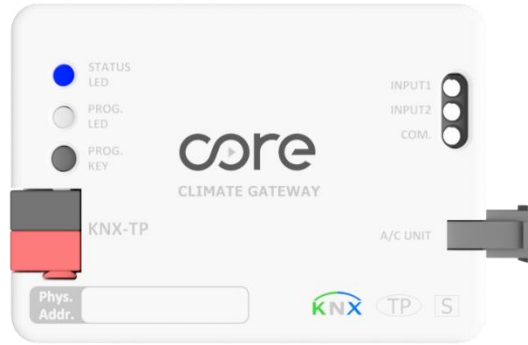# KNX – DAIKIN VRV GATEWAY

USER MANUAL

Document Version: 2.0

Last Revision: 23.09.2024

Product Code: CR-CG-DK-KNX-01
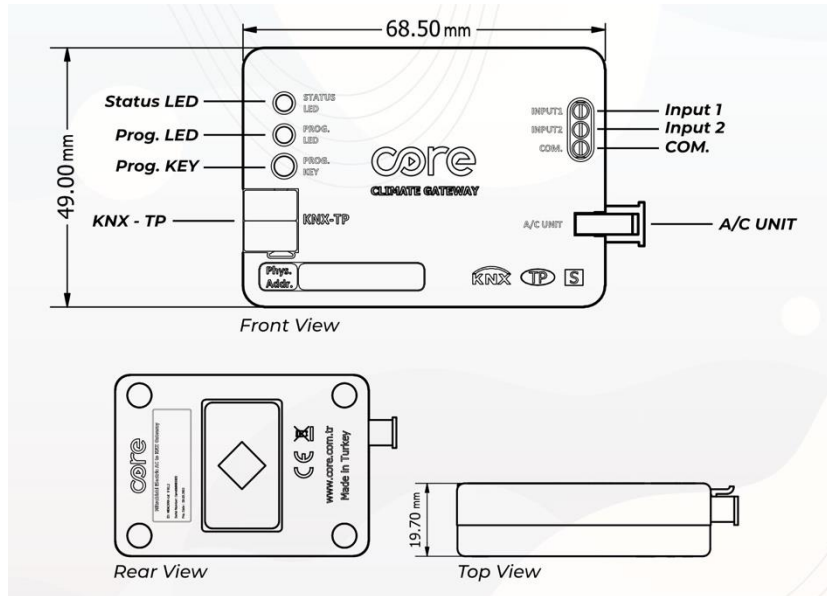
CONTENTS

1. PRESENTATION

Core KNX-DK Gateway allows to monitor and control of Daikin air conditioners via KNX Systems. HVAC Compatibility List can be downloaded from:

https://core.com.tr/wp-content/uploads/2024/09/Core_KNX_DaikinVRV_Compatibility_List_v3.0.pdf

DIMENSIONS

MAIN FEATURES

- Reduced dimensions of 68.5mm x 49mm x 19.7mm, it can easily fits inside the indoor units. With the cable that comes with the device, a quick and faultless installation can be done.
- Can be configured with the standard ETS application.
- With different KNX DPT (Bit, Byte) objects, it can work in harmony with most of the KNX thermostats in the market.
- Indoor unit's setpoint temperature, operation mode, fan speed, vane controls, ... functions can be controlled bidirectionally and their status can be monitored.
- A more efficient air conditioning can be achieved by sending the ambient temperature provided by product groups such as thermostats, switches, etc. containing ambient temperature sensors to the indoor unit.
- Error codes on the indoor unit can be reported.
- With the help of fixing apparatus and internal magnets that come with the device, precise installation can be done.
- To prevent wrong or faulty connections, industrial grade connector type is selected with pin-matching structure.

2. DEVICE CONNECTION AND CONFIGURATION

2.1. CONNECTION

The device comes with a cable for direct connection to the related terminals of the Air Conditioner Indoor Unit.

⚠ The device should not be connected to the air conditioner with any cable rather than the one that comes with it.

CONNECTION TO THE INDOOR UNIT:

- Disconnect the main power from the AC unit.
- Open the internal controller board.
- Find the **P1-P2** terminals
- Connect **Yellow and Green** cables on the installation cable supplied with the device to P1 and P2 terminals on the air conditioner (cables can be connected in any direction due to no polarity), and the black connector to the A/C Unit connector of the device.

⚠ Cutting the cable, shortening it or making any other physical modifications may cause the device not to work properly.

CONNECTION TO THE KNX BUS:

- Disconnect power of the KNX bus.
- Connect to the KNX TP-1 (EIB) Bus Line using the device's standard KNX connector (red/black), respect polarity.
- Reconnect power of the KNX bus.

CONNECTION DIAGRAM:
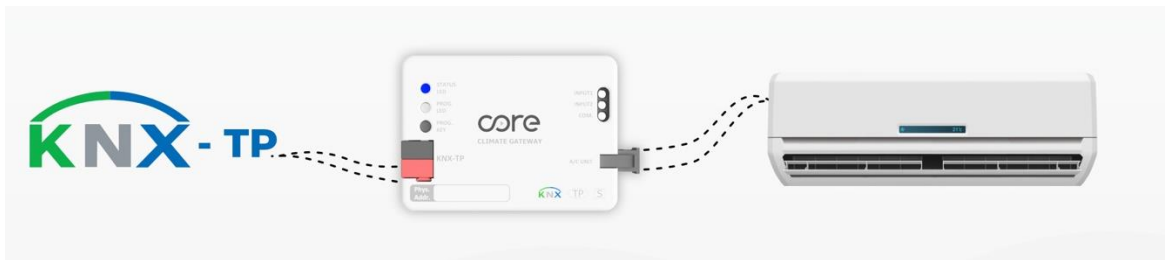
2.2. CONFIGURATION

Core KNX-DK Gateway is a fully compatible KNX device that must be configured and set up using the standard KNX configuration tool ETS. The ETS database for this device can be downloaded from ETS online catalog.

3. ETS PARAMETERS

3.1. INTRODUCTION

Following group objects are accessible by default when the device project is loaded into the ETS application, or the device is included in an existing project.

With the default group objects and specified data types, basic functions such as on/off, control modes, fan speed, target temperature and ambient temperature of the indoor unit can be controlled, and their instantaneous values can be read.

3.2. GENERAL

This tab contains the following parameter settings. ETS product file, installation and user manuals are accessible via the specified web address.

3.2.1 MASTER/SLAVE

With this parameter, it is selected whether Core KNX-DK gateway or wired remote controller of air conditioner (if used) will be the master. If Core KNX-DK gateway is selected as master, wired remote controller must be in slave mode. If wired remote controller will not be used, Core KNX-DK gateway must be selected as master. By default, Core KNX-DK gateway is selected as master.

INSTALLATION WITH DAIKIN WIRED REMOTE CONTROLLERS

Connect Core AC Gateway parallel with Daikin wired remote controllers or directly to the P1,P2 connectors of the Daikin indoor unit. In this method, only one controller can be master. Core AC Gateway should be programmed as master, while Daikin wired remote controller programmed as slave or Core AC Gateway should be programmed as slave, while Daikin wired remote controller programmed as master.

INSTALLATION WITHOUT DAIKIN WIRED REMOTE CONTROLLERS

Connect Core KNX-DK Gateway directly to the P1,P2 connectors of the Daikin indoor unit. In this scenario, Core KNX-DK Gateway must be programmed as Master.

3.2.2 ENABLE OBJECT "ERROR CODE [2BYTE]"

Error conditions that may occur on the indoor unit can be read through this group object. It is disabled by default. When enabled,

| | 13 | Status_Error_Code [2byte] | 0-No Error / Any other see man. |

Group object becomes available for use. A value of '0' means that there is no error. Possible error codes are given in Appendix-2.

3.2.3 ENABLE OBJECT "ERROR CODE [1 BIT]"

This group object indicates whether there is an error or no error on the indoor unit. It is disabled by default. When enabled,

| | 16 | Status_Error_Code [1bit] | 0-No Error |

Group object becomes available for use. A value of '0' means that there is no error. A value of "1" means there is error.

3.2.4 ALIVE BEACON

Parameter used to observe that the device and the application are running. It is disabled by default. When activated,

| Alive Beacon | ◉ Yes ○ No |
| Alive Beacon Timer(ms) | 3000 |

Blue segment of the Programming LED will flash with the defined <u>millisecond</u> time interval.

3.3. MODE CONFIGURATION

Contains the parameters related to the operating modes of the indoor unit. Default parameter settings are as specified.

With the values written to DPT 20.105 Byte type Control_Mode group object, '0' Auto, '1' Heating, '3' Cooling, '9' Fan and '14' Dry/Dehumidification mode can be activated. When the indoor unit switches to the specified operating mode, feedback will be sent via Status_Mode group object. Operation mode info can also be obtained by reading the same group object.

3.3.1 ENABLE MODE COOL/HEAT OBJECTS

With this parameter, group object that allows switching between Heating and Cooling modes can be activated. It is disabled by default. When enabled, following group objects become available.

Cooling mode can be activated with the value '0' written to the 1-Bit Control_Mode group object. When the indoor unit switches to the specified operating mode, a feedback with the value '0' will be sent via the Status_Mode object.

Heating mode can be activated with the '1' value written to the 1-Bit Control_Mode group object. When the indoor unit switches to the specified operating mode, a feedback with the value '1' will be sent via the Status_Mode object.

3.3.2 ENABLE MODE BIT-TYPE OBJECTS

With this parameter, 1-Bit group objects can be activated for each operating mode. It is disabled by default. When enabled, the specified group objects become available.

19	Control_Mode_Auto [DPT_1.002 - 1bit]	1-Set AUTO mode
20	Status_Mode_Auto [DPT_1.002 - 1bit]	1-AUTO mode is active
21	Control_Mode_Heat [DPT_1.002 - 1bit]	1-Set HEAT mode
22	Status_Mode_Heat [DPT_1.002 - 1bit]	1-HEAT mode is active
23	Control_Mode_Cool [DPT_1.002 - 1bit]	1-Set COOL mode
24	Status_Mode_Cool [DPT_1.002 - 1bit]	1-COOL mode is active
25	Control_Mode_Fan [DPT_1.002 - 1bit]	1-Set FAN mode
26	Status_Mode_Fan [DPT_1.002 - 1bit]	1-FAN mode is active
27	Control_Mode_Dry [DPT_1.002 - 1bit]	1-Set DRY mode
28	Status_Mode_Dry [DPT_1.002 - 1bit]	1-DRY mode is active

The specified operating mode can be activated with the value '1' written to the 1-Bit Control_Mode group object which belongs to the relevant operating mode. When the indoor unit switches to the specified operation mode, feedback with the value of '1' will be sent via the relevant Status_Mode object.

3.4. FAN CONFIGURATION

This tab contains the parameters related to the Fan Speed controls of the indoor unit. Default parameter settings are as specified.

-.-.- CR-CG-DK-KNX-01 > Fan Configuration

General	Fan is accessible in Indoor unit — ⦿ Yes ◯ No
Mode Configuration	Available Fan Speeds in Indoor Unit — 3
Fan Configuration	Fan Speed DPT Object Type — ⦿ Enumerated [DPT 5.010] ◯ Scaling [DPT 5.001]
Vanes Up-Down Configuration	Indoor Unit has AUTO Fan Speed — ◯ Yes ⦿ No
Temperature Configuration	Enable use of Bit-type Fan Speed objects (Control&Status) — ◯ Yes ⦿ No
Input Configuration	Enable +/- objects for Fan Speed — ◯ Yes ⦿ No

3.4.1 FAN IS ACCESSIBLE IN INDOOR UNIT

This parameter lets choose if the indoor unit has Fan Speed controls available or not.

When disabled, all parameters and group objects related to Fan Speed controls will also be disabled. It is enabled by default and the specified group objects are available for use.

7	Control_Fan_Speed / 3 Speeds [DPT_5.010 - 1byte]		Speed Values;1,2,3
8	Status_Fan_Speed / 3 Speeds [DPT_5.010 - 1byte]		Speed Values;1,2,3

3.4.2 AVAILABLE FAN SPEEDS IN INDOOR UNIT

Available Fan Speeds in Indoor Unit	3

Number of different available speed values defined for fan control can be selected via this parameter. The number of related group objects and their settings are updated according to this parameter.

⚠️ For detailed information about Fan Speed values supported by your indoor unit, please review your product manual.

3.4.3 FAN SPEED DPT OBJECT TYPE

With this parameter, DPTs of Byte type group objects used in fan speed control can be changed. It is possible to switch between Scaling (DPT_5.001) and Enumerated (DPT_5.010) data types.

Since the Byte type group objects related to Fan Speed are the same, the values they accept will vary according to the selected fan speed steps and DPT. For example, when Fan Speed steps are selected as '3' and data type is selected as Enumerated (DPT_5.010), values '1', '2' or '3' will be accepted as Fan Speed. In the same scenario, when '0' is sent, the minimum Fan speed value will be treated as '1' (If Auto Fan Speed is not selected) and when a value greater than '3' is sent, the maximum Fan speed value will be treated as '3'.

When Scaling (DPT_5.001] is selected as DPT, Byte type Control_Fan_Speed and Status_Fan_Speed objects will appear as specified depending on the selected Fan Speed steps.

7	Control_Fan_Speed / 3 Speeds [DPT_5.001 -1byte]		Threshold:50%,83%
8	Status_Fan_Speed / 3 Speeds [DPT_5.001 -1byte]		33%,67%,100%

Table containing the ranges that can be sent to the Control_ Fan_Speed object for each Fan Speed of the Scaling (DPT_5.001) data type and the return values of the Status_Fan_Speed object is given below.

	FAN Speed 1	FAN Speed 2	FAN Speed 3
Control	0-74%	75-100%	
Status	50%	100%	
Control	0-49%	50-82%	83-100%
Status	33%	67%	100%

3.4.4 ENABLE USE OF BIT-TYPE FAN SPEED OBJECTS

With this parameter, 1-Bit group objects can be activated for each Fan Speed. It is disabled by default. When activated, the specified group objects become available according to the selected fan speed steps.

31	Control_Fan_Speed_1 [DPT_1.002 - 1bit]	1-Set Fan Speed 1
32	Status_Fan_Speed_1 [DPT_1.002 - 1bit]	1-Fan Speed 1
33	Control_Fan_Speed_2 [DPT_1.002 - 1bit]	1-Set Fan Speed 2
34	Status_Fan_Speed_2 [DPT_1.002 - 1bit]	1-Fan Speed 2
35	Control_Fan_Speed_3 [DPT_1.002 - 1bit]	1-Set Fan Speed 3
36	Status_Fan_Speed_3 [DPT_1.002 - 1bit]	1-Fan Speed 3

Specified Fan Speed can be activated with the value of '1' written to the 1-Bit Control-Fan_Speed group object of the relevant Fan Speed.

When the indoor unit switches to the selected Fan Speed, feedback with the value of '1' will be sent via the related Status_Fan_Speed object.

3.4.5 INDOOR UNIT HAS AUTO FAN SPEED

With this parameter, if there is an Automatic mode for the Fan Speed, it can be actived. It is disabled by default. When enabled, Automatic Fan Speed can be activated with the value '0' written to the 1-Byte Control Fan_Speed group object of the relevant Fan Speed. When the indoor unit switches to Automatic Fan Speed, a feedback with the value '0' will be sent via the related Status_Fan_Speed object.

7	Control_Fan_Speed / 3 Speeds [DPT_5.010 - 1byte]	Speed Values;0,1,2,3
8	Status_Fan_Speed / 3 Speeds [DPT_5.010 - 1byte]	Speed Values;0,1,2,3

Or

7	Control_Fan_Speed / 3 Speeds [DPT_5.001 -1byte]	0-Auto; Threshold:50%,83%
8	Status_Fan_Speed / 3 Speeds [DPT_5.001 -1byte]	0-Auto; 33%,67%,100%

3.4.5.1 ENABLE FAN SPEED MANUAL/AUTO OBJECTS

When activated, the specified group objects become available

29	Control_Fan_Speed_Manual/Auto [DPT_1.002 - 1bit]	0-Manual;1-Auto
30	Status_Fan_Speed_Manual/Auto [DPT_1.002 - 1bit]	0-Manual;1-Auto

Automatic Fan Speed can be activated with the value '1' written to the 1-Bit Control_Fan_Speed_Manual/Auto group object of the relevant Fan Speed. When the indoor unit switches to Automatic Fan Speed, a feedback with the value '1' will be sent via the related Status_Fan_Speed_Manula/Auto object.

3.4.6 ENABLE +/- OBJECTS FOR FAN SPEED

With this parameter, 1-Bit group object can be activated. It is disabled by default. When activated, the specified group object becomes available.

37	Control_Fan_Speed +/- [DPT_1.008 - 1bit]	0-Up;1-Down

Fan speed changes to next level with the value "1" and to previous level with the value "0" written to the 1-Bit Control_Fan_Speed -/+ object. Fan speed level change continues cyclically according to each value written to the object. (For example, if indoor unit has 3 fan speed and auto speed, the changes of fan speed with each value "1" will be as follows: 0>1>2>3>0>1>…)

3.5. VANES UP-DOWN CONFIGURATION

Group objects that control the up and down position of the vanes of the indoor unit can be activated with this parameter. It is disabled by default, when enabled,

9	Control_Vanes Up-Down [DPT_5.010 - 1byte]	1-Pos1;2-Pos2;3-Pos3;4-Pos4;5-Pos5;6-Swng
10	Status_Vanes Up-Down [DPT_5.010 - 1byte]	1-Pos1;2-Pos2;3-Pos3;4-Pos4;5-Pos5;6-Swng

Group objects will become available. The '1', '2', '3', '4' and '5' values sent to the Control_ object determine the up-down position of the vanes, while the value '6' will cause these vanes to move periodically.

When the indoor unit switches to the corresponding control value, feedback will be sent via Status_ object.

⚠️ Please refer to your product manual for the availability of the up-down vanes in your indoor unit and the number of vane positions it supports.

3.6. TEMPERATURE CONFIGURATION

Contains controls related to Target Temperature and Ambient Temperature. By default, the Parameter tab appears as follows.

3.6.1 ENABLE LIMITS ON SETPOINT TEMP.

The minimum and maximum Target Temperature values can be restricted with this parameter. It is disabled by default. When activated,

Lower limit(°C)	16
Upper limit(°C)	32

Minimum and maximum Target Temperature values can be selected. Every value that is below the determined minimum value will be considered as the minimum value and any value that is above the specified maximum value will also be processed as the maximum value.

⚠️ Please refer to your product manual for the minimum and maximum Target Temperature values supported by your indoor unit.

3.6.2 AMBIENT TEMPERATURE IS PROVIDED FROM KNX

It is the parameter that determines the source of the ambient temperature value processed by the indoor unit. It is disabled by default; in this case the indoor unit reads the ambient temperature through its internal sensor. When the parameter is selected as active, the specified group object becomes available,

🔧 11	Control_AC_Return_Temp [DPT_9.001 - 2byte]		°C value in EIS5 format

Ambient temperature data to be processed by the indoor unit can be written externally to this group object.

⚠️ Please review your product manual to determine if your indoor unit supports this feature.

3.7. INPUT CONFIGURATION

Tab contains the parameter settings of two dry contact inputs on the device.

-.-.- CR-CG-DK-KNX-01 > Input Configuration		
General	Enable Use of Digital Input 1	◯ Yes ⦿ No
Mode Configuration	Enable Use of Digital Input 2	◯ Yes ⦿ No
Fan Configuration		
Vanes Up-Down Configuration		
Temperature Configuration		
Input Configuration		

By default, these inputs are disabled. When activated, the contact type of each input Normally Open (NO) and Normally Closed (NC) selection parameters are also displayed and the specified group objects become available for use,

🔧 17	Input 1 [DPT_1.001 - 1bit]		0-Off;1-On
🔧 18	Input 2 [DPT_1.001 - 1bit]		0-Off;1-On

Input 1. According to the contact type, when the input is activated, the red segment of the Status LED on the device will become active. Also, '0' or '1' information will be sent over the group object of this input in case of status changes.

Input 2. According to the contact type, when the input is activated, the green segment of the Status LED on the device will become active. Also, '0' or '1' information will be sent over the group object of this input in case of status changes.

4. APPENDIX 1 - COMMUNICATION OBJECTS TABLE

TOPIC	OBJ NO	NAME	LENGTH	DATAPOINT TYPE		FLAGS					FUNCTION
				DPT NAME	DPT ID	C	R	W	T	U	
On/Off	1	Control_On/Off	1 Bit	DPT_Switch	1.001	C	R	W		U	0-Off; 1-On
	2	Status_On/Off	1 Bit	DPT_Switch	1.001	C	R		T		0-Off; 1-On
Setpoint Temp.	3	Control_Setpoint_Temperature	2 Byte	DPT_Value_Temp	9.001	C	R	W		U	(°C)
	4	Status_Setpoint_Temperature	2 Byte	DPT_Value_Temp	9.001	C	R		T		(°C)
Mode	5	Control_Mode	1 Byte	DPT_HVACContrMode	20.105	C	R	W		U	0-Aut;1-Heat;3-Coo;9-Fan;14-Dry
	6	Status_Mode	1 Byte	DPT_HVACContrMode	20.105	C	R		T		0-Aut;1-Heat;3-Coo;9-Fan;14-Dry
	14	Control_Mode_Cool/Heat	1 Bit	DPT_Heat/Cool	1.100	C	R	W		U	0-Cool;1-Heat
	15	Status_Mode_Cool/Heat	1 Bit	DPT_Heat/Cool	1.100	C	R		T		0-Cool;1-Heat
	19	Control_Mode_Auto	1 Bit	DPT_Bool	1.002	C	R	W		U	1-Set AUTO mode
	20	Status_Mode_Auto	1 Bit	DPT_Bool	1.002	C	R		T		1-AUTO mode is active
	21	Control_Mode_Heat	1 Bit	DPT_Bool	1.002	C	R	W		U	1-Set HEAT mode
	22	Status_Mode_Heat	1 Bit	DPT_Bool	1.002	C	R		T		1-HEAT mode is active
	23	Control_Mode_Cool	1 Bit	DPT_Bool	1.002	C	R	W		U	1-Set COOL mode
	24	Status_Mode_Cool	1 Bit	DPT_Bool	1.002	C	R		T		1-COOL mode is active
	25	Control_Mode_Fan	1 Bit	DPT_Bool	1.002	C	R	W		U	1-Set FAN mode
	26	Status_Mode_Fan	1 Bit	DPT_Bool	1.002	C	R		T		1-FAN mode is active
	27	Control_Mode_Dry	1 Bit	DPT_Bool	1.002	C	R	W		U	1-Set DRY mode
	28	Status_Mode_Dry	1 Bit	DPT_Bool	1.002	C	R		T		1-DRY mode is active

	7	Control_Fan_Speed / 2 Speeds	1 Byte	DPT_Enumerated	5.010	C	R	W		U	Speed Values;1,2
	7	Control_Fan_Speed / 2 Speeds	1 Byte	DPT_Scaling	5.001	C	R	W		U	Threshold:75%
	7	Control_Fan_Speed / 3 Speeds	1 Byte	DPT_Enumerated	5.010	C	R	W		U	Speed Values;1,2,3
	7	Control_Fan_Speed / 3 Speeds	1 Byte	DPT_Scaling	5.001	C	R	W		U	Threshold:50%,83%
	7	Control_Fan_Speed / 4 Speeds	1 Byte	DPT_Enumerated	5.010	C	R	W		U	Speed Values;1,2,3,4
	7	Control_Fan_Speed / 4 Speeds	1 Byte	DPT_Scaling	5.001	C	R	W		U	Threshold:38%,63%,88%
	8	Status_Fan_Speed / 2 Speeds	1 Byte	DPT_Enumerated	5.010	C	R		T		Speed Values;1,2
Fan Speed	8	Status_Fan_Speed / 2 Speeds	1 Byte	DPT_Scaling	5.001	C	R		T		50%,100%
	8	Status_Fan_Speed / 3 Speeds	1 Byte	DPT_Enumerated	5.010	C	R		T		Speed Values;1,2,3
	8	Status_Fan_Speed / 3 Speeds	1 Byte	DPT_Scaling	5.001	C	R		T		33%,67%,100%
	8	Status_Fan_Speed / 4 Speeds	1 Byte	DPT_Enumerated	5.010	C	R		T		Speed Values;1,2,3,4
	8	Status_Fan_Speed / 4 Speeds	1 Byte	DPT_Scaling	5.001	C	R		T		25%,50%,75%,100%
	29	Control_Fan_Speed_Manual/Auto	1 Bit	DPT_Bool	1.002	C	R	W		U	1-Auto
	30	Status_Fan_Speed_Manual/Auto	1 Bit	DPT_Bool	1.002	C	R		T		1-Auto
	31	Control_Fan_Speed_1	1 Bit	DPT_Bool	1.002	C	R	W		U	1-Set Fan Speed 1
	32	Status_Fan_Speed_1	1 Bit	DPT_Bool	1.002	C	R		T		1- Fan Speed 1
	33	Control_Fan_Speed_2	1 Bit	DPT_Bool	1.002	C	R	W		U	1-Set Fan Speed 2
	34	Status_Fan_Speed_2	1 Bit	DPT_Bool	1.002	C	R		T		1- Fan Speed 2

	35	Control_Fan_Speed_3	1 Bit	DPT_Bool	1.002	C	R	W		U	1-Set Fan Speed 3
	36	Status_Fan_Speed_3	1 Bit	DPT_Bool	1.002	C	R		T		1- Fan Speed 3
	37	Control_Fan_Speed +/-	1 Bit	DPT_Up/Down	1.008	C	R	W		U	0=Up,1=Down
	37	Control_Fan_Speed +/-	1 Bit	DPT_Step	1.007	C	R	W		U	0=Decrease,1=Increase
Vanes Up-Down	9	Control_Vanes Up-Down	1 Byte	DPT_Enumerated	5.010	C	R	W		U	1-Pos1;2-Pos2;3-Pos3;4-Pos4;5-Pos5;6-Swng
	10	Status_Vanes Up-Down	1 Byte	DPT_Enumerated	5.010	C	R		T		1-Pos1;2-Pos2;3-Pos3;4-Pos4;5-Pos5;6-Swng
Ambient Temp.	11	Control_AC_Return_Temp	2 Byte	DPT_Value_Temp	9.001	C	R	W		U	(°C)
	12	Status_AC_Return_Temp	2 Byte	DPT_Value_Temp	9.001	C	R		T		(°C)
Error	13	Status_Error_Code [2 Byte]	2 Byte	Enumerated		C	R		T		0-No Error / Any other see man.
	16	Status_Error_Code [1 Bit]	1 Bit	DPT_Alarm	1.005	C	R		T		0-No Error;1-Error
Inputs	17	Input 1	1 Bit	DPT_Switch	1.001	C	R		T		0-Off;1-On
	18	Input 2	1 Bit	DPT_Switch	1.001	C	R		T		0-Off;1-On

5. APPENDIX 2 - TABLE OF ERROR CODES

KNX Error Code (Hex)	KNX Error Code (Dec)	Error in Remote Controller	Error category	Description
5	5	-		No master of mode is set for any indoor unit
10	16	A0		External protection devices activated
11	17	A1		Indoor unit PCB assembly failure
12	18	A2		Interlock error for fan
13	19	A3		Drain level system error
14	20	A4		Temperature of heat exchanger (1) error
15	21	A5		Temperature of heat exchanger (2) error
16	22	A6		Fan motor locked, overload, over current
17	23	A7		Swing flap motor error
18	24	A8		Overcurrent of AC input
19	25	A9		Electronic expansion valve drive error
1A	26	AA		Heater overheat
1B	27	AH		Dust collector error / No-maintenance filter error
1D	29	AJ		Capacity setting error (indoor)
1E	30	AE	Indoor Unit	Shortage of water supply
1F	31	AF		Malfunctions of a humidifier system (water leaking)
20	32	C0		Malfunctions in a sensor system
23	35	C3		Sensor system of drain water error
24	36	C4		Heat exchanger (1) (Liquid pipe) thermistor system error
25	37	C5		Heat exchanger (1) (Gas pipe) thermistor system error
26	38	C6		Sensor system error of fan motor locked, overload
27	39	C7		Sensor system of swing flag motor error
28	40	C8		Sensor system of over-current of AC input
29	41	C9		Suction air thermistor error
2A	42	CA		Discharge air thermistor system error
2B	43	CH		Contamination sensor error
2C	44	CC		Humidity sensor error
2D	45	CJ		Remote control thermistor error
2E	46	CE		Radiation sensor error
2F	47	CF		High pressure switch sensor
30	48	E0		Protection devices activated
31	49	E1		Outdoor uni9t PCB assembly failure
33	51	E3		High pressure switch (HPS) activated
34	52	E4		Low pressure switch (LPS) activated
35	53	E5		Overload of inverter compressor motor
36	54	E6	Outdoor Unit	Over current of STD compressor motor
37	55	E7		Overload of fan motor / Over current of fan motor
38	56	E8		Over current of AC input
39	57	E9		Electronic expansion valve drive error
3A	58	EA		Four-way valve error
3B	59	EH		Pump motor over current

3C	60	EC		Water temperature abnormal
3D	61	EJ		(Site installed) Protection device activated
3E	62	EE		Malfunctions in a drain water
3F	63	EF		Ice thermal storage unit error
40	64	H0		Malfunctions in a sensor system
41	65	H1		Air temperature thermistor error
42	66	H2		Sensor system of power supply error
43	67	H3		High Pressure switch is faulty
44	68	H4		Low pressure switch is faulty
45	69	H5		Compressor motor overload sensor is abnormal
46	70	H6		Compressor motor over current sensor is abnormal
47	71	H7		Overload or over current sensor of fan motor is abnormal
48	72	H8		Sensor system of over-current of AC input
49	73	H9		Outdoor air thermistor system error
4A	74	HA		Discharge air thermistor system error
4B	75	HH		Pump motor sensor system of over current is abnormal
4C	76	HC		Water temperature sensor system error
4E	78	HE		Sensor system of drain water is abnormal
4F	79	HF		Ice thermal storage unit error (alarm)
50	80	F0		No.1 and No.2 common protection device operates.
51	81	F1		No.1 protection device operates.
52	82	F2		No.2 protection device operates
53	83	F3		Discharge pipe temperature is abnormal
56	86	F6		Temperature of heat exchanger (1) abnormal
5A	90	FA		Discharge pressure abnormal
5B	91	FH		Oil temperature is abnormally high
5C	92	FC		Suction pressure abnormal
5E	94	FE		Oil pressure abnormal
5F	95	FF		Oil level abnormal
60	96	J0		Sensor system error of refrigerant temperature
61	97	J1	Outdoor Unit	Pressure sensor error
62	98	J2		Current sensor error
63	99	J3		Discharge pipe thermistor system error
64	100	J4		Low pressure equivalent saturated temperature sensor system error
65	101	J5		Suction pipe thermistor system error
66	102	J6		Heat exchanger (1) thermistor system error
67	103	J7		Heat exchanger (2) thermistor system error
68	104	J8		Oil equalizer pipe or liquid pipe thermistor system error
69	105	J9		Double tube heat exchanger outlet or gas pipe thermistor system error
6A	106	JA		Discharge pipe pressure sensor error
6B	107	JH		Oil temperature sensor error
6C	108	JC		Suction pipe pressure sensor error
6E	110	JE		Oil pressure sensor error
6F	111	JF		Oil level sensor error
70	112	L0		Inverter system error
73	115	L3		Temperature rise in a switch box
74	116	L4		Radiation fin (power transistor) temperature is too high

75	117	L5		Compressor motor grounded or short circuit, inverter PCB fault
76	118	L6		Compressor motor grounded or short circuit, inverter PCB fault
77	119	L7		Over current of all inputs
78	120	L8		Compressor over current, compressor motor wire cut
79	121	L9		Stall prevention error (start-up error) Compressor locked, etc.
7A	122	LA		Power transistor error
7C	124	LC		Communication error between inverter and outdoor control unit
80	128	P0		Shortage of refrigerant (thermal storage unit)
81	129	P1		Power voltage imbalance, open phase
83	131	P3		Sensor error of temperature rise in a switch box
84	132	P4		Radiation fin temperature sensor error
85	133	P5		DC current sensor system error
86	134	P6		AC or DC output current sensor system error
87	135	P7		Total input current sensor error
8D	141	PJ		Capacity setting error (outdoor)
90	144	U0		Low pressure drop due to insufficient refrigerant or electronic expansion valve error, etc.
91	145	U1		Reverse phase, Open phase
92	146	U2		Power voltage failure / Instantaneous power failure
93	147	U3		Failure to carry out check operation, transmission error
94	148	U4		Communication error between indoor unit and outdoor unit, communication error between outdoor unit and BS unit
95	149	U5		Communication error between remote control and indoor unit / Remote control board failure or setting error for remote control / Two master controllers on the same P1-P2 bus line
96	150	U6		Communication error between indoor units
97	151	U7		Communication error between outdoor units / Communication error between outdoor unit and ice thermal storage unit
98	152	U8	System	Communication error between main and sub remote controllers (sub remote control error) / Combination error of other indoor unit / remote control in the same system (model) / No master controller detected on P1-P2 bus line
99	153	U9		Communication error between other indoor unit and outdoor unit in the same system / Communication error between other BS unit and indoor/outdoor unit
9A	154	UA		Combination error of indoor/BS/outdoor unit (model, quantity, etc.), setting error of spare parts PCB when replaced
9B	155	UH		Improper connection of transmission wiring between outdoor and outdoor unit outside control adaptor
9C	156	UC		Centralized address duplicated
9D	157	UJ		Attached equipment transmission error
9E	158	UE		Communication error between indoor unit and centralized control device
9F	159	UF		Failure to carrey out check operation Indoor-outdoor, outdoor-outdoor communication error, etc.
D0	208	60		All system error
D1	209	61		PC board error
D2	210	62		Ozone density abnormal
D3	211	63		Contamination sensor error
D4	212	64		Indoor air thermistor system error
D5	213	65		Outdoor air thermistor system error
D8	216	68		HVU error (Ventiair dust-collecting unit)
DA	218	6A	Others	Dumper system error
DB	219	6H		Door switch error
DC	220	6C		Replace the humidity element
DD	221	6J		Replace the high efficiency filter
DE	222	6E		Replace the deodorization catalyst
DF	223	6F		Simplified remote controller error
E1	225	51		Fan motor of supply air over current or overload
E2	226	52		Fan motor of return air over current / Fan motor of return air overload

E3	227	53		Inverter system error (supply air side)
E4	228	54		Inverter system error (return air side)
F0	240	40		Humidifying valve error
F1	241	41		Chilled water valve error
F2	242	42		Hot water valve error
F3	243	43		Heat exchanger of chilled water error
F4	244	44		Heat exchanger of hot water error
101	257	31		The humidity sensor of return air sensor
102	258	32		Outdoor air humidity sensor error
103	259	33	Others	Supply air temperature sensor error
104	260	34		Return air temperature sensor error
105	261	35		Outdoor air temperature sensor error
106	262	36		Remote controller temperature sensor error
10A	266	3A		Water leakage sensor 1 error
10B	267	3H		Water leakage sensor 2 error
10C	268	3C		Dew condensation error
152	338	M2		Centralized remote controller PCB error
158	344	M8		Communication error between centralized remote control devices
15A	346	MA		Centralized remote control devices inappropriate combination
15C	348	MC		Centralized remote controller address setting error