



**FULL DC INVERTER SYSTEMS
INSTALLATION & OWNER'S MANUAL**

KNX-02

COMMERCIAL AIR CONDITIONERS SDV5



- This manual gives detailed description of the precautions that should be brought to your attention during operation.
- In order to ensure correct service of KNX-02 please read this manual carefully before using the unit.
- For convenience of future reference, keep this manual after reading it.



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I. Safety precautions



The following contents are stated on the product and the operation manual, including usage, precautions against personal harm and property loss, and the methods of using the product correctly and safely. After fully understanding the following contents (identifiers and icons), read the text body and observe the following rules.

■ Identifier description

Identifier	Meaning
 Warning	Means improper handling may lead to personal death or severe injury.
 Caution	Means improper handling may lead to personal injury or property loss.

[Note]: 1. "Harm" means injury, burn and electric shock which need long-term treatment but need no hospitalization
2. "Property loss" means loss of properties and materials.

■ Icon description

Icon	Meaning
	It indicates forbidding. The forbidden subject-matter is indicated in the icon or by images or characters aside.
	It indicates compulsory implementation. The compulsory subject-matter is indicated in the icon or by images or characters aside.



WARNING

Please entrust the distributor or professionals to install the unit.

Installation by other persons may lead to imperfect installation, electric shock or fire.

Strictly follow this manual.

Improper installation may lead to electric shock or fire.

Reinstallation must be performed by professionals.

improper installation may lead to electric shock or fire.

Do not disassemble your air conditioner at will.

A random disassembly may cause abnormal operation or heating, which may result in fire.



CAUTION

Do not install the unit in a place vulnerable to leakage of flammable gases.

Once flammable gases are leaked and left around the wire controller, fire may occur.

The wiring should adapt to the wire controller current.

Otherwise, electric leakage or heating may occur and result in fire.

The specified cables shall be applied in the wiring. No external force may be applied to the terminal.

Otherwise, wire cut and heating may occur and result in fire.



Do not place the wired remote controller near the lamps, to avoid the remote signal of the controller to be disturbed. (refer to the right figure)

II. Other precautions

● Installation Location

Do not install the unit in a place with much oil, steam, sulfide gas. Otherwise, the product may be deformed and failed.

● Preparation before installation

1. Check whether the following assemblies are complete.

No.	Name	Qty.	Remarks
1	KNX-02	1	_____
2	Cross round head wood mounting screw	3	GB950-86 M4X20 (For Mounting on the Wall)
3	Cross round head mounting screw	2	M4X25 GB823-88 (For Mounting on the Electrical Switch Box)
4	Installation Manual	1	_____
5	Plastic expansion pipe	3	For Mounting on the Wall
6	Plastic screw bar	2	For fixing on the 86 electrician box
7	3-core shielded cable	1	For connecting the indoor unit and KNX-02

2. Prepare the following assemblies on the site.

No.	Name	Qty.(embedded into wall)	Specification (only for reference)	Remarks
1	2-core shielded cable	1	RVVP-0.5mm ² x2	Max 350m
2	86 Electrician box	1	_____	_____
3	Wiring Tube(Insulating Sleeve and Tightening Screw)	1	_____	_____
4	KNX power module	1	_____	_____
5	Communicate module	1	_____	_____

Note to installation of KNX:

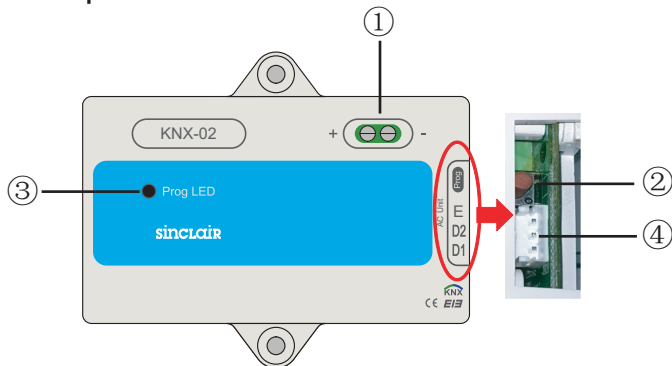
1. One KNX module can only connect with one indoor unit;The KNX module should connect to indoor D1D2E ports.
2. Circuit of KNX is low voltage circuit. Never connect it with a standard 220V/380V circuit or put it into a same Wiring Tube with the circuit.
3. Do not attempt to extend the shield cable by cutting, if it is necessary, use Terminal Connection Block to connect.
4. After finishing connection, do not use Megger to have the insulation check to the signal wire.
5. The default physical address of the KNX is 15.15.255, if there are two or more KNX modules, then the physical addresses can not repeat.The physical address can be changed by ETS software.

III. Installation procedure

1.The product parameters

No.	Name	Remarks
1	Dimensions	85*51*16mm
2	Power supply	29VDC 10mA, Supplied through KNX bus
3	LED indicator	KNX programming
4	Push button	KNX programming button
5	Configuration	Configuration with ETS software.

2.The product parameters

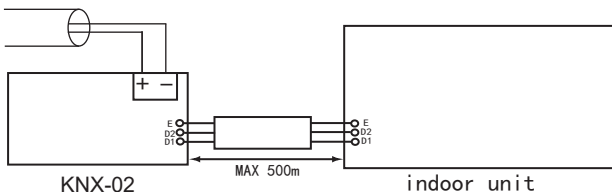


- ① **Bus interface:** Power supply DC 29V, 10mA and connect to KNX bus;
 - ② **KNX programming button:** press once to enter the programming mode, press it again will exit.
 - ③ **KNX programming status lamp:** when it is light up means programming status and can write data to the module by KNX bus
 - ④ **RS485 communication ports:** Communication port between KNX module and indoor unit.(support 2nd generation DC indoor unit)
- KNX-02 is completely in conformity with EIB/KNX standard. ETS software must be used by integrator to carry out configuration and project design. For detailed information of ETS software, please contact knx association: www.knx.org.
 - ETS database (*.vd*) of KNX-02 can be downloaded from our web site: <https://www.sinclair-solutions.com> in B2B section, or consult our company.

3. Wiring installation instruction

The Wiring diagram follows,the KNX-02 connect to the indoor Unit and KNX Power.

KNX TP-1
(EIB) bus



The Introduction KNX-02

- KNX-02 allows monitoring and control, fully bi-directionally, of all the functioning parameters of Sinclair SDV5 from KNX installations.

- Simple installation.

Can be installed inside the own indoor unit, it connects directly in one side to the electronic circuit of the indoor unit (cable supplied) and in the other side to the KNX TP-1 (EIB) bus.

- Great flexibility of integration into your KNX projects.

Configuration is made directly from ETS, the database of the device comes with a complete set of communication objects allowing, from a simple and quick integration using the basic objects, to the most advanced integration with monitoring and control all the indoor unit's parameters. Also available specific device's communication objects, as for example save and execute scenes.

- Allows the use of a KNX temperature sensor for the air conditioning control.

IV.ETS database group objects introduction

Index	Internal Name	Function Text	Object Size	Flags	Datapoint Type
1	Control_Mode	0-OFF;1-Fan;2-Co;3-He;4-Au;5-Dr	1 Byte	RWC---	[20.102] DPT_HVACMode
2	Control_Setpoint Temperature	° C	2 Bytes	RWC---	[9.1] DPT_Value_Temp
3	Control_Fan Speed	1-Speed1;...7-Speed7;8-Auto	1 Byte	RWC---	[20.111] DPT_FanMode
4	Control_Mode Switch Cool/Heat	0-Cool;1-Heat	1 Bit	RWC---	[1.100] DPT_Heat_Cool
5	Control_Swing	0-OFF;1-ON	1 Bit	RWC---	[1.1] DPT_Switch
6	Control_Auxiliary Heater	0-OFF;1-ON	1 Bit	RWC---	[1.1] DPT_Switch
7	Control_Heat Temperature	° C	2 Bytes	RWC---	[9.1] DPT_Value_Temp
8	Status_Mode	0-OFF;1-Fan;2-Co;3-He;4-Au;5-Dr	1 Byte	R-CT--	[20.102] DPT_HVACMode
9	Status_Setpoint Temperature	° C	2 Bytes	R-CT--	[9.1] DPT_Value_Temp
10	Status_Fan Speed	1-Speed1;...7-Speed7;8-Auto	1 Byte	R-CT--	[20.111] DPT_FanMode
11	Status_Swing	0-OFF;1-ON	1 Bit	R-CT--	[1.1] DPT_Switch
12	Status_Auxiliary Heater	0-OFF;1-ON	1 Bit	R-CT--	[1.1] DPT_Switch
13	Status_Ambient Temperature	° C	2 Bytes	R-CT--	[9.1] DPT_Value_Temp
14	Status_Alarm	0-No Alarm;1-Alarm	1 Bit	R-CT--	[1.5] DPT_Alarm
15	Status_Set Heat Temperature	° C	2 Bytes	R-CT--	[9.1] DPT_Value_Temp
16	Status_On/Off	0-OFF;1-ON	1 Bit	R-CT--	[1.1] DPT_Switch
17	Control_On/Off	0-OFF;1-ON	1 Bit	RWC---	[1.1] DPT_Switch
18	Control_Mode Auto	1-Set Auto Mode	1 Bit	RWC---	[1.1] DPT_Switch
19	Control_Mode Cool	1-Set Cool Mode	1 Bit	RWC---	[1.1] DPT_Switch
20	Control_Mode Heat	1-Set Heat Mode	1 Bit	RWC---	[1.1] DPT_Switch
21	Control_Mode Dry	1-Set Dry Mode	1 Bit	RWC---	[1.1] DPT_Switch
22	Control_Mode Fan	1-Set Fan Mode	1 Bit	RWC---	[1.1] DPT_Switch
23	Control_Mode +/-	0-Down;1-Up	1 Bit	RWC---	[1.8] DPT_UpDown
24	Control_Setpoint Temperature +/-	0-Down;1-Up	1 Bit	RWC---	[1.8] DPT_UpDown
25	Control_Fan Speed +/-	0-Down;1-Up	1 Bit	RWC---	[1.8] DPT_UpDown

The instruction as follow:

- 1: set mode; database type: DPT_20.102 HVAC Mode;
set value:0-OFF ; 1-Fan only; 2-Cool; 3-Heat ; 4-Auto; 5-Dry
- 2: set temp; database type: DPT_9.001 temperature(°C).

The indoor unit temperature value corresponding to ETS temperature value:

No.	Temp. value(°C)	ETS value	No.	Temp. value(°C)	ETS value
1	17	0B 52	8	24	0C B0
2	18	0B 84	9	25	0C E2
3	19	0B B6	10	26	0D 14
4	20	0B E8	11	27	0D 46
5	21	0C 1A	12	28	0D 78
6	22	0C 4C	13	29	0D AA
7	23	0C 7E	14	30	0D DC

- 3: Set Fan speed; data type: DPT_20.111 FanMode
Set value:1-speed1; 2-speed2; 3-speed3; 4-speed4; 5-speed5; 6-speed6;
7-speed7; 8-Auto
- 4: Set Heat/Cool mode data type: DPT_1.100 heating/cooling.
Set value: 0-Cool mode; 1-Heat mode.
- 5: Set swing on/off; data type: DPT_1.001 Switch.
Set value: 0-Swing off; 1-Swing on.

- 6: Set Auxiliary Heater ON/OFF; Data type: DPT_1.001 Switch.
Set value: 0-Auxiliary Heater OFF 1-Auxiliary Heater ON.
This function is only available for heat mode.
- 7: Set Heat temp;database type: DPT_9.001 temperature(°C).;
- 8: Mode status read; data type: DPT_20.102 HVAC mode
Read value: 0-OFF.1-Fan ; 2-Cool ; 3-Heat ; 4-Auto;5-Dry.
- 9: Set temperature read; data type: DPT_9.001 temperature(°C) .
- 10: Fan speed read; data type: DPT_20.111 FanMode
Read value: 1-speed1; 2-speed2; 3-speed3; 4-speed4; 5-speed5; 6-speed6;
7-speed7; 8-Auto
- 11: Fan swing status read; data type: DPT_1.001 Switch.
Read value: 0-swing OFF,1-swing ON
- 12:Auxiliary Heater status read; data type: DPT_1.001 Switch.
Read value: 0-Auxiliary Heater OFF,1-Auxiliary Heater ON
- 13:Indoor unit ambient temp. read; data type: DPT_9.001 temperature(°C)
- 14:Alarm state read; data type: DPT_1.005 alarm
Read value: 0-no alarm; 1-alarm
- 15:Set Hear temperature read; data type: DPT_9.001 temperature(°C) .
- 16 ON/OFF status; data type: DPT_1.001 switch
Read value: 0-OFF, 1-ON
- 17:ON/OFF; data type: DPT_1.001 switch
Set value: 0-OFF; 1-ON
- 18:Set auto mode; data type: DPT_1.001 switch
Set value: 1-set as auto mode
- 19:set Cool mode; data type: DPT_1.001 switch
Set value: 1-set as Cool mode
- 20:Set Heat mode; data type: DPT_1.001 switch
Set value: 1-set as Heat mode

- 21: Set Dry mode; data type: DPT_1.001 switch
Set value: 1-set as Dry mode
- 22: Set Fan mode; data type: DPT_1.001 switch
Set value: 1-set as Fan mode
- 23: Set mode +/-; data type: DPT_1.008 UpDown
Set value: 0-Down 1-UP
- 24: Set temperature +/-; data type: DPT_1.008 UpDown
Set value: 0-Down 1-UP
- 25: The fan speed +/-; data type: DPT_1.008 UpDown
Set value: 0-Down 1-UP

Notes: Some models do not support all of the above parameters, please contact technical support engineer for details. For example: Indoor units in cooling only system do not support auto or heating modes, if auto or heating modes are required, the actual operating mode of the indoor units may not be the same as expected.

NOTE CONCERNING PROTECTION OF ENVIRONMENT



This product must not be disposed of via normal household waste after its service life, but must be taken to a collection station for the recycling of electrical and electronic devices. The symbol on the product, the operating instructions or the packaging indicate such disposal procedures. The materials are recyclable in accordance with their respective symbols. By means of re-use, material recycling or any other form of recycling old appliances you are making an important contribution to the protection of our environment. Please ask your local council where your nearest disposal station is located.

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