

Mounting and Installation manual Fume Hood Control ver. 5

FHC ver 5

mi-299gb rev 2021-08-16

Fume hood control

The FHC 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 control 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 system consists of:

- Operator interface FHI
- Control unit FHC
- Velocity sensor FHT
- Actuator HSA24-3P

Table of Content

1. Installation of operator monitor	2
2. Installation of velocity sensor	2
3. Installation of controller	3
4. Electrical connection	3
5. Actuator HSA24-3P	3
6. Technical data	4

© AB MICATRONE 2021-08-16 [H: \ Trycksaker \ Ventura \ Typset \ MIMA \ mi-299gb_210816.vp]

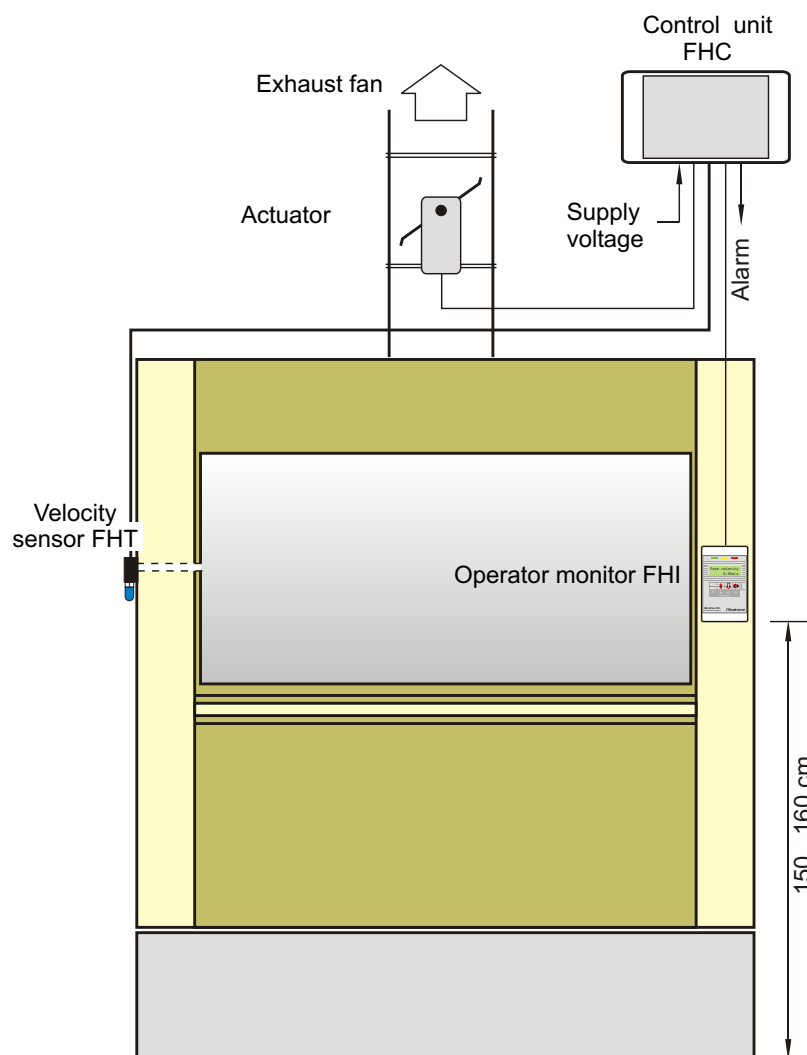


figure 1

1. Installation of operator monitor

Install the monitor approximately 160 cm above the floor surface. The mounting can be made either directly to a service panel or at the side of the fume hood using a mounting bracket.

Mounting on a service panel:

Check that there is sufficient space on the backside of the service panel to make holes for electric wire connections and fitting screws. Drill the holes according to the measures on the backside of the enclosure and measure for the electric cable.

It is possible to have the wires exiting the backside of the enclosure.

Mounting on the fume hood side panel:

Fit the mounting bracket to the fume hood. Mark the holes on the fume hood and drill two suitable holes for the attached screws 4,8x13mm.

Place the operator panel against the mounting bracket and fix the unit by the attached screws and nut, M4 x 14.

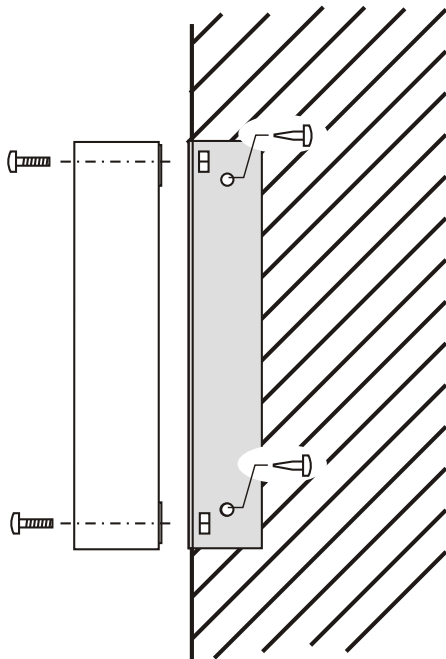


figure 2

Max allowed distance between operator panel and control unit is 200 cm.

2. Installation of velocity sensor

Drill a $\varnothing 8$ mm hole and two holes for fixing screws from the side of the fume hood according the figure below, use the attached self adhesive drill template and install the velocity sensor across the hole with the cable against the top and the filter downwards.

The sensor (FHT) should be installed 10 cm from the fume hood front edge and 5 cm above the sash when it is in its highest operating position.

The filter on the velocity sensor inlet is possible to remove for cleaning. Use hot water with a mild cleaning agent. Before use the filter has to be dry. It can also be cleaned and dried with compressed air. If very dirty replace with a new.

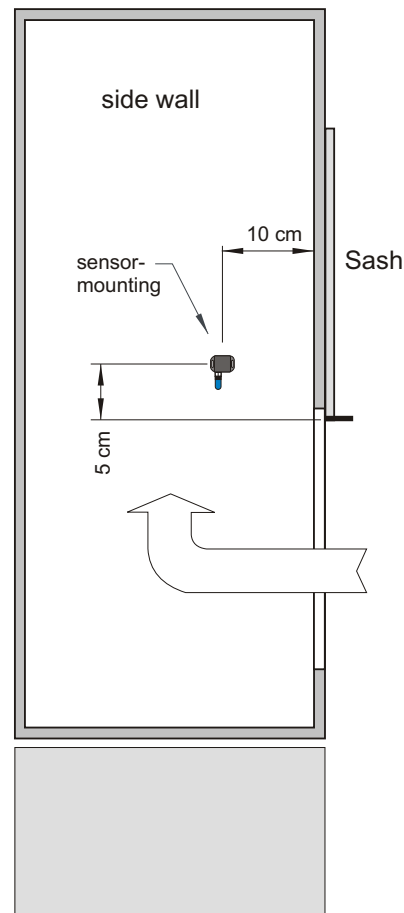


figure 3

3. Installation of controller

Install the control unit laying on the top of the fume hood.

Check that the cable from the operator interface reaches the control unit before fixing it in place.

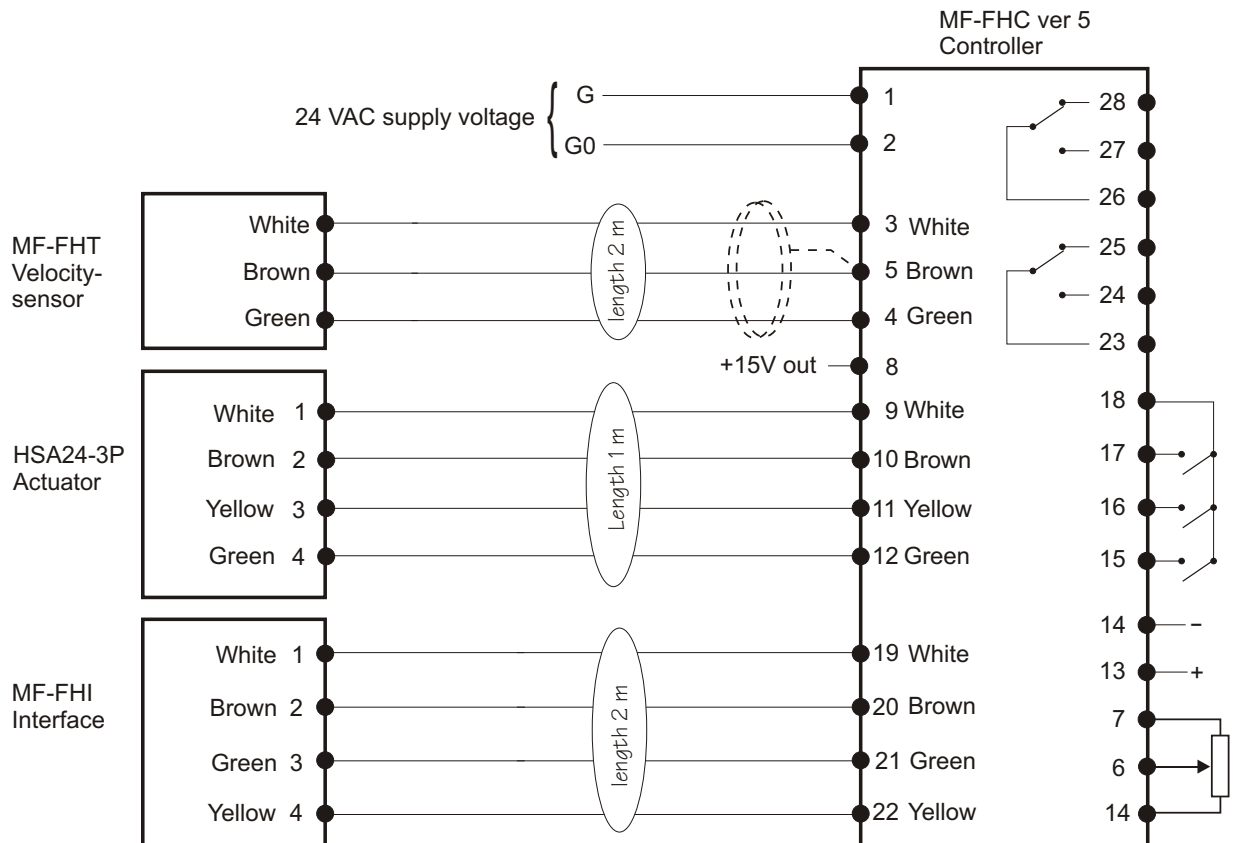
Make holes according to the measure on the enclosure backside and fix the controller with four screws.

5. Actuator HSA24-3P

The actuator is normally mounted on the damper.

4. Electrical connection

The control unit, MF-FHC, is connected to supply voltage 24 VAC, min 20 VA. See below.



6. Technical data

Operator interface FHI:

Display: Alphanumeric LCD w back-light
2 row x 16 character

LEDs: Green, yellow and red

Key pad: 4 key for change of operation;
-Normal,
-Emergency,
-Setback and
-test/reset of alarm.
Programming mode protected
by time delay or code.

Connection: Connection to control unit via
4-wire cable, length 2 metre

Beeper: 85 dB (10 cm)

IP class: IP-54

Dim: 125x75x35mm

Control unit FHC:

Output: 1 analogue output for velocity or
volume flow l/s with connected
sash potentiometer
1 analogue output 0...10 V on
terminal 11 for PI-Control or
3PC control signals on terminals
11 and 12.

Input: Analogue input for velocity sen-
sor and potentiometer input for
sash area.
3 voltage free inputs for Emer-
gency, Setback and reset of
alarm

Alarm: Two switching relay contacts
max 48 VAC-5 A/48 VDC-1,5 A

Power supply: 24 VAC± 15%

Power consump.: 5 VA

IP class: IP-65

EI-connection: Max 2 x 0,75 mm².

Cable entries.: 8x ø12,5 mm hole

Dim: 175x125x60 mm

Sensor FHT:

Type: Mass flow sensor

Measure range: 0...1 m/s

Accuracy: < ± 0,05 m/s

Actuator HSA24-3P:

Control signal: Digital increase/decrease

Speed: 90° in 1.5 s.

Supply voltage: 24 VAC

Power cons.: 12 VA

Torque: Min 3 Nm

Operating angle: 90°

Protection: IP-54

Connection: 1 m fixed 4-wire cable

Mech. connection: Fixed socket for 10x10 mm
square shaft on damper

Dimension: 155x71x67 mm

System accessories:

- Transformer
- Sash potentiometer
- IR presence sensor
- Damper, zinc coated, epoxy painted or plastic
- Sensors and controllers for constant pressure
control, balancing of supply and exhaust air,
zone control and temperature control

Electric connection :

No.	Description	Data
1	Supply 24 VAC	
2	GND	
3	Supply velocity sensor	3,26 VDC
4	Signal from velocity sensor	0,5..2,0 VDC
5	GND	
6	Signal from sash switch/pot.	0..10 VDC
7	10 VDC reference	9,77 VDC
8	15 VDC ext. supply output	15,0 VDC
9	Supply voltage actuator	24 VAC
10	GND	
11	Pi Control signal / 3PC increase	0/10 VDC
12	3PC decrease	0/10 VDC
13	Output signal velocity/flow	0..10 VDC
14	GND	
15	Mute alarm	Voltage free t
16	Emergency	Voltage free
17	Setback	Voltage free
18	GND	
19	To display conn. 1	
20	To display conn. 2	
21	To display conn. 3	
22	To display conn. 4	
23	Alarm relay 1 - Common	COM
24	Alarm relay 1 - Normal	NO
25	Alarm relay 1 - Alarm	NC
26	Alarm relay 2 - Common	COM
27	Alarm relay 2 - Normal	NO
28	Alarm relay 2 - Alarm	NC