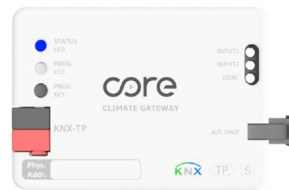core CR-CG-MHI-KNX-01 Vrf and Fd Systems
Gateway

core CR-CG-MHI-KNX-01 Vrf and Fd Systems Gateway User Manual

Contents

core CR-CG-MHI-KNX-01 Vrf and Fd Systems Gateway

Specifications

- Product Name: Core KNX-MHI Gateway
- Model Number: CR-CG-MHI-KNX-01
- Compatibility: Mitsubishi Heavy Industries air conditioners via KNX Systems

Product Usage Instructions

Presentation
The Core KNX-MHI Gateway allows for monitoring and controlling Mitsubishi Heavy Industries air conditioners via KNX Systems. For a list of compatible HVAC systems, you can download the Compatibility List from the provided link.

Device Connection and Configuration

Connection
Connect the device to the related terminals of the Air Conditioner Indoor Unit using the provided cable. Do not use any other cable to connect the device to the air conditioner.

Connection Diagram: (diagram image here)

Configuration
The Core KNX-DK Gateway is fully compatible with KNX devices and should be configured using the standard KNX configuration tool ETS. You can download the ETS database for this device from the ETS online catalog.

ETS Parameters

Introduction
The default group objects are accessible in the ETS application when the device project is loaded or included in an existing project. These group objects allow for basic functions like on/off, control modes, fan speed, target temperature, and ambient temperature control.

General
The general tab contains various parameter settings. The ETS product file, installation, and user manuals can be accessed via the specified web address.

Note: Core MHI AC KNX Gateways do not support wired remote controllers connected to the same bus line; they only work with central wired remote controllers.

Enable Object Error Code [2BYTE] This feature allows reading error conditions that may occur on the indoor unit through a group object. It is disabled by default but can be enabled to make error codes available for use.

Enable Object Error Code [1BIT] Similar to the 2BYTE error code, this feature allows reading error conditions through a group object but in a 1BIT format.

Alive Beacon
This parameter is used to observe the running status of the device and application. When activated, the Programming LED will flash with a defined millisecond time interval.

PRESENTATION

Core KNX-MHI Gateway allows to monitor and control of Mitsubishi Heavy Industries air conditioners via KNX Systems. HVAC Compatibility List can be downloaded from:
https://core.com.tr/wp-content/uploads/2024/09/Core_KNX_MHIVRV_Compatibility_List_v3.0.pdf

DIMENSIONS
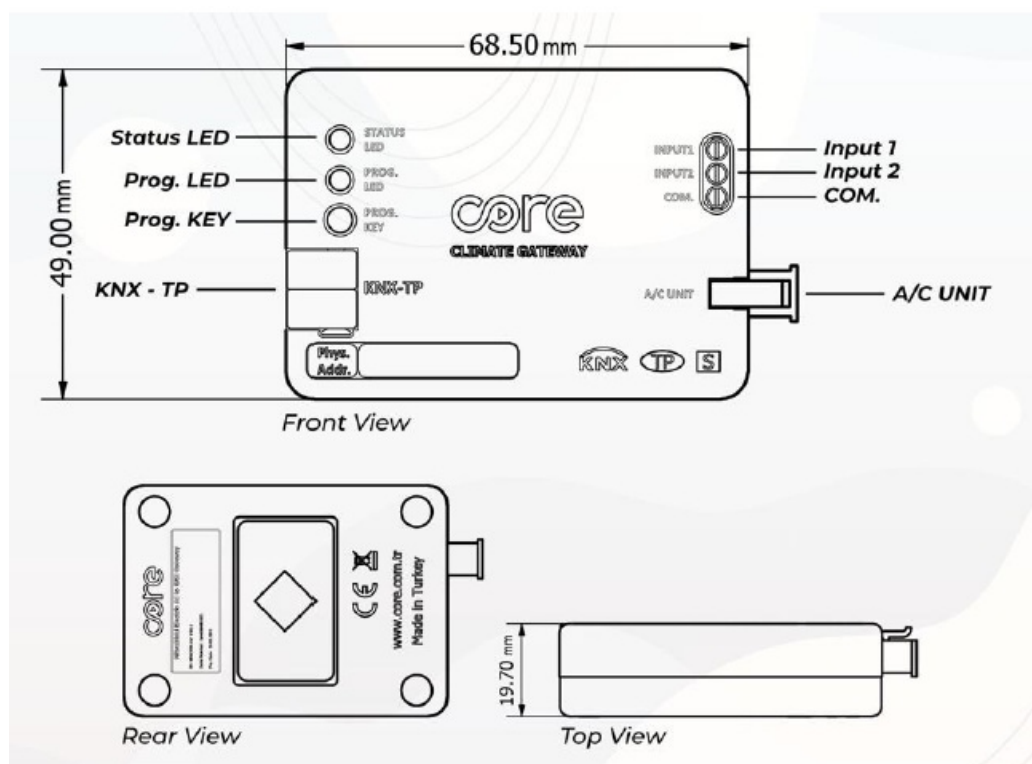
MAIN FEATURES

- 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.

DEVICE CONNECTION AND CONFIGURATION

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 X,Y terminals.
- Connect Yellow and Green cables on the installation cable supplied with the device to X and Y 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

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.

ETS PARAMETERS

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.

GENERAL

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

MASTER/SLAVE

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

INSTALLATION WITHOUT WIRED REMOTE CONTROLLERS

Connect Core KNX-MHI Gateway directly to the X,Y connectors of the Mitsubishi Heavy Industries indoor unit. In this scenario, Core KNX-MHI Gateway must be programmed as Master.

Core MHI AC KNX Gateways do not support to work with wired remote controllers connected to same X,Y bus line. Core MHI AC KNX Gateways can only work with central wired remote controllers

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.

ENABLE OBJECT "ERROR CODE [1BIT]"
Error conditions that may occur on the indoor unit can be read through this group object. It is disabled by default. When enabled,

39: Error_Code/Alarm [DPT_1.005 - 1bit] - 0-No Error

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

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 millisecond time interval.

ENABLE ENERGY SAVING FUNCTION OBJECTS
With this parameter, 1-Bit group objects can be activated. It is disabled by default. When activated, the specified group objects become available.

| 50 | Control_Energy_Saving_Function [DPT 1.002 - 1bit] | 0-Off; 1-On |
| 51 | Status_Energy_Saving_Function [DPT 1.002 - 1bit] | 0-Off; 1-On |

Energy saving Function can be activated with the value '1' written to the 1-Bit Control Energy Saving Function group object. When the indoor unit activates energy saving function, a feedback with the value '1' will be sent via the related Status Energy Saving Function object.

For detailed information about turbo function, please review your product manual.

ENABLE HIGH POWER FUNCTION OBJECTS
With this parameter, 1-Bit group objects can be activated. It is disabled by default. When activated, the specified group objects become available.

⟳ 52	Control_High_Power_Function [DPT 1.002 - 1bit]	0-Off; 1-On
⬛ 53	Status_High_Power_Function [DPT 1.002 - 1bit]	0-Off; 1-On

High power Function can be activated with the value '1' written to the 1-Bit Control High Power Function group object. When the indoor unit activates High Power function, a feedback with the value '1' will be sent via the related Status High Power Function object.

For detailed information about turbo function, please review your product manual.

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.

INDOOR UNIT HAS FAN MODE

If there is no 'FAN' mode among the operation modes of the indoor unit connected to the gateway device, this mode can be disabled with the specified parameter. By default, 'FAN' mode is marked as active.

For detailed information about the operating modes of your indoor unit, please review your product manual.

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.

14: Control_Mode_Cool/Heat [DPT_1.100 - 1bit] - 0-Cool; 1-Heat

15: Status_Mode_Cool/Heat [DPT_1.100 - 1bit] - 0-Cool; 1-Heat

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.

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.

18: Control_Mode_Auto [DPT_1.002 - 1bit] - 1-Set AUTO mode

19: Status_Mode_Auto [DPT_1.002 - 1bit] - 1-AUTO mode is active

20: Control_Mode_Heat [DPT_1.002 - 1bit] - 1-Set HEAT mode

21: Status_Mode_Heat [DPT_1.002 - 1bit] - 1-HEAT mode is active

22: Control_Mode_Cool [DPT_1.002 - 1bit] - 1-Set COOL mode

23: Status_Mode_Cool [DPT_1.002 - 1bit] - 1-COOL mode is active

24: Control_Mode_Fan [DPT_1.002 - 1bit] - 1-Set FAN mode

25: Status_Mode_Fan [DPT_1.002 - 1bit] - 1-FAN mode is active

26: Control_Mode_Dry [DPT_1.002 - 1bit] - 1-Set DRY mode

27: 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, a feedback with the value of '1' will be sent via the relevant Status_Mode object.

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

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 / 4 Speeds [DPT_5.100 - 1byte] - Speed Values: 1,2,3,4

■⇄ 8: Status_Fan_Speed / 4 Speeds [DPT_5.100 - 1byte] - Speed Values: 1,2,3,4

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%

ENABLE FAN SPEED MANUAL/AUTO OBJECTS

When activated, the specified group objects become available

| 28 | Control_Fan_Speed_Manual/Auto [DPT_1.002 -1bit] | 0-Manual; 1-Auto |
| 29 | 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.

AVAILABLE FAN SPEEDS IN INDOOR UNIT

Available Fan Speeds in Indoor Unit   4

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.

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 '4' and data type is selected as Enumerated (DPT_5.010), values '1', '2' , '3' or '4' 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 '4' is sent, the maximum Fan speed value will be treated as '4'.
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 / 4 Speeds [DPT_5.001 - 1byte] - Threshold: 38%,63%,88%

■⇄ 8: Status_Fan_Speed / 4 Speeds [DPT_5.001 - 1byte] - 25%,50%,75%,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	FAN Speed 4
Control	0-74%	75-100%		
Status	50%	100%		
Control	0-49%	50-82%	83-100%	
Status	33%	67%	100%	
Control	0-37%	38-62%	63-87%	88-100%
Status	25%	50%	75%	100%

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.

30: Control_Fan_Speed_1 [DPT_1.002 - 1bit] - 1-Set Fan Speed 1

31: Status_Fan_Speed_1 [DPT_1.002 - 1bit] - 1-Fan Speed 1

32: Control_Fan_Speed_2 [DPT_1.002 - 1bit] - 1-Set Fan Speed 2

33: Status_Fan_Speed_2 [DPT_1.002 - 1bit] - 1-Fan Speed 2

34: Control_Fan_Speed_3 [DPT_1.002 - 1bit] - 1-Set Fan Speed 3

35: Status_Fan_Speed_3 [DPT_1.002 - 1bit] - 1-Fan Speed 3

36: Control_Fan_Speed_4 [DPT_1.002 - 1bit] - 1-Set Fan Speed 4

37: Status_Fan_Speed_4 [DPT_1.002 - 1bit] - 1-Fan Speed 4

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.

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.

38: Control_Fan_Speed -/+ [DPT_1.008 - 1bit] - 0-Decrease; 1-Increase

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>4>0>1>…)

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,

ENABLE UP/DOWN VANE OBJECTS [2 BYTE]

Group objects will become available. The '1', '2', '3' and '4' values sent to the Control_ object determine the up-down position of the vanes, while the value '5' will cause these vanes to move periodically.
When the indoor unit switches to the corresponding control value, feedback will be sent via Status_ object.

ENABLE UP/DOWN VANE OBJECTS [1 BIT]
With this parameter, 1-Bit group object can be activated. It is disabled by default. When activated, the specified group object becomes available.

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.

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

General

Mode Configuration

Fan Configuration

Vanes Up-Down Configuration

Temperature Configuration

Input Configuration

Enable limits on Setpoint Temp.	○ Yes ◉ No
Setpoint Temp. Scale	○ 0.5°C ◉ 1°C
Ambient temperature is provided from KNX	○ Yes ◉ No

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.

SETPOINT TEMP. SCALE
Steps of the Target Temperature values are determined by this parameter. By default, the increment-decrement step is 1°C. For example, if this parameter is selected as 1°C and the Target Temperature value is sent as '23.5°C', Setpoint Temp. will be '24°C'; If 0.5°C is selected and '23.5°C' is sent, it will be processed as '23.5°C'.

Please refer to your product manual for the Target Temperature increment-decrement steps supported by your indoor unit.

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)

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.

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

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,

- **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.

APPENDIX

APPENDIX 1 – COMMUNICATION OBJECTS TABLE

Topic	OBJ.NO	Name	Function	Length	Data Type	Flags				
On/Off	1	Control_On/Off [DPT_1.001 -1bit]	0-Off; 1-On	1Bit	[1.1] DPT_Switch	R	W	C	–	U

	2	Status_On/Off [DPT_1.001 -1bit]	0-Off; 1-On	1Bit	[1.1] DPT_Switch	R	–	C	T	–
Set poin t Te m p.	3	Control_Setpoint_Temperatur e [DPT_9.001 – 2byte]	(°C)	2Byt es	[9.1]DPT_Value _Temp	R	W	C	–	U
	4	Status_Setpoint_Temperature [DPT_9.001 – 2byte]	(°C)	2Byt es	[9.1]DPT_Value _Temp	R	–	C	T	–
Mod e	5	Control_Mode [DPT_20.10 5 – 1byte]	0-Auto; 1-Heat; 3-Cool; 9-Fan; 14-Dry	1By te	[20.105]DPT_H VACContrMode	R	W	C	–	U
	6	Status_Mode [DPT_20.105 – 1byte]	0-Auto; 1-Heat; 3-Cool; 14-Dry	1By te	[20.105]DPT_H VACContrMode	R	–	C	T	–
	14	Control_Mode_Cool/Heat[D PT_1.100 – 1bit]	0-Heat; 1-Cool	1Bit	[1.100]DPT_Hea t_Cool	R	W	C	–	U
	14	Control_Mode_Cool/Heat[D PT_1.100 – 1bit]	0-Cool; 1-Heat	1Bit	[1.100]DPT_Hea t_Cool	R	W	C	–	U
	15	Status_Mode_Cool/Heat[D PT_1.100 – 1bit]	0-Heat; 1-Cool	1Bit	[1.100]DPT_Hea t_Cool	R	–	C	T	–
	15	Status_Mode_Cool/Heat[D PT_1.100 – 1bit]	0-Cool; 1-Heat	1Bit	[1.100]DPT_Hea t_Cool	R	–	C	T	–
	18	Control_Mode_Auto[DPT_1 .002 – 1bit]	1-Set AUTO mode	1Bit	[1.2] DPT_Bool	R	W	C	–	U
	19	Status_Mode_Auto[DPT_1. 002 – 1bit]	1-AUTO mode is active	1Bit	[1.2] DPT_Bool	R	–	C	T	–
	20	Control_Mode_Heat[DPT_1 .002 – 1bit]	1-Set HEAT mode	1Bit	[1.2] DPT_Bool	R	W	C	–	U
	21	Status_Mode_Heat[DPT_1. 002 – 1bit]	1-HEAT mode is active	1Bit	[1.2] DPT_Bool	R	–	C	T	–
	22	Control_Mode_Cool[DPT_1 .002 – 1bit]	1-Set COOL mode	1Bit	[1.2] DPT_Bool	R	W	C	–	U
	23	Status_Mode_Cool[DPT_1. 002 – 1bit]	1-COOL mode is active	1Bit	[1.2] DPT_Bool	R	–	C	T	–
	24	Control_Mode_Fan[DPT_1. 002 – 1bit]	1-Set FAN mode	1Bit	[1.2] DPT_Bool	R	W	C	–	U
	25	Status_Mode_Fan [DPT_1. 002- 1bit]	1-FAN mode is active	1Bit	[1.2] DPT_Bool	R	–	C	T	–
	26	Control_Mode_Dry[DPT_1. 002 – 1bit]	1-Set DRY mode	1Bit	[1.2] DPT_Bool	R	W	C	–	U
	27	Status_Mode_Dry [DPT_1. 002- 1bit]	1-DRY mode is active	1Bit	[1.2] DPT_Bool	R	–	C	T	–

Fan Speed	7	Control_Fan_Speed / 3 Speeds [DPT_5.100 – 1byte]	Speed Values: 0,1,2,3	1Byte	[5.100]DPT_Fan Stage	R	W	C	–	U
	7	Control_Fan_Speed / 2 Speeds [DPT_5.100 – 1byte]	Speed Values: 0,1,2	1Byte	[5.100]DPT_Fan Stage	R	W	C	–	U
	7	Control_Fan_Speed / 4 Speeds [DPT_5.100 – 1byte]	Speed Values: 1,2,3,4	1Byte	[5.100]DPT_Fan Stage	R	W	C	–	U
	7	Control_Fan_Speed / 3 Speeds [DPT_5.100 – 1byte]	Speed Values: 1,2,3	1Byte	[5.100]DPT_Fan Stage	R	W	C	–	U
	7	Control_Fan_Speed / 2 Speeds [DPT_5.100 – 1byte]	Speed Values: 1.2	1Byte	[5.100]DPT_Fan Stage	R	W	C	–	U
	7	Control_Fan_Speed / 4 Speeds [DPT_5.001 – 1byte]	Threshold: 38%,63%,88%	1Byte	[5.1] DPT_Scaling	R	W	C	–	U
	7	Control_Fan_Speed / 2 Speeds [DPT_5.001 – 1byte]	0-Auto; Threshold: 75%	1Byte	[5.1] DPT_Scaling	R	W	C	–	U
	7	Control_Fan_Speed / 3 Speeds [DPT_5.001 – 1byte]	Threshold: 50%,83%	1Byte	[5.1] DPT_Scaling	R	W	C	–	U
	7	Control_Fan_Speed / 2 Speeds [DPT_5.001 – 1byte]	Threshold: 75%	1Byte	[5.1] DPT_Scaling	R	W	C	–	U
	7	Control_Fan_Speed / 4 Speeds [DPT_5.001 – 1byte]	0-Auto; Threshold: 38%,63%,88%	1Byte	[5.1] DPT_Scaling	R	W	C	–	U
	7	Control_Fan_Speed / 4 Speeds [DPT_5.100 – 1byte]	Speed Values: 0,1,2,3,4	1Byte	[5.100]DPT_Fan Stage	R	W	C	–	U
	7	Control_Fan_Speed / 3 Speeds [DPT_5.001 – 1byte]	0-Auto; Threshold: 50%,83%	1Byte	[5.1] DPT_Scaling	R	W	C	–	U
	8	Status_Fan_Speed / 2 Speeds [DPT_5.100 – 1byte]	Speed Values: 1,2	1Byte	[5.100]DPT_Fan Stage	R	–	C	T	–
	8	Status_Fan_Speed / 2 Speeds [DPT_5.001 – 1byte]	0-Auto; 50%,100%	1Byte	[5.1] DPT_Scaling	R	–	C	T	–
	8	Status_Fan_Speed / 3 Speeds [DPT_5.100 – 1byte]	Speed Values: 1,2,3	1Byte	[5.100]DPT_Fan Stage	R	–	C	T	–
	8	Status_Fan_Speed / 4 Speeds [DPT_5.001 – 1byte]	25%,50%,75%,100%	1Byte	[5.1] DPT_Scaling	R	–	C	T	–
	8	Status_Fan_Speed / 4 Speeds [DPT_5.100 – 1byte]	Speed Values: 1,2,3,4	1Byte	[5.100]DPT_Fan Stage	R	–	C	T	–

	8	Status_Fan_Speed / 2 Speeds [DPT_5.001 – 1byte]	50%,100%	1Byte	[5.1] DPT_Scaling	R	–	C	T	–
	8	Status_Fan_Speed / 2 Speeds [DPT_5.100 – 1byte]	Speed Values: 0,1,2	1Byte	[5.100]DPT_Fan Stage	R	–	C	T	–
	8	Status_Fan_Speed / 3 Speeds [DPT_5.001 – 1byte]	33%,67%,100%	1Byte	[5.1] DPT_Scaling	R	–	C	T	–

	8	Status_Fan_Speed / 3 Speeds [DPT_5.100 – 1byte]	Speed Values: 0,1,2,3	1Byte	[5.100]DPT_Fan Stage	R	–	C	T	–
	8	Status_Fan_Speed / 3 Speeds [DPT_5.001 – 1byte]	0-Auto; 33%,67%,100%	1Byte	[5.1] DPT_Scaling	R	–	C	T	–
	8	Status_Fan_Speed / 4 Speeds [DPT_5.001 – 1byte]	0-Auto; 25%,50%,75%,100%	1Byte	[5.1] DPT_Scaling	R	–	C	T	–
	8	Status_Fan_Speed / 4 Speeds [DPT_5.100 – 1byte]	Speed Values: 0,1,2,3,4	1Byte	[5.100]DPT_Fan Stage	R	–	C	T	–
	28	Control_Fan_Speed_Manual/Auto [DPT_1.002 -1bit]	0-Manual; 1-Auto	1Bit	[1.2] DPT_Bool	R	W	C	–	U
	29	Status_Fan_Speed_Manual/Auto [DPT_1.002 -1bit]	0-Manual; 1-Auto	1Bit	[1.2] DPT_Bool	R	–	C	T	–
	30	Control_Fan_Speed_1[DPT_1.002 – 1bit]	1-Set Fan Speed 1	1Bit	[1.2] DPT_Bool	R	W	C	–	U
	31	Status_Fan_Speed_1[DPT_1.002 – 1bit]	1-Fan Speed 1	1Bit	[1.2] DPT_Bool	R	–	C	T	–
	32	Control_Fan_Speed_2[DPT_1.002 – 1bit]	1-Set Fan Speed 2	1Bit	[1.2] DPT_Bool	R	W	C	–	U
	33	Status_Fan_Speed_2[DPT_1.002 – 1bit]	1-Fan Speed 2	1Bit	[1.2] DPT_Bool	R	–	C	T	–
	34	Control_Fan_Speed_3[DPT_1.002 – 1bit]	1-Set Fan Speed 3	1Bit	[1.2] DPT_Bool	R	W	C	–	U
	35	Status_Fan_Speed_3[DPT_1.002 – 1bit]	1-Fan Speed 3	1Bit	[1.2] DPT_Bool	R	–	C	T	–
	36	Control_Fan_Speed_4[DPT_1.002 – 1bit]	1-Set Fan Speed 4	1Bit	[1.2] DPT_Bool	R	W	C	–	U
	37	Status_Fan_Speed_4[DPT_1.002 – 1bit]	1-Fan Speed 4	1Bit	[1.2] DPT_Bool	R	–	C	T	–
	38	Control_Fan_Speed -/+[DPT_1.008 – 1bit]	0-Decrease; 1-Increase	1Bit	[1.7] DPT_Step	R	W	C	–	U
	38	Control_Fan_Speed -/+[DPT_1.008 – 1bit]	0-Up; 1-Down	1Bit	[1.8]DPT_UpDown	R	W	C	–	U
Vanes Up-Down	9	Control_Vanes_Up-Down [DPT_5.010 – 1byte]	1-Pos1; 2-Pos2; 3-Pos3; 4-Pos4; 5-Swing	1Byte	[5.10]DPT_Value_1_Ucount	R	W	C	–	U
	10	Status_Vanes_Up-Down [DPT_5.010 – 1byte]	1-Pos1; 2-Pos2; 3-Pos3; 4-Pos4; 5-Swing	1Byte	[5.10]DPT_Value_1_Ucount	R	–	C	T	–

	40	Control_Up/Down_Vane_Pos_1 [DPT 1.002 – 1bit]	1- Set Up/Down VanePos 1	1Bit	[1.2] DPT_Bool	R	W	C	–	U
	41	Status_Up/Down_Vane_Pos_1 [DPT 1.002 – 1bit]	1- Up/Down Vane Pos1	1Bit	[1.2] DPT_Bool	R	–	C	T	–
	42	Control_Up/Down_Vane_Pos_2 [DPT 1.002 – 1bit]	1- Set Up/Down VanePos 2	1Bit	[1.2] DPT_Bool	R	W	C	–	U
	43	Status_Up/Down_Vane_Pos_2 [DPT 1.002 – 1bit]	1- Up/Down Vane Pos2	1Bit	[1.2] DPT_Bool	R	–	C	T	–
	44	Control_Up/Down_Vane_Pos_3 [DPT 1.002 – 1bit]	1- Set Up/Down VanePos 3	1Bit	[1.2] DPT_Bool	R	W	C	–	U
	45	Status_Up/Down_Vane_Pos_3 [DPT 1.002 – 1bit]	1- Up/Down Vane Pos3	1Bit	[1.2] DPT_Bool	R	–	C	T	–
	46	Control_Up/Down_Vane_Pos_4 [DPT 1.002 – 1bit]	1- Set Up/Down VanePos 4	1Bit	[1.2] DPT_Bool	R	W	C	–	U
	47	Status_Up/Down_Vane_Pos_4 [DPT 1.002 – 1bit]	1- Up/Down Vane Pos4	1Bit	[1.2] DPT_Bool	R	–	C	T	–
	48	Control_Up/Down_VaneSwing [DPT 1.002 – 1bit]	0-Swing Off; 1-SwingOn	1Bit	[1.2] DPT_Bool	R	W	C	–	U
	49	Status_Up/Down_Vane Swing[DPT 1.002 – 1bit]	0-Swing Off; 1-SwingOn	1Bit	[1.2] DPT_Bool	R	–	C	T	–
Ambient Temp.	11	Control_AC_Return_Temp [DPT_9.001 – 2byte]	(°C)	2Bytes	[9.1]DPT_Value_Temp	R	W	C	–	U
	12	Status_AC_Return_Temp [DPT_9.001 – 2byte]	(°C)	2Bytes	[9.1]DPT_Value_Temp	R	–	C	T	–
Errors	13	Status_Error_Code [2byte]	0-No Error / Any other see man.	2Bytes		R	–	C	T	–
	39	Error_Code/Alarm[DPT_1.005 – 1bit]	0-No Error	1Bit	[1.5] DPT_Alarm	R	–	C	T	–
Inputs	16	Input_1 [DPT_1.001 -1bit]	0-Off; 1-On	1Bit	[1.1] DPT_Switch	R	–	C	T	–
	17	Input_2 [DPT_1.001 -1bit]	0-Off; 1-On	1Bit	[1.1] DPT_Switch	R	–	C	T	–
Energy Saving	50	Control_Energy_Saving_Function [DPT 1.002 – 1bit]	0-Off; 1-On	1Bit	[1.2] DPT_Bool	R	W	C	–	U
	51	Status_Energy_Saving_Function [DPT 1.002 – 1bit]	0-Off; 1-On	1Bit	[1.2] DPT_Bool	R	–	C	T	–
Home Leave	52	Control_Home_Leave_Function [DPT 1.002 – 1bit]	0-Off; 1-On	1Bit	[1.2] DPT_Bool	R	W	C	–	U
	53	Status_Home_Leave_Function[DPT 1.002 – 1bit]	0-Off; 1-On	1Bit	[1.2] DPT_Bool	R	–	C	T	–

APPENDIX 2 – TABLE OF ERROR CODES

Error Code in KNX (Hex)	Remote Controller Display	Error Code Description
0001	E01	Remote controller communication error.
0002	E02	Duplicated indoor unit addressing more than 49 units connected.
0003	E03	Outdoor unit signal line error.
0005	E05	Communication error during operation.
0006	E06	Indoor heat exchanger temp. sensor anomaly (Thi-R).
0007	E07	Indoor return air temp. sensor anomaly (Thi-A).
0009	E09	Drain trouble.
000A	E10	Excessive number of indoor units by controlling one renote controller.
000B	E11	Address setting error (setting with remote controller).
000C	E12	Address setting error by mixed setting method.
0010	E16	Indoor fan motor anomaly.
0012	E18	Address setting error of master and slave indoor remote controller.
0013	E19	Indoor unit operation check, drain motor check mode anomaly.
0014	E20	Indoor fan motor rotation ion speed anomaly (FDT, FDTC, FDK, FDTW).
0015	E21	FDT Limit switch is not activated.
0016	E22	Wrong connection with Outdoor unit.
001C	E28	Remote controller temp. sensor anomaly (Thc).
001E	E30	Un match connection of indoor and outdoor unit.
001F	E31	Duplicated outdoor unit address No..
0020	E32	Open L3 phase on power supply at primary side.
0024	E36	1.Discharge pipe temp. sensor anomaly.
0025	E37	Outdoor heat exchanger temp. sensor (Tho-R) and subcooling coil temp. sensor (Tho-SC, -H) anomaly.
0026	E38	Outdoor air temp. sensor anomaly (Tho-A).
0027	E39	Discharge pipe temp. sensor anomaly (Tho-D1, D2).
0028	E40	High pressure anomaly (63H1-1,2 activated).
0029	E41	Power transistor overheat.
002A	E42	Current cut (CM1, CM2).
002B	E43	Excessive number of indoor units connected, excessive total capacity.
002D	E45	Communication error between inverter PCB and outdoor control PCB.

002E	E46	Mixed address setting methods coexistent in same network.
0030	E48	Outdoor DC fan motor anomaly.
0031	E49	Low pressure anomaly.
0033	E51	Inverter anomaly
0035	E53	Suction pipe temp. sensor anomaly (Tho-S).
0036	E54	High pressure sensor anomaly (PSH)/ Low pressure sense anomaly (PSL).
0037	E55	Under-dome temp. sensor anomaly (Tho-C1, C2).
0038	E56	Power transistor temp. sense anomaly (Tho-P1, P2).
003A	E58	Anomalous compressor by loss of synchronism.

003B	E59	Compressor startup failure (CM1, CM2).
003C	E60	Rotor position detection failure (CM1, CM2).
003D	E61	Communication error between the master unit and slave units.
003F	E63	Emergency stop.
004B	E75	Central control communication error.

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FAQ

- **Q: Can I use the Core KNX-MHI Gateway with any air conditioner brand?**
  - A: No, this gateway is specifically designed for use with Mitsubishi Heavy Industries air conditioners via KNX Systems.
- **Q: How do I know if there is an error on the indoor unit?**
  - A: You can enable the Object Error Code features to read error conditions on the indoor unit.

Documents / Resources

core CR-CG-MHI-KNX-01 Vrf and Fd Systems Gateway [pdf] User Manual
CR-CG-MHI-KNX-01 Vrf and Fd Systems Gateway, CR-CG-MHI-KNX-01, Vrf and Fd Systems Gateway, Fd Systems Gateway, Systems Gateway

References

- **User Manual**