

Installation instruction MicaFlex fume hood control

Fume hood control

Mi-212gb_2005-03-31

Application

The MicaFlex system for fume hood face velocity control is developed for continuous measuring, control and monitoring of the face velocity of the fume hood sash opening and by that, guarantee the safety of the operator and laboratory personnel.

The system also offers the lowest possible energy cost when the inflow is kept at lowest possible value of 0,5 m/s irrespective of the level of the fume hood sash opening.

The MicaFlex fume hood system consists of;

- Operator monitor, FHM
- Control unit, FHC, with built in sensor
- Actuator, HSA-24SR2

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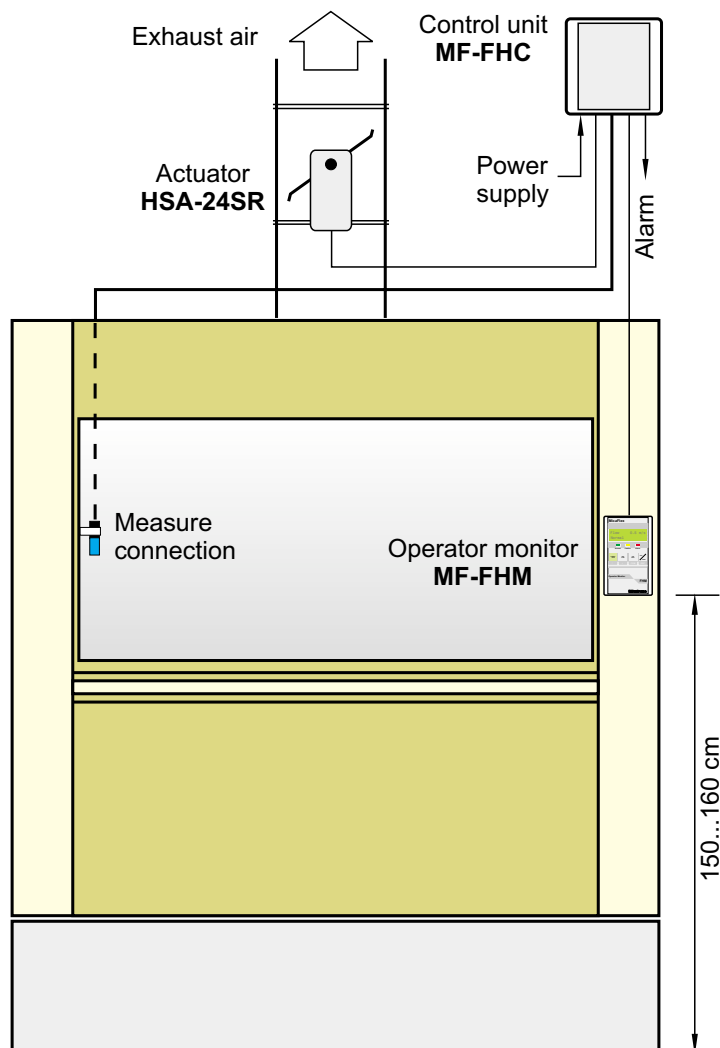


figure 1

1. Installation of operator monitor

Install the monitor about 160 cm from the floor. The fitting could be performed either directly to a service cover or at the side of the fume hood with a mounting bracket.

Fitting on a service cover:

Cut the attached drill template (at the end of this document) and attach it on the cover with adhesive tape, check that there is space on the backside of the cover to make holes for electric wire connections and fitting screws. Bore the holes according to the template.

Fitting on the fume hood side

Fit the mounting bracket edge to edge with the fume hood. Mark the holes on the fume hood and bore for screw, diameter \varnothing 3,5 mm. Screw on the mounting bracket with the attached screws (2 pcs B10x13). Place the operator panel towards the mounting bracket and fix the unit by the attached screws (4 pcs B10x13).

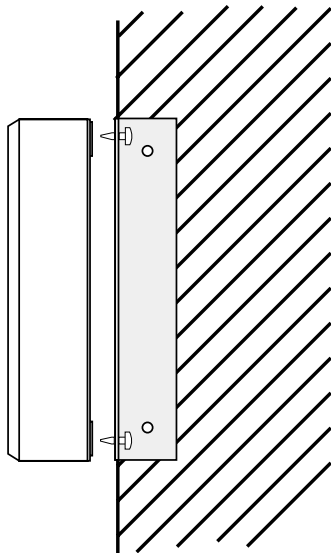


figure 2

Max. distance panel - control unit 200 cm.

2. Installation of measure connection

Install the measure connection bracket inside the left or right side of the fume hood according to figure. The bracket must be placed 10 cm inside from the fume hood opening and 5 cm above the sash in top position. The bracket is possible to attach either with screw (B6x9) from the inside of the fume hood or with M6 thread screw from the outside, length thickness of fume hood wall + 10 mm.

Mark a plumbline from the fume hood top to the centre of the bracket, make marks for the holes, 18 mm distance from the wall. Bore \varnothing 8,5 mm.

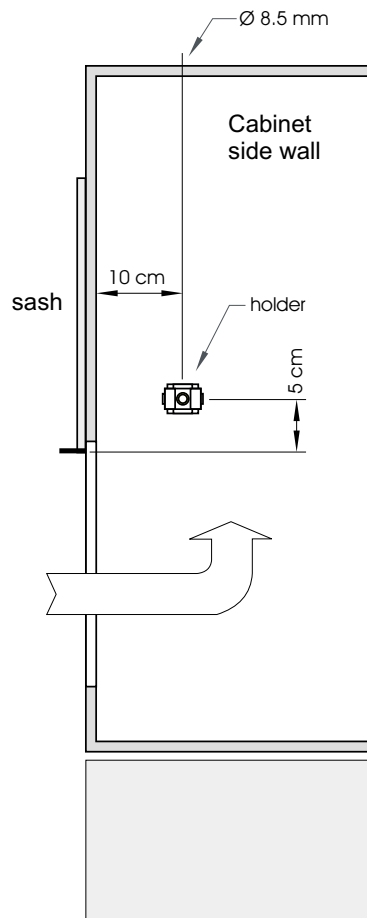


figure 3

Bring the plastic tubing through the hole and turn the upper part of the connection according to the drawing into the bracket.

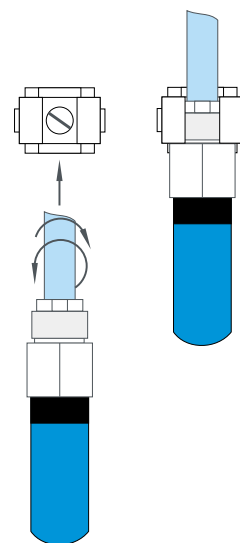


figure 4

Cut the plastic tubing 25 mm from the outside of the fume hood top.

3. Installation of control- & supervisor unit

The control unit could either be installed laying on the fume hood top or standing with the attached bracket according to figure 5. Make sure that the panel electric cable reaches the control unit.

Make marks and bore 4 holes for the control unit, fix with 4 screws. Drill template is attached at the end of this document.

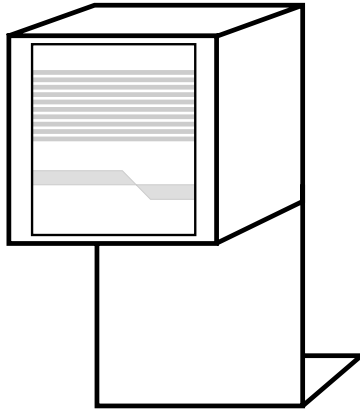


figure 5

4. Electrical connection

Actuator, panel and control unit supply voltage 24 VAC, min 11 VA. Connect supply voltage and actuator using a terminal box, see figure 6.

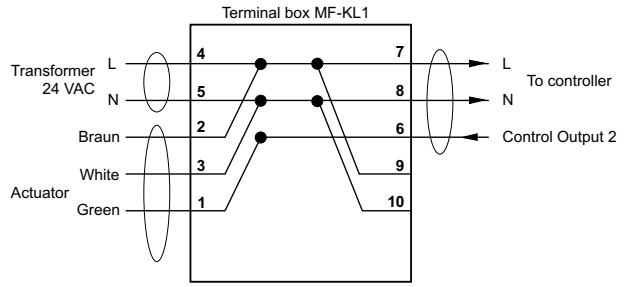


Figure 6

Cable lead-through:

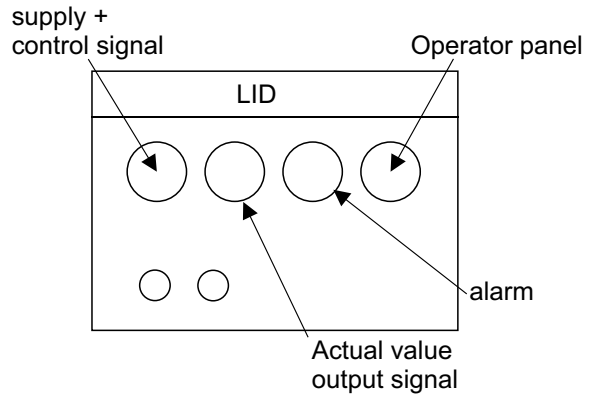


figure 7

Connect alarm and, if used, actual velocity value output. Connect the electrical wiring from the panel to connection K2, see figure 8.

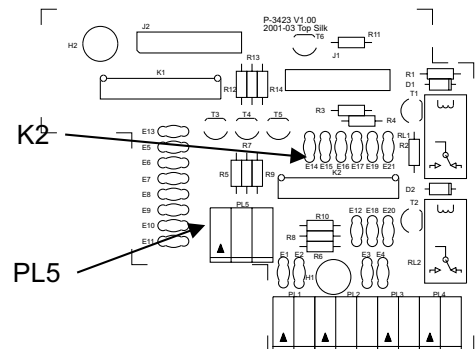


figure 8

Push the connection straight down into the fitting. Switch on supply voltage and check that the display is working.

5. Actuator HSA-24 SR2

The actuator is normally factory installed on the damper.

The rotation angle is set for 90° rotation.

If a smaller rotation angle is desired adjustment must be performed on both min. and max. position.

Adjustment of limits for min.and max.position

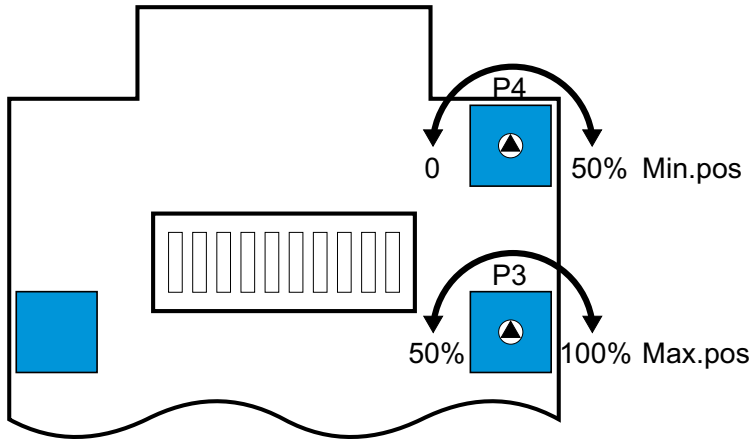


figure 9

Remove the cover (4 screws).

Min position

The min. position is adjusted with potentiometer P4 at 0V input signal. Adjustment range 0..50%. clockwise turn increases the min. position from 0% (0°) to 50% (45°)

Max. position

The max. position is adjusted with potentiometer P3 at 10V input signal. Adjustment range 50..100%. Anti clockwise turn decreases the max. position from 100% (90° angle) to 50% (45° angle).

6. Technical data

Operator monitor FHM:

Display: 2 rows, 32 signs
 LED: Green, yellow, and red
 Keypad: 4 keys for change of control mode:
 Normal, high flow, low flow and test/reset of alarm.
 Programming mode is protected by time delay.
 Connection: Connection to control unit via fixed connected 2 m cable and plug-in contact.
 Buzzer: 85 dB (10 cm)
 IP class: IP-54
 Dimensions: 160x80x37 mm

Control unit FHC:

Outputs: Two analogue 0/2...10 VDC/0/4...20 mA for control and velocity actual value
 Inputs: Two digital for high and low flow. One digital for remote reset of alarm.
 Alarm: Two switching relay contacts max 48 VAC-5 A/48 VDC-1,5 A
 Power supply: 24 VAC± 15% /20...32 VDC
 Power consumption: 4 VA
 IP class: IP-65
 El-connection: Max 1,5 mm². 4 pcs M16x1,5
 Dimensions: 120x122x90 mm

Built in sensor :

Type: Mass flow sensor
 Measure range: 0...4 Pa (0...2,0 m/s)
 Power supply: 15 VDC
 Output: 2,5...5 VDC

Actuator HSA-24SR2:

Control signal: 0...10 VDC
 Position output signal: 0...10 VDC
 Running time: 90° 2 seconds
 Power supply: 24VAC
 Power consumption: 7 W
 Torque: 3 Nm
 Rotation angle: Adjustable min. limit 0..45° and max. limit 45..90°
 IP class: IP-54
 El-connection: 4-wire cable 1 m fixed connected
 Connection: Direct connection to 10 mm squared shaft
 Dimensions: 130x80x135 mm

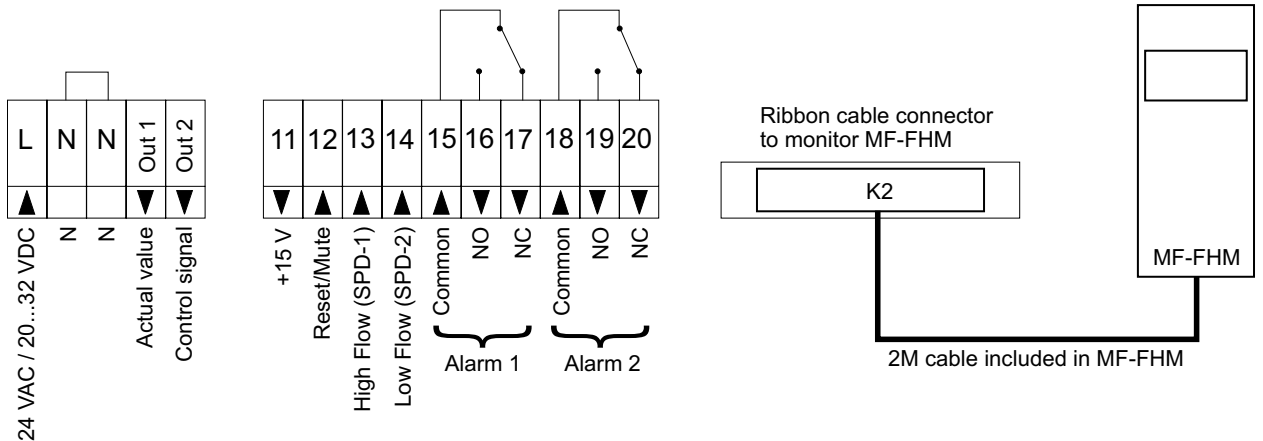
System accessories:

- Transformer
- Damper, coated with zink, stainless steel or epoxy painted
- Transmitters and controllers for constant pressure control, balancing of supply and exhaust air, zone control and temperature control.

Electric connection actuator HSA-24SR2:



Electric connection control unit FHC:

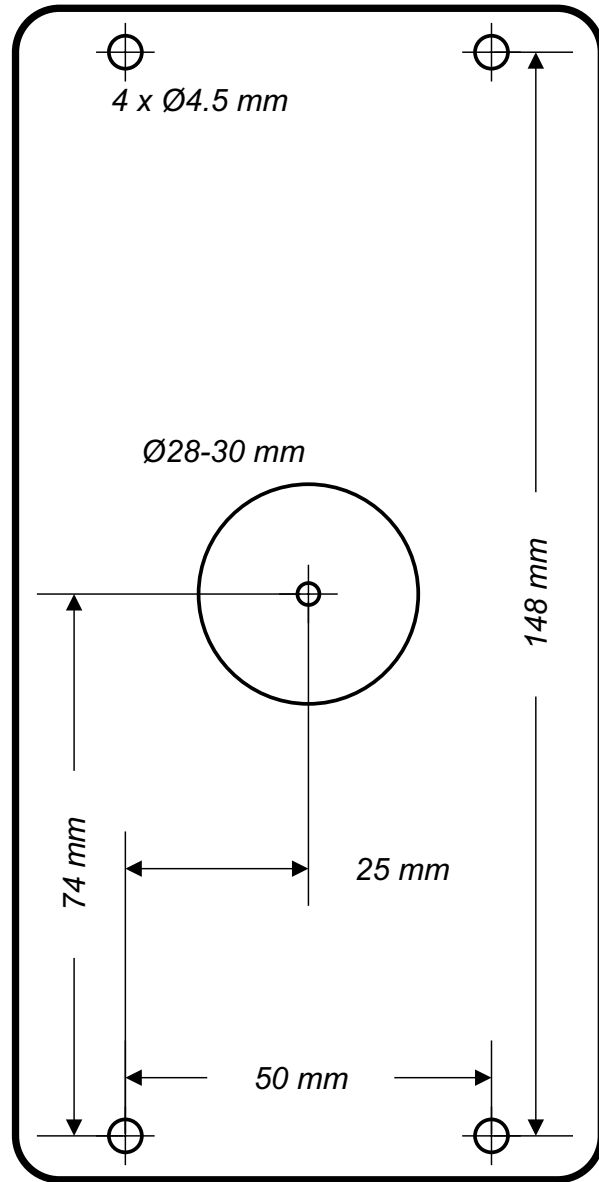


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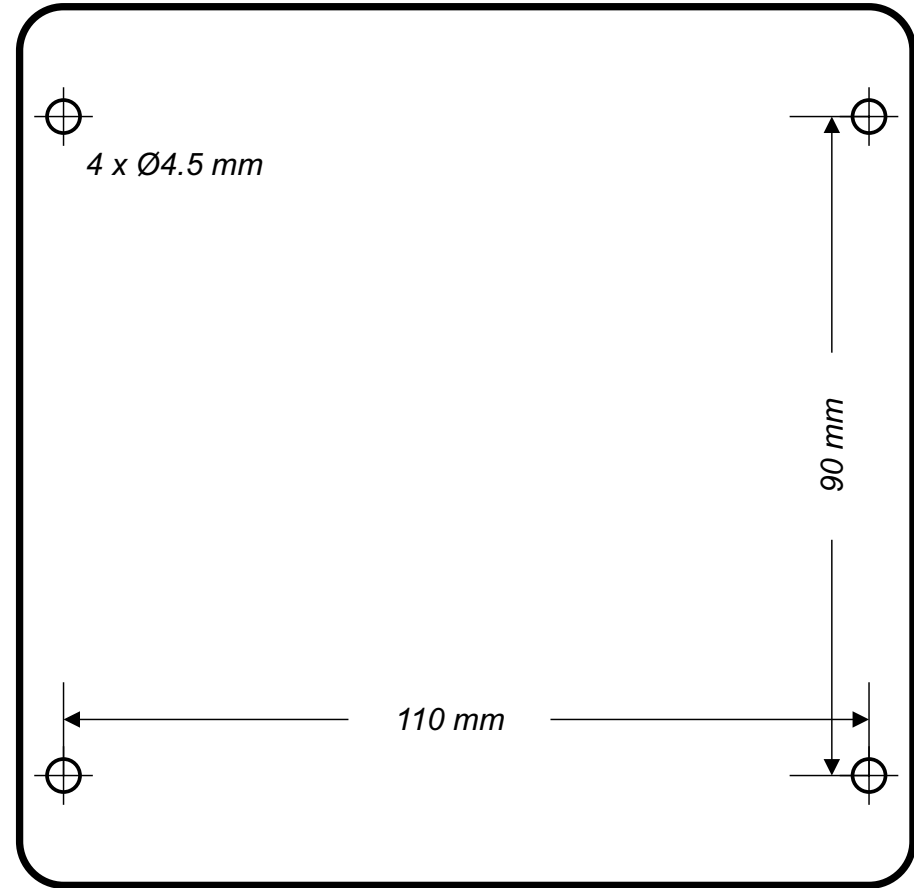
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BORE TEMPLATE

Note ! Always check that paper copy is in scale before using it as a template



MF-FHM



MF-FHC