



VALLOX 252 D

VALLOX Product Code: 3158400 L
VALLOX 252 D 3158410 R



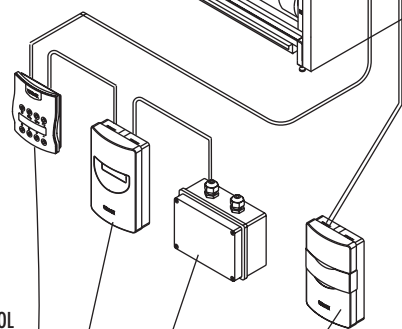
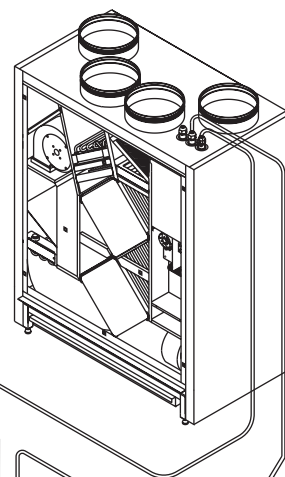
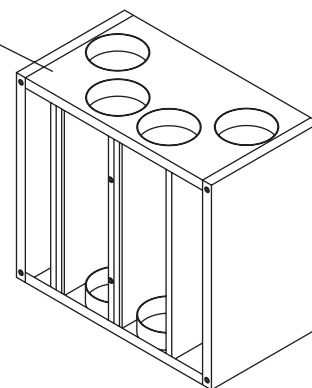
SILENCER (OPTIONAL)

WATER CIRCULATED POST-HEATING
UNIT (OPTIONAL)

ELECTRIC POST-HEATING UNIT
(OPTIONAL)

PREHEATER (OPTIONAL)

PRESSURE DIFFERENCE
SWITCH (OPTIONAL)



DIGIT CONTROL
PANEL

CO₂ SENSOR
(OPTIONAL)

LON CONVERTER
(OPTIONAL)

%RH SENSOR (OPTIONAL)

TECHNICAL SPECIFICATION

Power supply	230V, 50 z (400) 13,9 A (+ preheater 10.9 A)
Protection class	IP 34
Fans Supply air 2x230W 1 A	210 dm ³ /s 100 Pa
Extract air 2x230W 1 A	230 dm ³ /s 100 Pa
Heat recovery	2 heat recovery cells, $\eta > 70\%$
Heat recovery bypass	Summer/winter automation
Preheater	2.5kW, 11A
Electric post-heating unit	2.5kW, 11A
Water circulated post-heating unit	ca. 5kW
Filters Supply air	EU3 EU7
Filters Discharge air	EU3 EU5
Basic unit Weight	210 kg
Ventilation adjustment options	<ul style="list-style-type: none"> – Manual control (DIGIT control panel) – CO₂ and %RH control – Remote monitoring control (LON) – Remote monitoring control (voltage / current signal)
Options	<ul style="list-style-type: none"> – Silencer – Preheater unit – Electric post-heating unit – Water circulated post-heating unit – CO₂ sensor – %RH sensor – Pressure difference switch – LON converter

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VALLOX 252 D

OPERATING PRINCIPLE OF THE VENTILATION UNIT

Models:

VALLOX 252 D-L VALLOX 252 D-R

VALLOX 252 D removes contaminated air and replaces it with filtered and heated outdoor air.

Efficient filtering of outdoor air (EU3 + EU7) prevents harmful particles from entering the ductwork and the rooms via the unit. Good filtering of extract air (EU3 + EU5) diminishes the contamination of the unit and ensures effective operation of heat recovery and the extract air fans. Clogging of the supply/extract air filters and the ductwork can be monitored if the unit is equipped with a pressure difference switch.

With efficient 2-step heat recovery, most of the heat of contaminated extract air can be transmitted to outdoor air coming inside. The efficiency of the heat recovery cells is approx. 70%, or 75...80% if supply air fan heat is taken into account. If outdoor air does not get sufficiently warm in the heat recovery cells, it is possible to use an (optional) heating unit operated by water or electricity.

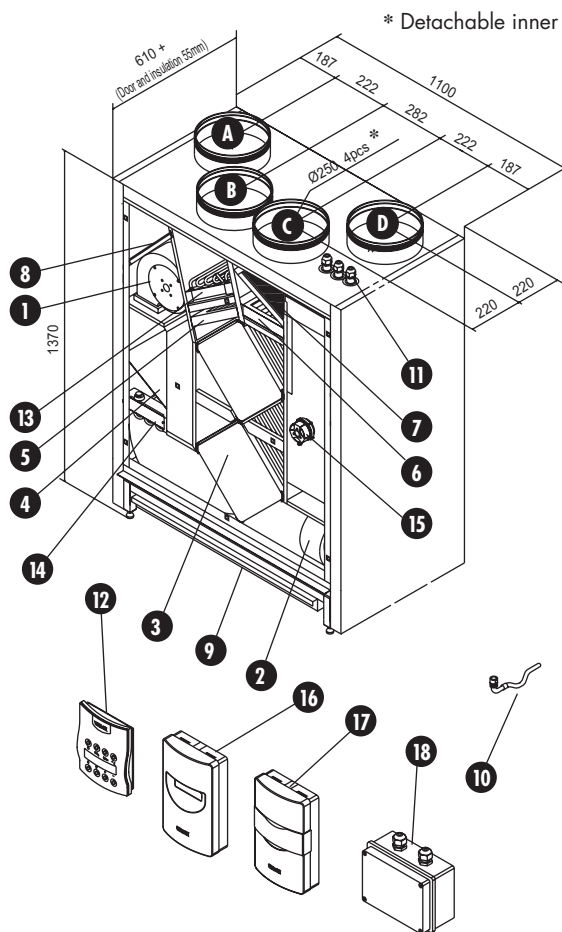
The unit features an automatic heat recovery bypass function, which eliminates needless heating of outdoor air in the summertime. The unit also includes an automatic defrosting function of the water operated post-heating unit.

The automatic defrosting of the heat recovery cells intermittently stops the supply air fans when the temperature of exhaust air goes under the preset threshold value. To avoid or to decrease the stopping of the supply air fans, you can heat outdoor air with an electric preheater. If the unit is equipped with a preheater, defrosting starts when outdoor air temperature goes below ca. -15/-25°C (max./min. supply air flow). Without preheating, defrosting starts when outdoor air temperature falls below ca. -5°C.

VALLOX 252 D can be controlled with the control panel coming with the unit (3 at most) and with optional CO₂ (5 at most) and %Rh sensors (2 at most).

Fan speeds can be monitored remotely with current or voltage signals. In case of failures in the ventilation unit, a potential-free relay point signal is received.

The optional VALLOX LON converter allows remote monitoring based control of the unit.



VALLOX 252 D-L

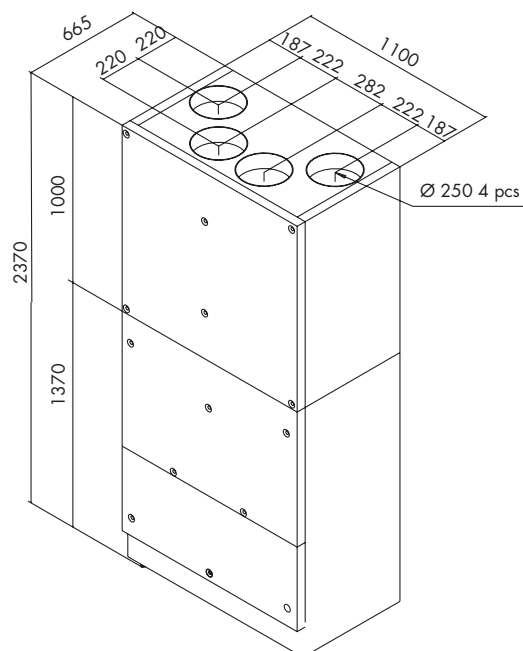
- A = OUTDOOR AIR
- B = SUPPLY AIR
- C = EXTRACT AIR
- D = EXHAUST AIR

VALLOX 252 D-R

- A = EXHAUST AIR
- B = EXTRACT AIR
- C = SUPPLY AIR
- D = OUTDOOR AIR

Silencer

Installed above the unit



Main Parts

- 1 Supply air fans
- 2 Extract air fans
- 3 Heat recovery cells
- 4 Heat recovery bypass
- 5 Supply air filter EU7
- 6 Extract air filter EU5
- 7 Extract air filter EU3
- 8 Outdoor air filter EU3
- 9 Condensing water reservoir
- 10 Condensing water outlet
- 11 Electrical connection lead-throughs
- 12 Control panel

Options

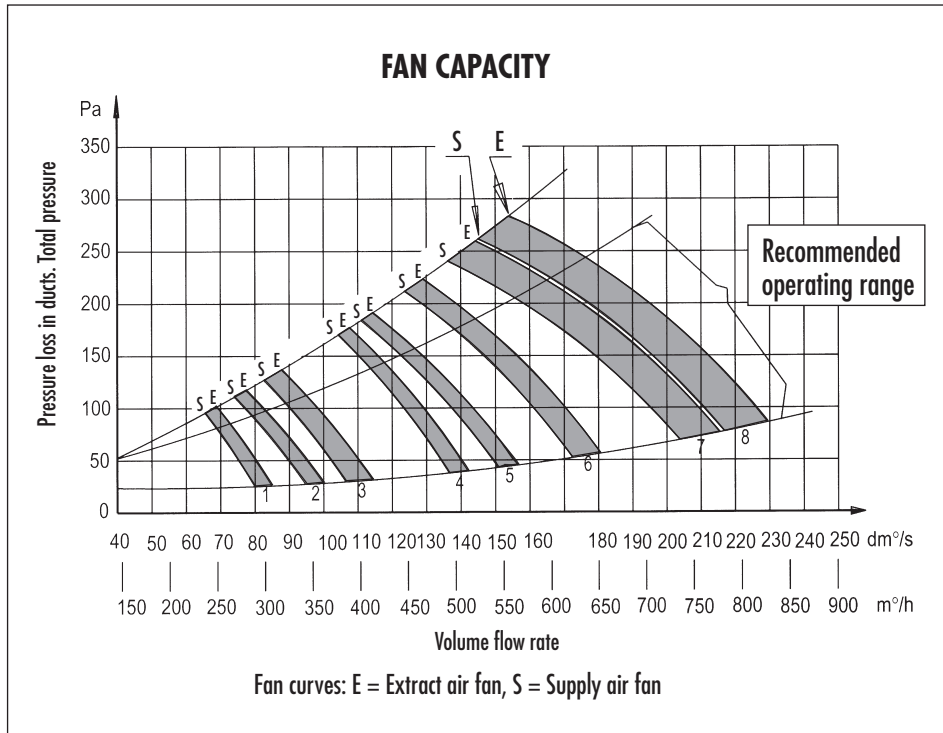
- 13 Post-heating unit
 - Electric or water
- 14 Preheater
 - Electric
- 15 Pressure difference switch
- 16 Carbon dioxide sensor
- 17 Humidity sensor
- 18 LON converter

VALLOX 252 D



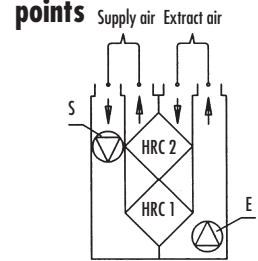
PERFORMANCE

VALLOX 252 D



VALLOX 252 D

Measuring points



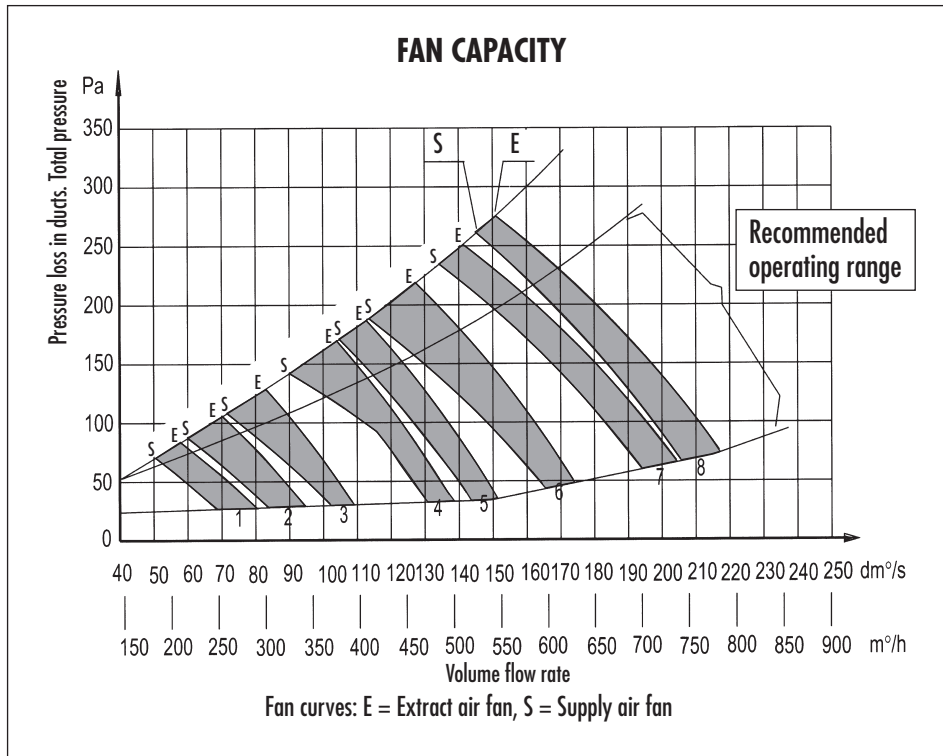
Measuring points after the outlet collar.

HRC=Heat Recovery Cell

Fan curves indicate the total pressure available for duct losses.

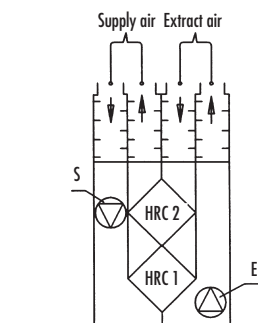
Fan speeds	Control voltage V	Air flow (l/s)	Input power W
1	90	80	200
2	100	95	230
3	110	110	275
4	130	135	350
5	140	150	390
6	160	175	450
7	200	205	590
8	230	230	675

VALLOX 252 D + silencer



VALLOX 252 D + silencer

Measuring points



Measuring points after the outlet collar.

HRC=Heat Recovery Cell

Fan curves indicate the total pressure available for duct losses.

Fan speeds	Control voltage V	Air flow (l/s)	Input power W
1	90	74	200
2	100	85	230
3	110	99	275
4	130	127	350
5	140	143	390
6	160	170	450
7	200	206	590
8	230	220	675



VALLOX 252 D

SOUND VALUES

- Sound power levels in the ducts measured in accordance with the standard ISO/DIS 5135:1995.
- Sound pressure levels in the room (10 m² sound absorption) determined according to the regulation 4873/531/84 issued by the Finnish Ministry of Environmental Affairs.

		Sound power level from VALLOX to supply air ducts by octave band L_w dB				Sound power level from VALLOX to extract air ducts by octave band L_w dB			
		CONTROL POSITION / AIR FLOW l/s				CONTROL POSITION / AIR FLOW l/s			
		1 76 l/s	4 138 l/s	6 169 l/s	8 208 l/s	1 85 l/s	4 141 l/s	6 179 l/s	8 226 l/s
Hz									
Medium frequency of the octave band, Hz	63	62.0	65.5	68.0	69.5	63.0	68.5	72.0	74.5
	125	55.0	60.0	63.5	67.0	59.0	66.0	68.5	72.0
	250	48.0	55.5	61.0	64.5	47.5	57.0	61.0	66.0
	500	36.0	44.5	49.5	54.5	36.5	43.5	48.0	52.0
	1000	38.5	43.5	47.0	50.0	36.0	43.5	48.0	49.5
	2000	28.5	38.5	45.0	50.0	28.0	38.5	45.0	49.5
	4000	20.0	30.0	35.0	39.5	15.5	28.5	34.0	38.0
	8000		20.0	27.0	32.0		18.5	27.0	31.0
L_w dB		63.0	66.5	70.0	72.0	64.5	70.5	74.0	77.0
L_{wA} dB(A)		44.0	50.5	55.5	59.0	45.0	53.5	57.0	61.0
		Sound power level coming from VALLOX through the envelope to the rooms where the unit has been installed				VALLOX 252 D			
		CONTROL POSITION / AIR FLOW l/s							
		1 78/85	4 129/139	6 166/176	8 212/217				
L_pA dB(A)		33	40	44	47				
L_pA = A-weighted sound pressure level (10 m ² sound absorption)									

		Sound power level from VALLOX to supply air ducts by octave band L_w dB				Sound power level from VALLOX to extract air ducts by octave band L_w dB			
		CONTROL POSITION / AIR FLOW l/s				CONTROL POSITION / AIR FLOW l/s			
		1 77 l/s	4 133 l/s	6 169 l/s	8 209 l/s	1 80 l/s	4 135 l/s	6 167 l/s	8 204 l/s
Hz									
Medium frequency of the octave band, Hz	63	55.0	61.0	63.0	66.5	55.5	59.5	63.0	67.0
	125	52.0	57.5	60.0	62.5	53.5	59.0	62.5	65.0
	250	33.0	40.5	46.5	50.5	34.0	43.0	48.0	51.5
	500	18.0	27.5	35.0	41.5		25.5	31.0	36.5
	1000	13.5	16.0	25.0	32.0		17.0	24.5	30.0
	2000	14.0		19.0	27.0			20.5	27.0
	4000				15.5				18.5
	8000								
L_w dB		57.0	62.5	65.0	68.0	57.5	62.5	65.5	69.0
L_{wA} dB(A)		35.5	41.0	44.5	48.0	37.0	42.5	46.5	49.5
		Sound power level coming from VALLOX through the envelope to the rooms where the unit has been installed				VALLOX 252 + SILENCER			
		CONTROL POSITION / AIR FLOW							
		1 74/82	4 131/138	6 167/175	8 208/221				
L_pA dB(A)		32	38.5	43	46.5				
L_{wA} dB(A)		36-*	42.5-*	47-*	50.5-*				

L_{wA} = A-weighted sound pressure level

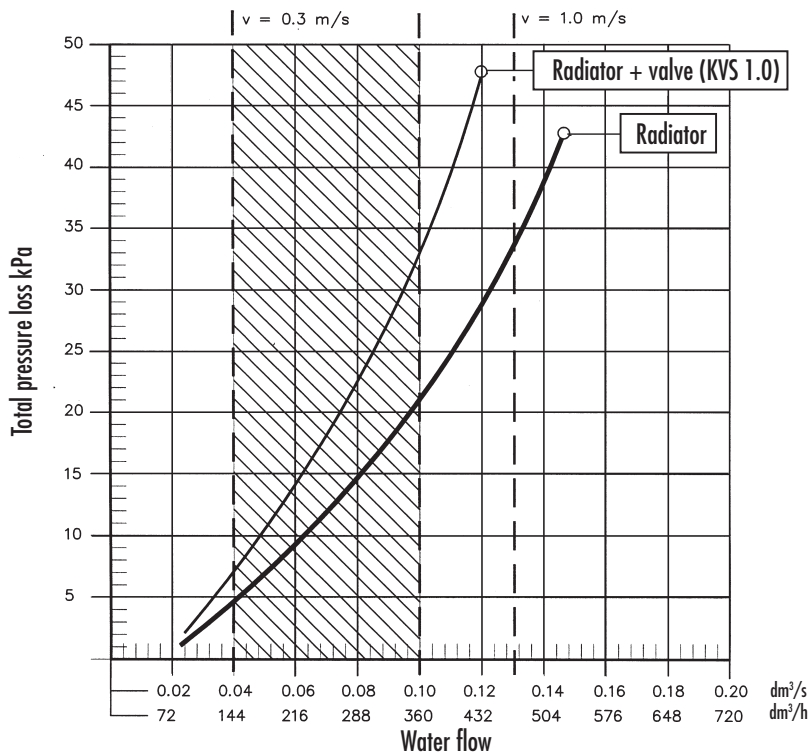
* = difference between sound power level and pressure level when unit location and total absorption area are taken into account (e.g. in a classroom, $L_{wA} - *$ = 12 dB)



WATER RADIATOR PERFORMANCE

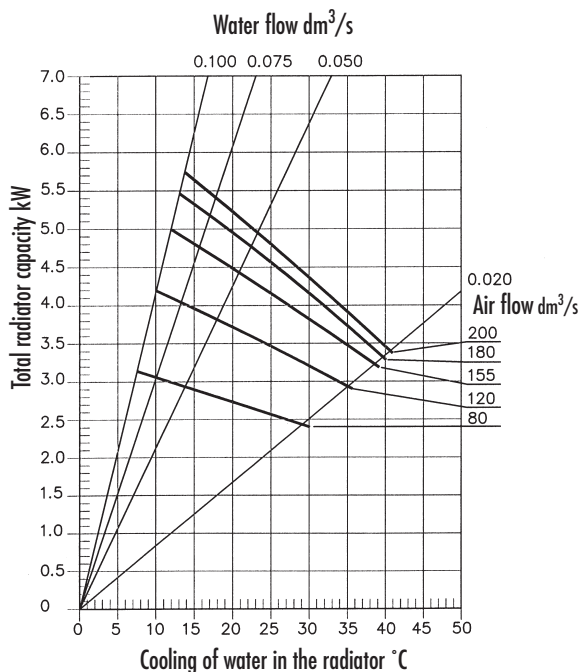
Pressure loss in the water radiator

The recommended area of operation is ruled. Determined for 100% water.

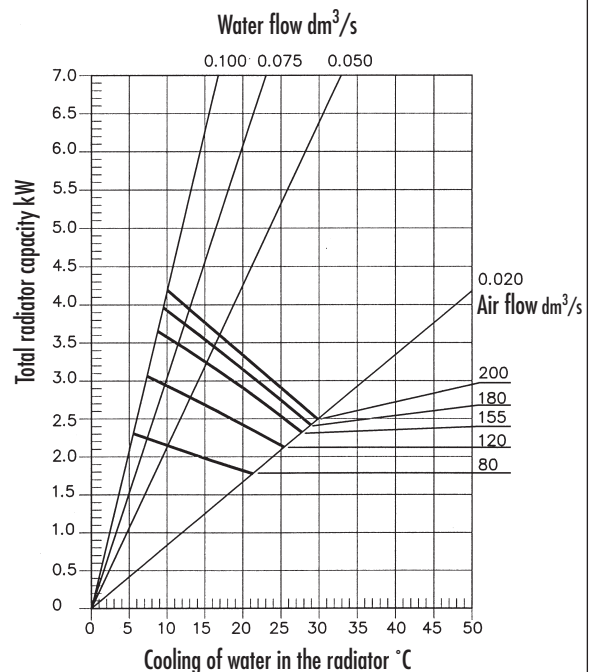


Water radiator capacity

Temperature of water entering the radiator (tv) 70°C
Temperature of air entering the radiator (ti) 15°C



Temperature of water entering the radiator (tv) 55°C
Temperature of air entering the radiator (ti) 15°C





Control diagram VALLOX 252 D





DESCRIPTION OF OPERATION VALLOX 252 D

Control of operation

If needed, power supply to the unit can be controlled via the contactor in the distribution panel, using a timer program, for instance. Upon starting, the unit operates at minimum capacity. After that, capacity is controlled on the basis of measurement data supplied by the air quality sensors and/or through manual control on the control panel.

Fan speed adjustment

Manual control

Fan speed of the ventilation unit is controlled in 8 steps on the control panel (H).

Carbon dioxide and humidity control

The fan capacity of the ventilation unit is controlled in multiple steps depending on load, and based on the measuring results of the air quality sensors (CO₂ and %RH sensors) located in the ventilation zone. The aim is to keep the CO₂ and/or humidity content of the zone below the setpoint defined on the control panel (H). One or more modes of control may be used simultaneously. The dominant mode is the one demanding boosting. Ventilation can be adjusted in a maximum of 8 steps. The basic and maximum fan speeds for adjustment purposes can be set at the desired level.

Voltage and current signal control

The fan capacity of the ventilation unit is controlled in 8 steps with the voltage signal 0...10 VDC, or with the current signal 0...20 mA. However, the fan capacity cannot be raised above the preset fan speed. The voltage or current signal control is used to control basic fan speed. Because of this, fan speed can only be raised, but not lowered by the manual, CO₂ and %RH controls.

Supply air temperature

Supply air temperature can be controlled using either constant temperature control or cascade control.

Voltage and current signals

Voltage values for fan speeds:	Current signal values for fan speeds:
0 (0.20...1.25 VDC)	0 (0.5...2.5 mA)
1 (1.75...2.25 VDC)	1 (3.5...4.5 mA)
2 (2.75...3.25 VDC)	2 (5.5...6.5 mA)
3 (3.75...4.25 VDC)	3 (7.5...8.5 mA)
4 (4.75...5.25 VDC)	4 (9.5...10.5 mA)
5 (5.75...6.25 VDC)	5 (11.5...12.5 mA)
6 (6.75...7.25 VDC)	6 (13.5...14.5 mA)
7 (7.75...8.25 VDC)	7 (15.5...16.5 mA)
8 (8.75...10.00 VDC)	8 (17.5...20.0 mA)

Supply air constant temperature control

The control unit directs the operation of the post-heating unit (LP2) on the basis of the measuring data on the temperature sensor TE2, aiming at keeping supply air temperature at the temperature value set on the control panel H (+10°...+30°C).

Supply air cascade control

The control unit directs the operation of the post-heating unit (LP2) on the basis of the measuring data on the extract air sensor TE4, aiming at keeping extract air temperature at the temperature value set on the control panel H (+10°...+30°C).

Heat recovery bypass

When post-heating has been switched on, heat recovery is enabled all the time. Automatic heat recovery bypass is active whenever post-heating has been switched off and outdoor temperature is more than the preset threshold value (range 0°...+25°C). In this case, the control unit directs the operation of the damper motor (FG) on the basis of measuring results given by the outdoor sensor TE3 and the extract air temperature sensor TE4. The aim is to get as cool supply air to the ventilation zone as possible. However, heat recovery is in use whenever outdoor air descends below the preset threshold value.

Heat recovery anti-freezing

The control / regulation center of the unit directs the operation of the preheater (LP1) on the basis of the measurement data supplied by the

temperature sensor TE1. The aim is to prevent the risk of freezing and the stopping of the supply air fan (TF). If the capacity of the preheater (LP1) is not sufficient, or if there is no preheater, the control center intermittently stops the TF supply air fan on the basis of the measuring data on the temperature sensor TE1, thereby preventing the heat recovery cell from freezing. As soon as the risk of frosting passes, the fan restarts automatically. The threshold temperature for defrosting (-6°...+15°C) and the difference area (+1°...+10°C) can be set on the control panel (H).

Overheating protection of the heating unit

The overheat protection thermostats TZ1 and TZ2 monitor the surface temperature in the LP1 and LP2 heating units. If surface temperature exceeds the threshold, overheat protection is triggered and power supply to the heating unit is stopped. The TZ1 overheating protector is reset automatically, and the TZ2 protector manually.

Alarms

The pressure difference switches PDS1 and PDS2 monitor the pressure difference between the supply and extract air sides. If the pressure difference rises too high because of dirty filters or clogged ducts, an alarm will be issued, showing as a symbol (⚠) in the main display of the control panel. If the unit is not equipped with pressure difference switches, the symbol (⚠) appearing in the main display of the control panel reminds of the need of servicing the unit. The maintenance reminder interval can be set between 1...15 months. The factory setting is 4 months. This function is always active.

The fault signal relay in the unit gives potential-free alarm indications on the following fault conditions:

- Alarm of high carbon dioxide content (> 5000 ppm) switches the relay at 1-second intervals.
- In other fault situations, such as sensor faults and filter guard (⚠) alarms, the points of the relay close.

Booster or fireplace switch function

An extra switch S may be connected to the connection box of the ventilation unit to work as a booster or fireplace switch. The operation of the switch is selected on the control panel H. The booster switch function raises fan speed to maximum speed for 45 minutes.

The fireplace switch function stops the extract air fan for 15 minutes, and causes overpressure in the ventilation zone.

LON remote monitoring control can be implemented with the VALLOX LON converter.

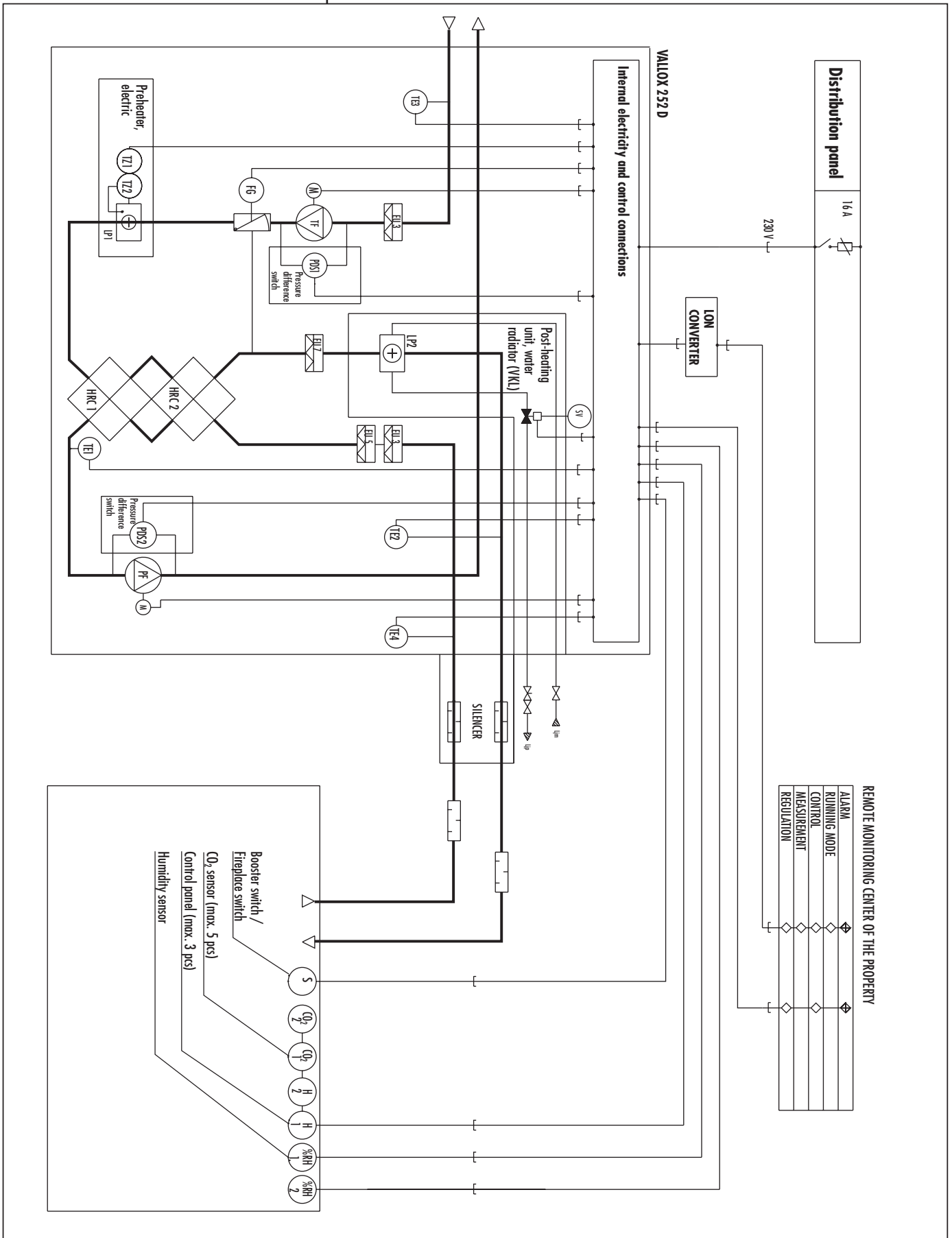
Parts list

Code	Name	Technical details (factory settings in parentheses)	Note!	Equipment
CO ₂	CO ₂ sensor, max. 5 pcs Carbon dioxide control	Adjustment range 500...2000ppm (900) Adjustment interval 1...15 min. (1)	Option	
FG	Damper motor	Automatic heat recovery bypass 24V, 2W, 8Nm	Standard	X
H	Control panel, max. 3 pcs	Setting, operation, display	Standard, 1 pc	X
S	Booster / fireplace switch	Functions as either a booster or a fireplace switch (booster switch)	Standard	X
LON	LON converter	Remote monitoring control	Option	
LP1	Preheater	Electric radiator 2.5kW	Option	
LP2	Post-heating unit	Electric radiator 2.5kW	Option	
HRC1 HRC2	Heat recovery cells	2-step, η ₁ = 70 %	Standard	X
PDS1	Pressure difference switch Pressure guard for supply air	Adjustment range 0...500Pa (420)	Option	
PDS2	Pressure difference switch Pressure guard for extract air	Adjustment range 0...500Pa (420)	Option	
PF	Extract air fan	qv = 230 dm ³ /s (100Pa)	Standard	X
%RH	Humidity sensor, max. 2 pcs Humidity control	Adjustment range 1...99% (50) Adjustment interval 1...15 min. (1)	Option	
SU	Filter	Supply air EU7, extract air EU5	Standard	X
TE1	Temperature sensor Heat recovery defrosting, preheating control	Exhaust air temperature Adjustment range -6°...+15°C (HRC) Adjustment range -6°...+15°C (preheating)	Standard	X
TE2	Temperature sensor	Supply air temperature	Standard	X
TE3	Temperature sensor	Outdoor air temperature	Standard	X
TE4	Temperature sensor	Extract air temperature	Standard	X
TF	Supply air fan	qv = 210 dm ³ /s (100Pa)	Standard	X
TZ1	Overheat protector of the heating unit	Automatic reset (+60°C) Self-resetting	Included in LP1 / LP2	
TZ2	Overheat protector of the heating unit	Manual reset (+95°C)	Included in LP1 / LP2	



VALLOX 252 D

CONTROL DIAGRAM VALLOX 252 D VKL, with water radiator





DESCRIPTION OF OPERATION VALLOX 252 D VKL, with water radiator

Control of operation

Power supply can be controlled via the contactor in the distribution panel, using a timer program, for instance. Upon starting, the ventilation unit uses minimum power, and after that power is controlled on the basis of measurement data given by air quality sensors and/or through manual control on the control panel.

Fan speed adjustment

Manual control

Fan speed of the ventilation unit is controlled in 8 steps on the control panel (H).

Carbon dioxide and humidity control

The fan capacity of the ventilation unit is controlled in multiple steps depending on load, based on the measuring results of the CO₂ and RH sensors located in the ventilation zone. The aim is to keep the CO₂ and/or humidity content of the zone below the setpoint that has been defined on the control panel H. One or more modes of regulation can be used at the same time. The dominant mode is the one demanding boosting. Ventilation can be adjusted in a maximum of 8 steps. The basic and maximum fan speeds can be set at the desired level on the control panel H.

Voltage and current signal control

The fan capacity of the ventilation unit is controlled in 8 steps with the voltage signal 0...10 VDC, or with the current signal 0...20 mA. However, fan capacity cannot be set above the preset maximum fan speed when automatic adjustments are active. The voltage or current signal control is used to control basic fan speed. Because of this, fan speed can only be raised, but not lowered by the manual, CO₂ and %RH controls.

Voltage and current signals

Voltage values for fan speeds:	Current signal values for fan speeds:
0 (0.20...1.25 VDC)	0 (0.5...2.5 mA)
1 (1.75...2.25 VDC)	1 (3.5...4.5 mA)
2 (2.75...3.25 VDC)	2 (5.5...6.5 mA)
3 (3.75...4.25 VDC)	3 (7.5...8.5 mA)
4 (4.75...5.25 VDC)	4 (9.5...10.5 mA)
5 (5.75...6.25 VDC)	5 (11.5...12.5 mA)
6 (6.75...7.25 VDC)	6 (13.5...14.5 mA)
7 (7.75...8.25 VDC)	7 (15.5...16.5 mA)
8 (8.75...10.00 VDC)	8 (17.5...20.0 mA)

Supply air temperature

Supply air temperature can be controlled using either constant temperature adjustment or cascade adjustment.

Supply air constant temperature control

The control unit directs the operation of the control valve (SV) on the basis of the measuring data on the temperature sensor TE2. The aim is to keep supply air temperature at the temperature value set on the control panel H (+10...+30°C).

Supply air cascade control

The control unit directs the operation of the control valve (SV) on the basis of the measuring data on the extract air sensor TE4. The aim is to keep extract air temperature at the temperature value set on the control panel H (+10...+30°C).

Heat recovery bypass

When post-heating has been switched on, heat recovery is enabled all the time. Automatic heat recovery bypass is active whenever post-heating has been switched off and outdoor temperature exceeds the preset threshold (range 0°...+25°C). In this case, the control unit directs the operation of the damper motor (FG) on the basis of measuring results given by the outdoor sensor TE3 and the extract air temperature sensor TE4. The aim is to get as cool supply air to the ventilation zone as possible. However, heat recovery is in use whenever outdoor air goes below the preset threshold.

Heat recovery anti-freezing

The control / adjustment center of the unit directs the operation of the preheater (LP1) on the basis of the measurement data supplied by the temperature sensor TE1. The aim is to prevent the risk of freezing and the stopping of the supply air fan (TF). If the capacity of the preheater (LP1) is not sufficient, or if there is no preheater, the control center intermittently stops the TF supply air fan on the basis of the measuring data on the temperature sensor TE1, thereby preventing the heat recovery cell from freezing. As soon as the risk of frosting passes, the fan restarts

automatically. The threshold temperature for defrosting (-6...+15°C) and the difference area (+1...+10°C) can be set on the control panel (H).

Overheating protection of the heating unit

The overheat protection thermostats TZ1 and TZ2 monitor the surface temperature in the LP1 heating unit. The indication of a freezing risk appears in the display of the control panel. The TZ1 overheating protector is reset automatically, and the TZ2 protector manually.

Antifreeze protection of the water radiator

On the basis of the measuring data of the outdoor air temperature sensor TE3 (outdoor air < 0 °C) and of the supply air temperature sensor TE2 (supply air < 7 °C), the control / adjustment center of the unit stops the TF and PF fans. This is done in order to prevent the freezing of the water radiator LP2. The indication of a freezing risk ("Freezing alert") appears in the display of the control panel. The fans automatically restart as soon as the risk of freezing has passed (supply air > 10°C).

Alarms

The pressure difference switches PDS1 and PDS2 monitor the pressure difference between the supply and extract air sides. If the pressure difference rises too high because of dirty filters or clogged ducts, an alarm will be issued, showing as a symbol (⚠) in the main display of the control panel. If the unit is not equipped with pressure difference switches, the symbol (⚠) appearing in the main display of the control panel reminds of the need of servicing the unit. The reminder interval can be set between 1...15 months. The factory setting is 4 months. This function is always active. The fault signal relay in the unit gives potential-free alarm indications on the following fault conditions:

- During water radiator anti-freezing, the relay points close and open at 10-second intervals.
- An alarm of high carbon dioxide content (>5000 ppm) switches on the relay at 1-second intervals.
- In other fault situations, such as sensor faults and filter guard (⚠) alarms, the points of the relay close.

Booster or fireplace switch function

An extra switch S may be connected to the connection box of the ventilation unit to work as a booster or fireplace switch. The operation of the switch is selected on the control panel H. The booster switch function raises fan speed to the preset maximum speed for 45 minutes.

The fireplace switch function stops the extract air fan for 15 minutes, and causes overpressure in the ventilation zone.

LON remote monitoring control can be implemented with the VALLOX LON converter.

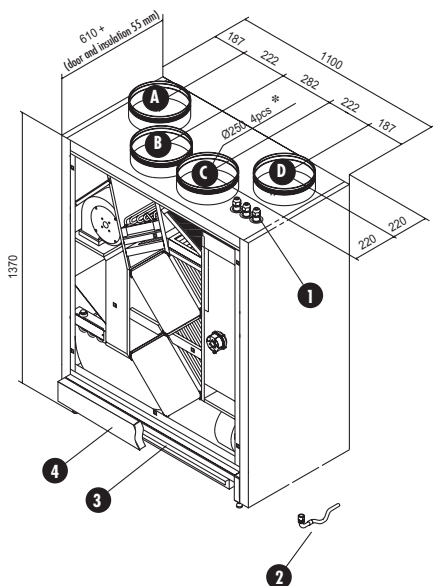
Parts list

Code	Name	Technical details (factory settings in parentheses)	Notel	Equipment
CO ₂	CO ₂ sensor, max. 5 pcs Carbon dioxide control	Adjustment range 500...2000 ppm (900) Adjustment interval 1...15 min. (1)	Option	
FG	Damper motor	Automatic heat recovery bypass 24 V, 2 W, 8 Nm	Standard	X
H	Control panel, max. 3 pcs	Setting, operation, display	Standard, 1 pc	X
S	Booster / fireplace switch	Functions as either a booster or a fireplace switch (booster switch)	Standard	X
LON	LON converter	Remote monitoring control	Option	
LP1	Preheater	Electric radiator 2.5 kW	Option	
LP2	Post-heating unit	Water radiator 5kW, 70/50°C	Option	
HRC1 HRC2	Heat recovery cells	2-step, η = 70 %	Standard	X
PDS1	Pressure difference switch Pressure guard for supply air	Adjustment range 0...500 Pa (420)	Option	
PDS2	Pressure difference switch Pressure guard for extract air	Adjustment range 0...500 Pa (420)	Option	
PF	Extract air fan	qv = 230 dm ³ /s (100 Pa)	Standard	X
%RH	Humidity sensor, max. 2 pcs Humidity control	Adjustment range 1...99 % (50) Adjustment interval 1...15 min. (1)	Option	
SU	Filter	Supply air EU7, extract air EU5	Standard	X
SV	Actuator valve unit	230 V, open when dead	Option	
TE1	Temperature sensor Heat recovery defrosting preheating control	Exhaust air temperature Adjustment range -6...+15°C (HRC) Adjustment range -6...+15°C (preheating)	Standard	X
TE2	Temperature sensor	Supply air temperature	Standard	X
TE3	Temperature sensor	Outdoor air temperature	Standard	X
TE4	Temperature sensor	Extract air temperature	Standard	X
TF	Supply air fan	qv = 230 dm ³ /s (100Pa)	Standard	X
TZ1	Overheating protector of the electric radiator	Automatic reset (+90°C) Self-resetting	Included in LP1	
TZ2	Overheating protector of the electric radiator	Manual reset (+95°C)	Included in LP1	



VALLOX 252 D

MOUNTING INSTRUCTIONS



VALLOX 252 L

- A = OUTDOOR AIR
- B = SUPPLY AIR
- C = EXTRACT AIR
- D = EXHAUST AIR

VALLOX 252 R

- A = EXHAUST AIR
- B = EXTRACT AIR
- C = SUPPLY AIR
- D = OUTDOOR AIR

- 1 Cable glands with draught-limiters (PG 16)
- 2 Condensing water outlet
- 3 Condensing water reservoir
- 4 Socle

Location of VALLOX

- The unit is mounted indoors, in a place where temperature does not fall below +10°C.
- The unit shall be mounted in a place where the sound pressure level coming through the envelope is not acoustically disturbing (storerooms, halls, utility rooms, and in some cases rooms where people spend a lot of time, such as classrooms).
- The unit is equipped with an adjustable socle. If the unit is mounted on a wall, observe the weight of the unit (210kg) and vibration damping.
- The unit is splash-proof (IP34), so it can also be mounted in a damp room.

VALLOX duct connections

- The unit has four $\varnothing 250$ inner fittings equipped with rubber rings. The inner fittings can be detached and replaced with another type of fitting, such as bend or scale ring. Fix the ducts steadily and tightly to the joints. (Note! Models L/R.) Duct isolation, if any, is done in accordance with the ventilation plan.

VALLOX condensing water connections

- The water condensing from extract air going through the unit can be removed from the bottom reservoir in two ways.
- When extract air humidity is great, as in the bathroom, the condensing water is led via a screw-type hose coupling and through the condensing water outlet (water seal and hose) delivered with the unit to the floor drain.
- When extract air humidity is low, as in an office, condensing water can be led via the screw-type hose coupling to the condensing water reservoir delivered with the unit. The reservoir is placed under the bottom reservoir by pushing it to the rails on the socle. In this case, a separate condensing water outlet is not used. NOTE! If a condensing water reservoir is used, it must be inspected sufficiently often.
- As the screw-type hose coupling is located almost in the middle of the unit, the unit has to be located in a horizontal position.

VALLOX tube connections

- If the unit is equipped with a water post-heating unit, the unit has to be connected to the hot water circuit with copper tubes 15/13.

NOTE! A REGULATING VALVE IS INCLUDED IN THE WATER-OPERATED HEATING UNIT.

VALLOX pressure difference switches

If the unit is equipped with pressure difference switches that monitor the pressure difference in the supply and / or extract air ducts, their correct values have to be set after the ducts and the related air terminal devices (such as valves and grilles) have been mounted and adjusted. For further details, see the Instructions for using VALLOX 252 D.

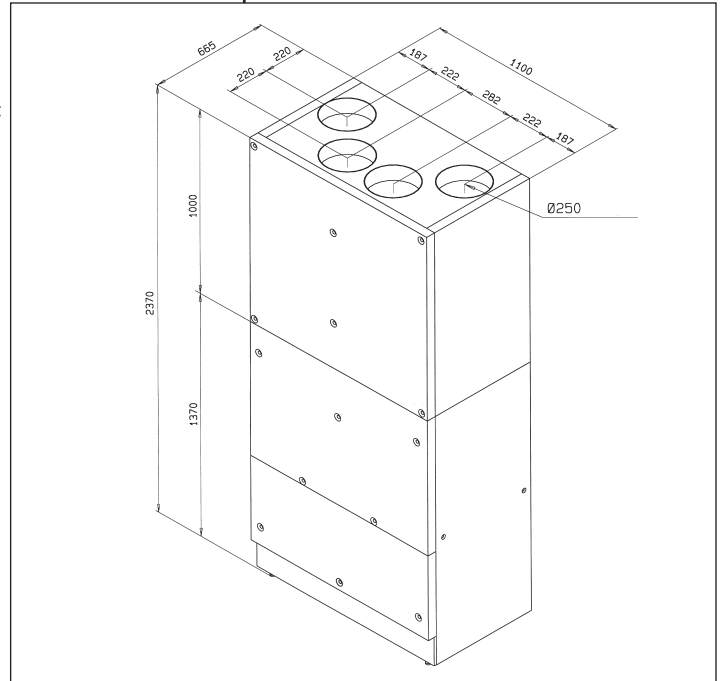


MOUNTING INSTRUCTIONS

Silencer

General

- The silencer is a duct silencer that should be mounted on top of VALLOX 252 D. The silencer includes a cover that can be opened, enabling the cleaning of the silencer without detaching the ducts.
- The silencer unit also features detachable silencer segments in supply and extract air ducts.
- 4 $\varnothing 250$ external fittings enable the laying of ducts straight from the unit by using bends etc.
- The top of the silencer unit incorporates lead-in sealings for the lead-through tubes of cables and for the supply and return water pipes of a water heating unit, if one is used.
- The weight of the silencer unit is 105kg including the door, and 82kg without the door.



Mounting

NOTE! BEFORE MOUNTING, CHECK THE MODEL OF VALLOX 252 (L or R).

- Detach the door of the silencer. (See the adjoining picture.)
- Detach the cable sleeves equipped with draught limiters (see the figure, item D).
- Cut through the lead-in sealings for the cable sleeves at the bottom of the exhaust duct of the silencer unit (no isolation inside). **NOTE! VALLOX 252 model L or R.** (See the figure.)

- If VALLOX 252 is equipped with a water heating unit, also detach the silencer segment located in the supply air duct of the unit. **NOTE! VALLOX 252 model L or R.** (See the figure.)

- Lift the silencer unit on top of VALLOX 252. Make sure that the cable sleeves go through. (See the figure, item D.)

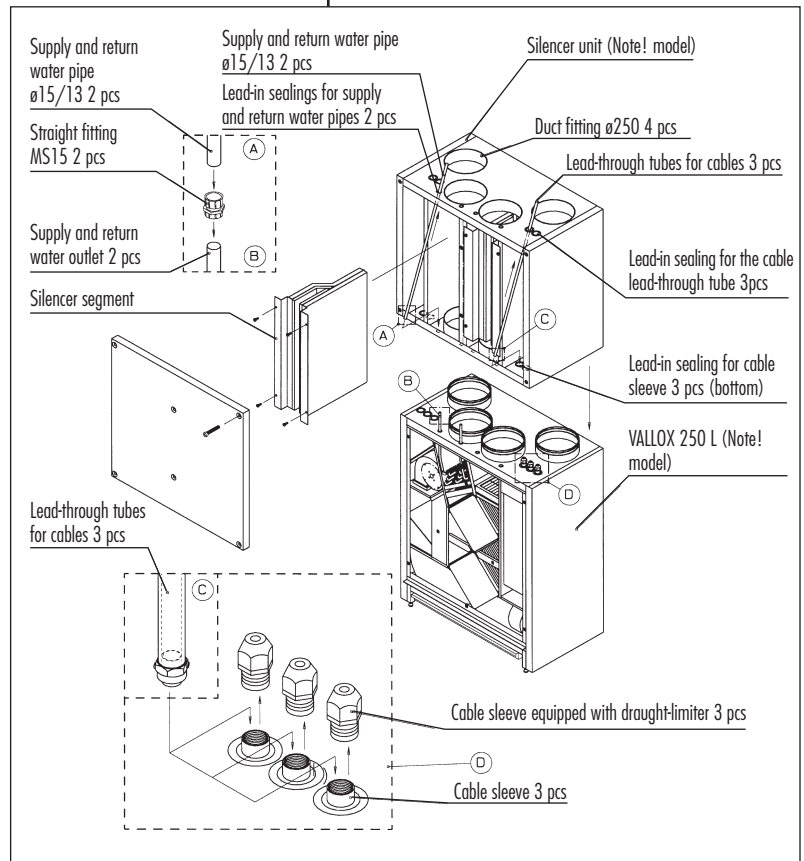
- Mount the lead-through cable tubes (included in the delivery), pushing them through the lead-in sealings on top of the silencer unit, and screwing them to the cable sleeves. (See the figure, item C.)

- Lay the cables to be connected through the lead-through tubes to the connection box inside VALLOX 252.

- If a water heating unit is used, lead the supply and return pipes (not included in the delivery) of the heating unit through the lead-in sealings on top of the silencer unit and VALLOX 252, and connect them to the supply and return water outlets with a straight fitting, for instance.

(See the figure, items A and B.)

- Mount the sound silencer segment in place.
- Carefully fix the door of the silencer in place.
- Fix the ducts steadily and tightly to the outlets. If ducts are to be isolated, do so following the ventilation plan.



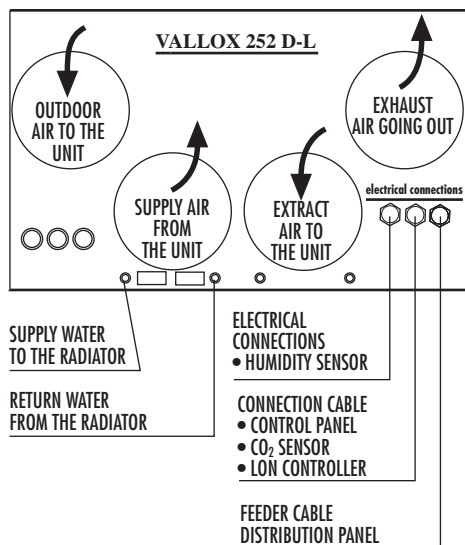


VALLOX 252 D

MOUNTING OF CONTROL PANELS AND SENSORS

ONLY AN AUTHORIZED PERSON MAY PERFORM ELECTRICAL CONNECTIONS!

BEFORE CONNECTING THE CABLES, MAKE SURE THAT THEY HAVE BEEN DISCONNECTED FROM THE MAINS SUPPLY!



Panel address
1

VALLOX electrical connections

- The unit is connected permanently to the distribution network. The connection box is located inside the unit, next to the exhaust air duct outlet.
- The cables to be connected are led to the unit through the cable glands with draught-limiters and the cable sleeves located beside the exhaust air duct outlet.

Mounting

- Detach the upper door of the unit (screw M8x70.5 pcs).
- Detach the cover of the connection box (screw 3.5x9.5, 2 pcs).
- Mount and connect the cables needed to the terminal block following the connection instructions.
- The external wiring diagram is included in these instructions, and it is also found inside the cover of the connection box.
- The internal wiring diagram is included in these instructions, and it is also found on the cover of the fuse box inside the unit.

Mounting the control panel

- The control panel comes in a surface-mount box. The control panel can be mounted on the instrument box or on the wall.
- Connect the control panel as stated in the connection instructions for VALLOX 252 D.

Connection cable type for instance NOMAK 2 x 2 x 0.5mm²+0.5mm².

Note! If two or more control panels are mounted, they are connected serially, and they have to be given different addresses.

Control panel mounting, detaching, and wiring

The control panel is wired directly from the VALLOX 252D connection box. The control panel can also be wired serially with a CO₂ sensor or another control panel (see the external electrical diagram, page 16).

Control panel addresses

If two or more control panels are connected to the system, the addresses of the control panels have to be changed. (See Section 1.3.9 in the instructions for use and maintenance.)

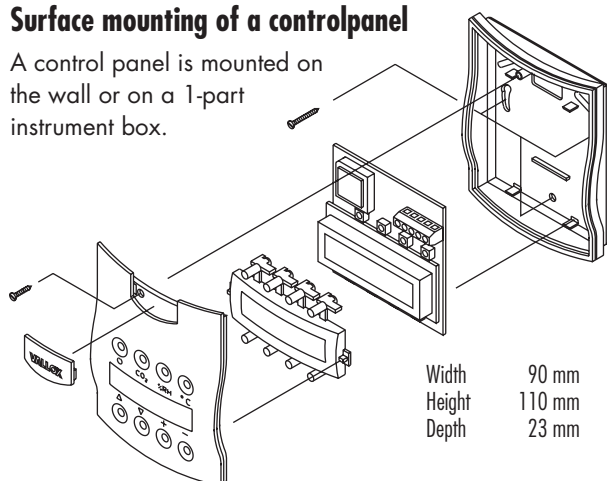
For example 3 control panels.

- Connect the first control panel to the unit and change its address to 3.
- Connect the second control panel to the unit and change its address to 2.
- Connect the third control panel and check to see if its address is 1.

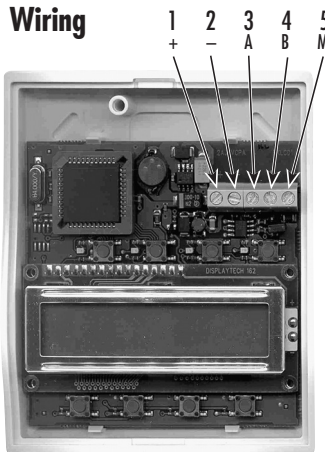
If control panels have the same address, they go to bus fault state. In this case, remove one of the control panels and change the address of the other panel. The above mentioned situation can arise in connection with the later installation of an additional control panel.

Surface mounting of a control panel

A control panel is mounted on the wall or on a 1-part instrument box.



Wiring



Cable:
NOMAK 2 x 2 x 0.5 mm² + 0.5 mm²

NOTE!

Faulty coupling of the (+) wire destroys the control panel!

1 = orange 1	= +	} ca. 21 VDC
2 = white 1	= -	
3 = orange 2	= A	
4 = white 2	= B	
5 = metal	= signal ground	

Control panel electronics board



MOUNTING OF CONTROL PANELS AND SENSORS

Mounting and wiring of the carbon dioxide sensor

The CO₂ sensor is wired directly from the VALLOX 252D connection box, or it can be wired serially with another CO₂ sensor or the control panel (see the external electrical diagram on page 9).

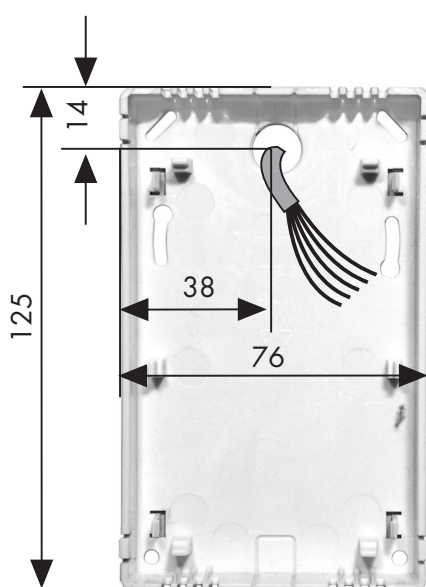
Carbon dioxide sensors

- Connect the carbon dioxide sensors one by one.
- When the first carbon dioxide sensor has been connected to the system, switch on voltage. At this stage, the ventilation unit gives the sensor an address. Repeat the same procedure for the other carbon dioxide sensors.

Carbon dioxide sensor



Surface mounting



CO₂ sensor bottom panel

Wiring



CO₂ sensor electronics board

Cable:

NOMAK 2 x 2 x 0.5 mm² + 0.5 mm²

NOTE!

Faulty coupling of the (+) wire destroys the carbon dioxide sensor!

1 = orange 1	= +	} cirka 21 VDC
2 = white 1	= -	
3 = orange 2	= A	
4 = white 2	= B	
5 = metal	= signal ground	



VALLOX 252 D

MOUNTING OF CONTROL PANELS AND SENSORS



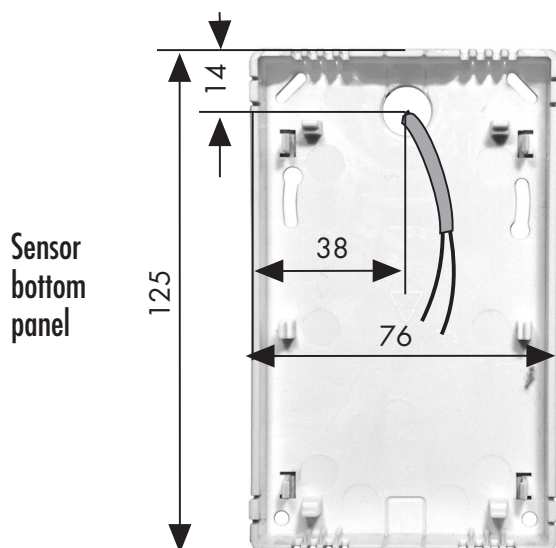
Mounting and wiring of the humidity sensor

The sensor is wired directly from the VALLOX 252D connection box.

Humidity sensors

- Connect any humidity sensors to the terminal board in the connection box by connecting the first RH sensor in %RH1, in place of the 6K8 resistor (remove the resistor in this case), and the second RH sensor in %RH2. See the electrical diagram.

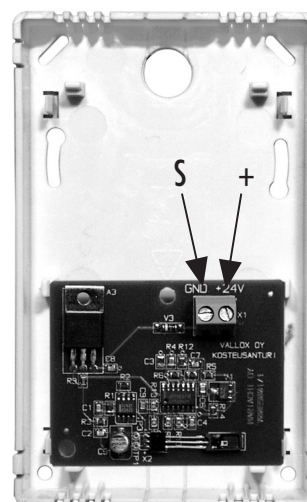
Surface mounting



Wiring

%RH electronics board

Cable: 2 x 0.5 mm²

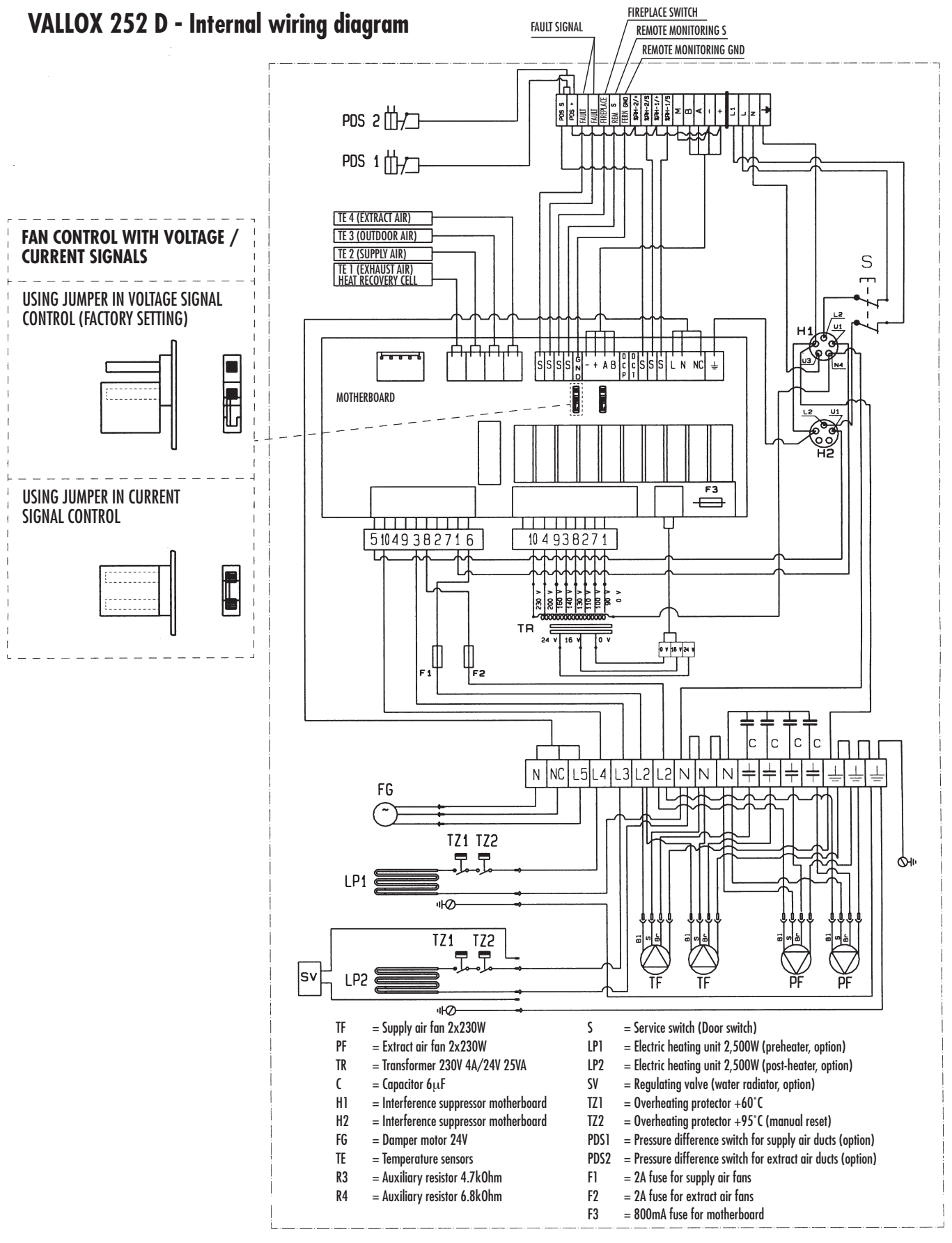


VALLOX 252 D



INTERNAL ELECTRICAL CONNECTIONS

VALLOX 252 D - Internal wiring diagram

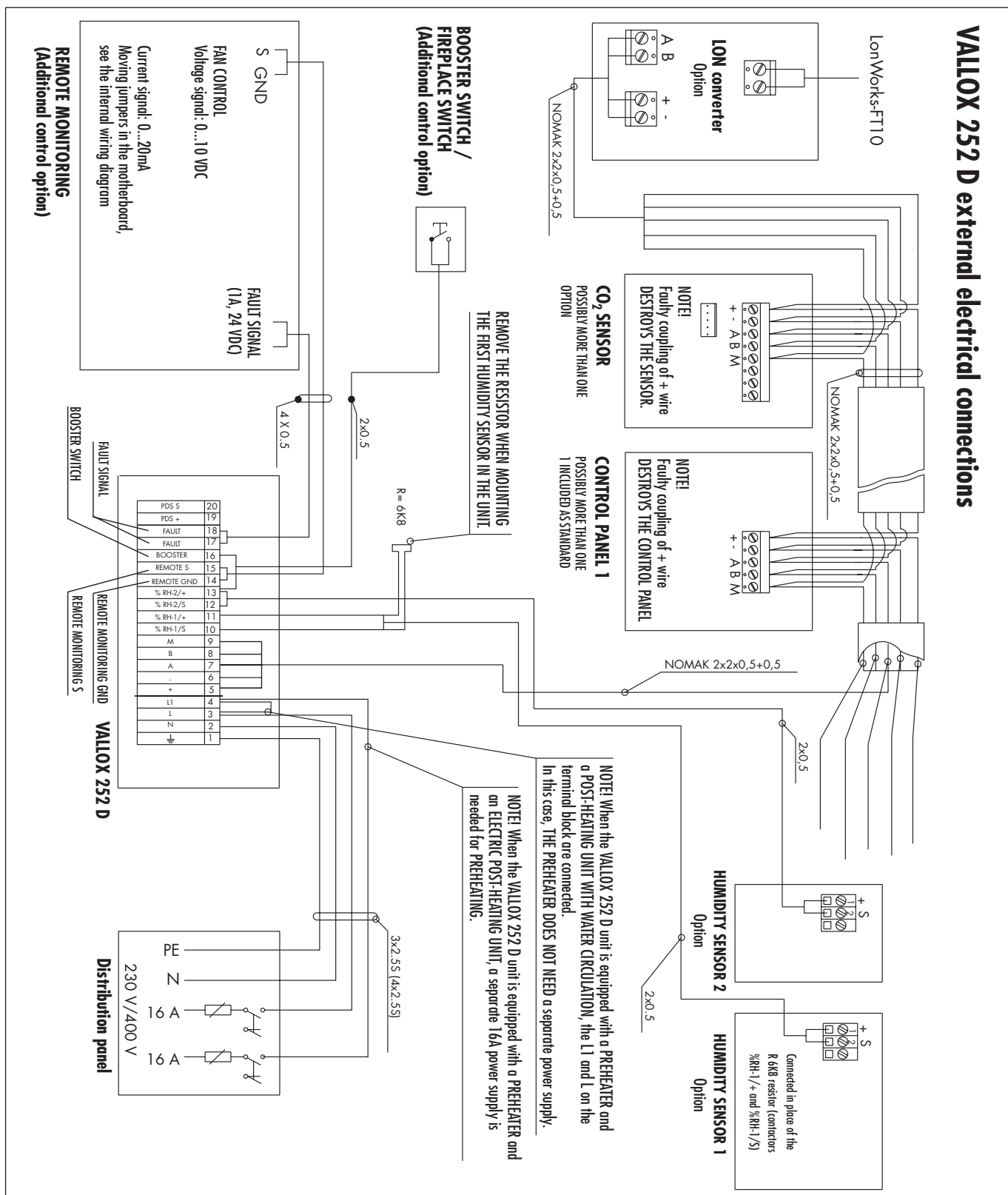




VALLOX 252 D

EXTERNAL ELECTRICAL CONNECTIONS

VALLOX 252 D external electrical connections



VALLOX

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