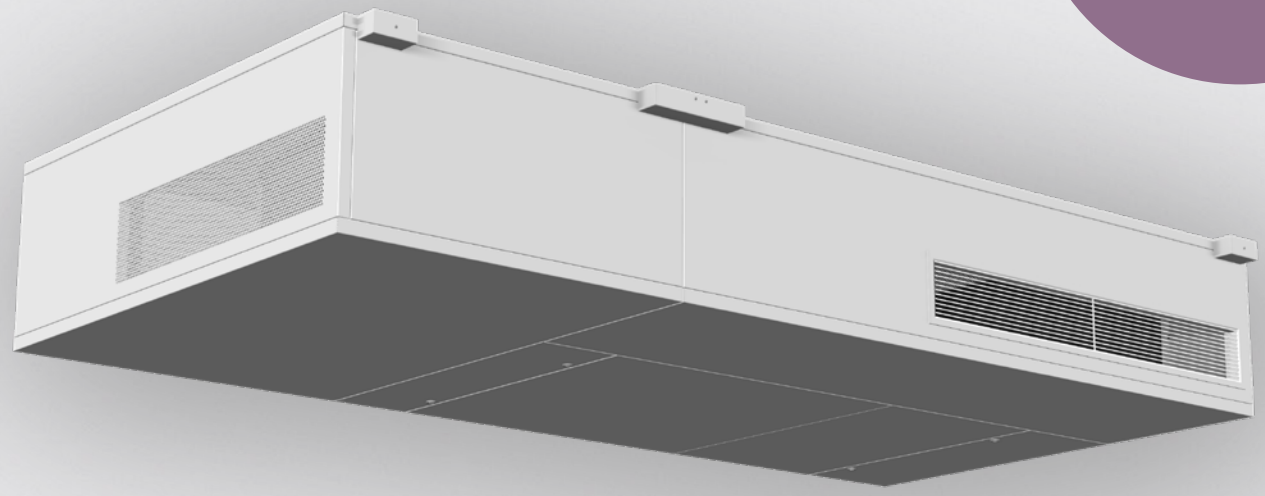
SCHOOL VENTILATION UNIT
LG 1000 SKDE

EDUCATION
OFFICE



PICHLER

Systematic ventilation.

Product description

The ceiling unit LG 1000 SKDE for classrooms consists of a compact, thermal bridge-free, thermally insulated housing made of galvanised sheet steel (inspection and visible panels), powder-coated in RAL 9003 matt.

It has a highly efficient heat recovery system with an enthalpy exchanger for heat and moisture recovery, an automatic bypass and energy-saving radial fans with the latest EC motor technology.

To prevent overheating in the summer, all Pichler school ventilation units come equipped with an automatic temperature- and time-controlled night cooling function. The night cooling function helps the structure and fixtures to cool down. The unit can be started via adjustable time programmes or by means of a presence detector (surcharge).

The CO_2 sensor built into the exhaust air as standard ensures that the appliance control system automatically adjusts the air volume to the respective fresh air requirement in the room.

The integrated air flow rate measurement guarantees balanced operation with constant flow on the supply and extract air sides.

Butterfly valves integrated into both the outdoor air and exhaust air ducts serve to prevent unintentional air circulation in the event of a unit standstill. To ensure reliable functioning, even at low outdoor temperatures, a continuously adjustable pre-heating coil is provided. An integrated electric re-heater battery ensures a pleasant indoor climate.

The standard air filters used are ODA filters ISO ePM1 55% in the outdoor air ducts and ETA filters ISO ePM10 75% in the extract air ducts. The filters can be changed easily via the inspection flaps at the bottom side of the unit.

The ventilation unit can be controlled centrally via the building control system using a Modbus RTU connection, or by means of the TFT touch control unit optionally available. Furthermore every unit is provided with a LAN interface allowing for easy connection to the PICHLER Connect system.

The ceiling unit LG 1000 SKDE for classrooms is suitable for ceiling installation in frost-free rooms.

The unit's design meets the hygienic requirements of VDI 6022.

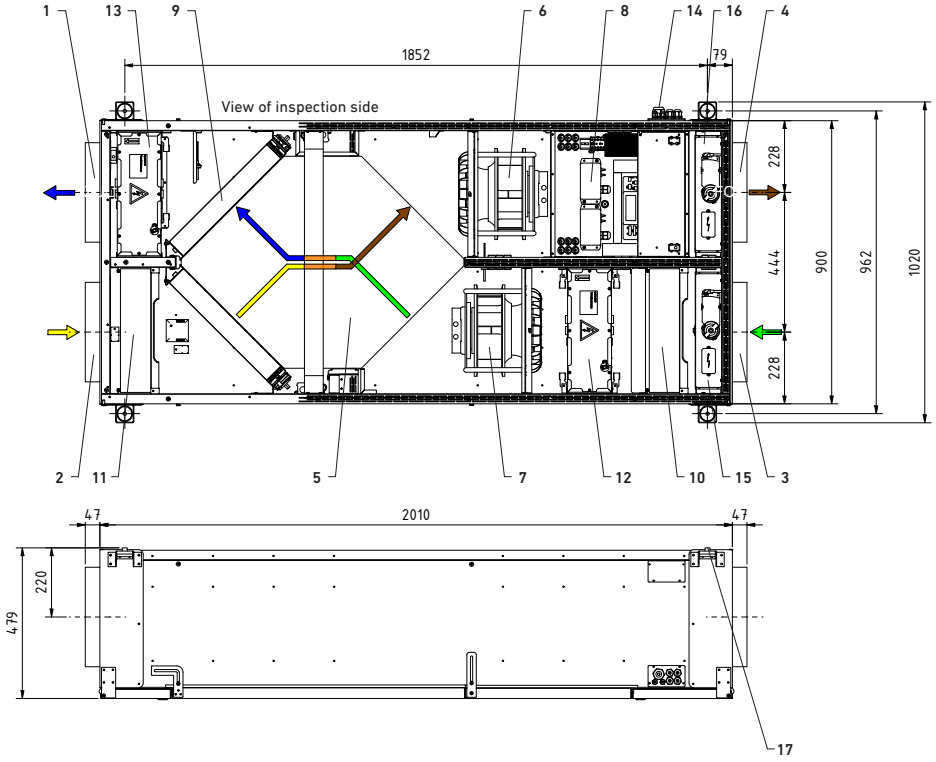
Scope of application

The ceiling unit LG 1000 SKDE for classrooms is used as a ceiling unit for the controlled mechanical ventilation of classrooms and schoolrooms.

Its scope of application covers a maximum adjustable air volume flow of 1000 m^3/h. The specially developed condensate avoidance function in combination with an enthalpy exchanger and a humidity sensor enables condensate-free operation of the ventilation unit.

Design drawing (ceiling installation, right-hand version)

Dimensions: (W x H x L) 1020 x 479 x 2010 mm
Air duct connection: Outdoor air, exhaust air, supply air, extract air: Ø 315 mm, sleeve size



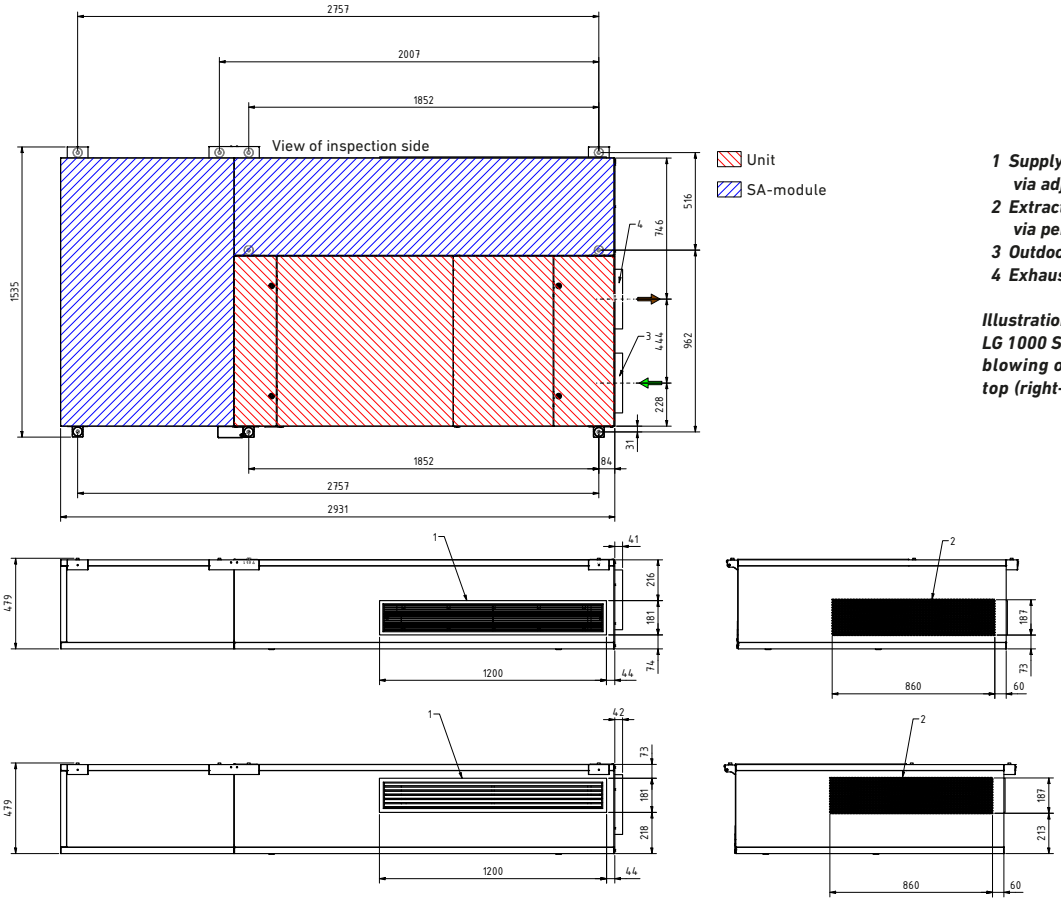
1 Supply air Ø 315 sleeve size
2 Extract air Ø 315 sleeve size
3 Outdoor air Ø 315 sleeve size
4 Exhaust air Ø 315 sleeve size
5 Counterflow heat exchanger (with moisture recovery)
6 Exhaust air fan
7 Supply air fan
8 Controller
9 Bypass flap
10 ODA filter ISO ePM1 55%
11 ETA filter ISO ePM10 75%
12 Electric pre-heating coil
13 Electric reheating coil
14 Cable inlets (for device connection)
15 Outdoor air flap
16 Exhaust air flap
17 Anti-vibration mounting

Illustration:
LG 1000 SKDE (right-hand version)

Design drawing with SA module (ceiling installation, right-hand version)

SIDEWAYS AND BOTTOM/TOP BLOWING OUT

Dimensions: (W x H x L) 1535 x 479 x 2931 mm
Air duct connection: Outdoor air, exhaust air: Ø 315 mm, sleeve size

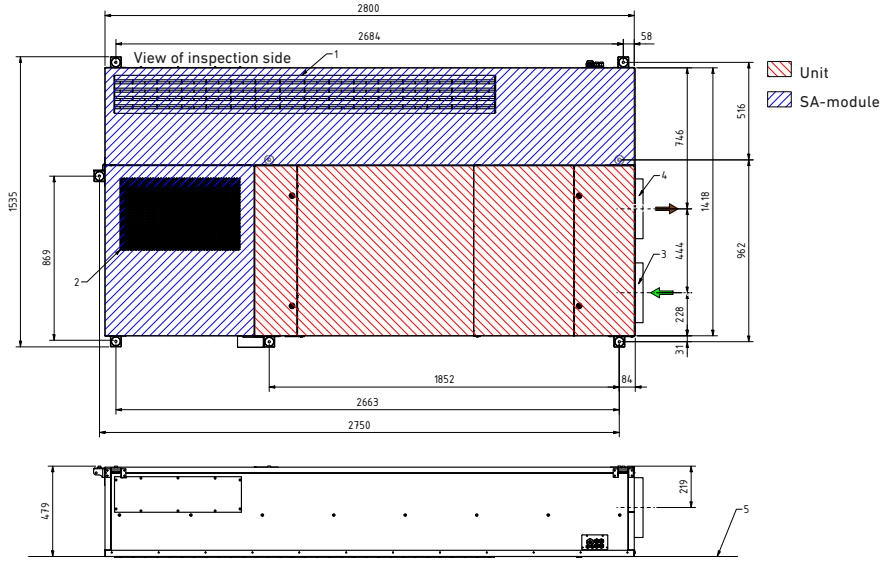


1 Supply air emission via adjustable grille
2 Extract air inflow via perforated grille
3 Outdoor air Ø 315 sleeve size
4 Exhaust air Ø 315 sleeve size

Illustration:
LG 1000 SKDE with SA module blowing out sideways and bottom/ top (right-hand version)

FLUSH WITH CEILING

Dimensions: (W x H x L) 1535 x 479 x 2800 mm
Air duct connection: Outdoor air, exhaust air: Ø 315 mm, sleeve size

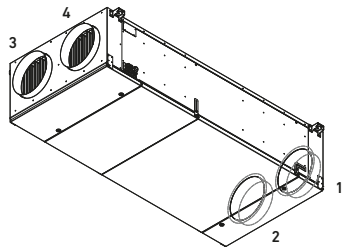
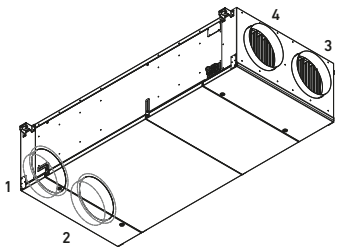
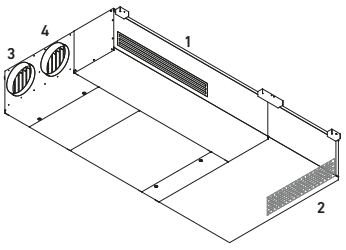
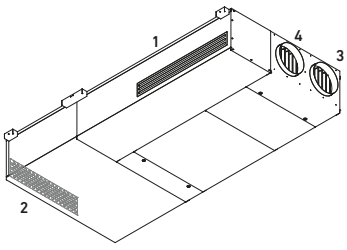
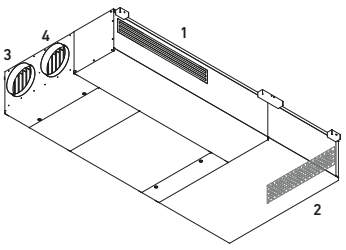
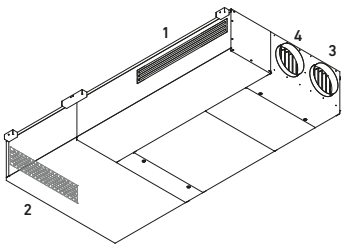
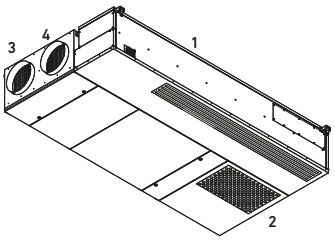
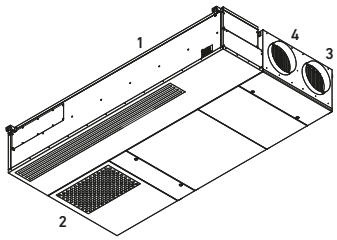


1 Supply air emission via adjustable grille
2 Extract air inflow via perforated grille
3 Outdoor air Ø 315 sleeve size
4 Exhaust air Ø 315 sleeve size
5 Flush with ceiling

Illustration:
LG 1000 SKDE with SA module flush with ceiling (right-hand version)

Versions

The ventilation unit is available in four versions: with or without an attached sound-absorbing (SA) module.
By using the version with the sound-absorbing supply air/extract air module (SA module) which is attached directly to the unit you will achieve low-noise operation and perfect air distribution. For this purpose, the fins of the supply air grid can be adjusted horizontally and vertically.
With the flush with ceiling version, the blow-out direction can be adjusted using the rollers of the supply air slot diffuser.

Ceiling-mounted version LG 1000 SKDE with enthalpy exchanger, horizontal heat exchanger, electric pre-heating and re-heating register	**left-hand version**	**right-hand version**
Without silencer Installation: false ceiling/flush with ceiling Visible side: coated inspection side	0810FKNSDLWVENE	810FKNSDRWVENE
1 Supply air ***2 Extract air*** ***3 Outdoor air*** ***4 Exhaust air***		
With silencers in supply and exhaust air, free blowing, sideways at the bottom Installation: false ceiling partially integrated Visible side: inspection side/supply air/exhaust air side coated	0810FKNSDLWVENES2SU	0810FKNSDRWVENES2SU
1 Supply air ***2 Extract air*** ***3 Outdoor air*** ***4 Exhaust air***		
With silencers in supply and extract air, free blowing, sideways top Installation: free-hanging/without false ceiling Visible side: Inspection side/supply air/exhaust air side coated	0810FKNSDLWVENES2SO	0810FKNSDRWVENES2SO
1 Supply air ***2 Extract air*** ***3 Outdoor air*** ***4 Exhaust air***		
With silencers in supply and exhaust air, free blowing, flush with ceiling Installation: flush with ceiling Visible side: inspection side coated	0810FKNSDLWVENES2DB	0810FKNSDRWVENES2DB
1 Supply air ***2 Extract air*** ***3 Outdoor air*** ***4 Exhaust air***		

Technical specifications

Unit type	LG 1000 SKDE
Heat exchanger	Enthalpy exchanger
Air volume flow min.– max. (adjustable in 3 steps)	Up to 1000 m^3/h

CHARACTERISTIC VALUES IN ACCORDANCE WITH EU REGULATION 1253-2014	
Maximum operating point	
Volume flow	1000 m^3/h
External compression	100 Pa
Nominal operating point	
Volume flow	700 m^3/h
External compression	50 Pa
Specific fan power SFP	0.26 Wh/m^3
Thermal efficiency	76.9 %
Moisture transfer rate	41 %
Sound pressure level at a distance of 1 m without SA module (housing radiation)	30 dB(A)

Classification of air filters in accordance with EN ISO 16890	
ODA filter (outdoor air)	ISO ePM1 55%
ETA filter (extract air)	ISO ePM10 75%

Operating conditions	
Permissible ambient temperature (place of installation)	+5 to +35 °C
Permissible operating temperature (outdoor air)	-15 to +35 °C

lectrical system	
Electrical connection	3~400V / L/N/PE / 50 Hz / 16 A
IP classification	IP40 with connected air ducts
Max. power with pre-heating coil	3000 W

Materials	
Inner part	Sheet steel, galvanised
Housing	Galvanised sheet steel and powder-coated in RAL 9003 matt
Enthalpy exchanger	Aluminium and polymer membrane counterflow exchanger

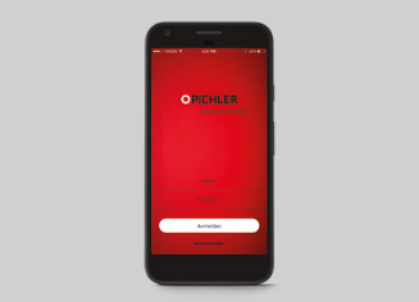
Housing	
Air line connections for outdoor air / exhaust air / supply air / extract air	Ø 315 mm, sleeve size
Condensate drainage	Nonexistent
Dimensions (W x H x L)	1020 x 479 x 2010 mm
Dimensions with SA module, sideways and bottom/top blowing out (W x H x L)	1535 x 479 x 2931 mm
Dimensions with SA module, flush with ceiling (W x H x L)	1535 x 479 x 2800 mm
Gewicht ohne SD-Modul	~ 200 kg

ACOUSTIC SPECIFICATIONS

LG 1000 SKDE without SA module		Pos.	Outdoor air connector			Exhaust air connector			Supply air inlet			Extract air outlet		
		m^3/h	300	700	1000	300	700	1000	300	700	1000	300	700	1000
Midband frequency	125 Hz	L_w in dB	37	45	49	40	49	53	35	42	47	35	43	48
	250 Hz		49	47	55	43	52	59	41	46	54	45	46	54
	500 Hz		35	43	49	44	54	62	40	48	56	36	45	52
	1000 Hz		33	42	50	48	58	66	32	43	51	34	44	51
	2000 Hz		29	39	47	45	54	64	28	38	46	26	36	44
	4000 Hz		21	33	41	35	46	56	20	29	38	15	26	35
	8000 Hz		17	26	34	19	35	47	15	11	24	4	9	22
	Total L_{WA} in dB(A)		**49**	**51**	**58**	**52**	**61**	**70**	**45**	**52**	**60**	**46**	**51**	**58**

Sound pressure level at a distance of 1 m without SA module (housing radiation): 30 dB(A)
Note: Tolerances for sound data ±2 dB, measured in compliance with EN ISO 9614-2

TOUCH control unit



Pichler app

Operation

BYPASS FOR HEAT EXCHANGER

The bypass is regulated as a function of the measured extract air or outdoor air temperature. The heat exchanger may thus be bypassed in the summer, blowing cool outdoor air directly into the room.

CONTROLLER

The ventilation unit can be controlled centrally via the building control system using a Modbus RTU connection, or by means of the locally mounted, TFT touch control unit (optional). Furthermore, every unit is provided with a LAN interface, allowing for easy connection to the PICHLER Connect system. The cloud-based solution offers a clear system management to the operator, including an indication for operating values, adjustment options and error messages. On request, error messages can also be transmitted to the system operating company via email. The air volume flow can be predefined by three steps and, when required, is increased up to its maximum setting by means of the integrated CO_2 sensor in the extract air. An integrated humidity sensor for moisture monitoring is used to prevent condensate formation.

TOUCH CONTROL UNIT

The optional control unit with 4.3" colour touch display is used to operate the ventilation unit. Operation is easy and intuitive. The most important settings and readings are very easy to make. The user-friendly handling provides for automatic or manual setting of the ventilation levels. In automatic mode, the system works according to programmable time programmes, or it can be started with an optional presence detector. The air volume is then controlled in a fully automatic fashion, depending on the CO_2 content of the extract air. Furthermore, a temperature- and time-controlled night cooling function can be enabled via a separate time programme in the automatic mode. The night cooling function serves to reduce the room temperature and helps the structure and fixtures to cool down. Further functions are the changeover function between summer and winter operation and the setting for the volume flows. The operating mode, temperatures, a required filter change and possible faults are displayed in plain text. The control unit also has an integrated temperature sensor that can be used as a room temperature sensor if required. Installation is carried out on a flush-mounted box (not included in the scope of supply).

Advantages of control:
- Simple display of the current operating parameters
- Individually adjustable air volumes
- Programs based on the time of day and day of the week

Item	Item number
TOUCH control unit for LG 1000 SKDE (optional)	08LG350450T

EASY OPERATION WITH THE PICHLER APP

User-friendly: The ceiling unit for classrooms can be operated easily with the free smartphone app for Android and iOS, whether you are at home or out and about.

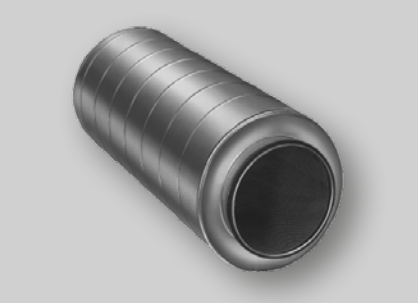
REMOTE ACCESS / PICHLER CONNECT

Operational safety: Remote access allows the Pichler customer service to respond quickly and easily in the event of faults.

PICHLER
connect.

Presence detector

Modbus/KNX Gateway



Duct silencer SL for outdoor air and exhaust air

Accessories

SPARE FILTERS

Ensure perfect hygiene and air quality given regular replacement, also proper functionality and efficient operation of the equipment.

Item	Item number
ETA filter ISO ePM10 75% (extract air)	40LG0500027A
ODA filter ISO ePM1 55% (outdoor air)	40LG0500026A

PRESENCE AND MOTION DETECTOR FOR FLUSH-MOUNTED, SURFACE-MOUNTED AND CEILING INSTALLATION

The flush-mounted presence detector for ceiling installation is ideally suited for presence areas in offices, conference rooms, lounges, cellar rooms, etc.

Technical specifications:
Voltage: 230 V AC
Potential-free normally open contact 10 A

DETECTION ZONE:
Ceiling height: 3 m
2 detection zones: Presence detector: detects seated or other stationary activities = 4 x 4 m. Motion detector: detects movements of objects with body temperature = 8 x 8 m
Detection zone: 360°
Degree of protection: IP40 indoor installation
Visible dimensions: W x H x D: 88 x 88 x 35 mm
Dimensions: W x H x D: 84 x 84 x 35,1 mm

Item	Item number
Presence detector (optional)	07UPPM360

MODBUS/KNX GATEWAY

The Modbus/KNX gateway provides for the connection of a ventilation unit to a KNX bus system. In this case, the gateway serves as a connective link between the two bus systems. Note that the gateway always acts as the master for the Modbus. On the KNX side, however, it responds like a standard KNX TP-1 unit. This makes it possible to centrally control and monitor the ventilation unit using a KNX system.
A "Config Tool" (a DCA or Device Configuration App) is provided to facilitate configuration of the ETS. With this, it is possible to adopt any existing configurations for the gateway.

Dimensions: L x W x D = 18 x 100 x 60 mm
Weight: approx. 50 g
Mounting: Top hat rail DIN serial mounting 1TE
Permissible ambient temperature: -5 to 45 °C
Permissible storage temperature: -25 to 70°C
Permissible rel. humidity: 5 – 93 % non-condensing
Protection class: IP 20
Power supply: KNX bus, approx. 8 mA
Interfaces: EIA-485, KNX-TP1

Item	Item number
Modbus/KNX-Gateway (optional)	08KNXGAC

DUCT SILENCER SL FOR OUTDOOR AIR AND EXHAUST AIR

Duct silencer made of galvanized sheet steel. Outer jacket made of a spiro tube; inner jacket made of galvanised perforated plate, with intermediate 50 mm acoustic packing made from mineral wool as well as abrasion-resistant glass silk cover. Pipe ends with connection piece for plug-in mounting.
Connection diameter: 315 mm (nipple size, with double lip seal)
Outside diameter: 450 mm
Length: 600 mm
Weight: 12.7 kg
Damping at 250 Hz: 7 dB

Item	Item number
Duct silencer SL for outdoor air and exhaust air (optional)	11SL3005031506

SHEET-METAL COVERING FOR DUCT SILENCER SL FOR OUTDOOR AIR AND EXHAUST AIR

Made of galvanised steel sheet, powder-coated from the outside in RAL 9003

Item	Item number
Sheet-metal covering for duct silencer SL for outdoor air and exhaust air (optional)	08LG1000SKDEBV

BACNET GATEWAY

The BACnet-GATEWAY gateway allows to connect the floor unit LG 1000 SKS for classrooms to a BACnet bus system. In this process, the gateway serves as a connective link between the two bus systems.

Item	Article number
BACnet GATEWAY (optional)	08BACGAES2020

Installation example for a classroom

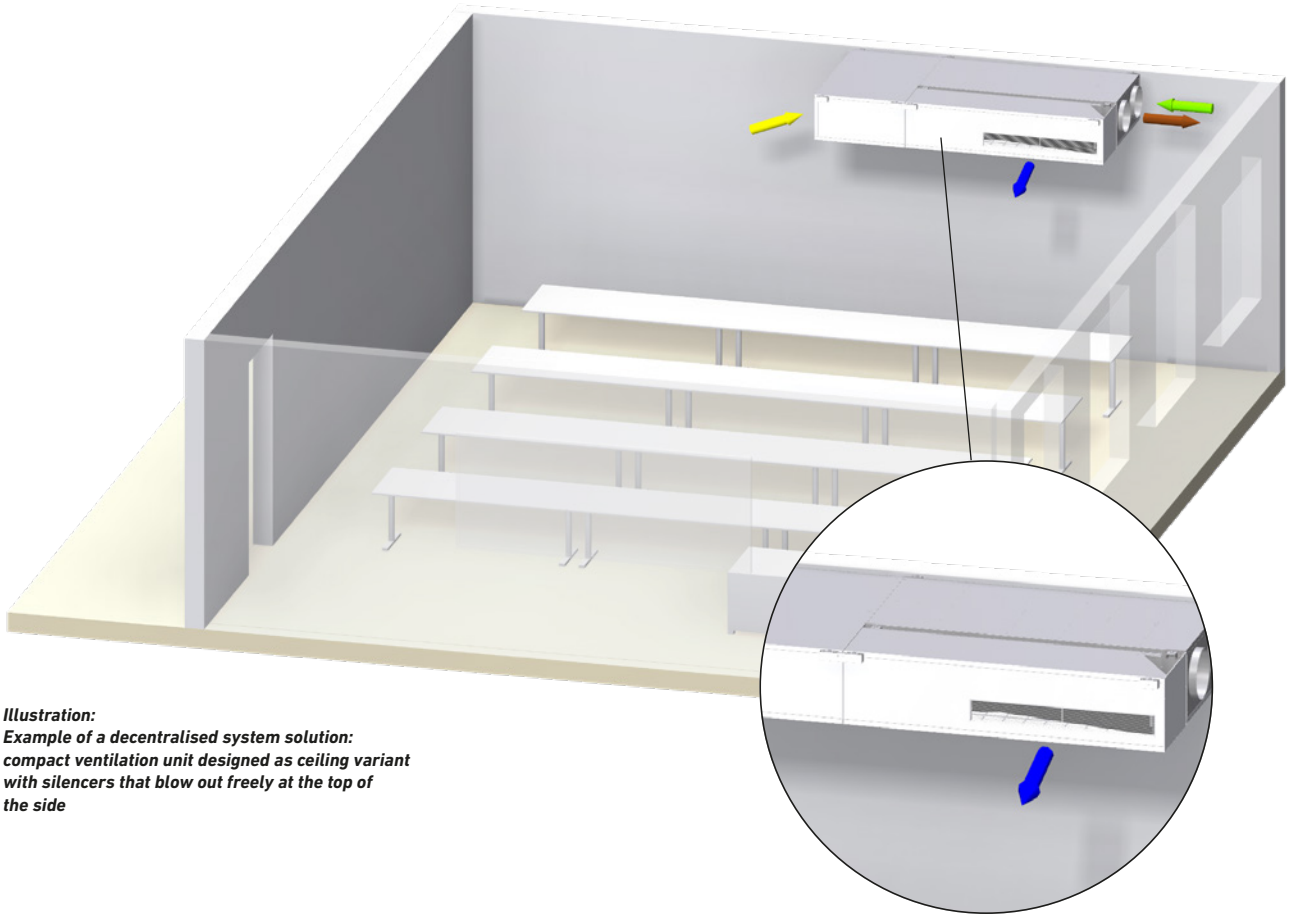
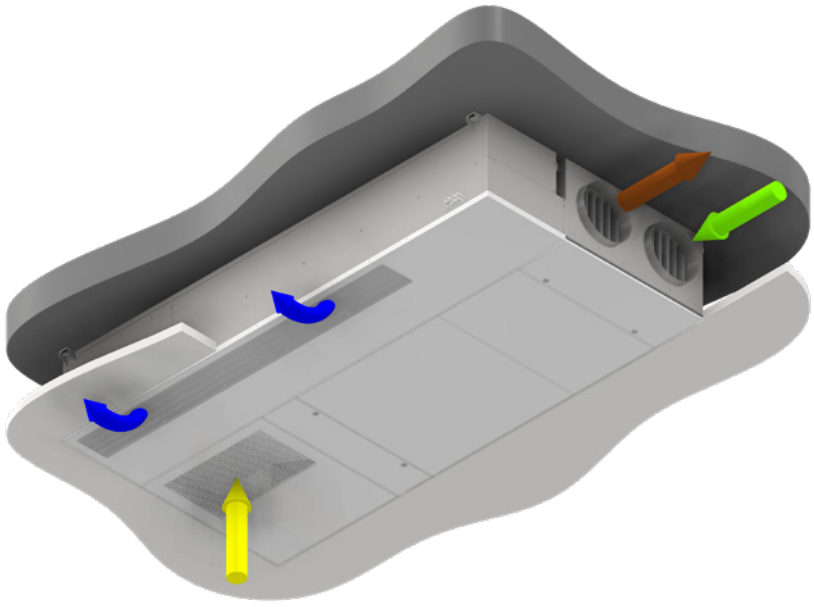


Illustration:
Example of a decentralised system solution: compact ventilation unit designed as ceiling variant with silencers that blow out freely at the top of the side



Supply air
Extract air
Outdoor air
Exhaust air

Illustration:
Example of a decentralised system solution: compact ventilation unit designed as ceiling variant with with free-blowing silencers, flush with the ceiling via adjustable slot diffusers in a false ceiling.

Installation situation, with silencers, blowing out at the bottom of the side, partially integrated in the false ceiling

Installation situation, with silencers, flush with the ceiling

LG 1000 SKDE at a glance

Fans:
Energy-saving radial fans with DC technology (the latest EC motor technology).

Counterflow heat exchanger:
Highly efficient heat recovery system with enthalpy exchanger for heat and moisture recovery with an automatic bypass

Air flow volume:
Up to approx. 1000 m³/h with external pressure up to 100 Pa

Filters:
ODA filter ISO ePM1 55% for outdoor air, ETA filter ISO ePM10 75% for extract air

Electric pre-heating and re-heating coil for frost protection:
1000 W each, with infinitely variable control, integrated

Integrated CO_2 sensor:
Demand-controlled operation via integrated CO_2 measurement

Housing:
Made of galvanised steel sheet (inspection and visible panels), powder-coated in RAL 9003 matt with thermal insulation

Air connections:
Left-hand and right-hand version.
Ø 315 mm, sleeve size

Installation position:
Ceiling installation

Summer changeover:
Integrated bypass flap

Electrical connection:
3~400 V / 50 Hz / 16 A

Rated output:
3000 W

Operation:
Centrally via the building control system using Modbus RTU or the optional TOUCH control unit and when connected to the Internet (LAN connection) via the PICHLER Connect system

Service – Maintenance – Commissioning

OUR CEILING UNIT LG 1000 SKDE FOR CLASSROOMS IS COMPLIANT WITH

- the hygienic requirements of VDI 6022

ErP 2018

ErP 2018

Fulfils the requirements of the Ecodesign Directive, in accordance with EU Regulation 1253/2014.

Your partner/installer:

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PICHLER
Systematic ventilation.

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