



# Interface for integration of Haier air conditioners into KNX TP-1 (EIB) control systems

Compatible with MRV air conditioners line commercialized by Haier

Application's Program Version: 1.0

## USER MANUAL

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Compatible with MRV air conditioners line commercialized by Haier.

Application's Program Version: 1.0

| ORDER CODE      | LEGACY ORDER CODE |
|-----------------|-------------------|
| INKNXHAI008C000 | HA-AC-KNX-8       |
| INKNXHAI016C000 | HA-AC-KNX-16      |
| INKNXHAI064C000 | HA-AC-KNX-64      |

## Important User Information

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## 1 Presentation



INKNXHAI0--C000 allows a complete and natural integration of Haier air conditioners into KNX control systems.

Compatible with all models of MRV line of Haier air conditioners.

Main features:

- Reduced dimensions. Installation even inside the AC indoor unit.
- Quick and non-visible installation.
- External power not required.
- Direct connection to the KNX EIB bus.
- Direct connection to the AC indoor unit.
- Fully KNX interoperable, configuration from ETS.
- Multiple objects for control (of different types: bit, byte, characters...).
- Control of the AC unit based in the ambient temperature read by the own AC unit, or in the ambient temperature read by any KNX thermostat.
- Total Control and Monitoring of the AC unit from KNX, including monitoring of AC unit's state of internal variables, running hours counter (for filter maintenance control), and error indication and error code.
- AC unit can be controlled simultaneously by the IR remote control of the AC unit and by KNX.



### 3 Configuration and setup

This is a fully compatible KNX device which must be configured and setup using standard KNX tool ETS.

The ETS project for this device can be downloaded from the following link:

[https://hmsnetworks.blob.core.windows.net/nlw/docs/default-source/products/intesis/configuration-files/ets-database/intesisbox\\_inknxhai---c000\\_ets\\_database.zip](https://hmsnetworks.blob.core.windows.net/nlw/docs/default-source/products/intesis/configuration-files/ets-database/intesisbox_inknxhai---c000_ets_database.zip)

## 4 ETS Parameters

When imported to the ETS software for the first time, the gateway shows the following default parameter configuration:

| 1.1.1 HA AC interface (multiple indoor units) > General configuration |                                                                                                                                       |
|-----------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| General configuration                                                 | Download latest database entry for this product and its User Manual from: <input type="text" value="http://www.intesisbox.com"/>      |
| Global Mode configuration                                             | Intesis Product: HA-AC-KNX-8                                                                                                          |
| Global Fan Speed configuration                                        | Number of Indoor Units in ETS: 1                                                                                                      |
| Global Temperature configurati...                                     | First Status Update to KNX: ASAP                                                                                                      |
| Control Mode Configuration                                            | Enable object "Error Code [2byte]" <input checked="" type="radio"/> Disabled <input type="radio"/> Enabled                            |
| Addressing of Indoor Units                                            | Enable object "Error Text [14byte]" (2 ASCII-char Error Code) <input type="radio"/> Disabled <input checked="" type="radio"/> Enabled |
| License                                                               |                                                                                                                                       |

**Figure 4.1** Default parameter configuration

With this configuration it's possible to send On/Off (*Control\_ On/Off*), change the AC Mode (*Control\_ Mode*), the Fan Speed (*Control\_ Fan Speed*) and also the Setpoint Temperature (*Control\_ Setpoint Temperature*). The *Status\_* objects, for the mentioned *Control\_* objects, are also available to use if needed. Objects *Status\_ AC Ambient Reference Temperature* and *Status\_ Error/Alarm* are shown too.

| 1.1.1 HA AC interface (multiple indoor units)                 |                              |
|---------------------------------------------------------------|------------------------------|
| 1: AC01 Control_ On/Off [DPT_1.001]                           | - 0-Off;1-On                 |
| 3: AC01 Control_ Mode [DPT_20.105]                            | - 0-Aut;1-Hea;3-Coo;9-Fan... |
| 11: AC01 Control_ Fan Speed [DPT_5.001]                       | - Thresholds: 50% an...      |
| 17: AC01 Control_ Setpoint Temperature [DPT_9.001]            | - °C                         |
| 24: AC01 Status_ On/Off [DPT_1.001]                           | - 0-Off;1-On                 |
| 26: AC01 Status_ Mode [DPT_20.105]                            | - 0-Aut;1-Hea;3-Coo;9-Fan... |
| 34: AC01 Status_ Fan Speed [DPT_5.001]                        | - 33%, 66% and 100%          |
| 40: AC01 Status_ AC Setpoint Temperature [DPT_9.001]          | - °C                         |
| 41: AC01 Status_ AC Ambient Reference Temperature [DPT_9.001] | - °C                         |
| 42: AC01 Status_ Error/Alarm [DPT_1.005]                      | - 0-No alarm;1-Alarm         |
| 44: AC01 Status_ Error Text [DPT_16.001]                      | - Error Text                 |

**Figure 4.2** Default communication objects

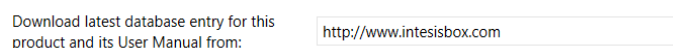


## 4.1 General configuration

Inside this parameter's dialog it is possible to activate or change the parameters shown in the **Figure 4.1**.

### 4.1.1 Download latest database entry for this product and its User Manual from:

The first field shows the URL where to download the database and the user manual for the product.



**Figure 4.3** Parameter detail

### 4.1.2 Intesis Product

This parameter is used to check, before sending the programming, the maximum number of AC units your device supports.



**Figure 4.4** Parameter detail

Select the version of the gateway that you have:

- INKNXHAI008C000, if you only want to control up to 8 AC unit.
- INKNXHAI016C000, if you only want to control up to 16 AC units.
- INKNXHAI064C000, if you only want to control up to 64 AC units.

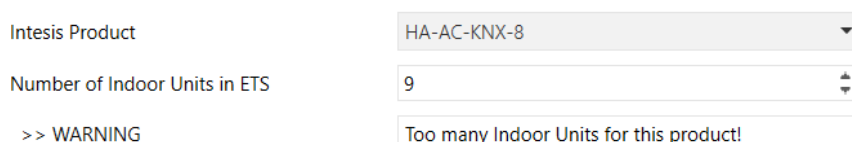
### 4.1.3 Number of Indoor Units in ETS

This parameter is used to hide/show communication object according to the number of AC units you need to configure. Value ranges go from 1 to 64.



**Figure 4.5** Parameter detail

In case you introduce a number higher than the maximum number of units allowed by your license, you will get a warning message. This is just for information and will not block the configuration process. Configurations with more indoor units configured than the ones allowed by the license will not be downloaded correctly.

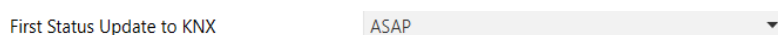


**Figure 4.6** Parameter detail

#### 4.1.4 First Status Updated to KNX

This parameter defines how fast the status is updated to KNX. Depending on the value selected, more or less priority will be assigned to this action. As there are so many parameters available, it is important to consider carefully how to set this parameter.

- If set to **"ASAP"**, all status communication objects will send its value (if needed).
- If set to **"Slow"**, all status communication objects will send its value (if needed), but slower than in the previous option (ASAP).
- If set to **"Super Slow"**, all status communication objects will send its value (if needed), but slower than in the previous option (Slow).



**Figure 4.7** Parameter detail

#### 4.1.5 Enable object "Error Code [2byte]"

This parameter shows/hides the *Status\_ Error Code* communication object which shows the indoor unit errors, if occurred, in numeric format.

Enable object "Error Code [2byte]" ☒ Disabled ☐ Enabled

43: AC01 Status\_ Error Code [2-byte signed value] - Error Code

**Figure 4.8** Communication object and parameter detail

- If set to **"Disabled"** the object will not be shown.
- If set to **"Enabled"** the *Status\_ Error Code [2byte signed value]* object will appear.
  - This object can be read and also sends the indoor unit error, if occurred, in numeric format. If a **"0"** value is shown that means no error.

#### 4.1.6 Enable object "Error Text Code [14byte]"

This parameter shows/hides the *Status\_ Error Text Code* communication object which shows the indoor unit errors, if occurred, in text format.

Enable object "Error Text [14byte]"  
(2 ASCII-char Error Code) ☐ Disabled ☒ Enabled

44: AC01 Status\_ Error Text [DPT\_16.001] - Error Text

**Figure 4.9** Communication object and parameter detail

- If set to **"Disabled"** the object will not be shown.
- If set to **"Enabled"** the *Status\_ Error Text Code* object will appear.

- This object can be read and also sends the indoor unit error, if occurred, in text format. The errors shown have the same format as in the remote controller and in the error list from the indoor unit manufacturer. If the object's value is empty, that means there is no error.

## 4.2 Global mode configuration

1.1.1 HA AC interface (multiple indoor units) > Global Mode configuration

|                                   |                                                                 |                                                                         |
|-----------------------------------|-----------------------------------------------------------------|-------------------------------------------------------------------------|
| General configuration             | Enable use of "Operating Mode" objects (for control and status) | <input checked="" type="radio"/> Disabled <input type="radio"/> Enabled |
| Global Mode configuration         | Enable use of "Mode Cool/Heat" objects (for control and status) | <input checked="" type="radio"/> Disabled <input type="radio"/> Enabled |
| Global Fan Speed configuration    | Enable use of +/- object for Mode                               | <input checked="" type="radio"/> Disabled <input type="radio"/> Enabled |
| Global Temperature configurati... | Enable use of bit-type Mode objects (for control)               | <input checked="" type="radio"/> Disabled <input type="radio"/> Enabled |
| Control Mode Configuration        | Enable use of bit-type Mode objects (for status)                | <input checked="" type="radio"/> Disabled <input type="radio"/> Enabled |
| Addressing of Indoor Units        | Enable use of Text object for Mode                              | <input checked="" type="radio"/> Disabled <input type="radio"/> Enabled |
| License                           |                                                                 |                                                                         |

**Figure 4.10** Default Mode Configuration dialog

All the parameters in this section are related with the different mode properties and communication objects.

3: Control\_Mode [DPT\_20.105 - 1byte] - 0-Aut;1-Hea;3-Coo;9-Fan;14-Dry  
 26: Status\_Mode [DPT\_20.105 - 1byte] - 0-Aut;1-Hea;3-Coo;9-Fan;14-Dry

The byte-type communication object for Mode works with the DTP\_20.105. Auto mode will be enabled with a "0" value, Heat mode with a "1" value, Cool mode with a "3" value, Fan mode with a "9" value and Dry mode with a "14" value.

### 4.2.1 Enable use of "Operating Mode" objects

This parameter shows/hides the *Control\_* and *Status\_ Mode Operating Mode* communication objects.

2: Control\_Operating Mode [DPT\_20.102 - 1byte] - 0-Aut;1-Com;2-Stan;3-Eco;4-Pro  
 25: Status\_Operating Mode [DPT\_20.102 - 1byte] - 0-Aut;1-Com;2-Stan;3-Eco;4-

### 4.2.2 Enable use of Mode Heat/Cool objects

This parameter shows/hides the *Control\_* and *Status\_ Mode Cool/Heat* communication objects.

4: Control\_Mode Cool/Heat [DPT\_1.100 - 1bit] - 0-Cool;1-Heat  
 27: Status\_Mode Cool/Heat [DPT\_1.100 - 1bit] - 0-Cool;1-Heat

- If set to "Disabled" the objects will not be shown.

- If set to **"Enabled"** the *Control\_* and *Status\_ Mode Cool/Heat* objects will appear.
  - When a **"1"** value is sent to the *Control\_* communication object, **Heat mode** will be enabled in the indoor unit, and the *Status\_* object will return this value.
  - When a **"0"** value is sent to the *Control\_* communication object, **Cool mode** will be enabled in the indoor unit, and the *Status\_* object will return this value.

#### 4.2.3 Enable use of + / - object for Mode

This parameter shows/hides the *Control\_ Mode +/-* communication object which let's you change the indoor unit mode by using two different datapoint types.

10: Control\_ Mode +/- [DPT\_1.008 - 1bit] - 0-Up;1-Down

- If set to **"Disabled"** the object will not be shown.
- If set to **"Enabled"** the *Control\_ Mode +/-* object and a new parameter will appear.

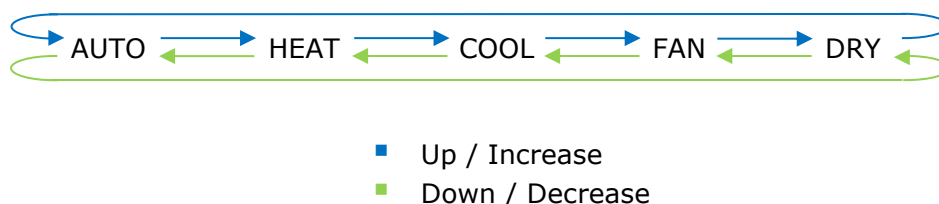


**Figure 4.11** Parameter detail

#### ➤ DPT type for +/- Mode Object

This parameter lets choose between the datapoints **0-Up / 1-Down [DPT\_1.008]** and **0-Decrease / 1-Increase [DPT\_1.007]** for the *Control\_ Mode +/-* object.

The sequence followed when using this object is shown below:



Keep in mind that depending on the indoor unit you have and the available features, Auto mode and Dry mode may not be present.

#### 4.2.4 Enable use of bit-type Mode objects (for control)

This parameter shows/hides the bit-type *Control\_ Mode* objects.

- 5: Control\_ Mode Auto [DPT\_1.002 - 1bit] - 1-Set AUTO operating mode
- 6: Control\_ Mode Heat [DPT\_1.002 - 1bit] - 1-Set HEAT operating mode
- 7: Control\_ Mode Cool [DPT\_1.002 - 1bit] - 1-Set COOL operating mode
- 8: Control\_ Mode Fan [DPT\_1.002 - 1bit] - 1-Set FAN operating mode

9: Control\_ Mode Dry [DPT\_1.002 - 1bit] - 1-Set DRY operating mode

- If set to **"no"** the objects will not be shown.
- If set to **"yes"** the *Control\_ Mode* objects for Auto, Heat, Cool, Fan and Dry will appear. To activate a mode by using these objects a **"1"** value has to be sent.

#### 4.2.5 Enable use of bit-type Mode objects (for status)

This parameter shows/hides the bit-type *Status\_ Mode* objects.

28: Status\_ Mode Auto [DPT\_1.002 - 1bit] - 1-AUTO is active  
 29: Status\_ Mode Heat [DPT\_1.002 - 1bit] - 1-HEAT is active  
 30: Status\_ Mode Cool [DPT\_1.002 - 1bit] - 1-COOL is active  
 31: Status\_ Mode Fan [DPT\_1.002 - 1bit] - 1-FAN is active  
 32: Status\_ Mode Dry [DPT\_1.002 - 1bit] - 1-DRY is active

- If set to **"no"** the objects will not be shown.
- If set to **"yes"** the *Status\_ Mode* objects for Auto, Heat, Cool, Fan and Dry will appear. When enabled, a mode will return a **"1"** through its bit-type object.

#### 4.2.6 Enable use of Text object for Mode

This parameter shows/hides the *Status\_ Mode Text* communication object.

33: Status\_ Mode Text [DPT\_16.001 - 14byte] - ASCII String

- If set to **"no"** the object will not be shown.
- If set to **"yes"** the *Status\_ Mode Text* object will appear. Also, in the parameters, will be shown five text fields, one for each mode, that will let modify the text string displayed by the *Status\_ Mode Text* when changing mode.

|                                    |                                                                         |
|------------------------------------|-------------------------------------------------------------------------|
| Enable use of Text object for Mode | <input type="radio"/> Disabled <input checked="" type="radio"/> Enabled |
| > String when mode is AUTO         | AUTO                                                                    |
| > String when mode is HEAT         | HEAT                                                                    |
| > String when mode is COOL         | COOL                                                                    |
| > String when mode is FAN          | FAN                                                                     |
| > String when mode is DRY          | DRY                                                                     |

**Figure 4.12** Parameter detail

### 4.3 Global Fan Speed Configuration dialog

| 1.1.1 HA AC interface (multiple indoor units) > Global Fan Speed configuration |                                                                                                                                             |
|--------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| General configuration                                                          | DPT object type for fan speed <input checked="" type="radio"/> Scaling [DPT_5.001] <input type="radio"/> Enumerated [DPT_5.010]             |
| Global Mode configuration                                                      | Enable use of "Fan Speed Man/Auto" objects (for control and status) <input checked="" type="radio"/> Disabled <input type="radio"/> Enabled |
| Global Fan Speed configurati...                                                | Enable use of +/- object for Fan Speed <input checked="" type="radio"/> Disabled <input type="radio"/> Enabled                              |
| Global Temperature configurati...                                              | Enable use of bit-type Fan Speed objects (for control) <input checked="" type="radio"/> Disabled <input type="radio"/> Enabled              |
| Control Mode Configuration                                                     | Enable use of bit-type Fan Speed objects (for status) <input checked="" type="radio"/> Disabled <input type="radio"/> Enabled               |
| Addressing of Indoor Units                                                     | Enable use of Text object for Fan Speed <input checked="" type="radio"/> Disabled <input type="radio"/> Enabled                             |
| License                                                                        |                                                                                                                                             |

**Figure 4.13** Default Fan Speed Configuration dialog

All the parameters in this section are related with the Fan Speed properties and communication objects.

#### 4.3.1 DPT object type for fan speed

With this parameter is possible to change the DPT for the *Control\_ Fan Speed* and *Status\_ Fan Speed* byte-type communication objects. Datapoints Scaling (DPT\_5.001) and Enumerated (DPT\_5.010) can be selected.

- When **"Enumerated [DPT 5.010]"** is selected, *Control\_ Fan Speed* and *Status\_ Fan Speed* communication objects for this DPT will appear. Also, depending on the number of fan speeds selected, these objects will be different.

11: AC01 Control\_ Fan Speed [DPT\_5.010] - Speed values: 1,2,3  
 34: AC01 Status\_ Fan Speed [DPT\_5.010] - Speed values: 1,2,3

The first fan speed will be selected if a "1" is sent to the *Control\_* object. The second one will be selected sending a "2", and the last one sending a "3".

The *Status\_* object will always return the value for the fan speed selected.

**⚠ Important:** If a "0" value is sent to the *Control\_* object, the minimum fan speed will be selected. If a value bigger than "3" is sent to the *Control\_* object, then the maximum fan speed will be selected.

- When **"Scaling [DPT 5.001]"** is selected, *Control\_ Fan Speed* and *Status\_ Fan Speed* communication objects for this DPT will appear. Also, depending on the number of fan speeds selected, these objects will be different.

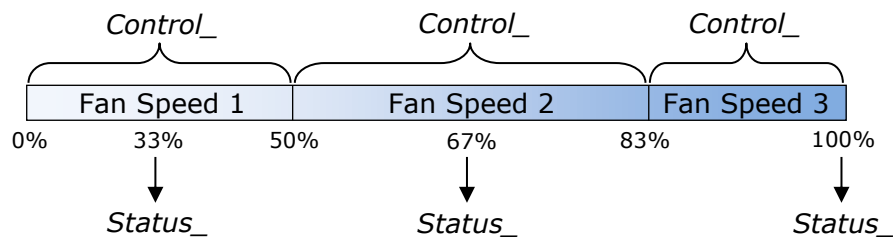
11: Control\_ Fan Speed / 3 Speeds [DPT\_5.001 - 1byte] - Thresholds: 50% and 83%  
 34: Status\_ Fan Speed / 3 Speeds [DPT\_5.001 - 1byte] - 33%, 66% and 100%

When a value between **0%** and **49%** is sent to the *Control\_* object the first fan speed will be selected.

When a value between **50%** and **83%** is sent to the *Control\_* object, the second speed will be selected.

When a value between **84%** and **100%** is sent to the *Control\_* object, the third speed will be selected.

The *Status\_* object will return a **33%** when the first speed is selected, a **67%** for the second one and a **100%** for the third one.



#### 4.3.2 Enable use of "Fan Speed Man/Auto" objects (for Control and Status)

This parameter shows/hides the *Control\_ Fan Speed Man/Auto* and *Status\_ Fan Speed Man/Auto* communication object which lets you set the Fan Speed into Manual or Auto mode.

- 12: AC01 Control\_ Fan Speed Man/Auto [DPT\_1.002] - 0-Manual...
- 35: AC01 Status\_ Fan Speed Man/Auto [DPT\_1.002] - 0-Manual;...

#### 4.3.3 Enable use of +/- object for Fan Speed

This parameter shows/hides the *Control\_ Fan Speed +/-* communication object which lets you increase/decrease the indoor unit fan speed by using two different datapoint types.

- 16: Control\_ Fan Speed +/- [DPT\_1.008 - 1bit] - 0-Up;1-Down

- If set to **"no"** the object will not be shown.
- If set to **"yes"** the *Control\_ Fan Speed +/-* object and a new parameter will appear.

Enable use of +/- object for Fan Speed ☐ Disabled ☒ Enabled

> Fan speed +/- operation ☒ 0-Decrease / 1-Increase [DPT\_1.007] ☐ 0-Up / 1-Down [DPT\_1.008]

> Sequence for +/- object S1 > S2 > ... > SN

**Figure 4.14** Parameter detail

#### ➤ Fan speed +/- operation

This parameter lets choose between the datapoints **0-Up / 1-Down [DPT\_1.008]** and **0-Decrease / 1-Increase [DPT\_1.007]** for the *Control\_ Fan Speed +/-* object.

➤ Sequence for +/- object

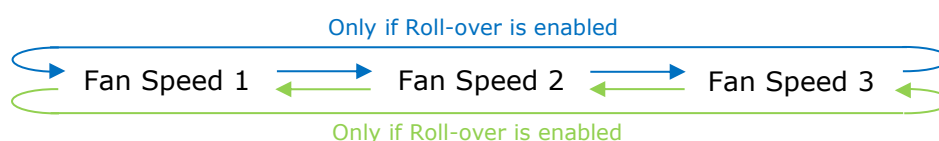
This parameter lets choose between the different modes available:

Enable use of +/- object for Fan Speed ☐ Disabled ☒ Enabled

> Fan speed +/- operation ☒ 0-Decrease / 1-Increase [DPT\_1.007] ☐ 0-Up / 1-Down [DPT\_1.008]

> Sequence for +/- object S1 > S2 > ... > SN

- **S1>S2>...>SN**  
Select this option if you don't have Auto mode and you don't want roll-over to be enabled.
- **S1>S2>...>SN>S1>...**  
Select this option if you don't have Auto mode and you want roll-over to be enabled.
- **Auto>S1>S2>...>SN**  
Select this option if you have Auto mode and you don't want roll-over to be enabled.
- **Auto>S1>S2>...>SN>Auto>S1>...**  
Select this option if you have Auto mode and you want roll-over to be enabled.



- Up / Increase
- Down / Decrease

#### 4.3.4 Enable use of bit-type Fan Speed objects (for Control)

This parameter shows/hides the bit-type *Control\_ Fan Speed* objects.

- 13: Control\_ Fan Speed 1 [DPT\_1.002 - 1bit] - 1-Set Fan Speed 1
- 14: Control\_ Fan Speed 2 [DPT\_1.002 - 1bit] - 1-Set Fan Speed 2
- 15: Control\_ Fan Speed 3 [DPT\_1.002 - 1bit] - 1-Set Fan Speed 3

- If set to **"no"** the objects will not be shown.
- If set to **"yes"** the *Control\_ Fan Speed* objects for Speed 1, Speed 2 and Speed 3 (if available) will appear. To activate a Fan Speed by using these objects a **"1"** value has to be sent.



### 4.3.5 Enable use of bit-type Fan Speed objects (for Status)

This parameter shows/hides the bit-type *Status\_ Fan Speed* objects.

- 36: Status\_ Fan Speed 1 [DPT\_1.002 - 1bit] - 1-Fan in speed 1
- 37: Status\_ Fan Speed 2 [DPT\_1.002 - 1bit] - 1-Fan in speed 2
- 38: Status\_ Fan Speed 3 [DPT\_1.002 - 1bit] - 1-Fan in speed 3

- If set to **"no"** the objects will not be shown.
- If set to **"yes"** the *Status\_ Fan Speed* objects for Speed 1, Speed 2 and Speed 3 (if available) will appear. When a Fan Speed is enabled, a **"1"** value is returned through its bit-type object.

### 4.3.6 Enable use of Text object for Fan Speed

This parameter shows/hides the *Status\_ Fan Speed Text* communication object.

- 39: Status\_ Fan Speed Text [DPT\_16.001 - 14byte] - ascii string

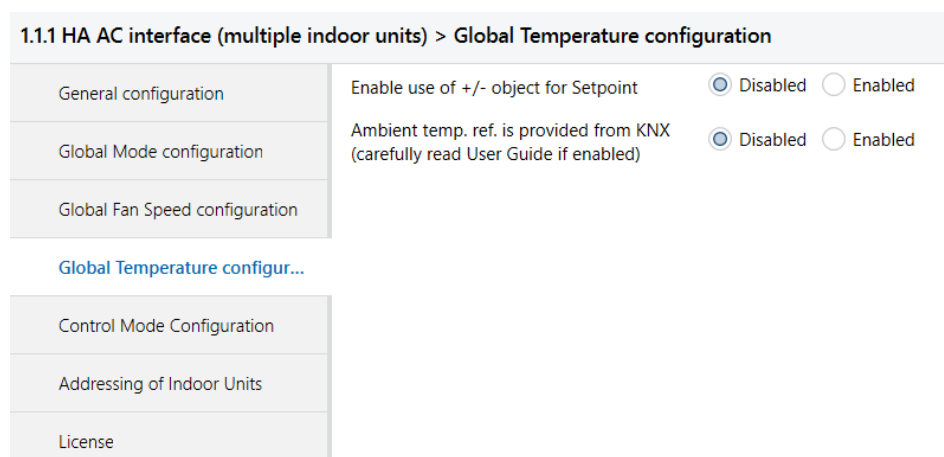
- If set to **"no"** the object will not be shown.
- If set to **"yes"** the *Status\_ Fan Speed Text* object will appear. Also, in the parameters, will be shown two (or three, depending on the number of fan speeds selected) text fields, one for each Fan Speed, that will let modify the text string displayed by the *Status\_ Fan Speed Text* when changing a fan speed.

Enable use of Text object for Fan Speed ☐ Disabled ☒ Enabled

|                                 |         |
|---------------------------------|---------|
| > String when fan speed is AUTO | AUTO    |
| > String when fan speed is 1    | SPEED 1 |
| > String when fan speed is 2    | SPEED 2 |
| > String when fan speed is 3    | SPEED 3 |

**Figure 4.15** Parameter detail

## 4.4 Global temperature configuration



**Figure 4.20** Default Temperature Configuration dialog

All the parameters in this section are related with the Temperature properties and communication objects.

### 4.4.1 Enable use of +/- obj for Setpoint

This parameter shows/hides the *Control\_ Setpoint Temp +/-* communication object which lets you change the indoor unit setpoint temperature by using two different datapoint types.

18: Control\_ Setpoint Temp +/- [DPT\_1.008 - 1bit] - 0-Up;1-Down

- If set to **"no"** the object will not be shown.
- If set to **"yes"** the *Control\_ Setpoint Temp +/-* object and a new parameter will appear.

Enable use of +/- object for Setpoint ☐ Disabled ☒ Enabled

> Setpoint +/- operation ☒ 0-Decrease / 1-Increase [DPT\_1.007] ☐ 0-Up / 1-Down [DPT\_1.008]

**Figure 4.23** Parameter detail

#### ➤ DPT type for +/- Setp Temp object

This parameter lets choose between the datapoints **0-Up / 1-Down [DPT\_1.008]** and **0-Decrease / 1-Increase [DPT\_1.007]** for the *Control\_ Setpoint Temp +/-* object.

(Lower limit) **16°C**  17°C  ...  31°C  **32°C** (Upper limit)

- Up / Increase
- Down / Decrease

### 4.4.2 Ambient Ref. Temp. is provided from KNX

This parameter shows/hides the *Control\_ Ambient Temperature* communication object which lets you use an ambient temperature reference provided by a KNX device.

19: Control\_ Ambient Temperature [DPT\_9.001 - 2byte] - °C

- If set to **"no"** the object will not be shown.
- If set to **"yes"** the *Control\_ Ambient Temperature* object will appear. Meant to be enabled when you want the temperature provided by a KNX sensor to be the reference ambient temperature for the air conditioner. Then, the following formula applies for the calculation of real *Control\_ Setpoint Temperature* sent to the AC unit:

"AC Setp. Temp" = "Ambient ref. Temp" - ("KNX Amb. Temp." - "KNX Setp Temp.")

- AC Setp. Temp: AC indoor unit setpoint temperature
- Ambient Ref. Temp: AC indoor unit return temperature
- KNX Amb. Temp.: Ambient temperature provided from KNX
- KNX Setp. Temp: Setpoint temperature provided from KNX

As an example, consider the following situation:

User wants: **19°C** ("KNX Setp. Temp.")

User sensor (a KNX sensor) reads: **21°C** ("KNX Amb Temp.")

Ambient temp. read by Haier system is: **24°C** ("Ambient Ref. Temp")

In this example, the final setpoint temperature that INKNXHAI0--C000 will send out to the indoor unit (shown in "Setp. Temp.") will become 24°C - (21°C - 19°C) = **22°C**. This is the setpoint that will actually be requested to Haier unit.

This formula will be applied as soon as the *Control\_ Setpoint Temperature* and *Control\_ Ambient Temperature* objects are written at least once from the KNX installation. After that, they are kept always consistent.

Note that this formula will always drive the AC indoor unit demand in the *right* direction, regardless of the operation mode (Heat, Cool or Auto).

## 4.5 Control Mode configuration

1.1.1 HA AC interface (multiple indoor units) > Control Mode Configuration

|                                   |                                    |                                                                                                                                                        |
|-----------------------------------|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| General configuration             | Enable use of Control Mode objects | <input checked="" type="radio"/> Disabled <input type="radio"/> Enabled                                                                                |
| Global Mode configuration         | Initial state of Control Mode      | <input type="radio"/> Initial state for each Indoor Unit might differ<br><input checked="" type="radio"/> Apply same initial state to all Indoor Units |
| Global Fan Speed configuration    | > Initial state of Control Mode    | (Do not initialize) ▼                                                                                                                                  |
| Global Temperature configurati... |                                    |                                                                                                                                                        |

[Control Mode Configuration](#)

|                            |
|----------------------------|
| Addressing of Indoor Units |
| License                    |

**Figure 4.20** Control Mode Configuration dialog

All the parameters in this section are related with the Mode properties and communication objects.

### 4.5.1 Enable use of Control Mode objects (for Control and Status)

This parameter shows/hides the *Control\_ Control Mode* and *Status\_ Control Mode* communication objects which lets you change the indoor unit control: No Central, LIFO (Last Input First Output), Central Controller and Lock Central Controller.

- 20: AC01 Control\_ Control Mode No Central [DPT\_1.002] - 1-Set...
- 21: AC01 Control\_ Control Mode LIFO [DPT\_1.002] - 1-Set LIFO...
- 22: AC01 Control\_ Control Mode Central [DPT\_1.002] - 1-Set CE...
- 23: AC01 Control\_ Control Mode Lock [DPT\_1.002] - 1-Set LOCK...
  
- 45: AC01 Status\_ Control Mode No Central [DPT\_1.002] - 1-NO...
- 46: AC01 Status\_ Control Mode LIFO [DPT\_1.002] - 1-LIFO mode...
- 47: AC01 Status\_ Control Mode Central [DPT\_1.002] - 1-CENTRA...
- 48: AC01 Status\_ Control Mode Lock [DPT\_1.002] - 1-LOCK mod...

- If set to **"no"** the objects will not be shown.
- If set to **"yes"** the *Control\_* and *Status\_ Control Mode* objects for No Central, LIFO (Last Input First Output), Central Controller, Lock Central Controller will appear.

### 4.5.1 Initial state of Control Mode

This parameter sets the initial value for the Control Mode: *No Central*, *LIFO (Last Input First Output)*, *Central Controller*, *Lock Central Controller* or *Do not initialize*.

Initial state of Control Mode

☒ Initial state for each Indoor Unit might differ  
☐ Apply same initial state to all Indoor Units

|                                         |                       |
|-----------------------------------------|-----------------------|
| > Initial state of Control Mode in AC01 | (Do not initialize)   |
| > Initial state of Control Mode in AC02 | NO CENTRAL            |
| > Initial state of Control Mode in AC03 | LIFO                  |
| > Initial state of Control Mode in AC04 | CENTRAL               |
| > Initial state of Control Mode in AC04 | LOCK                  |
| > Initial state of Control Mode in AC04 | (Do not initialize) ✓ |
| > Initial state of Control Mode in AC05 | (Do not initialize)   |

**Figure 4.24** Parameter detail

- If set to **"Apply same initial state to all Indoor Units"**, the parameter option selected will apply to all indoor units.
- If set to **"Initial state for each Indoor Unit might differ"**, you will be able to set this parameter for each Indoor Unit individually.

## 4.6 Addressing of Indoor Units

1.1.1 HA AC interface (multiple indoor units) > Addressing of Indoor Units

|                                   |                                  |   |
|-----------------------------------|----------------------------------|---|
| General configuration             | ----- AC01 -----                 |   |
|                                   | Modbus GW address of AC01        | 1 |
| Global Mode configuration         | IDU index (in Modbus GW) of AC01 | 0 |
| Global Fan Speed configuration    | ----- AC02 -----                 |   |
| Global Temperature configurati... | Modbus GW address of AC02        | 1 |
| Control Mode Configuration        | IDU index (in Modbus GW) of AC02 | 1 |
| Addressing of Indoor Units        | ----- AC03 -----                 |   |
|                                   | Modbus GW address of AC03        | 1 |
| License                           | IDU index (in Modbus GW) of AC03 | 2 |
|                                   | ----- AC04 -----                 |   |
|                                   | Modbus GW address of AC04        | 1 |
|                                   | IDU index (in Modbus GW) of AC04 | 3 |
|                                   | ----- AC05 -----                 |   |
|                                   | Modbus GW address of AC05        | 1 |
|                                   | IDU index (in Modbus GW) of AC05 | 4 |

**Figure 4.24** Parameter detail

In this section you will be able to set the AC addressing for each AC unit present in the installation.

- **Modbus GW address of ACxx** refers to the address of the Haier Communication Adapters.
- **IDU index (in Modbus GW) of ACxx** refers to the AC system address of the Indoor Unit.

## 4.7 License

1.1.1 HA AC interface (multiple indoor units) > License

|                                   |                 |                      |
|-----------------------------------|-----------------|----------------------|
| General configuration             | Activation Code | <input type="text"/> |
| Global Mode configuration         |                 |                      |
| Global Fan Speed configuration    |                 |                      |
| Global Temperature configurati... |                 |                      |
| Control Mode Configuration        |                 |                      |
| Addressing of Indoor Units        |                 |                      |

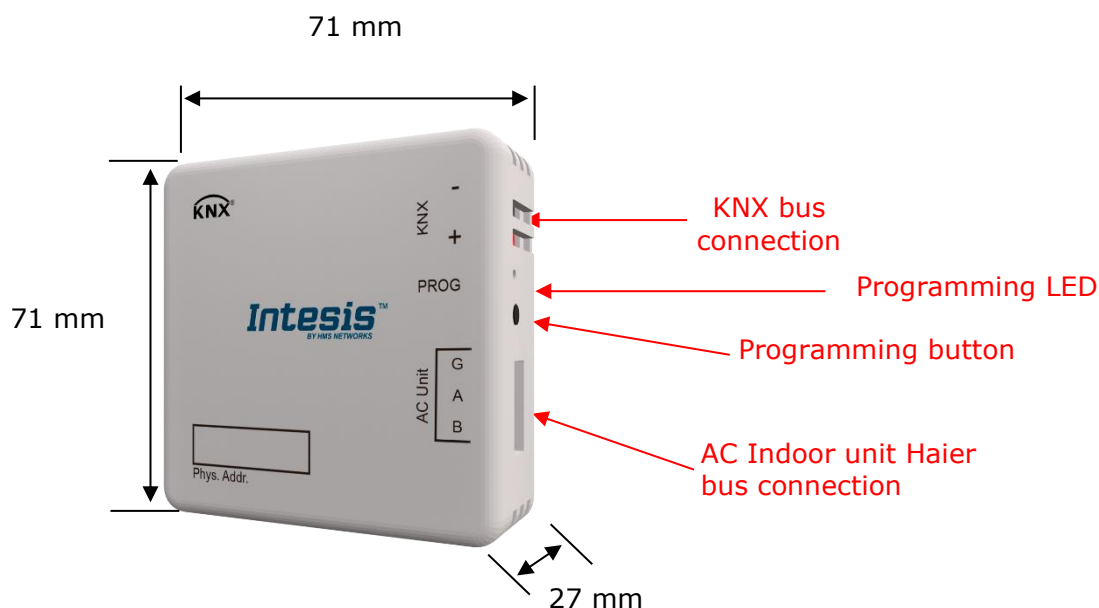
[License](#)

**Figure 4.24** Parameter detail

Use this section to introduce the migration code in case you need to update your box from another version different from the factory default one.

## 5 Technical Specifications

|                                              |                                                                                                                                                                                                               |                       |                         |
|----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-------------------------|
| Enclosure                                    | ABS (UL 94 V-0) de 2,5 mm / 1" thick<br>Net dimensions (dxwxh):<br>71 x 71 x 27 mm / 2.8" x 2.8" x 1.1"<br>Color: White RAL 9010                                                                              | Operation Temperature | 0°C to +60°C            |
| Weight                                       | 42 g.                                                                                                                                                                                                         | Stock Temperature     | -20°C to +85°C          |
| Power supply                                 | Power is supplied by:<br>1 x KNX bus (29V DC, 7mA)                                                                                                                                                            | Operational Humidity  | <90% RH, non-condensing |
| Terminal Wiring<br>(for low-voltage signals) | For terminal: solid wires or stranded wires<br>(twisted or with ferrule)<br>1 core: 0.5mm <sup>2</sup> ... 2.5mm <sup>2</sup><br>2 cores: 0.5mm <sup>2</sup> ... 1.5mm <sup>2</sup><br>3 cores: not permitted | Stock Humidity        | <90% RH, non-condensing |
| KNX port                                     | 1 x KNX TP1 (EIB) port opto-isolated.<br>Plug-in terminal block (2 poles). TNV-1                                                                                                                              | Isolation voltage     | 1500 VDC                |
| AC unit port                                 | 1 x Specific connector<br>Plug-in terminal block (3 poles)                                                                                                                                                    | Isolation resistance  | 1000 MΩ                 |
| Configuration                                | Configuration with ETS                                                                                                                                                                                        | Protection            | IP20 (IEC60529)         |
| LED indicators                               | 1 x Onboard LED - Operational status                                                                                                                                                                          |                       |                         |





## 6 AC Unit Types compatibility

A list of Haier indoor unit model references compatible with INKNXHAI0--C000 and their available features can be found in:

[https://www.hms-networks.com/docs/default-source/products/intesis/manuals-and-guides---reference-guides/intesis\\_inxxxhaixxc000\\_ac\\_compatibility-list.pdf](https://www.hms-networks.com/docs/default-source/products/intesis/manuals-and-guides---reference-guides/intesis_inxxxhaixxc000_ac_compatibility-list.pdf)

## 7 Error Codes

| Error Code in KNX Object | Error in Remote Controller | Category     | Error Name                                                                                                                                                             |
|--------------------------|----------------------------|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1                        | 1                          | Indoor Unit  | Indoor ambient temp.sensor TA (Tas) failure                                                                                                                            |
| 2                        | 2                          |              | Indoor gas pipe temp. sensor TC1 failure                                                                                                                               |
| 3                        | 3                          |              | Indoor liquid pipe temp. sensor TC2 failure                                                                                                                            |
| 4                        | 4                          |              | Dual heat source sensor TW failure                                                                                                                                     |
| 5                        | 5                          |              | Indoor EEPROM failure                                                                                                                                                  |
| 6                        | 6                          |              | Communication between indoor and outdoor failure                                                                                                                       |
| 7                        | 7                          |              | Communication between indoor and wired controller failure                                                                                                              |
| 8                        | 8                          |              | Indoor float switch failure                                                                                                                                            |
| 9                        | 9                          |              | Indoor address repeated failure                                                                                                                                        |
| 10                       | 10                         |              | Reserved                                                                                                                                                               |
| 11                       | 11                         |              | Reserved                                                                                                                                                               |
| 12                       | 12                         |              | No 50 Hz zero passage signal                                                                                                                                           |
| 13                       | 13                         |              | Coil sensor TC3 failure                                                                                                                                                |
| 14                       | 14                         |              | DC motor failure                                                                                                                                                       |
| 15                       | 15                         |              | Indoor ambient temp.sensor TA (Taf) failure                                                                                                                            |
| 16                       | 16                         | Outdoor Unit | -                                                                                                                                                                      |
| 17                       | 17                         |              | -                                                                                                                                                                      |
| 18                       | 18                         |              | -                                                                                                                                                                      |
| 19                       | 19                         |              | -                                                                                                                                                                      |
| 20                       | 20                         |              | Defrosting temp. sensor Tdef1 failure<br>Defrosting temp. sensor Tdef2 failure                                                                                         |
| 21                       | 21                         |              | Ambient temp. sensor Ta failure                                                                                                                                        |
| 22                       | 22                         |              | Suction temp. sensor Ts1 failure<br>Suction temp. sensor Ts2 failure<br>Suction temp. sensor Tsacc failure<br>Suction temp. sensor Tsuc failure                        |
| 23                       | 23                         |              | Discharging temp. sensor Tdi failure<br>Discharging temp. sensor Td1 failure<br>Discharging temp. sensor Td2 failure                                                   |
| 24                       | 24                         |              | Oil temp. sensor Toilp failure<br>Oil temp. sensor Toil failure                                                                                                        |
| 25                       | 25                         |              | Inlet temp. of heat exchanger Toci1 failure<br>Inlet temp. of heat exchanger Toci2 failure                                                                             |
| 26                       | 26                         |              | indoor communication failure<br>Reduce the number of indoor units failure<br>Increase the number of indoor units failure                                               |
| 27                       | 27                         |              | Oil temp. too high protection (Toil)<br>Oil temp. too high protection (Toi2)                                                                                           |
| 28                       | 28                         |              | High pressure sensor Pd1 failure<br>High pressure sensor Pd2 failure                                                                                                   |
| 29                       | 29                         |              | Low pressure sensor Ps failure                                                                                                                                         |
| 30                       | 30                         |              | High pressure switch HPSi failure<br>High pressure switch HPS1 failure<br>High pressure switch HPS2 failure                                                            |
| 31                       | 31                         |              | Liquid pipe pressure PI failure                                                                                                                                        |
| 32                       | 32                         |              | Outlet temp. of subcooler Tso failure<br>Liquid pipe SC temp. of subcooler Tliqsc failure                                                                              |
| 33                       | 33                         |              | EEPROM (AT24C04) failure                                                                                                                                               |
| 34                       | 34                         |              | Discharging temp. too high protection (Tdi)<br>Discharging temp. too high protection (Td1)<br>Discharging temp. too high protection (Td2)                              |
| 35                       | 35                         |              | 4-way valve reversing failure<br>4-way valve reversing failure                                                                                                         |
| 36                       | 36                         |              | Oil temp. too low protection (Toil)<br>Oil temp. too low protection (Toi2)                                                                                             |
| 37                       | 37                         |              | Lack of phase of 3N power supply or wrong phase sequence                                                                                                               |
| 38                       | 38                         |              | High pressure sensor Pd too low protection                                                                                                                             |
| 39                       | 39                         |              | Low pressure sensor Ps too low protection<br>Compression ratio too high protection<br>Compression 1 ratio too low protection<br>Compression 2 ratio too low protection |
| 40                       | 40                         |              | High pressure sensor Pd1 too high protection<br>High pressure sensor Pd2 too high protection                                                                           |
| 41                       | 41                         |              | Water temp. Twi too low protection<br>Water temp. Twi too high protection                                                                                              |
| 42                       | 42                         |              | Frost protection of water system<br>Water system out of water freeze protection<br>Water flow of Water system is too small to protect                                  |
| 43                       | 43                         |              | Discharging temp. sensor Tdi too low protection<br>Discharging temp. sensor Td1 too low protection<br>Discharging temp. sensor Td2 too low protection                  |

|     |     |
|-----|-----|
| 44  | 44  |
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| 106 | 106 |
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| 109 | 109 |
| 110 | 110 |

|                                                                 |
|-----------------------------------------------------------------|
| Low pressure sensor PS too high protection                      |
| Communication among outdoors failure                            |
| Communication with inverter board 1 failure                     |
| Communication with inverter board 2 failure                     |
| -                                                               |
| Unloading valve SV1 failure                                     |
| -                                                               |
| -                                                               |
| -                                                               |
| Current detector CT1 failure                                    |
| Communication with Thermal storage module failure               |
| Thermal storage module LEV failure                              |
| Thermal storage module too hot failure                          |
| Communication between Thermal storage module and host computer  |
| Thermal storage module Tc1 temp. sensor failure                 |
| Thermal storage module Tc2 temp. sensor failure                 |
| Reserved                                                        |
| Reserved                                                        |
| Reserved                                                        |
| Thermal storage module DIP setting failure                      |
| CT1 over current                                                |
| CT2 over current                                                |
| -                                                               |
| -                                                               |
| Communication with motor driving board failure                  |
| -                                                               |
| -                                                               |
| -                                                               |
| Left DC motor blocked                                           |
| Right DC motor blocked                                          |
| Left DC motor reversed                                          |
| Right DC motor reversed                                         |
| Left DC motor current too high                                  |
| Right DC motor current too high                                 |
| -                                                               |
| No pressure drop between high pressure and low one              |
| Pressure too low between high pressure and low one              |
| Incorrect outdoor address or capacity setting                   |
| Oil equalization protection among outdoors                      |
| Lack of refrigerant in cooling                                  |
| Lack of refrigerant in heating                                  |
| Incorrect wiring                                                |
| Indoor and outdoor do not match                                 |
| Model temp. too high protection                                 |
| Compressor current protection                                   |
| Wrong model selection                                           |
| -                                                               |
| -                                                               |
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| -                                                               |
| -                                                               |
| Program self-test failure                                       |
| DC motor driving board IPM alarm                                |
| DC motor driving board detecting out of control                 |
| DC motor driving board EEPROM faulty                            |
| DC motor driving board over current or current detector damaged |
| Voltage too low protection of DC motor driving board            |
| Voltage too high protection of DC motor driving board           |
| DC motor driving board blocked                                  |
| Protection of motor rate over Limitation                        |
| -                                                               |
| -                                                               |
| model 1 Over current                                            |
| model 2 Over current                                            |

|              |     |               |                                                                                                          |
|--------------|-----|---------------|----------------------------------------------------------------------------------------------------------|
| 111          | 111 |               | Compressor 1 out of control<br>Compressor 2 out of control                                               |
| 112          | 112 |               | Radiator of model 1 temp. too high<br>Radiator of model 2 temp. too high                                 |
| 113          | 113 |               | model 1 overload<br>model 2 overload                                                                     |
| 114          | 114 |               | Voltage too low of model 1<br>Voltage too low of model 2                                                 |
| 115          | 115 |               | Voltage too high of model 1<br>Voltage too high of model 2                                               |
| 116          | 116 |               | Communication abnormal with model 1<br>Communication abnormal with model 2                               |
| 117          | 117 |               | Model 1 Over current (software)<br>Model 1 Over current (software)                                       |
| 118          | 118 |               | Model 1 startup failure<br>Model 2 startup failure                                                       |
| 119          | 119 |               | Current Detecting Circuit Abnormal of transducer 1<br>Current Detecting Circuit Abnormal of transducer 2 |
| 120          | 120 |               | Power supply of transducer 1 abnormal<br>Power supply of transducer 2 abnormal                           |
| 121          | 121 |               | Power supply of inverter board 1 is abnormal<br>Power supply of inverter board 2 is abnormal             |
| 122          | 122 |               | Radiator temp. sensor of transducer 1 abnormal<br>Radiator temp. sensor of transducer 2 abnormal         |
| 123          | 123 |               | -                                                                                                        |
| 124          | 124 |               | -                                                                                                        |
| 125          | 125 |               | Compressor 1 frequency not match<br>Compressor 2 frequency not match                                     |
| 126          | 126 |               | -                                                                                                        |
| 127          | 127 |               | MCU reset abnormal                                                                                       |
| 128          | 128 |               | MCU Program needs to be upgraded                                                                         |
| 0            | N/A | KNX interface | No error                                                                                                 |
| 65535 (-1)   | N/A | KNX interface | Indoor Units not ready for communication                                                                 |
| 65436 (-100) | N/A | KNX interface | License Error / indoor unit not supported by current license                                             |
| 65336 (-200) | N/A | KNX interface | Overconsumption error in EXY bus                                                                         |

In case you detect an error code not listed, contact your nearest Haier technical support service for more information on the error meaning.

## Appendix A – Communication Objects Table

| SECTION | OBJECT NUMBER | NAME                          | LENGTH                      | DATAPOINT TYPE  |            | FLAGS |   |   |   | FUNCTION                                              |
|---------|---------------|-------------------------------|-----------------------------|-----------------|------------|-------|---|---|---|-------------------------------------------------------|
|         |               |                               |                             | DPT_NAME        | DPT_ID     | R     | W | T | U |                                                       |
| On/Off  | 1             | Control_ On/Off               | 1 bit                       | DPT_Switch      | 1.001      |       | W | T |   | 0 - Off; 1-On                                         |
|         | 2             | Control_ Operating Mode       | 1 byte                      | DPT_HVACMode    | 20.102     |       | W | T |   | 0 - Auto; 1 - Com; 2 - Stan; 3 - Eco; 4 - Pro         |
| Mode    | 3             | Control_ Mode                 | 1 byte                      | DPT_HVACControl | 20.105     |       | W | T |   | 0 - Auto; 1 - Heat; 3 - Cool; 9 - Fan; 14 - Dry       |
|         | 4             | Control_ Mode Cool/Heat       | 1 bit                       | DPT_Cool/Heat   | 1.100      |       | W | T |   | 0 - Cool; 1 - Heat                                    |
|         | 5             | Control_ Mode Auto            | 1 byte                      | DPT_Scaling     | 5.001      |       | W | T |   | 1 - Auto                                              |
|         | 6             | Control_ Mode Heat            | 1 byte                      | DPT_Scaling     | 5.001      |       | W | T |   | 1 - Heat                                              |
|         | 7             | Control_ Mode Cool            | 1 bit                       | DPT_Bool        | 1.002      |       | W | T |   | 1 - Cool                                              |
|         | 8             | Control_ Mode Fan             | 1 bit                       | DPT_Bool        | 1.002      |       | W | T |   | 1 - Dry                                               |
|         | 9             | Control_ Mode Dry             | 1 bit                       | DPT_Bool        | 1.002      |       | W | T |   | 1 - Fan                                               |
|         | 10            | Control_ Mode +/-             | 1 bit                       | DPT_Step        | 1.007      |       | W |   |   | 0 - Decrease; 1 - Increase                            |
|         |               | Control_ Mode +/-             | 1 bit                       | DPT_UpDown      | 1.008      |       | W |   |   | 0 - Up; 1 - Down                                      |
|         | Fan Speed     | Control_ Fan Speed / 3 Speeds | 1 byte                      | DPT_Scaling     | 5.001      |       | W | T |   | 0%-49% - Speed 1; 50%-83% - Speed 2; 84%-100% Speed 3 |
|         |               |                               | 1 byte                      | DPT_Enumerated  | 5.010      |       | W | T |   | 1 - Speed 1; 2 - Speed 2; 3 Speed 3                   |
|         |               | 12                            | Control_ Fan Speed Man/Auto | 1 bit           | DPT_Bool   | 1.002 |   | W | T | 0 - Manual; 1 - Auto                                  |
|         |               | 13                            | Control_ Fan Speed 1        | 1 bit           | DPT_Bool   | 1.002 |   | W | T | 1 - Fan Speed 1                                       |
|         |               | 14                            | Control_ Fan Speed 2        | 1 bit           | DPT_Bool   | 1.002 |   | W | T | 1 - Fan Speed 2                                       |
|         |               | 15                            | Control_ Fan Speed 3        | 1 bit           | DPT_Bool   | 1.002 |   | W | T | 1 - Fan Speed 3                                       |
|         |               | 16                            | Control_ Fan Speed +/-      | 1 bit           | DPT_Step   | 1.007 |   | W | T | 0 - Decrease; 1 - Increase                            |
|         |               |                               | Control_ Fan Speed +/-      | 1 bit           | DPT_UpDown | 1.008 |   | W | T | 0 - Up; 1 - Down                                      |

|              |    |                                  |        |                |       |  |   |   |                                    |
|--------------|----|----------------------------------|--------|----------------|-------|--|---|---|------------------------------------|
| Temperature  | 17 | Control_ Setpoint Temperature    | 2 byte | DPT_Value_Temp | 9.001 |  | W | T | 17°C to 30°C                       |
|              | 18 | Control_ Setpoint Temp +/-       | 1 bit  | DPT_Step       | 1.007 |  | W |   | 0 - Decrease; 1 - Increase         |
|              |    | Control_ Setpoint Temp +/-       | 1 bit  | DPT_UpDown     | 1.008 |  | W |   | 0 - Up; 1 - Down                   |
|              | 19 | Control_ Ambient Temperature     | 2 byte | DPT_Value_Temp | 9.001 |  | W | T | °C value in EIS5 format            |
| Control Mode | 20 | Control_ Control Mode No Central | 1 bit  | DPT_Bool       | 1.002 |  | W | T | 1 - No Central Controller          |
|              | 21 | Control_ Control Mode LIFO       | 1 bit  | DPT_Bool       | 1.002 |  | W | T | 1 - Last Input First Output (LIFO) |
|              | 22 | Control_ Control Mode Central    | 1 bit  | DPT_Bool       | 1.002 |  | W | T | 1 - Central Controller             |
|              | 23 | Control_ Control Mode Lock       | 1 bit  | DPT_Bool       | 1.002 |  | W | T | 1 - Lock Central Controller        |

|           |    |                              |         |                   |        |   |  |   |                                                 |
|-----------|----|------------------------------|---------|-------------------|--------|---|--|---|-------------------------------------------------|
| On/Off    | 24 | Status_ On/Off               | 1 bit   | DPT_Switch        | 1.001  | R |  | T | 0 - Off; 1-On                                   |
| Mode      | 25 | Status_ Operating Mode       | 1 byte  | DPT_HVACMode      | 20.102 | R |  | T | 0 - Auto; 1 - Com; 2 - Stan; 3 - Eco; 4 - Pro   |
|           | 26 | Status_ Mode                 | 1 byte  | DPT_HVACContrMode | 20.105 | R |  | T | 0 - Auto; 1 - Heat; 3 - Cool; 9 - Fan; 14 - Dry |
|           | 27 | Status_ Mode Cool/Heat       | 1 bit   | DPT_Heat/Cool     | 1.100  | R |  | T | 0 - Cool; 1 - Heat                              |
|           | 28 | Status_ Mode Auto            | 1 bit   | DPT_Bool          | 1.002  | R |  | T | 1 - Auto                                        |
|           | 29 | Status_ Mode Heat            | 1 bit   | DPT_Bool          | 1.002  | R |  | T | 1 - Heat                                        |
|           | 30 | Status_ Mode Cool            | 1 bit   | DPT_Bool          | 1.002  | R |  | T | 1 - Cool                                        |
|           | 31 | Status_ Mode Fan             | 1 bit   | DPT_Bool          | 1.002  | R |  | T | 1 - Fan                                         |
|           | 32 | Status_ Mode Dry             | 1 bit   | DPT_Bool          | 1.002  | R |  | T | 1 - Dry                                         |
|           | 33 | Status_ Mode Text            | 14 byte | DPT_String_8859_1 | 16.001 | R |  | T | ASCII String                                    |
| Fan Speed | 34 | Status_ Fan Speed / 3 Speeds | 1 byte  | DPT_Scaling       | 5.001  | R |  | T | 33% - Speed 1; 67% - Speed 2; 100% - Speed 3    |
|           |    | Status_ Fan Speed / 3 Speeds | 1 byte  | DPT_Enumerated    | 5.010  | R |  | T | 1 - Speed 1; 2 - Speed 2; 3 - Speed 3           |
|           | 35 | Status_ Fan Speed Man/Auto   | 1 bit   | DPT_Bool          | 1.002  | R |  | T | 0 - Manual; 1 - Auto                            |

|                     |           |                                  |         |                   |        |   |   |   |                                           |
|---------------------|-----------|----------------------------------|---------|-------------------|--------|---|---|---|-------------------------------------------|
|                     | <b>36</b> | Status_ Fan Speed 1              | 1 bit   | DPT_Bool          | 1.002  | R |   | T | 1 - Speed 1                               |
|                     | <b>37</b> | Status_ Fan Speed 2              | 1 bit   | DPT_Bool          | 1.002  | R |   | T | 1 - Speed 2                               |
|                     | <b>38</b> | Status_ Fan Speed 3              | 1 bit   | DPT_Bool          | 1.002  | R |   | T | 1 - Speed 3                               |
|                     | <b>39</b> | Status_ Fan Speed Text           | 14 byte | DPT_String_8859_1 | 16.001 | R |   | T | ASCII String                              |
| <b>Temperature</b>  | <b>40</b> | Status_ AC Setpoint Temp         | 2 byte  | DPT_Value_Temp    | 9.001  | R |   | T | 16°C to 32°C                              |
|                     | <b>41</b> | Status_ AC Ambient Ref Temp      | 2 byte  | DPT_Value_Temp    | 9.001  | R |   | T | °C value in EIS5 format                   |
| <b>Error</b>        | <b>42</b> | Status_ Error/Alarm              | 1 bit   | DTP_Alarm         | 1.005  | R |   | T | 0 - No Alarm; 1 - Alarm                   |
|                     | <b>43</b> | Status_ Error Code               | 2 byte  | Enumerated        |        | R |   | T | 0 - No Error; Any other see user's manual |
|                     | <b>44</b> | Status_ Error Text code          | 14 byte | DPT_String_8859_1 | 16.001 | R |   | T | 2 char Haier Error; Empty - none          |
| <b>Control Mode</b> | <b>45</b> | Control_ Control Mode No Central | 1 bit   | DPT_Bool          | 1.002  |   | W | T | 1 - No Central Controller                 |
|                     | <b>46</b> | Control_ Control Mode LIFO       | 1 bit   | DPT_Bool          | 1.002  |   | W | T | 1 - Last Input First Output (LIFO)        |
|                     | <b>47</b> | Control_ Control Mode Central    | 1 bit   | DPT_Bool          | 1.002  |   | W | T | 1 - Central Controller                    |
|                     | <b>48</b> | Control_ Control Mode Lock       | 1 bit   | DPT_Bool          | 1.002  |   | W | T | 1 - Lock Central Controller               |

**NOTE:** This addressing corresponds to the first AC indoor unit of the configuration. Communication objects for the rest of AC units are consecutively listed.