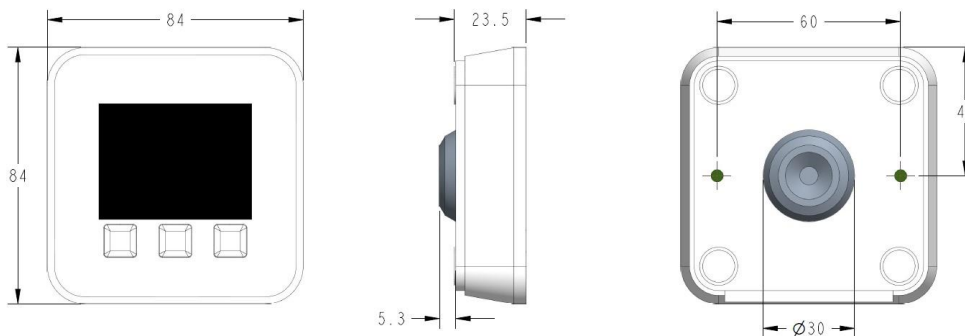
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# General

- This manual is intended for the Operation Panel Display DM/SG with part number 190022.
- Before putting the product into use, this manual must be studied in detail.
- Only MEDICVENT authorized personnel may carry out repairs and adjustments to this equipment.
- Only MEDICVENT original parts may be used for repairs.
- MEDICVENT reserves the right to make changes to the design and use without prior notice.

# Technical data

Dimensions:	84x84x23,5 mm (HxWxD)
Weight:	105 g
Voltage:	12-24 VDC
Power consumption (max):	2,2 W



Picture 1, Dimensions

# Function

Control panel Display DM/SG is used to set the flow in Medicvent's evacuation system for double mask or surgical smoke. The panel is used as standard for Medicvent Central System SMART but can also be used in other systems together with the Motor Valve in series 20 or higher.

The panel can be used for both double mask evacuation (OFF/Low/High) and surgical smoke evacuation (0-100%)

# Installation

**NB! This chapter is intended for qualified personnel only. Contact Medicvent for support.**

## Assembling

The control panel is mounted in a medical supply unit or on a wall over an appliance box or similar. Hole spacing for screw fastening is 60mm, see picture 1. Perform assembly according to the following steps;

1. Remove the panel from its enclosure by pushing a screwdriver into the two slots on the underside and gently unfolding the front.



Picture 2

2. Screw the enclosure into place and connect the panel according to the Connection chapter below.
3. Check that dip switch 1 on the back of the panel is correctly adjusted according to the application.
  - a. DIP switch 1 sets the correct application, Surgical smoke or Double mask.
  - b. DIP switch 4 enables RS485 termination.

**NB! DIP switch 4 must always be in OFF position except if the control panel is the last unit in a Modbus RS485 installation.**

Switch	Function OFF	Function ON
1	5 stages/ON/OFF (Surgical smoke)	2 stages/ON/OFF (Double Mask)
4	RS485 (Modbus) termination off	RS485 (Modbus) termination on

4. To reinstall the panel in the enclosure, first insert the top edge of the panel into the enclosure and then push the bottom edge in.

## Connection

The control panel can be connected in two different ways depending on whether it is in a system with Modbus communication or whether it should be connected analogue. Contact the operator of the system if it is unclear which connection applies.

### Modbus

Communication between the peripheral components of the system (e.g. control dampers and control panels) takes place via the Modbus RTU protocol with physical interface RS485. The recommended cable type is Medicvent article 100222 (2x1.5 mm<sup>2</sup> + 2x2x0.5 mm<sup>2</sup>). Orange cable pairs should be available as a spare in the main loop and used as a return of RS485+/- in cases where control panels are mounted in, for example, anaesthesia or surgery supply units, see Figure 3.

The cable is connected to the terminal block of the panel as shown in Table 1 below. Pin 1 of the terminal block is on the far left when facing the back of the panel with the terminal up.

**WARNING! Connection of the control cable must be done with care. If possible, disconnect the +24 VDC (normally red) conductor of the cable before connection.**

Pin	Connection
5	MODBUS B (-)
6	MODBUS A (+)
9	Power supply 0 VDC (-)
10	Power supply 24VDC $\pm$ 10% (+)

**NB! It is not permitted to use a junction box to create a star-network for several devices.**

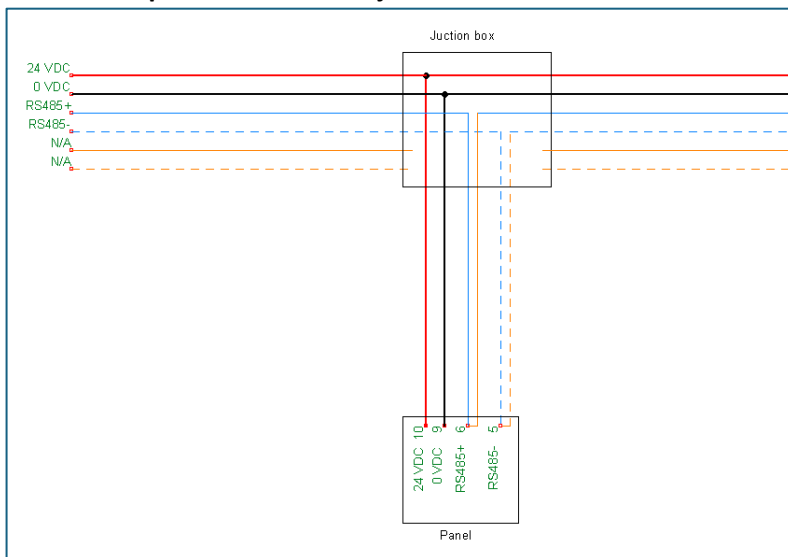
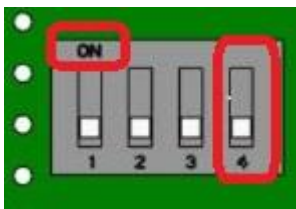


Fig. 3, Modbus connection of control panel mounted in e.g. anaesthesia or surgery supply unit

### Modbus termination

DIP switch 4 must always be in OFF position except if the control panel is the last unit in a Modbus RS485 installation.

Switch	Function OFF	Function ON
4	RS485 (Modbus) termination off	RS485 (Modbus) termination on



## Analogue

In the case of analogue connection, the control panel is connected directly to a Medicvent Motor Valve. If the motor valve has a serial number beginning with 20- or higher, the control panel can be powered directly from the motor valve, otherwise a separate 24 VDC power supply is required. The recommended cable type is Medicvent article 100189 (5 x 0.5 mm<sup>2</sup>). Connection between valve and panel is carried out according to the table below.

**WARNING! The control cable must be connected with the motor valve's screw terminal block disconnected from the valve and any separate power supply separated from the mains.**

Pin (Valve)	Pin (Panel)	Connection
4	1	Analogue signal, ground
1	2	Analogue signal (0-10V)
2	9	Power supply 0 VDC (-)
5	10	Power supply 24VDC ±10% (+)

# Settings

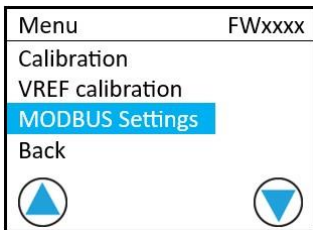
**NB! This chapter is intended for qualified personnel only. Contact Medicvent for support.**

The keypad settings menu is opened by holding down the two outer buttons on the front of the panel for 8 seconds. Confirm all menu items with the middle button.

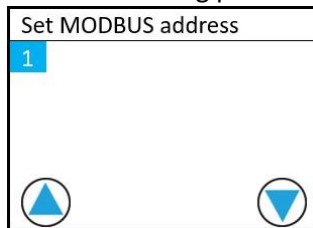
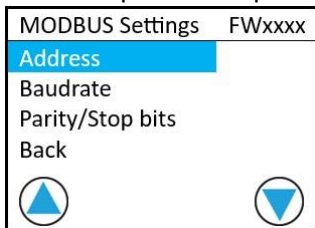
## Modbus

If the control panel is used in a system with Modbus communication (Central System SMART), no further settings should normally be made. If the control panel does not work properly, the Modbus settings may need to be adjusted as follows.

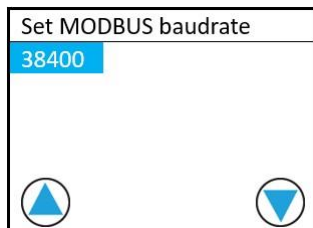
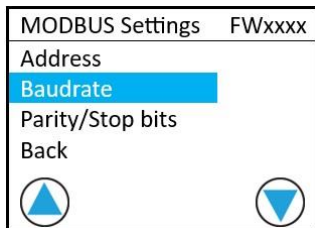
1. Enter the settings menu by holding down the two outer buttons for 8 seconds.
2. Go to the menu item 'MODBUS settings'.



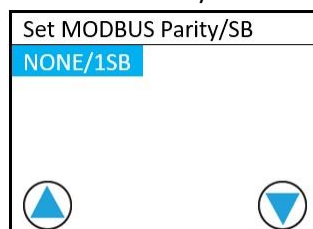
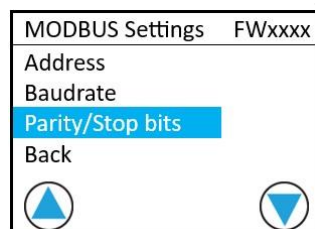
3. Go to the menu item 'Address' and then set the correct MODBUS address.
  - a. For new installation: Address between 101-150 (Primary) or 201-250 (Secondary). Contact Medicvent for support.
  - b. Replacement panel: Same address as existing panel.



4. Go to menu item 'Baudrate' and set 38400.



5. Go to the menu item 'Parity/Stop bits' and set NONE/1SB.



6. Exit the menu by selecting the menu item 'Back'.

## Analogue

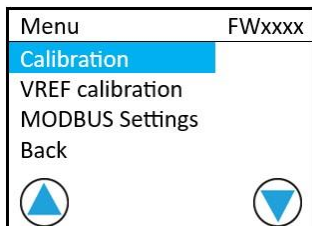
### Surgical smoke

If the control panel is used for flow selection in a surgical smoke evacuation system, no settings shall be made in the control panel.

### Double mask

If the control panel is used for flow selection in a nitrous oxide or anaesthetic gas evacuation system, the Low and High flow modes may need to be adjusted. It is done in the following way;

1. Enter the settings menu by holding down the two outer buttons for 8 seconds.
2. Go to the menu item 'Calibration' and confirm with the middle button.
3. The valve will now set itself to the Low Flow position. Check the flow against the flow meter in the room, adjust the value with the right or left button so that the flow meter ball is at the bottom line. Confirm the value with the middle button.
4. The valve will now set itself to the High Flow position. Repeat the adjustment and check that the ball of the flow meter is at the top line. Confirm the value with the middle button.
5. Exit the menu by going to the menu item 'Back' and confirm with the middle button. The valve is now set to the position that was selected before entering the menu.





# Usage

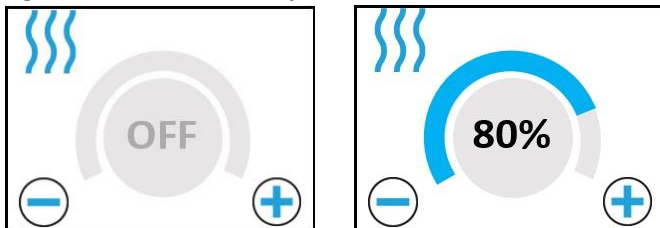
## Flow selection

If the control panel has not been used for a while, the screen saver is activated. The image is then black, and the set value is shown in blue text in different places on the display. Press any button to exit the screensaver.

If the panel is used in a system with Modbus communication (Central System SMART), the symbol in the upper left corner will flash while the valve is positioning to the correct position.

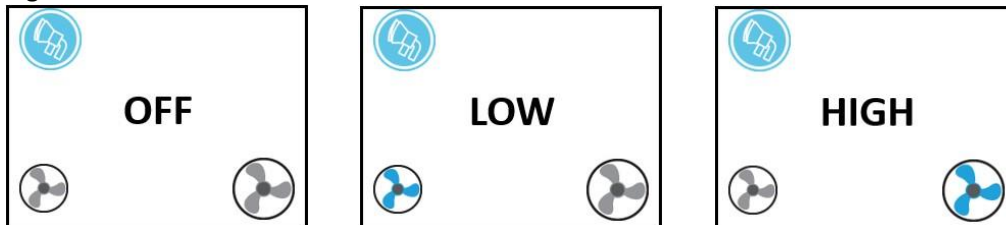
## Surgical smoke

By pressing the middle button, the panel switches between the off position (OFF) and 80%. Press right or left button to adjust flow in increments of 20%.



## Double mask

By pressing the middle button, the panel switches between the OFF position and the value the panel was set to before it was turned off, LOW or HIGH. Use the outer buttons to switch between low and high flow.



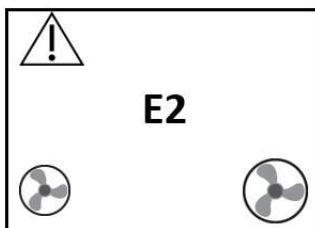
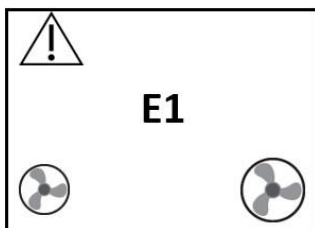
## Cleaning

The control panel can be wiped with disinfectant containing isopropyl alcohol or ethanol (max. 70%).

# Troubleshooting












If the control panel is used in a system with Modbus communication (Central System SMART), the control panel can receive and display fault codes if there is a fault in the system. The following error codes may appear along with a warning triangle in the display;

Error code	Description	Remedy
E1	There is a central fault in the fan system which means that none of the connected outlets are working.	Contact the operations manager. Check the central system. If necessary, contact Medicvent.
E2	There is a local fault that means that the specific control panel and the associated outlet are not working	Contact the operations manager. Check the communication between the fan system and the valve. If necessary, contact Medicvent.
N/A The display is off	There is no power supply to the control panel	Contact the operations manager. Check connections on terminal pin 9 and 10. In analogue systems, check electrical valve or external power supply. In SMART systems, check fuses in control cabinet. If necessary, contact Medicvent.



# Symbols

The following symbols are used on the product, in the display, on the product packaging or in this manual;

Symbol	Use	Explanation
	In display	Warning! There is a fault in the system that causes the evacuation to malfunction. Shown together with error code, see page 10.
	In display	Indicates that the control panel is configured for Double mask use.
	In display	Indicates that the control panel is configured for surgical smoke evacuation.
	In display	Choice of Low and High Flow. The blue symbol indicates the active selection.
	In display	Decrease/increase in flow when used for surgical smoke evacuation.
	In display	Used for menu selection and change of settings. See page 7.
	On the product	On/Off. The centre button of the control panel, see page 9.
	On product On packaging	Reference. The symbol is followed by the product part number.
	On product On packaging	Serial number. The symbol is followed by the individual serial number of the product.
	On product On packaging	CE. The product is CE marked.
	On product On packaging	Electrical-waste. The product must not be disposed of as unsorted waste, but must be handed in to a recycling station for electrical waste.



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