Systemair Sense

Compact decentralised ceiling air handling unit for school premises

Sense units with

New!

Enthalpy heat exchanger

systemair

SENSE

Fresh and clean air contributes to greater concentration during the learning process, providing a healthy and comfortable indoor environment.

...that all makes sense.

sense a healthy learning environment at your classroom. Fresh air improves exam results and enhances student and staff productivity.

systemair | sense

Systemair Sense

Decentralised compact air handling unit for ceiling installation

An ideal solution for both new and existing buildings. Its quiet operation makes it a perfect choice for schools, offices and conference rooms.

- Flat, space-saving unit for ceiling installation
- Continuous fresh air supply
- Silent operation (35 dB(A) at 1m; Q=2)
- Aluminium counterflow heat exchanger (temperature efficiency up to 90%)
- Enthalpy counterflow heat exchanger (temperature efficiency up to 85%, latent efficiency up to 60%)
- Energy-efficient fans with EC motors
- Efficient air filtration
- Virucidal extract filters ePM1 90% Deltri+ (accessory)
- Efficient air distribution throughout the entire space
- Adjustable air blow direction
- Integrated control system
- CO_2 control (accessory)
- Easy to install, maintain and control
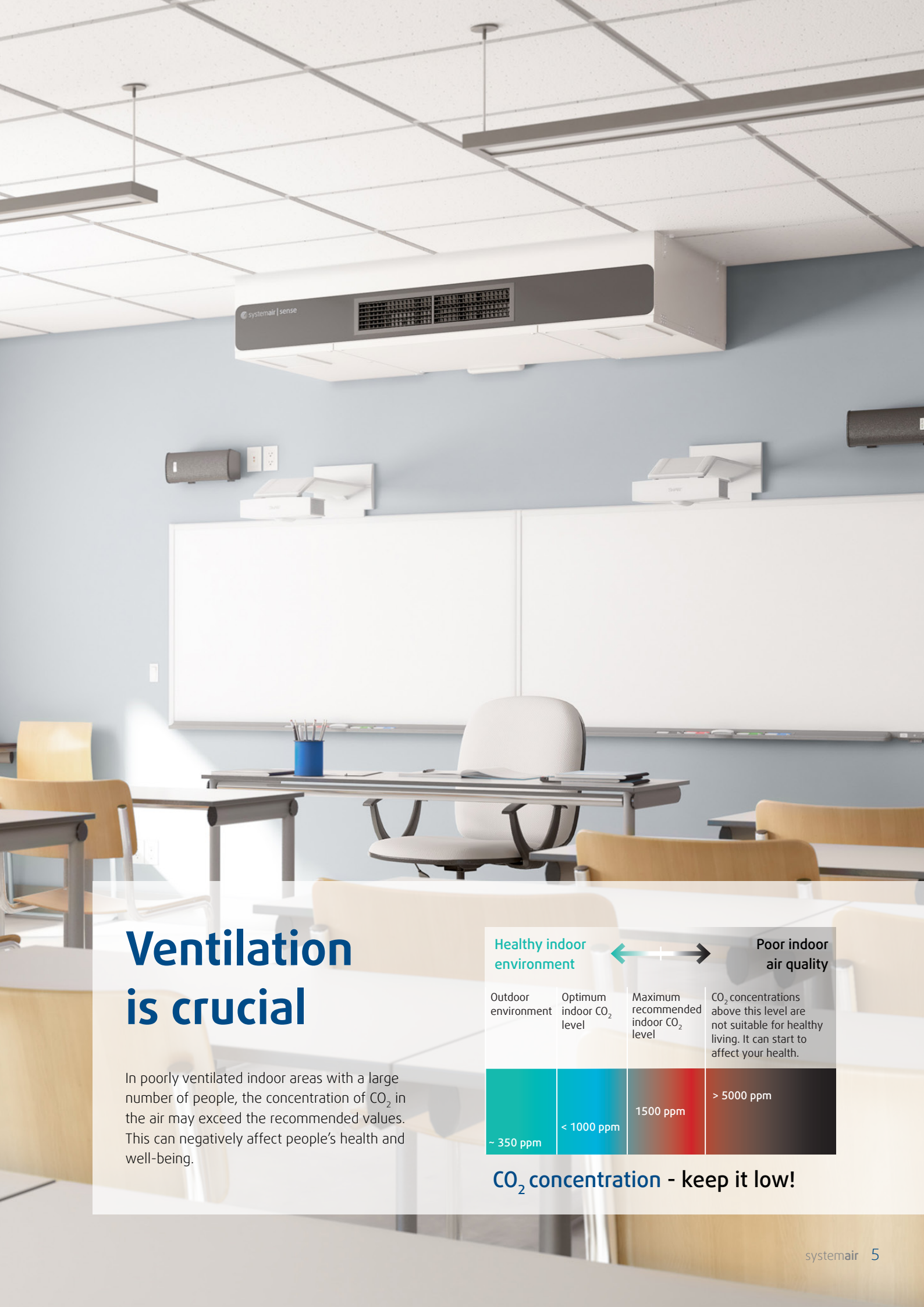
up to
23 people

up to
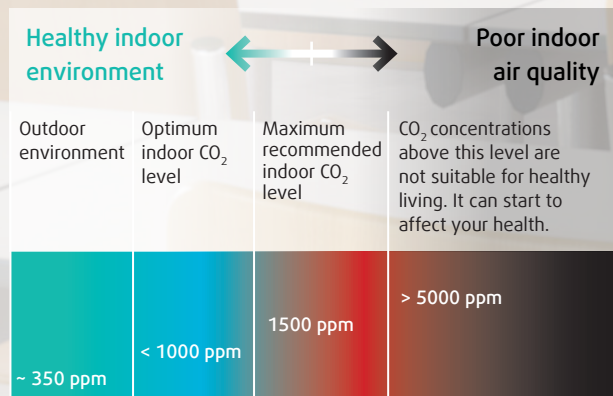**700 m³/h**

up to
33 people

up to
1000 m³/h

2 sizes

There are two unit sizes available to choose from, depending on the size of the room or the number of people in the room.

Ventilation is crucial

In poorly ventilated indoor areas with a large number of people, the concentration of CO_2 in the air may exceed the recommended values. This can negatively affect people's health and well-being.

Healthy indoor environment			Poor indoor air quality
Outdoor environment	Optimum indoor CO_2 level	Maximum recommended indoor CO_2 level	CO_2 concentrations above this level are not suitable for healthy living. It can start to affect your health.
~ 350 ppm	< 1000 ppm	1500 ppm	> 5000 ppm

CO_2 concentration - keep it low!

Quick overview

As the unit is fully exposed in the room, its design is adapted accordingly. Properly specified and positioned components are essential for energy efficient operation of the unit.

Housing

The unit is delivered in one piece. The frameless housing is made of painted aluminium sheet (RAL 9010), which makes the unit lighter and more compact.
To optically lower the device, a darker strip (RAL 7016) is placed along the entire length of the unit, incorporating the discharge air grille.
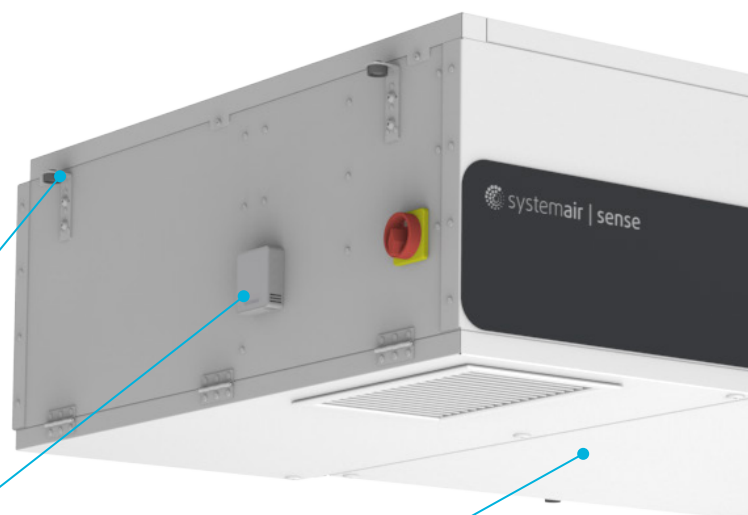Internal components can be accessed through the bottom of the unit by means of a door on the left and right sides and a removable panel in the middle.

Ceiling mounting brackets

To be easily fixed into the ceiling, the unit has factory-fitted brackets with a rubber washer to reduce possible transmission of vibrations from the equipment to the building structurestructure.

CO_2 sensor

Sensors are available as an accessory and can be attached to the outside wall of the unit. The sensor is located outside the air flow and provides data related to CO_2 concentration indoors in the indoor air.

Electric heaters

Depending on the chosen model, the unit may be equipped with an electric preheater and a reheater to ensure adequate supply air temperature and to protect against freezing of the heat exchanger.

Unit size	Version	SNX Item no.	SNH Item no.	Description	Preheater [W]	Reheater [W]	Voltage [V/Hz]	Fuse [A]
700	000	9995350	9995529	No heating	-	-	230/50	10
	E01	9995351	9995532	Low preheater	1250	-	230/50	13
	E02	9995352	9995533	High preheater	2250	-	230/50	13
	0E1	9995353	9995530	Low reheater	-	1250	230/50	13
	0E2	9995354	9995531	High reheater	-	2000	230/50	13
	EE1	9995355	9995534	Low pre- and reheater	1250	1250	230/50	16
	EE2	9995356	9995535	High pre- and reheater	2250	2000	400/50	16
1000	000	9995357	9995522	No heating	-	-	230/50	10
	E01	9995358	9995525	Low preheater	1800	-	230/50	13
	E02	9995359	9995526	High preheater	3000	-	400/50	16
	0E1	9995360	9995523	Low reheater	-	1800	230/50	13
	0E2	9995361	9995524	High reheater	-	3000	400/50	16
	EE1	9995362	9995527	Low pre- and reheater	1800	1800	400/50	16
	EE2	9995363	9995528	High pre- and reheater	3000	3000	400/50	16

Supply air discharge grille

Double-row painted aluminium grille (RAL 7016) on the discharge side. Two-sided adjustable blades allow the air direction to be set according to the user's preference.
Grilles achieve an effective air throw with good acoustic performance.

Doors and panels

Side-opening hinged doors allow easy access to the interior of the unit for service and maintenance.
The design of the door requires only 517/625 mm of free space under the unit.

Extract air grille

Single-row painted aluminium grille (RAL 9010) on the intake side with adjustable blades (factory set at 45°). Attached to the service door, it allows easy cleaning from both sides.

Insulation

For efficient noise and heat-loss reduction, low-flammable insulation based on melamin rasin is applied on the internal walls and doors. Additional surface foil is applied to some insulation parts for extra safety and protection.

- Fire resistance B1 (DIN 4102)
- Fire & smoke resistance C-s2 d0 (EN 13501)
- Temperature resistance; -50 – 180 °C
- High resistance to hydrocarbons and alcohols

Counter flow heat exchanger

Standard aluminum (SNX) with high temperature efficiency up to 90%, or **enthalpy** (SNH) with temperature efficiency up to 85% and latent efficiency up to 60%.

Both with a built-in motorised by-pass air damper, regulated by integrated control system to prevent freezing of the exchanger during the winter time.

A condensate tray with a Φ28 mm drain connection at the back of the unit is placed under the heat exchanger (SNX version only).

Siphon and drain pump for SNX units are available as accessories.

Hygiene-conformity certificate.

Outdoor air filter

Panel filter available in filtration classes:
Standard:
- ePM1 60% (F7)

Accessory:
- ePM1 85% (F9)

Extract air filter

Bag filter available in filtration classes:
Standard:
- ePM10 60% (M5)

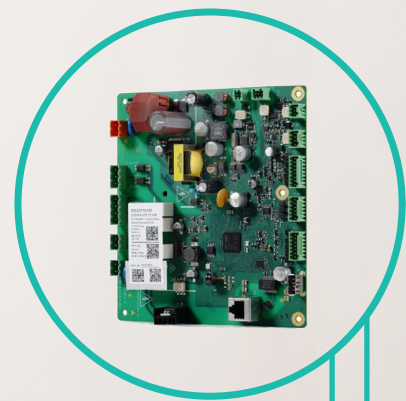**Accessory:**
- ePM1 90% Deltri+ (F9)

Control system

Simplified connection, configuration and control

The powerful controller built into Sense air handling units allows you to change and set a wide range of built-in functions. The controller enables user to set any operating parameters, or select preset functions, and manage the device remotely via an app or the cloud.

Controller

Siemens controller provides reliable and easy control of the built-in components and accessories.
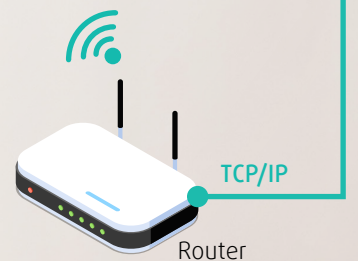
- USB interface with power supply for FW upgrade and WLAN stick
- Modbus RTU communication (one master and two slaves)
- BACnet /IP communication
- KNX PL-Link bus communication room unit and room sensors
- Hardwire inputs/outputs on-board with additional pressure sensor over modbus
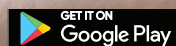
Siemens Cloud

Full control of the unit's operation

Real-time unit status and operational updates. This makes corrective maintenance decisions possible – even on the go.

TCP/IP

Router

Direct plug-in to the controller

WLAN USB stick

ABT Go

Mobile application

- End user interface
- Configuration and commissioning
- Multiple unit data settings and monitoring
- Service and maintenance
- Android and IOS free download

GET IT ON
Google Play

Download on the
App Store

Touch screen HMI as standard

Modern design, user friendly and clear display, quickly accessible settings and performance monitoring

5 quickly accessible modes

- Minimum
- Medium
- Nominal
- Auto
- Boost

- 3 adjustable fan speed setpoints
- 3 adjustable temperature setpoins

Boost

This function helps to bring as much fresh air as possible into the room.

This mode is usually used during breaks, when the units may be less quiet.

Function overview

Standard and extended device control options

Depending on the choice of control mode and the use of accessories, the device can extend all the operating possibilities not offered by the standard version. For more details on the control options, see the table below.

Manual or Auto?

Usually, the units are set to operate automatically, but in particular circumstances, the user can use special operating modes that can be set manually according to the requirements.

Automatic operation can be activated when a weekly operating schedule is set or on demand operation based on input data from external devices such as a CO_2 sensor.

CO_2 sensor (Accessory)

Automatic air flow control between minimum and nominal based on CO_2 value.

CO_2 sensors are used mainly for demand-controlled ventilation, to prevent energy losses from over-ventilation while maintaining indoor air quality.

Sense units have CO_2 sensor attached to the housing outside the air flow and it is used to control a specific area.
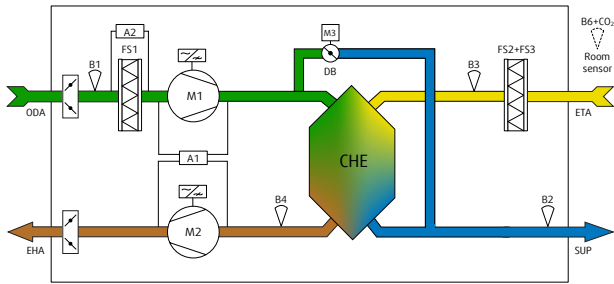
Control possibilities

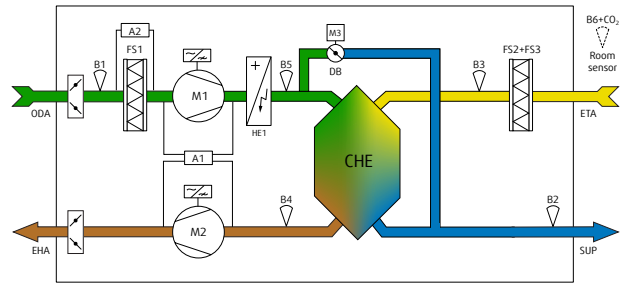| Functions	STANDARD	ACCESSORY	ACCESSORY (Yearly subscription)
	HMI	USB + ABT Go	Siemens Cloud
Airflow settings	●	●	●
Temperature setpoint settings	●	●	●
AUTO mode (weekly schedule, demand control, external control activation)	●	●	●
MANUAL mode (OFF, minimum, medium, nominal, boost airflow speed)	●	●	●
Alarm indication	●	●	●
Alarm details (date, type, state)	●	●	●
Alarm history log			●
Filter alarm indication	●	●	●
Reset filter period timer	●	●	●
CO_2 alarm indication	●	●	●
Active function indication		●	●
Different access levels (password protected menus)	●	●	●
Live unit data (sensor values, I/O statuses)	●	●	●
Restore factory settings function		●	●
Sleep mode	●	●	●
Languages (5 at start – with options to increase)		●	●
Remote access to unit		●	●
Configuration file upload/download remotely		●	●
Unit parameter graph display			●

Functional diagram

The working functions are performed by carefully selected
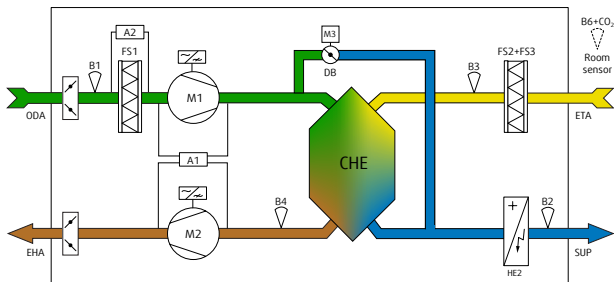components and their positioning within the unit.

Without electric heaters

000 - Unit has no electric heaters, the outdoor
air is heated only with a counterflow heat
exchanger.

Electric preheater (HE1)

The preheater protects against too low outdoor
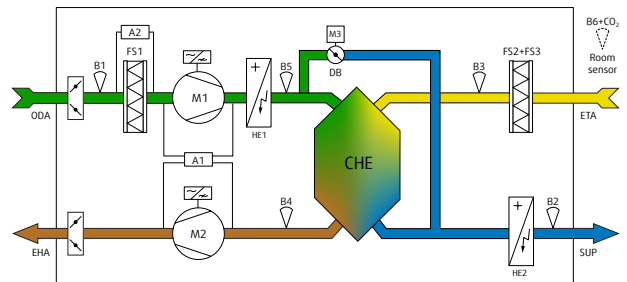air temperature entering the heat exchanger.
E01 - Low power
E02 - High power

Electric reheater (HE2)

The reheater heats the fresh air to the desired
temperature before entering the room.
0E1 - Low power
0E2 - High power

Electric preheater (HE1) and reheater (HE2)

The preheater protects against too low outdoor
air temperature entering the heat exchanger.
The reheater heats the fresh air to the desired
temperature before entering the room.
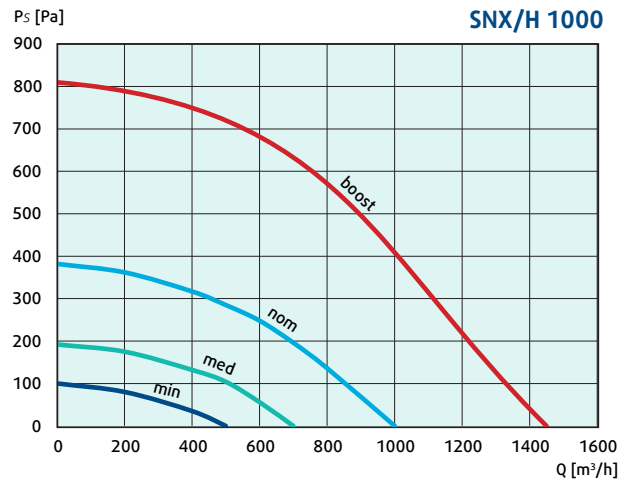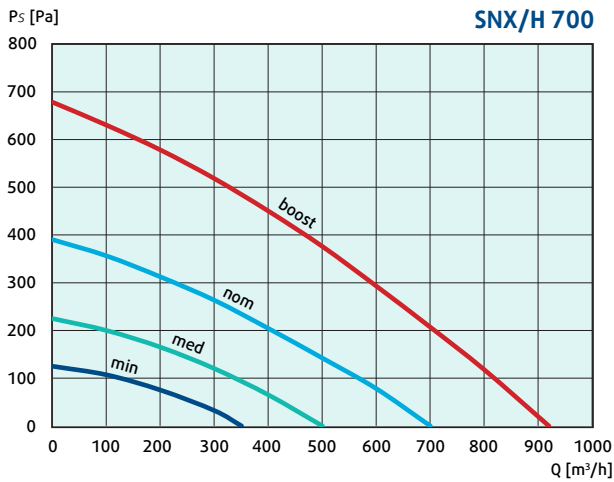**EE1** - Low power
EE2 - High power

ODA	Outdoor air
SUP	Supply air
ETA	Extract air
EHA	Exhaust air

——— standard
- - - accessory

B1 Outdoor air temperature sensor
B2 Supply air temperature sensor
B3 Extract air temperature sensor
B4 Defrost sensor of plate heat exchanger
B5 Electric preheater temperature limitation
B6 Room temperature + CO_2 sensor
M1 Supply air fan
M2 Extract air fan

M3 Heat exchanger bypass damper
   actuator
A1 Presigo Duo 2500
A2 Presigo Duo 2500
CHE Counter-flow plate heat exchanger
HE1 Preheater (electrical)
HE2 Reheater (electrical)

FS1   Outdoor air filter
FS2+FS3 Extract air filter

Technical data

Performance

SNX/H 700

SNX/H 1000

- - - Non-applicable area

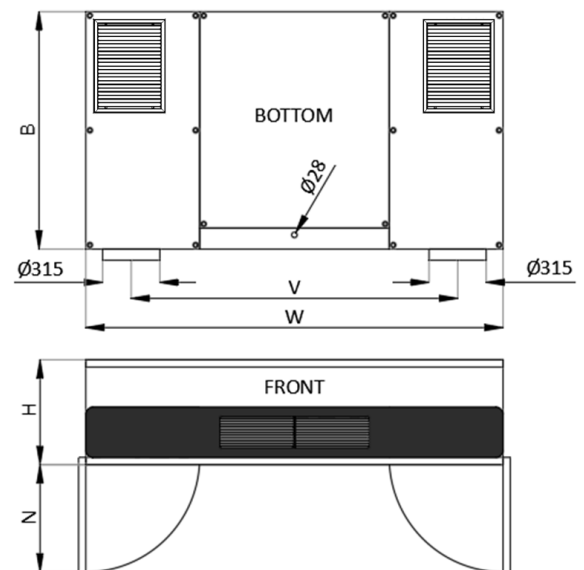| Unit	Minimal flow** [m³/h]	Medium flow ** [m³/h]	Nominal flow** [m³/h]	Boost flow [m³/h]
SNX/H 700	350	500	700	900
SNX/H 1000	500	700	1000	1450

* Expected air flows at 0 Pa external pressure drop.

** Factory set values. Values can be modified by the user.

Parameters

	Unit	SNX/H 700	SNX/H 1000
Frequency	Hz	50	50
Voltage (nominal)*	V	230 / 400	230 / 400
Phase(s)*		1~ / 3~	1~ / 3~
Speed regulation		Stepless	Stepless
Product type		Heat recovery unit	Heat recovery unit
Input power, supply fan	W	170	500
Input power, extract fan	W	170	500
Exchanger type		Counter flow	Counter flow
Installation placement		Horizontal	Horizontal
Weight	kg	165	200
Dimensions			
W	mm	2030	2300
B	mm	1150	1300
H	mm	450	570
V	mm	1620	1800
N	mm	520	630

* depending on the type of electric heater, see page 6

Accessories

Circular wall grille

A weather protection aluminium grille for installation in exterior walls. The grille is used in ductwork for supply and exhaust air, available in size 315mm DN and has a mesh bird screen. Other RAL colours possible on request.

Rectangular wall grille

A weather protection aluminium grille for installation in exterior walls. The grille protects the outside supply and exhaust wall openings against water penetration, available in size 350x350 mm.
Other RAL colours possible on request.

Filters

1x supply air filter needed (Panel)
· ePM1 60% (F7)
· ePM1 85% (F9)

2x extract air filter needed (Bag)
· ePM10 60% (M5)
· ePM1 90% (F9) Deltri+ (Virucidal)

Installation material

M8 threated rods
· 4 x 500 mm (SNX / H 700)
· 6 x 500 mm (SNX / H 1000)

Suitable for mounting brackets attached to the unit.

Siphon (only for SNX)

Concealed drain siphon for installation into the wall.
Connection pipes are not included.

Condensate pump (only for SNX)

Powerful and silent condensate pump together with installation console.
· 42 l/h pumping capacity
· 20 metres delivery head
· <19 dB noise level
· No float problems thanks to digital sensor

CO_2 and temperature sensor

Used for demand-controlled ventilation to prevent energy losses from over-ventilation while maintaining the best indoor air quality (IAQ).
Wired, wall mount sensor is sued to control specific area such as conference room, classroom, meeting hall or any regular room in the apartment.
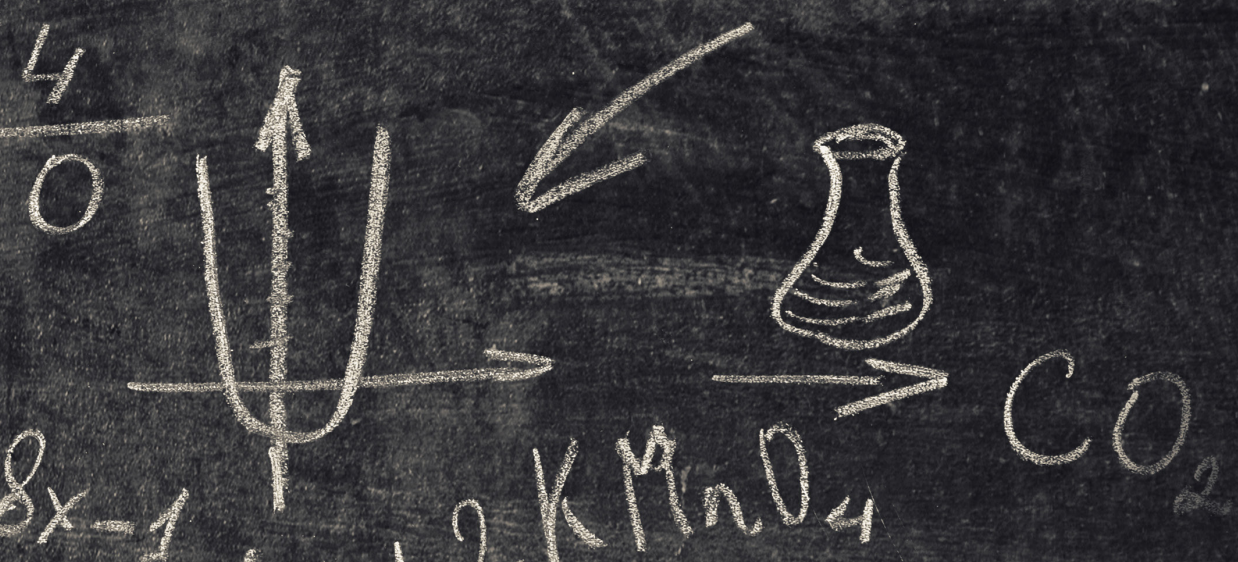
WLAN USB Stick

For plug-in directly to the Sense controller.
Allows a Wifi connection for easy access to the device parameters via ABT Go app or Siemens Cloud.

$$x = \frac{-B \pm \sqrt{B^2}}{2a}$$

$10Ag + 2KMnO_4$

CO_2

$y = \sqrt{x}$

$\sqrt{27}$

Contact your sales representative for a more detailed
unit calculation and technical data.

...this makes sense.

systemair