

COMMERCIAL AIR CONDITIONERS **SDV4 AND SDV5 2020-2021**

INDIVIDUAL SYSTEMS
MODULAR SYSTEMS
HEAT RECOVERY SYSTEMS



Welcome to the world of Sinclair Air Conditioners

Company operation and procedures comply with ISO 9001. Sinclair products comply with European standards, which guarantee safe operation. Sinclair represents high standard of quality and great performance with modern designs.

Sinclair SDV4 and SDV5 commercial systems provide solutions for air conditioning entire buildings. A wide range of capacities and range of indoor units enables countless combinations which will meet any of your needs.

The SDV4 and SDV5 model line use only environmentally friendly, CFC free refrigerant R410A which does not cause ozone depletion. This refrigerant is also energy efficient.



Small and individual non-modular outdoor units SDV4

Supports up to 20 indoor units in small buildings, offices or apartments.

These single phase (SDV4-105EAA only) or three phase units are non-combinable. Units are ideal for small buildings, offices or apartments.

Small outdoor units with intelligent control gives you independent zoning control with maximum flexibility. A single outdoor unit supports up to 20 indoor units (SDV4-335EAA), freeing up considerable space outside. Use your backyard more wisely with much more space available created by less number of outdoor units.

FEATURES

- DC inverter compressor
- Autoaddressing of indoor units
- Convenient installation
- Wide operational temperature range
- Space saving design, small footprint
- Improved noise reduction design
- Low noise DC fan motor





SMALL AND INDIVIDUAL OUTDOOR UNITS

Model		SDV4-105EAA	SDV4-140EAA	SDV4-160EAA	SDV4-180EA	SDV4-200EA	SDV4-224EA	SDV4-260EA	SDV4-280EAA	SDV4-335EAA	SDV4-400EAA	SDV4-450EAA
Power	V / ph / Hz	220-240/1/50	380-415/3/50	380-415/3/50	380-415/3/50	380-415/3/50	380-415/3/50	380-415/3/50	380-415 / 3 / 50	380-415 / 3 / 50	380-415/3/50	380-415/3/50
Cooling Capacity	kW	9,0	14	15,5	17,5	20	22,4	26	28	33,5	40,0	45,0
Cooling Input Power	kW	2,3	3,95	4,52	5,3	6,1	6,8	7,6	6,83	9,2	11,9	13,6
EER	kW/kW	3,91	3,54	3,43	3,30	3,28	3,29	3,42	4,10	3,64	3,35	3,32
Heating Capacity	kW	9,0	15,4	17,0	19,0	22,0	24,5	28,5	31,5	37,5	45,0	50,0
Heating Input Power	kW	2,27	4,16	4,77	5	6,1	5,9	6,8	7,5	9,2	11,1	12,7
COP	kW/kW	3,97	3,70	3,56	3,80	3,61	4,15	4,19	4,20	4,08	4,05	3,94
Operating Range-Cooling	°C	-15-48	-15-48	-15-48	-15-48	-15-46	-15-46	-15-46	-5-54	-5-54	-5-48	-5-48
Operating Range-Heating	°C	-15-27	-15-27	-15-27	-15-27	-15-24	-15-24	-15-24	-20-24	-20-24	-15-24	-15-24
Sound Pressure Level at 1m	dB(A)	57	57	57	59	59	59	60	59	61	62	62
Airflow	m³/h	5531	6000	6000	6800	10494	10999	10494	11000	11300	16575	16575
Net Weight	kg	74	95	102	107	137	146,5	147	157	157	250	280
Gross Weight	kg	81	103	113	118	153	162,5	163	173	173	268	300
Net Dimensions (WxHxD)	mm	990x966x336	900x1327x320	900x1327x320	900x1327x320	1120x1558x400	1120x1558x400	1120x1558x400	1120x1558x528	1120x1558x528	1360x1650x540	1460x1650x540
Packing Dimensions (WxHxD)	mm	1120x1015x435	1030x1456x435	1030x1456x435	1030x1456x435	1270x1575x480	1270x1575x480	1270x1575x480	1270x1720x565	1270x1720x565	1450x1785x560	1550x1785x560
Number of indoor units		5	6	7	9	10	11	12	16	20	14	15
Refrigerant	type	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A
	kg	2,95	3,9	3,9	4,5	4,8	6,2	6,2	8,0	8,0	9,0	12,0
	t eq.CO ₂	6,2	8,1	8,1	9,4	10	12,9	12,9	16,7	16,7	18,8	25,1
Vertical Pipe Length	m	Outdoor unit on top: max. 30 m; Outdoor unit below: max. 20 m							Outdoor unit on top: max. 50 m; Outdoor unit below: max. 40 m		Outdoor unit on top: max. 30 m; Outdoor unit below: max. 20 m	
Actual Pipe Length	m	20	20	20	20	20	20	20		40	40	40
Equivalent Pipe Length	m	50	50	50	70	70	70	70		110	120	120
Total Pipe Length	m	100	100	100	100	120	120	120		150	250	250

Actual pipe length is total distance between the first branch joint and the farthest indoor unit; Equivalent pipe length is total distance between the first branch joint and the farthest indoor unit prolonged by 0.5m for each installed branch joint. Total pipe length is the distance between outdoor unit and the first branch joint, twice the distance of all pipes between the branch joints and the sum of distance from the branch joint to indoor unit. SDV4-105EAA: SCOP 3.5; SEER 5.3



SDV5 - new generation of individual outdoor units

Capacity of individual outdoor unit up to 90 kW

Outdoor unit can be installed on both upper or lower position, maximal height difference is 110m if the outdoor unit lower than indoor units.

FEATURES

- Capacity up to 90 kW
- EVI technology enhances system efficiency
- High EER (up to 4.2) and COP (up to 5.10)
- Wide operation range
- Long piping length
- Two compressors provide back-up function
- Advanced system for oil balance
- Temperature protection for electric devices
- Refrigerant quantity monitoring
- Intelligent defrosting
- Possibility to set-up cooling capacity 40-100% in case of power supply restriction





SDV5 - new generation of modular outdoor units

Total capacity of three
modular outdoor units up to 270 kW

**TOTAL CAPACITY UP TO 270 KW
HIGH EER (4.5) AND COP (5.4)**



28 / 33,5 kW

40 / 45 / 50 / 56,5 / 61,5 kW

67 / 78,5 / 85 / 90 kW



SDV4-3P Heat recovery modular outdoor units

Cooling and heating at the same time

SDV4-3P heat recovery multisystem is designed for areas that require cooling and heating at the same time.

The energy by-product from cooling or heating is transferred to where it is required by using the balanced heat exchanger function, which saves up to 50% in costs compared with a conventional air conditioning system.

FEATURES

- Heat recovery system
- Simultaneous cooling and heating
- Wide operation range, from -5 to 24°C in simultaneous mode
- Large capacity for big sized buildings, up to 180kW
- High EER and COP
- All DC fan motor
- All DC inverter compressor
- Long piping length
- High external static pressure
- Duty cycling
- Back-up function
- Precise oil control technology
- Night silent operation mode
- Continuous heating during defrosting
- Rotatable electric box
- 360° pipe connection

SDV4.3P



SDV4-3P HEAT RECOVERY MODULAR UNITS


Model		SDV4-252EA3P	SDV4-280EA3P	SDV4-335EA3P	SDV4-400EA3P	SDV4-450EA3P
Power	V / ph / Hz	380-415/3/50	380-415/3/50	380-415/3/50	380-415/3/50	380-415/3/50
Cooling Capacity	kW	25,2	28,0	33,5	40,0	45,0
Cooling Input Power	kW	5,73	6,67	8,07	11,30	13,24
EER	kW/kW	4,40	4,20	4,15	3,54	3,40
Heating Capacity	kW	27,0	31,5	37,5	45,0	50,0
Heating Input Power	kW	6,00	7,33	8,72	11,19	12,79
COP	kW/kW	4,50	4,30	4,30	4,02	3,91
Operation Range-Cooling	°C	-5~48	-5~48	-5~48	-5~48	-5~48
Operation Range-Heating	°C	-20~24	-20~24	-20~24	-20~24	-20~24
Operat. Range-Cooling & Heating	°C	-5~24	-5~24	-5~24	-5~24	-5~24
Sound Pressure Level at 1m	dB(A)	57	57	58	60	60
Airflow	m³/h	12 000	12 000	13 000	15 000	15 000
Net Weight	kg	255,0	255,0	255,0	303,0	303,0
Gross Weight	kg	273,0	273,0	273,0	322,0	322,0
Net Dimensions (W×H×D)	mm	1250x1615x765	1250x1615x765	1250x1615x765	1250x1615x765	1250x1615x765
Packing Dimensions (W×H×D)	mm	1305x1790x820	1305x1790x820	1305x1790x820	1305x1790x820	1305x1790x820
Maximal Number of Indoor Units		13	16	20	23	26
Refrigerant	type	R410A	R410A	R410A	R410A	R410A
	kg	10,0	10,0	10,0	13,0	13,0
	t eq. CO ₂	20,88	20,88	20,88	27,1	27,1
Vertical Pipe Length	m	Outdoor unit on top: max. 70m; Outdoor unit below: max. 110m				
Actual Pipe Length	m	40	40	40	40	40
Equivalent Pipe Length	m	200	200	200	200	200
Total Pipe Length	m	1000	1000	1000	1000	1000

Actual pipe length is total distance between the first branch joint and the farthest indoor unit; Equivalent pipe length is total distance between the first branch joint and the farthest indoor unit prolonged by 0.5m for each installed branch joint. Total pipe length is the distance between outdoor unit and the first branch joint, twice the distance of all pipes between the branch joints and the sum of distance from the branch joint to indoor unit.







Indoor units specifications

SUMMARY OF INDOOR UNITS

Series and cooling capacity (kW)	1,8	2,2	2,8	3,6	4,5	5,6	7,1	8,0	9,0	10,0	11,2	12,5	14,0	16,0	20,0	25,0	28,0	40,0	45,0	56,0
Four-way cassette units with DC fan motor																				
																				
One-way cassette units with DC fan motor																				
																				
Wall mounted units with DC fan motor																				
																				
Duct units with DC fan motor																				
																				



Series and cooling capacity (kW)	1,8	2,2	2,8	3,6	4,5	5,6	7,1	8,0	9,0	10,0	11,2	12,5	14,0	16,0	20,0	25,0	28,0	40,0	45,0	56,0
High static-pressure duct units with DC fan motor																				
																				
Fresh air processing duct units with DC fan motor																				
																				
Floor & ceiling units with DC fan motor																				
																				
Console units with DC fan motor																				
																				



ACCESSORIES

SDV4 AND SDV5 2020-2021

INDIVIDUAL SYSTEMS
MODULAR SYSTEMS
MODULAR 3-PIPES SYSTEMS

SDV5 indoor units are not equipped with any controller. Therefore is necessary to choose correct controller based on project requirements.

All units can be controlled by central controller with the function of setting the on/off time and with the function of the superior control system.



CCM-180A central controller with touch screen

Controllers



RM05B

Infrared controller supports 7-fan speed. Enables address setting and setting cooling only mode.



SWC-86E

Wall mounted wired controller with new design including temperature sensor. Possible to use °C or F.



SWC-86ED

Wall mounted wired controller with new design including temperature sensor. Support bidirectional communication and service information.



SWC-120G

Wall mounted wired group controller with weekly timer. Allows to control up to 16 indoor units. Supports bidirectional communication and service information.



CCM15

Central wired controller with cooling/heating priority setting. Allows to set temperature limit. Supports internet connection which allows extra weekly timing.



CCM-180A

Central touch screen wired controller with cooling/heating priority setting and weekly timer. Allows to set temperature limit. Provides service information.



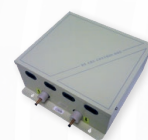
CCM-270A

Centrální dotykový ovladač 10,1palců. Umožňuje maximální úroveň kontroly a řízení vnitřních jednotek. Podporuje internetové připojení. Obsahuje software IMMPRO pro kalkulaci spotřeby elektrické energie pomocí DTS-634.



SDV5-EK

Rozšiřující modul. Umožňuje připojit 2 centrální ovladače, případně jeden centrální ovladač a BMS řízení.



AHU KIT (ONLY 2-PIPES SYSTEMS)

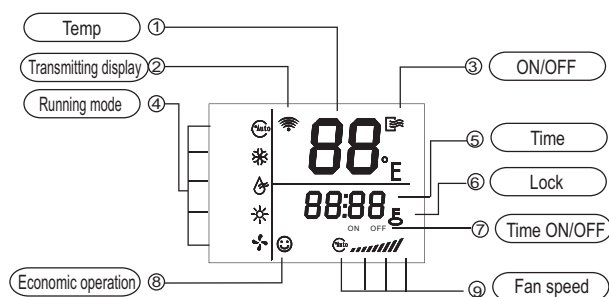
Sinclair AHU kit is device that connects the evaporator of indoor units of other manufacturers with outdoor units of SDV4 and SDV5 system. Can be controlled via 0-10V.

Wireless Remote Controller RM05B



SIMPLIFIED USER INTERFACE

Users can synchronize the air conditioner's parameters with the display panel on the wireless remote controller to precisely control a room's environment.



BUILT-IN TIMER

The built-in daily timer offers the convenience of automatically starting and stopping the system at set times.

SETTING ADDRESSES

Besides the machine's auto addressing function, users can set the indoor unit's address on the wireless remote controller RM05B.

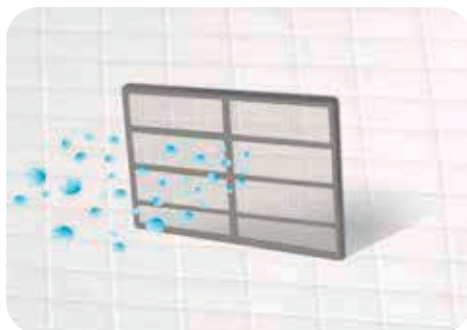


Wired controller SWC-86ED



AIR FILTER CLEANING REMINDING

The wired controller records the total running time of the indoor unit. When the accumulated running time reaches the pre-set value, it will remind users need to clean the air filter of the indoor unit. Clean the filter regularly can keep indoor air fresh and clean, good for your health.



RECEIVING SENSOR OF INFRARED REMOTE CONTROL WITH SERVICE ACCESS SUPPORT

SWC-86ED provides a signal receiver for remote controller. Signal from remote controller can be received by a wired controller, then send to the indoor unit and it conveniences to control.

Wall mounted controller includes a signal receiver for remote controlling. Received signal is immediately sent to an indoor unit and performed. Thanks to a two-way communication, the controller can show an error in case of a defect and also parameters/errors of an outdoor unit of SDV5 series which makes the job easier for service technicians.

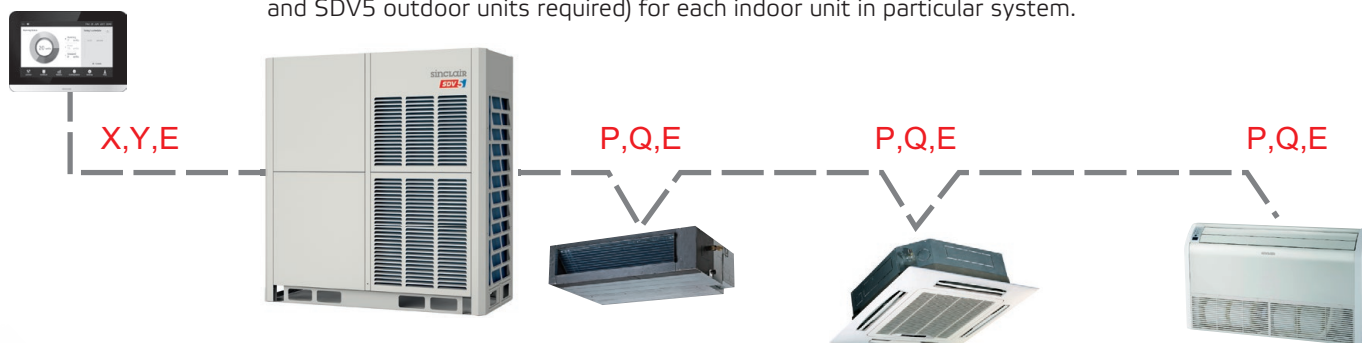


Centralized Controllers of Indoor Units CCM-180A, CCM-270A, CCM15



CENTRALIZED CONTROL

CCM-180A (CCM-270A) is a multifunctional device that can control up to 64 (384) indoor units within a maximum connection length of 1 200 m. Centralized controller is connected directly to outdoor units by X,Y,E connection. Allows to set cooling/heating priority mode. Supports individual or group control including weekly timer. Due to bidirectional communication provides parameters and errors from outdoor units SDV5. **CCM-270A** has a possibility to be connected to internet also by means of WiFi access. Thanks to IMMPRO software it is possible to calculate real energy consumption (DTS-634 and SDV5 outdoor units required) for each indoor unit in particular system.

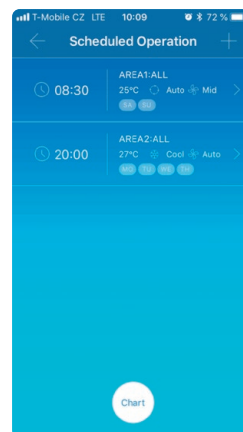
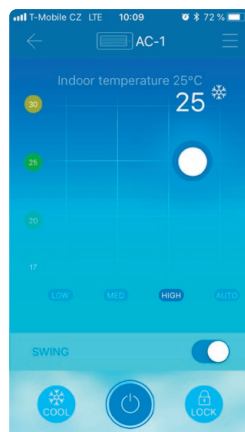


CCM15 DATA CONVERTER - REMOTE CONTROL

Enables to control the SDV4 and SDV5 indoor units via internet. CCM15 is connected to cloud server.



You can use also the M-control mobile app, which is downloadable from Apple App Store and for Android from webpage: <http://www.aircontrolbase.com/login.html>

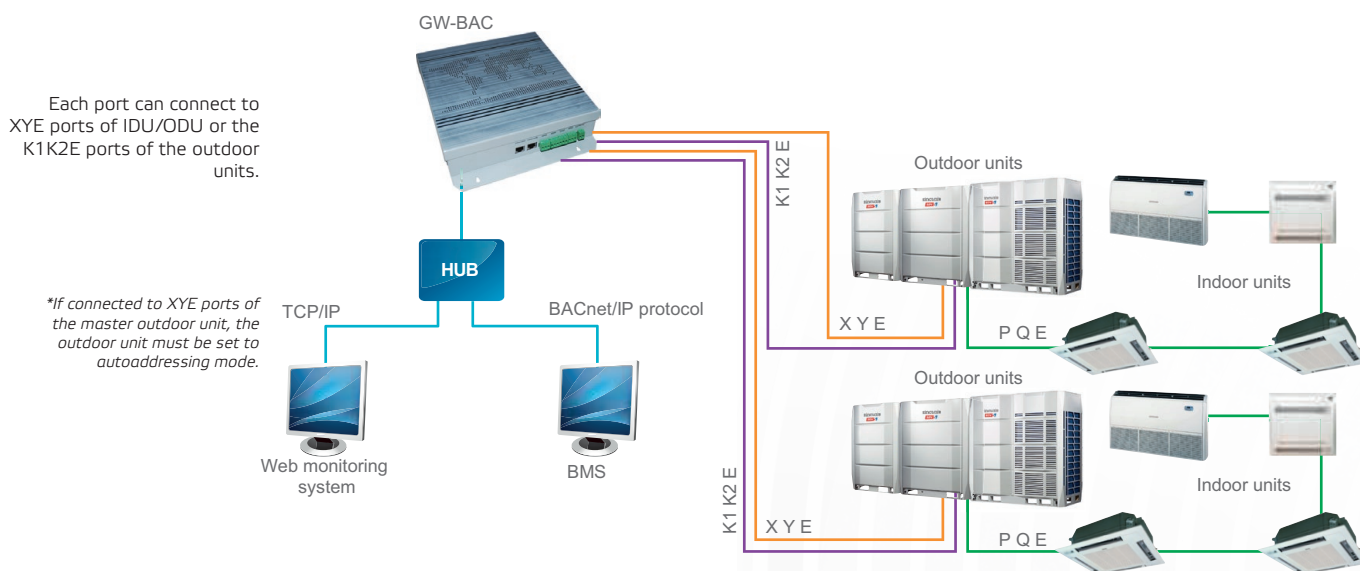


BMS Gateway BACnet GW-BAC



- Contains 4 groups of RS485 communication ports and is able to connect up to 256 indoor units or 128 outdoor units to the BMS network.
- Built-in web function

NETWORK EXAMPLE



MONITORING UNITS ONLINE

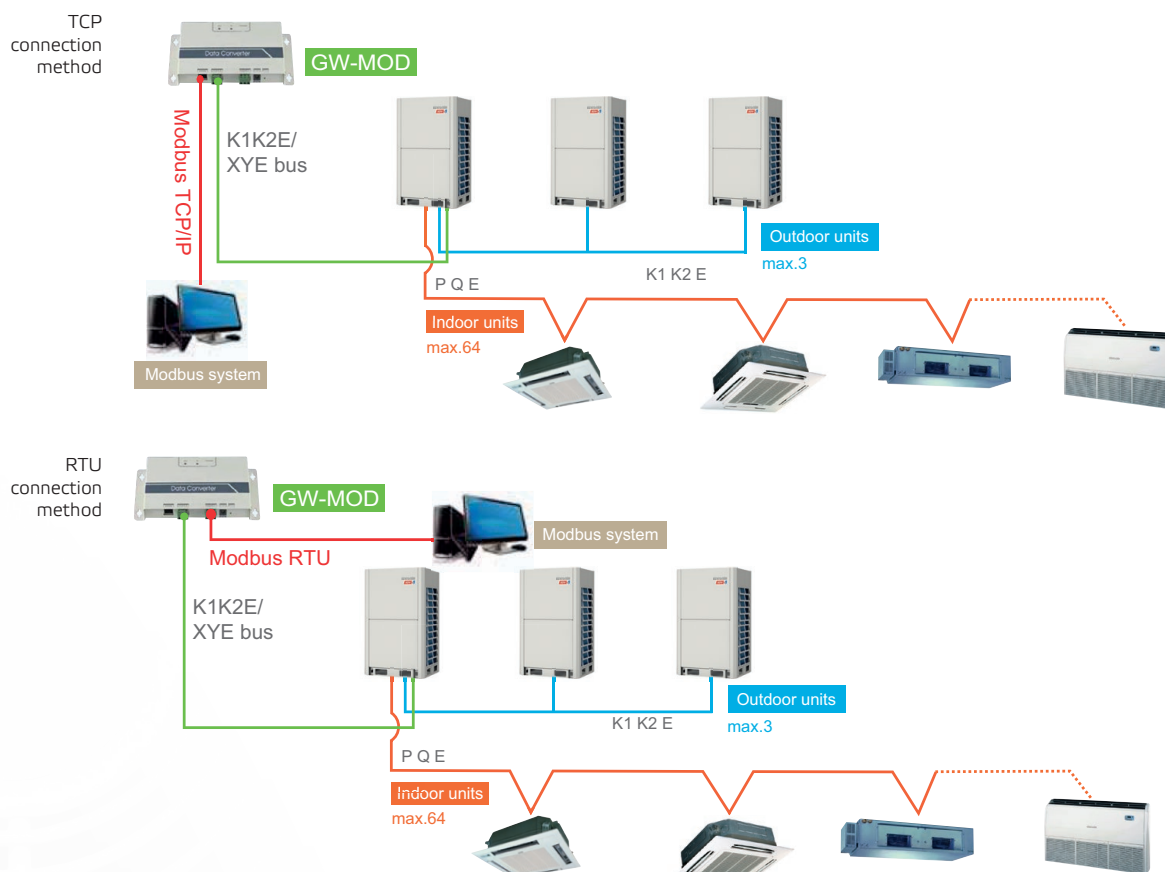
GW-BAC allows users to track unit's operational status and change their running parameters via the web browser for maximum control convenience.

BMS Gateway Modbus GW-MOB



- Supports Modbus protocol networks
- Connects Sinclair systems to BMS
- Allows to connect up to 64 indoor units
- Built-in WEB server function

CONNECTION EXAMPLES

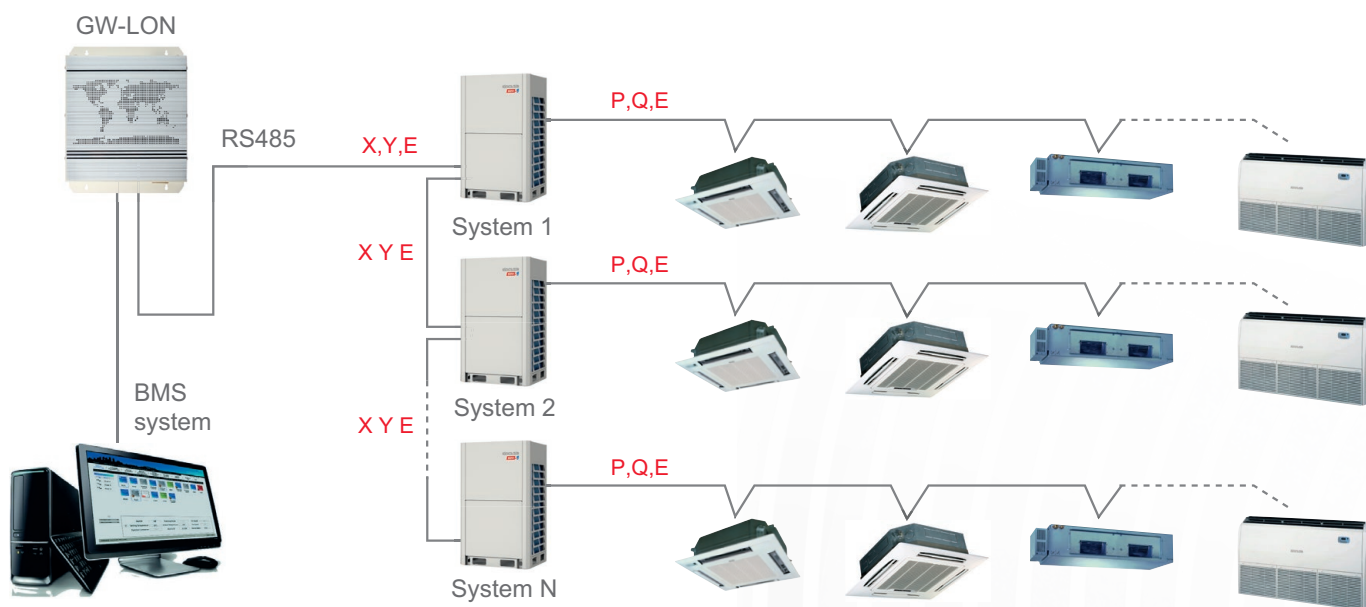


BMS Gateway LonWorks GW-LON



- Compliance with LonMark protocol, manages and controls of A/C.
- Can connect up to 64 indoor units.
- Uses non-polarity communication.

NETWORK EXAMPLE (UP TO 64 INDOOR UNITS)



*If connected to XYE ports of the master outdoor unit, the outdoor unit must be set to autoaddressing mode.

AHU Control Box

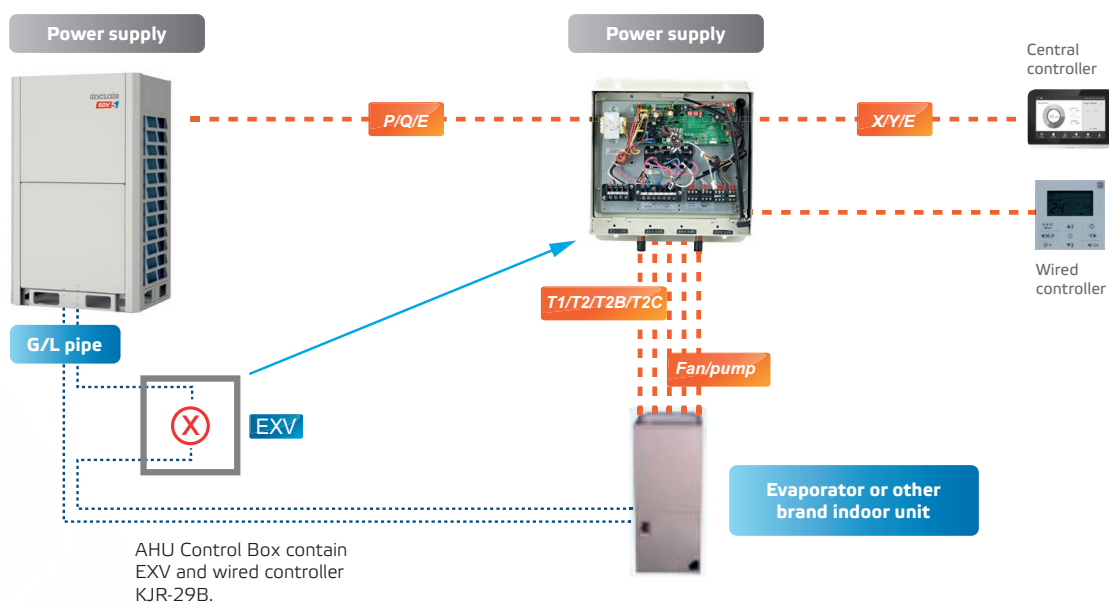
AHUKZ-01C (9-16kW) / AHUKZ-02C (22-34kW) / AHUKZ-03C (39-56kW)



- Can be used to connect SDV outdoor units with evaporator or other brand indoor units.

ADVANTAGES

- AHUKZ-01C/AHUKZ-02C/AHUKZ-03C is an independent control box that can connect a AHU to SDV system to realize centralized control with SDV system. Next possibility is use external control 0-10V.
- This voltage means set-up temperature of heating or cooling. AHUKZ is only for 2-pipes systems.
- Newly allows to control 0-10V regarding capacity of outdoor units 10-100%.



Distribution boxes for 3-pipes systems



Model				SDB01	SDB02	SDB04	SDB06
Max. indoor unit groups				1	2	4	6
Max. number of each group indoor units				4	4	4	4
Max. number of all downstream indoor units				1x4	2x4	4x4	6x4
Max. capacity of each group indoor units			kW	16	16	16	16
Total capacity of all downstream indoor units			kW	≤16	≤28	≤45	≤45
Piping connections	Connect to outdoor unit	Liquid pipe	mm	φ9,53	φ12,7	φ15,9	φ15,9
		High pressure gas pipe	mm	φ15,9	φ19,1	φ22,2	φ22,2
		Low pressure gas pipe	mm	φ19,1	φ25,4	φ31,8	φ31,8
	Connect to indoor unit	Liquid pipe	mm	φ9,53	φ9,53	φ9,53	φ9,53
		Gas pipe	mm	φ15,9	φ15,9	φ15,9	φ15,9
Sound pressure level			dB(A)	33	33	33	40
Net dimension (W×H×D)			mm	630x225x600	630x225x600	960x225x600	960x225x600
Packing size (W×H×D)			mm	725x325x685	725x325x685	1055x325x685	1055x325x685
Net weight			kg	18,0	19,5	31,0	35,0
Gross weight			kg	25,0	27,0	40,0	44,5

Model				SDB02E	SDB04E	
Max. number of all downstream indoor units				1	1	
Capacity of downstream indoor unit				kW	20-28	40-56
Piping connections	Connect to outdoor unit	Liquid pipe	mm	φ12,7	φ15,9	
		High pressure gas pipe	mm	φ19,1	φ22,2	
		Low pressure gas pipe	mm	φ25,4	φ31,8	
	Connect to indoor unit	Liquid pipe	mm	φ9,53	φ9,53	
		Gas pipe	mm	φ15,9	φ15,9	
Sound pressure level				dB(A)	33	33
Net dimension (W×H×D)				mm	630x225x600	960x225x600
Packing size (W×H×D)				mm	725x325x685	1055x325x685
Net weight				kg	19,5	31,0
Gross weight				kg	27,0	40,0

HOT GAS FOR HEATING AND COOL LIQUID FOR COOLING

Sinclair SDB box contains three pipes at inlet side and two on the outlet side. It delivers hot gas for heating and liquid for cooling according to individual needs of users. In the main cooling mode, the refrigerant condensed by heating indoor units can be used for cooling. In the same way, the refrigerant used for cooling indoor units can be used for heating instead of being released.

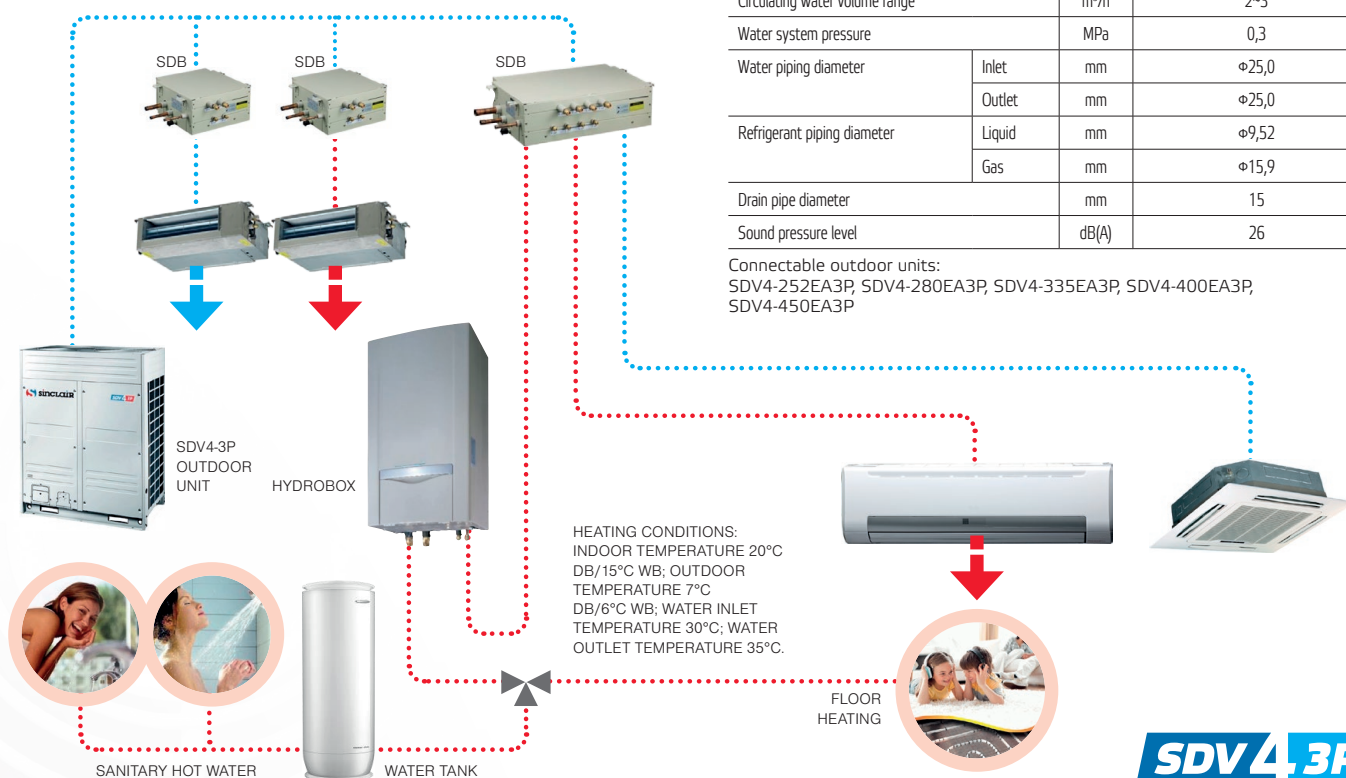
Hydrobox SDV4-140HB3P



FEATURES

- High efficiency, heat recovery
- Easy installation
- Installation in the indoor

The waste heat from areas requiring cooling can be reused to provide, not just sanitary hot water, but also floor heating or for and fan coil unit.



Model			SDV4-140HB3P
Water heating capacity			14,0 kW
Power supply			220-240 V-50 Hz
Power input (without water pump)	kW		0,01
Dimensions	mm		900x500x373
Net weight	kg		55
Hot water supply in cooling mode	Ambient	°C	-5~35
Hot water supply in heating mode	Ambient	°C	-15~35
Hot water temperature range		°C	25~45
Circulating water volume range		m³/h	2~3
Water system pressure		MPa	0,3
Water piping diameter	Inlet	mm	ø25,0
	Outlet	mm	ø25,0
Refrigerant piping diameter	Liquid	mm	ø9,52
	Gas	mm	ø15,9
Drain pipe diameter		mm	15
Sound pressure level		dB(A)	26

Connectable outdoor units:
SDV4-252EA3P, SDV4-280EA3P, SDV4-335EA3P, SDV4-400EA3P,
SDV4-450EA3P

SDV 4.3P