IntesisBox®

MH-RC-KNX-1i v1.1

User's Manual

Issue Date: 08/2013

r2.0 eng

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Gateway for integration of Mitsubishi Heavy Industries (MHI) air conditioners into KNX TP-1 (EIB) control systems.

Compatible with RAC* Series, FD Series, KX6 and KXR6 (VRF) Series air conditioners commercialized by Mitsubishi Heavy Industries.

*RAC Series require optional SC-BIKN-E from MHI.

Application’s Program Version: 1.1

Order Code: **MH-RC-KNX-1i**

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1. Presentation

MH-RC-KNX-1i allows a complete and natural integration of MITSUBISHI HEAVY INDUSTRIES air conditioners with KNX control systems.

Compatible with RAC* Series, FD Series, KX6 and KXR6 (VRF) Series air conditioners commercialized by MITSUBISHI HEAVY INDUSTRIES.

Main features:

- Reduced dimensions, quick installation.
- Multiple objects for control and status (bit, byte, characters…) with KNX standard datapoint types.
- Status objects for every control available.
- Timeout for Open Window and Occupancy. Sleep function also available.
- 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.
- AC unit can be controlled simultaneously by the wired remote control of the AC unit and by KNX.
- Direct connection to the AC indoor units. Up to 16 AC indoor units can be connected to MH-RC-MBS-1, controlling them as one (not individually).
- 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.
- Up to 5 scenes can be saved and executed from KNX, fixing the desired combination of Operation Mode, Set Temperature, Fan Speed, Vane Position and Remote Controller Lock in any moment by using a simple switching.
- Four potential-free binary inputs provide the possibility to integrate many types of external devices. Also configurable from ETS, they can be used for switching, dimming, shutter/blind control, and more

2. Connection

Connection of the MH-RC-KNX-1i to the AC indoor unit

2.1 *MH-RC-KNX-1i without MHI Remote Controller*

The MH-RC-KNX-1i can be connected directly to the X/Y bus of the indoor unit (no MHI remote controller -RC from now on- also connected in the X/Y bus). If this is the case, MH-RC-KNX-1i must be configured as master (using the ETS software), see connection diagram below.

2.2 *MH-RC-KNX-1i with MHI Remote Controller*

If a MHI remote controller (RC) is present and connected to the X/Y bus, there are two configuration options:

- **Wired remote control available**. Connect the gateway as Slave in parallel with the wired remote controllers (controller acts as Master).
- **Infrared remote control available**. Connect the gateway as Master in parallel with the infrared remote controller (Infrared receiver acts as Slave).

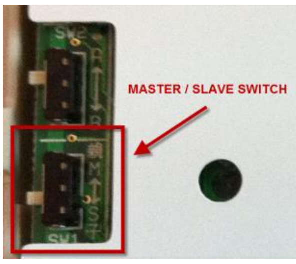


Figure 2.1 MHI RC PCB backside, Master/Slave switch

Disconnect mains power from the AC unit and use a 2 wire cable with a diameter of 0.75mm^2 to 1.25mm^2 for the connection of MH-RC-KNX-1i, Mitsubishi Heavy Industries remote controller and its corresponding indoor unit. Screw the suitably peeled cable ends in the corresponding X/Y terminals of each device, as summarized in the **Figure 2.2**.

Maximum X/Y bus length is 600 meter. MHI RC and MHI-RC-KNX-1i are no polarity dependent.

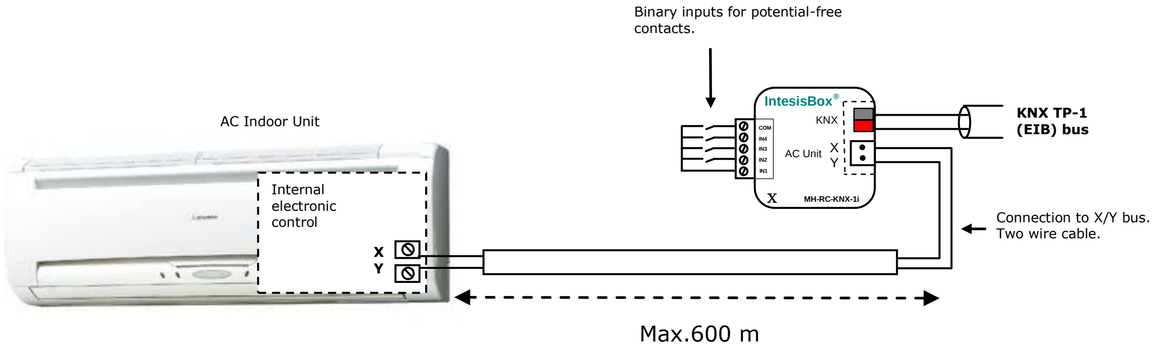
Connection of the MH-RC-KNX-1i to the KNX bus:

Disconnect power of the KNX bus. Connect the MH-RC-KNX-1i to the KNX TP-1 (EIB) bus using the KNX standard connector (red/grey) of the MH-RC-KNX-1i, respect polarity.

Reconnect power of the KNX bus, and mains power of the AC unit.

Connection diagrams:

MH-RC-KNX-1i without MHI RC


Binary inputs for potential-free contacts.
AC Indoor Unit
Internal electronic control
X
Y
IntesisBox®
KNX
AC Unit
X
Y
COM
IN4
IN3
IN2
IN1
X
MH-RC-KNX-1i
KNX TP-1 (EIB) bus
Connection to X/Y bus. Two wire cable.
Max.600 m

MH-RC-KNX-1i with MHI RC

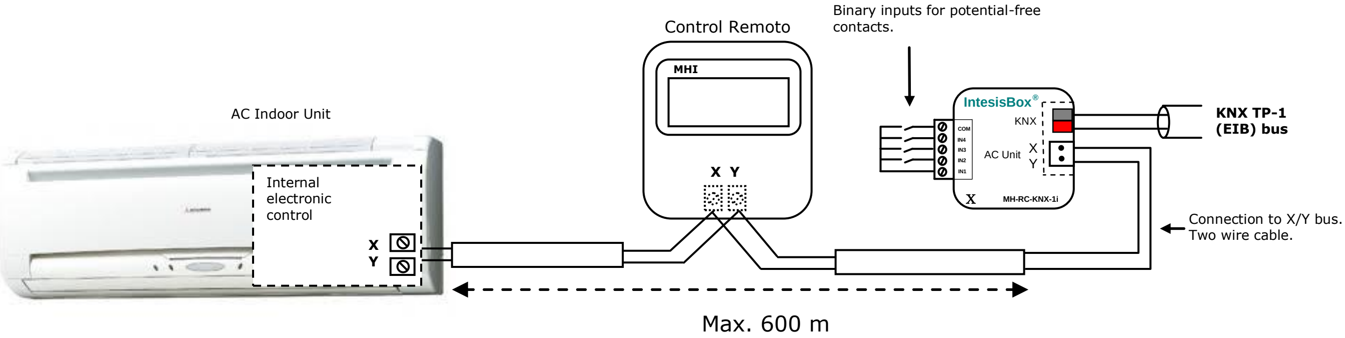


Figure 2.2 MH-RC-KNX-1i connection diagrams

3. Configuration and setup

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

ETS database for this device can be downloaded from:

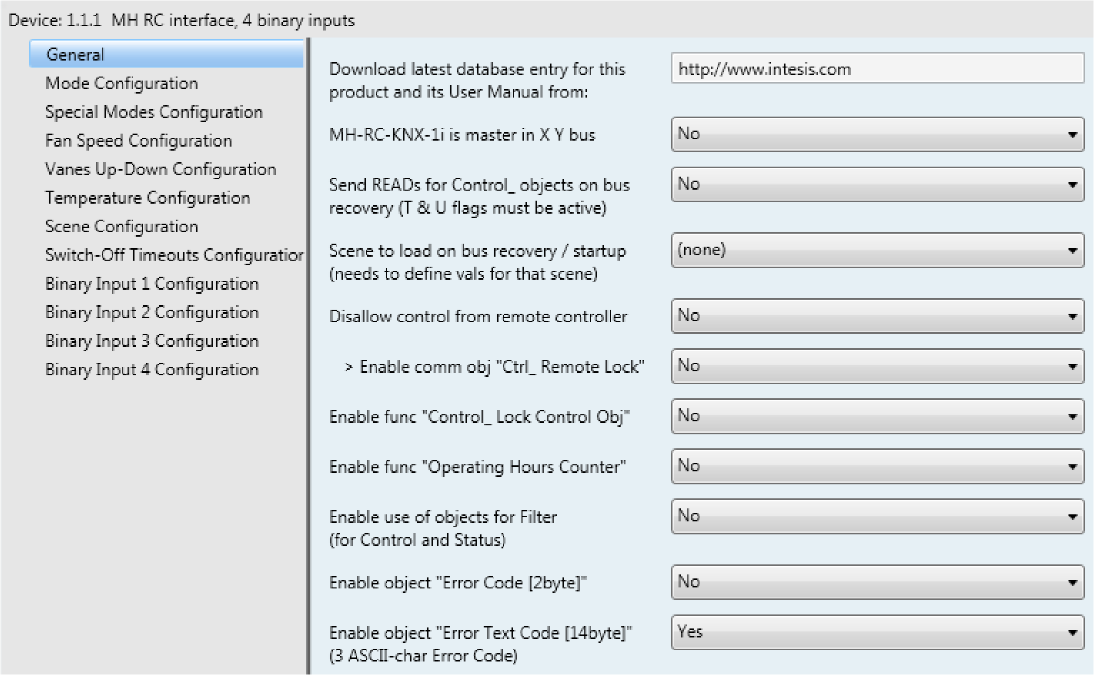
http://www.intesis.com/down/eib/MH-RC-KNX-1i.zip

Please consult the README.txt file, located inside the downloaded zip file, to find instructions on how to install the database.

⚠ ***Important**: Do not forget to select the correct settings of AC indoor unit being connected to the MH-RC-KNX-1i. This is in "Parameters" of the device in ETS.*

4. ETS Parameters

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



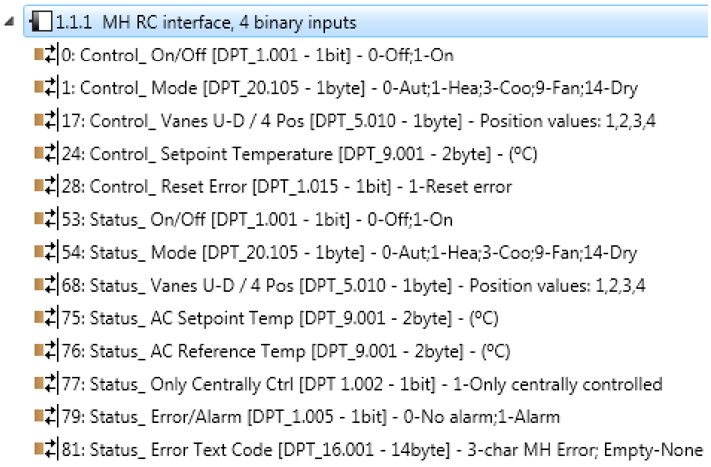
Device: 1.1.1 MH RC interface, 4 binary inputs

General
Mode Configuration
Special Modes Configuration
Fan Speed Configuration
Vanes Up-Down Configuration
Temperature Configuration
Scene Configuration
Switch-Off Timeouts Configuratior
Binary Input 1 Configuration
Binary Input 2 Configuration
Binary Input 3 Configuration
Binary Input 4 Configuration

Download latest database entry for this product and its User Manual from:	http://www.intesis.com
MH-RC-KNX-1i is master in X Y bus	No
Send READs for Control_ objects on bus recovery (T & U flags must be active)	No
Scene to load on bus recovery / startup (needs to define vals for that scene)	(none)
Disallow control from remote controller	No
> Enable comm obj "Ctrl_ Remote Lock"	No
Enable func "Control_ Lock Control Obj"	No
Enable func "Operating Hours Counter"	No
Enable use of objects for Filter (for Control and Status)	No
Enable object "Error Code [2byte]"	No
Enable object "Error Text Code [14byte]" (3 ASCII-char Error Code)	Yes

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. Also objects *Status_ AC Reference Temp* and *Status_ Error/Alarm* are shown.



1.1.1 MH RC interface, 4 binary inputs
0: Control_ On/Off [DPT_1.001 - 1bit] - 0-Off;1-On
1: Control_ Mode [DPT_20.105 - 1byte] - 0-Aut;1-Hea;3-Coo;9-Fan;14-Dry
17: Control_ Vanes U-D / 4 Pos [DPT_5.010 - 1byte] - Position values: 1,2,3,4
24: Control_ Setpoint Temperature [DPT_9.001 - 2byte] - (ºC)
28: Control_ Reset Error [DPT_1.015 - 1bit] - 1-Reset error
53: Status_ On/Off [DPT_1.001 - 1bit] - 0-Off;1-On
54: Status_ Mode [DPT_20.105 - 1byte] - 0-Aut;1-Hea;3-Coo;9-Fan;14-Dry
68: Status_ Vanes U-D / 4 Pos [DPT_5.010 - 1byte] - Position values: 1,2,3,4
75: Status_ AC Setpoint Temp [DPT_9.001 - 2byte] - (ºC)
76: Status_ AC Reference Temp [DPT_9.001 - 2byte] - (ºC)
77: Status_ Only Centrally Ctrl [DPT 1.002 - 1bit] - 1-Only centrally controlled
79: Status_ Error/Alarm [DPT_1.005 - 1bit] - 0-No alarm;1-Alarm
81: Status_ Error Text Code [DPT_16.001 - 14byte] - 3-char MH Error; Empty-None

Figure 4.2 Default communication objects

4.1 General dialog

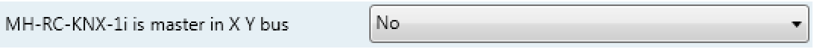
Inside this parameter's dialog it is possible to activate or change the parameters shown in the **Figure 4.1**.

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

4.1.1 MH-RC-KNX-1i is master in X Y bus

This parameter changes the gateway's behavior, being able to program it as master or slave in X Y bus.

- If set to "**no**", the gateway will work as a slave and it will be necessary to have a BRC remote controller configured as a master.
- If set to "**yes**" the gateway will be master of the bus. It is not necessary to have any BRC remote controller in this case but, if there are, they must be configured as slaves. The next parameter is also shown when selecting MH-RC-KNX-1i as master in X Y bus:



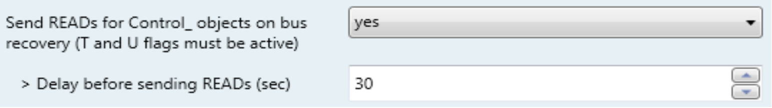
MH-RC-KNX-1i is master in X Y bus: No

Figure 4.3 Parameter detail

4.1.2 Send READs for Control_ objects on bus recovery

When this parameter is enabled, MH-RC-KNX-1i will send READ telegrams for the group addresses associated on its *Control_* objects on bus recovery or application reset/start-up.

- If set to **"no"** the gateway will not perform any action.
- If set to **"yes"** all *Control_* objects with both Transmit **(T)** and Update **(U)** flags enabled will send READs and their values will be updated with the response when received.



Send READs for Control_ objects on bus recovery (T and U flags must be active): yes

> Delay before sending READs (sec): 30

Figure 4.4 Parameter detail

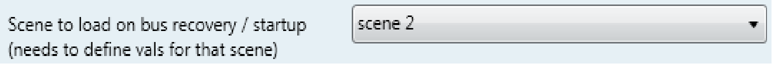
- Delay before sending READs (sec):

  With this parameter, a delay can be configured between 0 and 30 seconds for the READs sent by the *Control_* objects. This is to give time enough to other KNX devices on the bus to start-up before sending the READs.

4.1.3 Scene to load on bus recovery / startup

This parameter executes a selected scene on bus recovery or startup, only if the selected scene has an enabled preset or values previously saved from KNX bus (see Scene Configuration dialog).

If the gateway is disconnected from the indoor unit the scene will not be applied, even when connecting to the indoor unit again.



Scene to load on bus recovery / startup (needs to define vals for that scene): scene 2

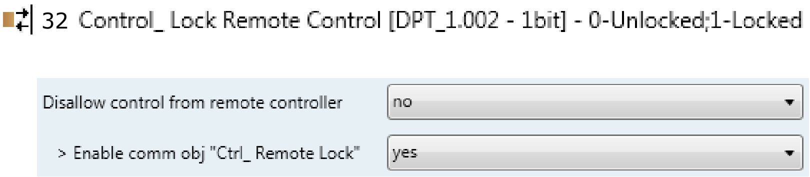
Figure 4.5 Parameter detail

4.1.4 Disallow control from remote controller

This parameter allows:

1- Having the remote controller always locked, or
2- Decide through a new communication object if the RC is locked or not.

- If set to **"yes"** all the actions performed through the remote controller will be disabled.
- If set to **"no"** the remote controller will work as usually. It also appears a new parameter and the communication object *Control_ Lock Remote Control*.



32 Control_ Lock Remote Control [DPT_1.002 - 1bit] - 0-Unlocked;1-Locked

Disallow control from remote controller: no

> Enable comm obj "Ctrl_ Remote Lock": yes

Figure 4.6 Communication object and parameter detail

➢ Enable comm obj "Ctrl_ Remote Lock":

If set to **"no"** the object will not be shown.

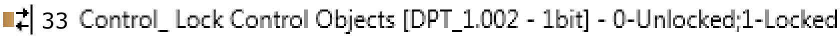
If set to **"yes"** the *Control_ Lock Remote Control* object will appear.

- When a **"1"** value is sent to this communication object, the remote controller is locked. To be unlocked a **"0"** value must be sent. The gateway remembers the last value received even if a KNX bus reset/failure happens.

⚠ ***Important:*** *If an initial scene is enabled and it has as Value for Remote Lock (unchanged) or unlocked, this would unlock the remote controller because the initial scene has priority over the Control_ Lock Remote Control communication object.*

4.1.5 Enable func "Control_ Lock Control Obj"

This parameter shows/hide the *Control_ Lock Control Obj* communication object which, depending on the sent value, locks or unlocks ALL the *Control_* communication objects except itself.



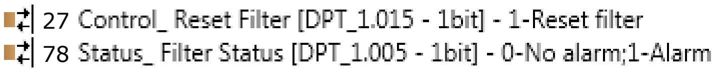
33 Control_ Lock Control Objects [DPT_1.002 - 1bit] - 0-Unlocked;1-Locked

- If set to **"no"** the object will not be shown.
- If set to **"yes"** the *Control_ Lock Control Objects* object will appear.

- When a **"1"** value is sent to this communication object, all the *Control_* objects will be locked. To unlock a **"0"** value must be sent, as the gateway remembers the last value received even if a KNX bus reset/failure happens.

4.1.6 Enable use of objects for Filter

This parameter shows/hides *Control_ Reset Filter* and *Status_ Filter Status* that lets reset the filter status and also monitor if there is a filter alarm.



27 Control_ Reset Filter [DPT_1.015 - 1bit] - 1-Reset filter
78 Status_ Filter Status [DPT_1.005 - 1bit] - 0-No alarm;1-Alarm

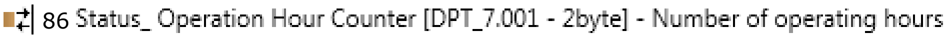
○ If set to **"no"** the object will not be shown.

○ If set to **"yes"** *Control_ Reset Filter* and *Status_ Filter Status* objects will appear.

- When a **"0"** value is shown in the *Status_* object, it indicates no filter alarm. When a **"1"** value is shown in the *Status_* object, it indicates that the filter is full. Once the filter has been cleaned, alarm should be reset sending a **"1"** value to the *Control_ Reset Filter* object*.*

4.1.7 Enable func "Operating Hours Counter"

This parameter shows/hides the *Status_ Operation Hour Counter* communication object which counts the number of operating hours for the MH-RC-KNX-1i.



86 Status_ Operation Hour Counter [DPT_7.001 - 2byte] - Number of operating hours

○ If set to **"no"** the object will not be shown.

○ If set to **"yes"** the *Status_ Operation Hour Counter* object will appear.

- This object can be read and sends its status every time an hour is counted. The gateway keeps that count in memory and the status is sent also after a KNX bus reset/failure. Although this object is marked as a *Status_* object it also can be written to update the counter when needed. To reset the counter should be written a **"0"** value.

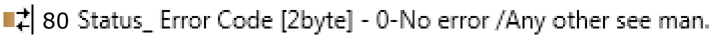
⚠ ***Important:*** *This object comes by default without the write* ***(W)*** *flag activated. If is necessary to write on it, this flag must be activated.*

⚠ ***Important:*** *This object will also return its status, every time a value is written, only if it's different from the existing one.*

⚠ ***Important:*** *If the stored value is 0 hours, the gateway will not send the status to KNX.*

4.1.8 Enable object "Error Code [2byte]"

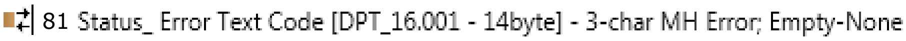
This parameter shows/hides the *Status_ Error Code* communication object which shows the indoor unit errors, if occurred, in numeric format.


80 Status_ Error Code [2byte] - 0-No error /Any other see man.

- ○ If set to **"no"** the object will not be shown.
- ○ If set to **"yes"** the *Status_ Error Code [2byte]* 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.

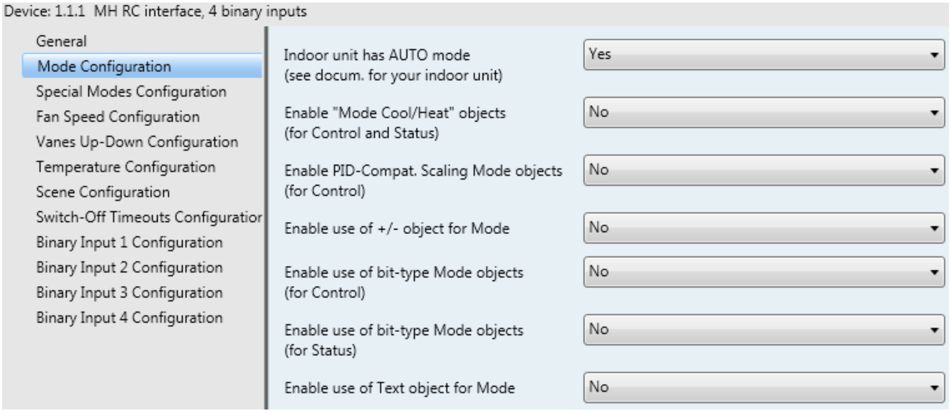
4.1.9 Enable object "Error Text Code [14byte]"

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


81 Status_ Error Text Code [DPT_16.001 - 14byte] - 3-char MH Error; Empty-None

- ○ If set to **"no"** the object will not be shown.
- ○ If set to **"yes"** 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 at the remote controller and at the error list from the indoor unit manufacturer. If the object's value is empty that means no error.

4.2 Mode Configuration dialog

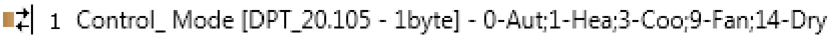

Device: 1.1.1 MH RC interface, 4 binary inputs

General
Mode Configuration
Special Modes Configuration
Fan Speed Configuration
Vanes Up-Down Configuration
Temperature Configuration
Scene Configuration
Switch-Off Timeouts Configuratior
Binary Input 1 Configuration
Binary Input 2 Configuration
Binary Input 3 Configuration
Binary Input 4 Configuration

Indoor unit has AUTO mode (see docum. for your indoor unit)	Yes
Enable "Mode Cool/Heat" objects (for Control and Status)	No
Enable PID-Compat. Scaling Mode objects (for Control)	No
Enable use of +/- object for Mode	No
Enable use of bit-type Mode objects (for Control)	No
Enable use of bit-type Mode objects (for Status)	No
Enable use of Text object for Mode	No

Figure 4.7 Default Mode Configuration dialog

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


1 Control_ 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 Indoor unit has AUTO mode

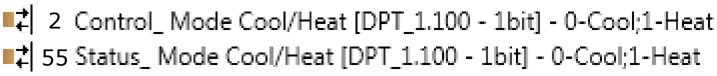
This parameter has to be used to indicate if the indoor unit has the *auto mode* available.

- If set to **"no"**, the indoor unit doesn't have the *auto mode* available.
- If set to **"yes"**, the infoor unit has the *auto mode* available.

⚠ ***Important:*** *Read the documentation of your indoor unit to check if it has AUTO mode available.*

4.2.2 Enable use of Heat / Cool bit-type obj

This parameter shows/hides the *Control_* and *Status_ Mode Cool/Heat* communication objects.

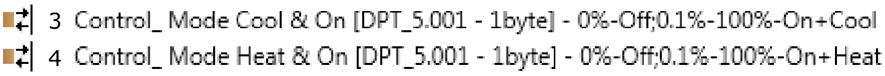


2 Control_ Mode Cool/Heat [DPT_1.100 - 1bit] - 0-Cool;1-Heat
55 Status_ Mode Cool/Heat [DPT_1.100 - 1bit] - 0-Cool;1-Heat

- If set to **"no"** the objects will not be shown.
- If set to **"yes"** 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 PID-Compat. Scaling Mode Objects

This parameter shows/hides the *Control_ Mode Cool & On* and *Control_ Mode Heat & On* communication objects.



3 Control_ Mode Cool & On [DPT_5.001 - 1byte] - 0%-Off;0.1%-100%-On+Cool
4 Control_ Mode Heat & On [DPT_5.001 - 1byte] - 0%-Off;0.1%-100%-On+Heat

- If set to **"no"** the objects will not be shown.
- If set to **"yes"** the *Control_ Mode Cool & On* and *Control_ Mode Heat & On* objects will appear.
    - These objects provide compatibility with those KNX thermostats that control the demand of heating or cooling by using scaling (percentage) objects. In

these thermostats, the percentage demand is meant to be applied on a fluid valve of the heating / cooling system.

- MH-RC-KNX-1i device does not provide individual control on the internal parts of the indoor unit (as can be its compressor, refrigerant valves, etc). Rather, it provides the same level of control as a (user) remote controller.

- Objects "Control_ Mode Cool & On" and "Control_ Mode Heat & On" intend to bring compatibility between thermostats oriented to the control of custom heating / cooling systems and ready-made AC indoor units, by applying the following logic:

    - Whenever a non-zero value (>0%) is received at "Control_ Mode Cool & On", indoor unit will switch On in COOL mode.

    - Whenever a non-zero value (>0%) is received at "Control_ Mode Heat & On", indoor unit will switch On in HEAT mode.

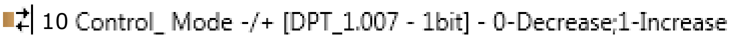
        - Lastest updated object will define the operating mode

    - Indoor unit will switch off only when both objects become zero (0%) – or when an OFF is requested at object "0. On/Off [DPT_1.001 - 1bit]"

⚠ ***Important:*** *These objects function is only to send On/Off and Cool/Heat to the indoor unit. The PID (Inverter system) is calculated by the indoor unit itself. Please consider introducing an appropriate PID configuration to the external KNX thermostat to not interfere the indoor unit PID.*

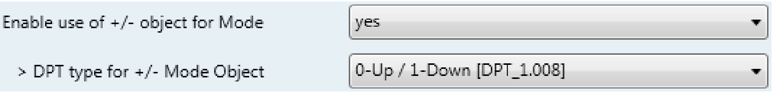
4.2.4 Enable use of +/- object for Mode

This parameter shows/hides the *Control_ Mode -/+* communication object which lets change the indoor unit mode by using two different datapoint types.


10 Control_ Mode -/+ [DPT_1.007 - 1bit] - 0-Decrease;1-Increase

○ If set to **"no"** the object will not be shown.

○ If set to **"yes"** the *Control_ Mode -/+* object and a new parameter will appear.


Enable use of +/- object for Mode: yes

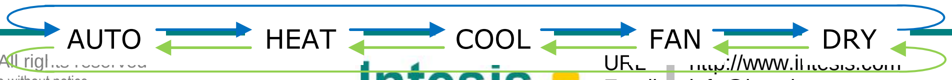
> DPT type for +/- Mode Object: 0-Up / 1-Down [DPT_1.008]

Figure 4.8 Parameter detail

➢ <u>DPT type for +/- Mode Object</u>

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:

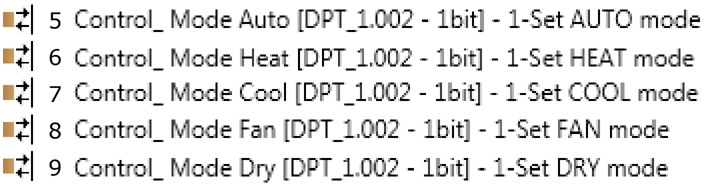


- 🟦 Up / Increase
- 🟩 Down / Decrease

⚠ ***Important:*** *Read the documentation of your indoor unit to check if it has AUTO mode available.*

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

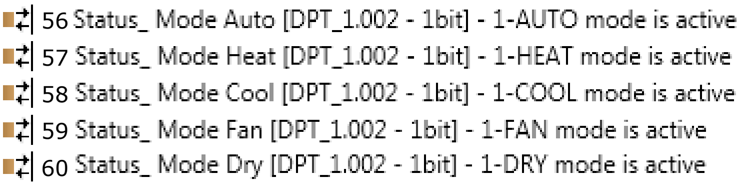
This parameter shows/hides the bit-type *Control_ Mode* objects.


5 Control_ Mode Auto [DPT_1.002 - 1bit] - 1-Set AUTO mode
6 Control_ Mode Heat [DPT_1.002 - 1bit] - 1-Set HEAT mode
7 Control_ Mode Cool [DPT_1.002 - 1bit] - 1-Set COOL mode
8 Control_ Mode Fan [DPT_1.002 - 1bit] - 1-Set FAN mode
9 Control_ Mode Dry [DPT_1.002 - 1bit] - 1-Set DRY 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.

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

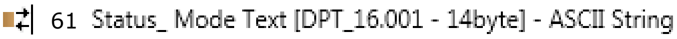
This parameter shows/hides the bit-type *Status_ Mode* objects.


56 Status_ Mode Auto [DPT_1.002 - 1bit] - 1-AUTO mode is active
57 Status_ Mode Heat [DPT_1.002 - 1bit] - 1-HEAT mode is active
58 Status_ Mode Cool [DPT_1.002 - 1bit] - 1-COOL mode is active
59 Status_ Mode Fan [DPT_1.002 - 1bit] - 1-FAN mode is active
60 Status_ Mode Dry [DPT_1.002 - 1bit] - 1-DRY mode 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.

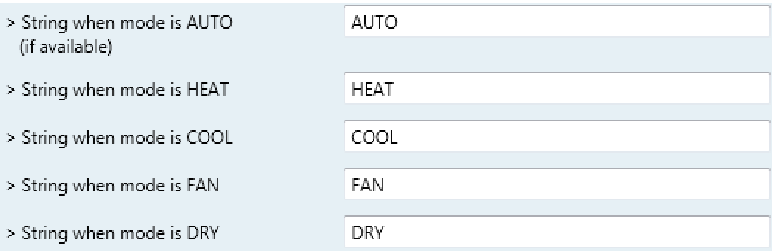
4.2.7 Enable use of Text object for Mode

This parameter shows/hides the *Status_ Mode Text* communication object.


61 Status_ Mode Text [DPT_16.001 - 14byte] - ASCII String

- If set to **"no"** the object will not be shown.

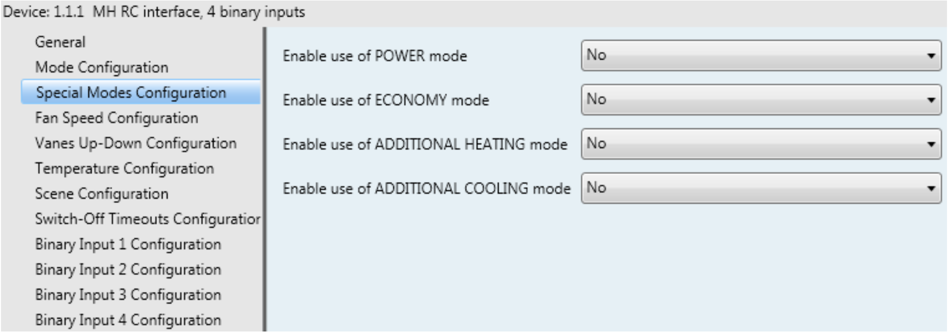
- ○ If set to **"yes"** the *Status_ Mode Text* object will appear. Also, in the parameters, will be shown five text fields, one for each mode, that will let modify the text string displayed by the *Status_ Mode Text* when changing mode.



> String when mode is AUTO (if available)	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 4.9 Parameter detail

4.3 *Special Modes Configuration dialog*



Device: 1.1.1 MH RC interface, 4 binary inputs

General
Mode Configuration
Special Modes Configuration
Fan Speed Configuration
Vanes Up-Down Configuration
Temperature Configuration
Scene Configuration
Switch-Off Timeouts Configuratior
Binary Input 1 Configuration
Binary Input 2 Configuration
Binary Input 3 Configuration
Binary Input 4 Configuration

Enable use of POWER mode	No
Enable use of ECONOMY mode	No
Enable use of ADDITIONAL HEATING mode	No
Enable use of ADDITIONAL COOLING mode	No

Figure 4.10 Default Special Modes Configuration dialog

The Special Modes can be parameterized through the ETS parameters dialog, and they can be used to give extra functionality.

⚠ ***Important:*** *When executing any of the Special Modes the real state of the indoor unit will NOT be shown in KNX.*

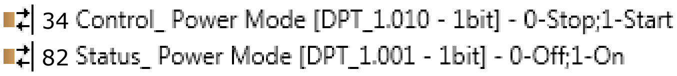
⚠ ***Important:*** *When the predefined time for the Special Mode is finished or a* ***"0"*** *value is sent to stop it, the previous state will be recovered.*

⚠ ***Important:*** *If a value concerning On/Off, Mode, Fan Speed or Setpoint Temperature is received from KNX while any Special Mode is running (****"1"****), the Special Mode will stop and the previous state will be recovered. The value received will be also applied then.*

⚠ ***Important:*** *If a value concerning On/Off, Mode, Fan Speed or Setpoint Temperature is modified through the remote controller, the Special Mode will stop WITHOUT recovering the previous state. Then the real indoor unit state will be shown in KNX including the new value received through the remote controller.*

4.3.1 Enable use of POWER mode

This parameter shows/hides the *Control_ Power Mode* and *Status_ Power Mode* communication objects. The Power Mode lets change the Setpoint Temperature and the Fan Speed within a given period of time.


34 Control_ Power Mode [DPT_1.010 - 1bit] - 0-Stop;1-Start
82 Status_ Power Mode [DPT_1.001 - 1bit] - 0-Off;1-On

- If set to **"no"** the objects will not be shown.

- If set to **"yes"** the *Control_ Power Mode* and *Status_ Power Mode* objects and new parameters will appear.

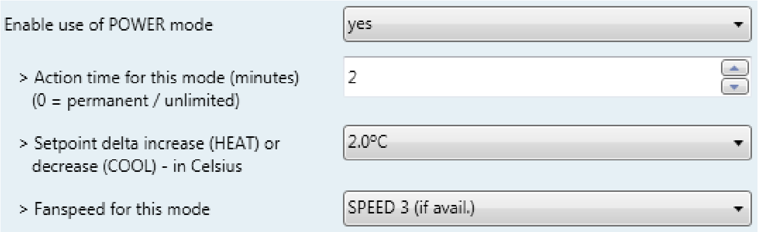

Enable use of POWER mode: yes
> Action time for this mode (minutes) (0 = permanent / unlimited): 2
> Setpoint delta increase (HEAT) or decrease (COOL) - in Celsius: 2.0ºC
> Fanspeed for this mode: SPEED 3 (if avail.)

Figure 4.11 Parameter detail

- When a **"1"** value is sent to the *Control_* communication object Power Mode will be enabled, and the *Status_* object will return this value.

- When a **"0"** value is sent to the *Control_* communication object, Power Mode will be disabled, and the *Status_* object will return this value.

⚠ ***Important:** This mode will ONLY work if the indoor unit is both turned on and in a Heat, Cool, Auto-Heat or Auto-Cool Mode.*

➢ Action time for this mode (minutes):

Duration of Power Mode, in minutes, once started.

➢ Setpoint delta increase (HEAT) or decrease (COOL) – in Celsius:

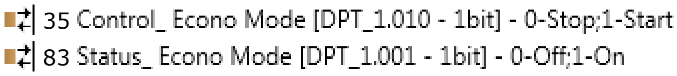
Number of degrees Celsius that will increase in Heat Mode, or decrease in Cool Mode, while in Power Mode.

➢ Fan Speed for this mode:

Fan Speed that will be set in the unit while in Power Mode.

4.3.2 Enable use of ECONOMY mode

This parameter shows/hides the *Control_ Econo Mode* and *Status_ Econo Mode* communication objects. The Econo Mode lets change the Setpoint Temperature and the Fan Speed within a given period of time.



35 Control_ Econo Mode [DPT_1.010 - 1bit] - 0-Stop;1-Start
83 Status_ Econo Mode [DPT_1.001 - 1bit] - 0-Off;1-On

- If set to **"no"** the objects will not be shown.

- If set to **"yes"** the *Control_ Econo Mode* and *Status_ Econo Mode* objects and new parameters will appear.

  - When a **"1"** value is sent to the *Control_* communication object, EconoMode will be enabled, and the *Status_* object will return this value.

  - When a **"0"** value is sent to the *Control_* communication object, EconoMode will be disabled, and the *Status_* object will return this value.

  ⚠ ***Important:*** *This mode will ONLY work if the indoor unit is both turned on and in a Heat, Cool, Auto-Heat or Auto-Cool Mode.*

➤ Action time for this mode (minutes):

Duration of EconoMode, in minutes, once started.

➤ Setpoint delta increase (HEAT) or decrease (COOL) – in Celsius:

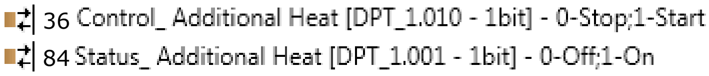
Number of degrees Celsius that will increase in Heat Mode, or decrease in Cool Mode, while in EconoMode.

➤ Fan Speed for this mode:

Fan Speed that will be set in the unit while in EconoMode.

4.3.3 Enable use of ADDITIONAL HEATING mode

This parameter shows/hides the *Control_ Additional Heat Mode* and *Status_ Additional Heat Mode* communication objects. The Additional Heating Mode lets change the Setpoint Temperature and the Fan Speed within a given period of time.



36 Control_ Additional Heat [DPT_1.010 - 1bit] - 0-Stop;1-Start
84 Status_ Additional Heat [DPT_1.001 - 1bit] - 0-Off;1-On

- If set to **"no"** the objects will not be shown.

- If set to **"yes"** the Control_ Start Additional Heat Mode and Status_ Additional Heat Mode objects and new parameters will appear.

  - When a **"1"** value is sent to the *Control_* communication object, Additional Heating Mode will be enabled, and the *Status_* object will return this value.

  - When a **"0"** value is sent to the *Control_* communication object, Additional Heating Mode will be disabled, and the *Status_* object will return this value.

⚠ ***Important:*** *This mode will ALWAYS turn on the indoor unit in Heat mode.*

- Action time for this mode (minutes):

  Duration of Additional Heating Mode, in minutes, once started.

- Setpoint temp for this mode (ºC):

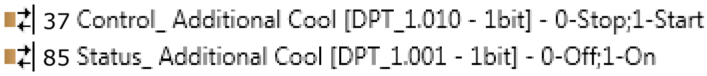
  Setpoint temperature that will be applied while in Additional Heating Mode.

- Fan Speed for this mode:

  Fan Speed that will be set in the unit while in Additional Heating Mode.

4.3.4 Enable use of ADDITIONAL COOLING mode

This parameter shows/hides the *Control_ Additional Cool Mode* and *Status_ Additional Cool Mode* communication objects. The Additional Heating Mode lets change the Setpoint Temperature and the Fan Speed within a given period of time.



37 Control_ Additional Cool [DPT_1.010 - 1bit] - 0-Stop;1-Start

85 Status_ Additional Cool [DPT_1.001 - 1bit] - 0-Off;1-On

- If set to **"no"** the objects will not be shown.

- If set to **"yes"** the Control_ Start Additional Cool Mode and Status_ Additional Cool Mode objects and new parameters will appear.

  - When a **"1"** value is sent to the *Control_* communication object, Additional Cooling Mode will be enabled, and the *Status_* object will return this value.

  - When a **"0"** value is sent to the *Control_* communication object, Additional Cooling Mode will be disabled, and the *Status_* object will return this value.

  ⚠ ***Important:*** *This mode will ALWAYS turn on the indoor unit in Cool mode.*

- Action time for this mode (minutes):

  Duration of Additional Cooling Mode, in minutes, once started.

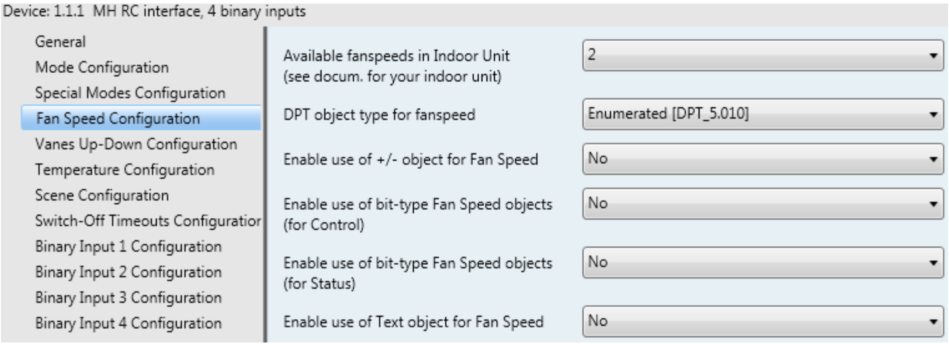
- Setpoint temp for this mode (ºC):

  Setpoint temperature that will be applied while in Additional Cooling Mode.

- Fan Speed for this mode:

  Fan Speed that will be set in the unit while in Additional Cooling Mode.

4.4 Fan Speed Configuration dialog


Device: 1.1.1 MH RC interface, 4 binary inputs
General
Mode Configuration
Special Modes Configuration
Fan Speed Configuration
Vanes Up-Down Configuration
Temperature Configuration
Scene Configuration
Switch-Off Timeouts Configuratior
Binary Input 1 Configuration
Binary Input 2 Configuration
Binary Input 3 Configuration
Binary Input 4 Configuration

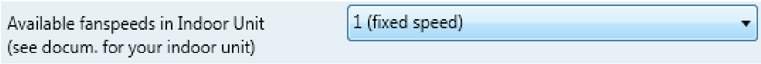
Available fanspeeds in Indoor Unit (see docum. for your indoor unit)	2
DPT object type for fanspeed	Enumerated [DPT_5.010]
Enable use of +/- object for Fan Speed	No
Enable use of bit-type Fan Speed objects (for Control)	No
Enable use of bit-type Fan Speed objects (for Status)	No
Enable use of Text object for Fan Speed	No

Figure 4.12 Default Fan Speed Configuration dialog

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

4.4.1 Available fanspeeds in Indoor Unit

This parameter lets choose how many fan speeds are available in the indoor unit.



Available fanspeeds in Indoor Unit (see docum. for your indoor unit): 1 (fixed speed)

Figure 4.13 Parameter detail

⚠ ***Important:*** *Read the documentation of your indoor unit to check how many fan speeds are available.*

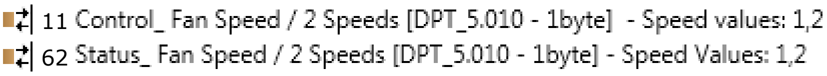
⚠ ***Important:*** *If "1" fan speed is selected, no Fan Speed communication object will appear in the ETS software.*

4.4.2 DPT object type for fanspeed

With this parameter is possible to change de 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.

⚠ ***Important:*** *The communication objects shown in this section may be different depending on the number of fan speeds available, although they all share the same communication object number.*

○ When **"Enumerated [DPT 5.010]"** is selected, *Control_ Fan Speed* and *Status_ Fan Speed* communication objects for this DPT will appear.



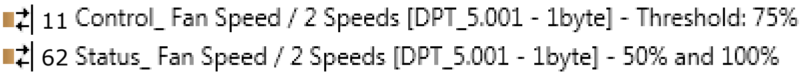
11 Control_ Fan Speed / 2 Speeds [DPT_5.010 - 1byte] - Speed values: 1,2
62 Status_ Fan Speed / 2 Speeds [DPT_5.010 - 1byte] - Speed Values: 1,2

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"**; the third one (if available) will be selected sending a **"3"**; the fourth one (if available) will be selected sending a **"4"**.

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 **"4"** 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.



11 Control_ Fan Speed / 2 Speeds [DPT_5.001 - 1byte] - Threshold: 75%
62 Status_ Fan Speed / 2 Speeds [DPT_5.001 - 1byte] - 50% and 100%

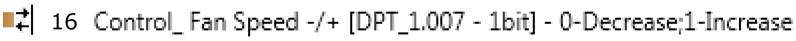
The next table shows the range of values that can be sent through the *Control_* object and the value returned by the *Status_* object.

	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%

⚠ ***Important:** Read the documentation of your indoor unit to check how many fan speeds are available.*

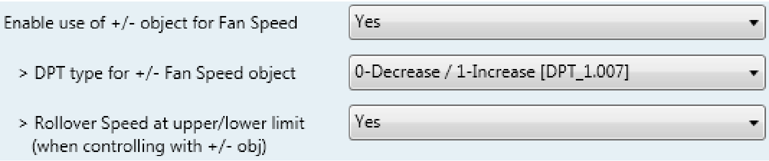
4.4.3 Enable use of +/- object for Fan Speed

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



16 Control_ Fan Speed -/+ [DPT_1.007 - 1bit] - 0-Decrease;1-Increase

- 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: Yes

> DPT type for +/- Fan Speed object: 0-Decrease / 1-Increase [DPT_1.007]

> Rollover Speed at upper/lower limit (when controlling with +/- obj): Yes

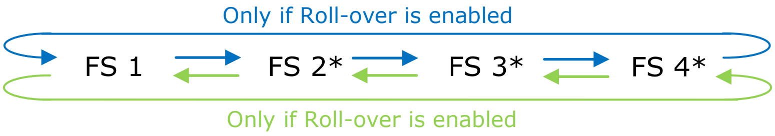
Figure 4.14 Parameter detail

- <u>DPT type for +/- Fan Speed object</u>

  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.

- <u>Roll-over Speed at upper/lower limit</u>

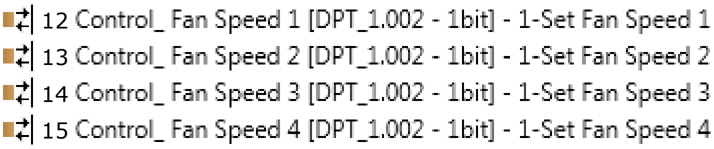
  This parameter lets choose if roll-over will be enabled (**"yes"**) or disabled (**"no"**) for the *Control_ Fan Speed -/+* object.



🟦 Up / Increase
🟩 Down / Decrease
* If Available

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

This parameter shows/hides the bit-type *Control_ Fan Speed* objects.

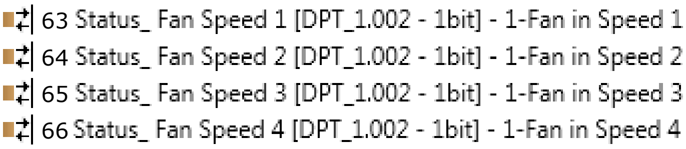


12 Control_ Fan Speed 1 [DPT_1.002 - 1bit] - 1-Set Fan Speed 1
13 Control_ Fan Speed 2 [DPT_1.002 - 1bit] - 1-Set Fan Speed 2
14 Control_ Fan Speed 3 [DPT_1.002 - 1bit] - 1-Set Fan Speed 3
15 Control_ Fan Speed 4 [DPT_1.002 - 1bit] - 1-Set Fan Speed 4

- If set to **"no"** the objects will not be shown.
- If set to **"yes"** the *Control_ Fan Speed* objects for Speed 1, Speed 2 (if available), Speed 3 (if available), and Speed 4 (if available) will appear. To activate a Fan Speed by using these objects a **"1"** value has to be sent.

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

This parameter shows/hides the bit-type *Status_ Fan Speed* objects.

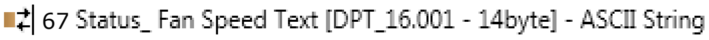


63 Status_ Fan Speed 1 [DPT_1.002 - 1bit] - 1-Fan in Speed 1
64 Status_ Fan Speed 2 [DPT_1.002 - 1bit] - 1-Fan in Speed 2
65 Status_ Fan Speed 3 [DPT_1.002 - 1bit] - 1-Fan in Speed 3
66 Status_ Fan Speed 4 [DPT_1.002 - 1bit] - 1-Fan in Speed 4

- If set to **"no"** the objects will not be shown.
- If set to **"yes"** the *Status_ Fan Speed* objects for Speed 1, Speed 2 (if available), Speed 3 (if available), and Speed 4 (if available) will appear. When a Fan Speed is enabled, a **"1"** value is returned through its bit-type object.

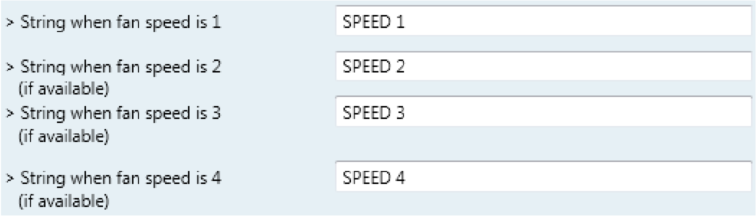
4.4.6 Enable use of Text object for Fan Speed

This parameter shows/hides the *Status_ Fan Speed Text* communication object.



67 Status_ Fan Speed Text [DPT_16.001 - 14byte] - ASCII String

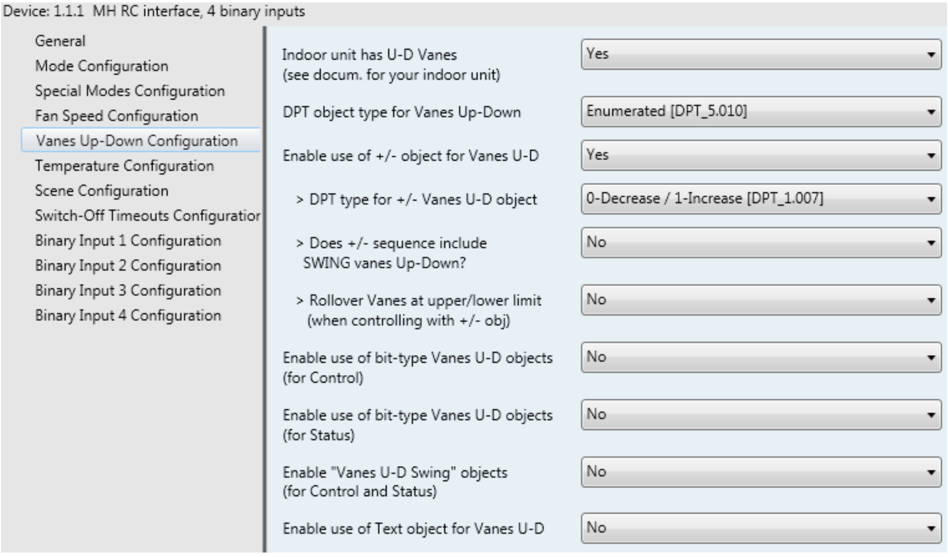
- If set to **"no"** the object will not be shown.
- If set to **"yes"** the *Status_ Fan Speed Text* object will appear. Also, in the parameters, will be shown four text fields, one for each Fan Speed, that will let modify the text string displayed by the *Status_ Fan Speed Text* when changing a fan speed.



> String when fan speed is 1	SPEED 1
> String when fan speed is 2 (if available)	SPEED 2
> String when fan speed is 3 (if available)	SPEED 3
> String when fan speed is 4 (if available)	SPEED 4

Figure 4.15 Parameter detail

4.5 Vanes Up-Down Configuration dialog



Device: 1.1.1 MH RC interface, 4 binary inputs

- General
- Mode Configuration
- Special Modes Configuration
- Fan Speed Configuration
- Vanes Up-Down Configuration
- Temperature Configuration
- Scene Configuration
- Switch-Off Timeouts Configuratior
- Binary Input 1 Configuration
- Binary Input 2 Configuration
- Binary Input 3 Configuration
- Binary Input 4 Configuration

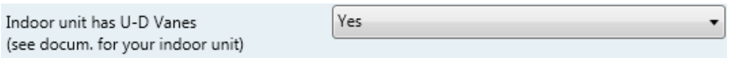
Indoor unit has U-D Vanes (see docum. for your indoor unit)	Yes
DPT object type for Vanes Up-Down	Enumerated [DPT_5.010]
Enable use of +/- object for Vanes U-D	Yes
> DPT type for +/- Vanes U-D object	0-Decrease / 1-Increase [DPT_1.007]
> Does +/- sequence include SWING vanes Up-Down?	No
> Rollover Vanes at upper/lower limit (when controlling with +/- obj)	No
Enable use of bit-type Vanes U-D objects (for Control)	No
Enable use of bit-type Vanes U-D objects (for Status)	No
Enable "Vanes U-D Swing" objects (for Control and Status)	No
Enable use of Text object for Vanes U-D	No

Figure 4.16 Vanes Up-Down Configuration dialog

All the parameters in this section are related with the Vanes Up-Down properties and communication objects.

4.5.1 Indoor unit has U-D Vanes

This parameter lets choose if the unit has Up-Down Vanes available or not.



Indoor unit has U-D Vanes (see docum. for your indoor unit)	Yes

Figure 4.17 Parameter detail

- ○ If set to **"no"** all the parameters and communication objects for the Up-Down Vanes will not be shown.
- ○ If set to **"yes"** all the parameters and communication objects (if enabled in the parameters dialog) for the Up-Down Vanes will be shown.

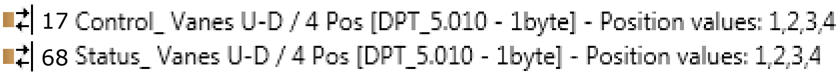
⚠ ***Important:*** *Read the documentation of your indoor unit to check if Up-Down Vanes are available.*

4.5.2 DPT object type for Vanes Up-Down

With this parameter is possible to change the DPT for the *Control_ Vanes U-D* and *Status_ Vanes U-D* byte-type communication objects. Datapoints Scaling (DPT_5.001) and Enumerated (DPT_5.010) can be selected.

⚠ ***Important:*** *The communication objects shown in this section may be different depending on the number of vanes position available, although they all share the same communication object number.*

- When **“Enumerated [DPT 5.010]”** is selected, *Control_ Vanes U-D* and *Status_ Vanes U-D* communication objects for this DPT will appear.

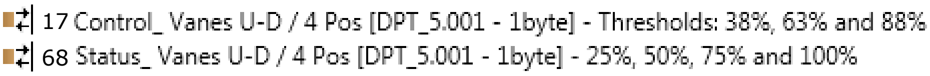

17 Control_ Vanes U-D / 4 Pos [DPT_5.010 - 1byte] - Position values: 1,2,3,4
68 Status_ Vanes U-D / 4 Pos [DPT_5.010 - 1byte] - Position values: 1,2,3,4

To choose a vanes position, values from **“1”** to **“4”** can be sent to the *Control_* object. Each value will correspond to the position (i.e. Value **“3”** = Position 3).

The *Status_* object will always return the value for the vane position selected.

⚠ ***Important:*** *If a **“0”** value is sent to the Control_ object, the Position 1 will be selected. If a value bigger than **“4”** is sent to the Control_ object, then the higher Position will be selected.*

- When **“Scaling [DPT 5.001]”** is selected, *Control_ Vanes U-D* and *Status_ Vanes U-D* communication objects for this DPT will appear.

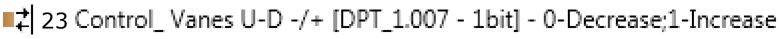

17 Control_ Vanes U-D / 4 Pos [DPT_5.001 - 1byte] - Thresholds: 38%, 63% and 88%
68 Status_ Vanes U-D / 4 Pos [DPT_5.001 - 1byte] - 25%, 50%, 75% and 100%

The next table shows the range of values that can be sent through the *Control_* object and the value returned by the *Status_* object.

	Vanes Pos.1	*Vanes Pos.2*	*Vanes Pos.3*	*Vanes Pos.4*
*Control_*	0% - 37%	38% - 62%	63% - 87%	88% - 100%
*Status_*	25%	50%	75%	100%

4.5.3 Enable use of +/- object for Vanes U-D

This parameter shows/hides the *Control_ Vanes U-D -/+* communication object which lets change the indoor unit vane position by using two different datapoint types.


23 Control_ Vanes U-D -/+ [DPT_1.007 - 1bit] - 0-Decrease;1-Increase

- If set to **“no”** the object will not be shown.
- If set to **“yes”** the *Control_ Vanes U-D -/+* object and a new parameter will appear.

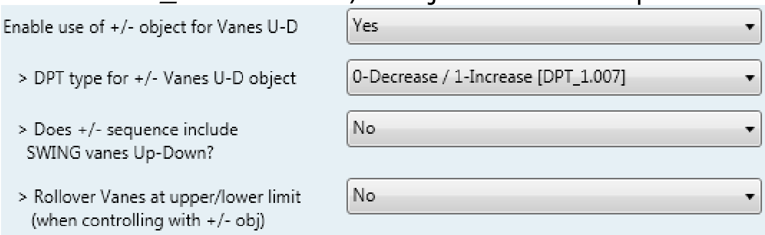

Enable use of +/- object for Vanes U-D: Yes
> DPT type for +/- Vanes U-D object: 0-Decrease / 1-Increase [DPT_1.007]
> Does +/- sequence include SWING vanes Up-Down?: No
> Rollover Vanes at upper/lower limit (when controlling with +/- obj): No

Figure 4.18 Parameter detail

- DPT type for +/- Vanes U-D object

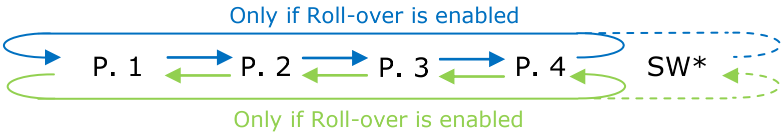
  This parameter lets choose between the datapoints **0-Up / 1-Down [DPT_1.008]** and **0-Decrease / 1-Increase [DPT_1.007]** for the *Control_ Vanes U-D -/+* object.

- Does +/- sequence include SWING vanes Up-Down?

  This parameter lets choose if SWING function is included (**"yes"**) or not (**"no"**) in the sequence when using *Control_ Vanes U-D -/+* object as shown in the discontinuous segment at the picture below.

- Roll over Vanes at upper/lower limit

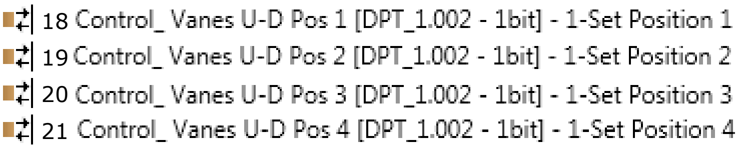
  This parameter lets choose if roll-over will be enabled (**"yes"**) or disabled (**"no"**) for the *Control_ Vanes U-D -/+* object.



🟦 Up / Increase
🟩 Down / Decrease
* If Available

4.5.4 Enable use of bit-type Vane U-D objects (for Control)

This parameter shows/hides the bit-type *Control_ Vanes U-D* objects.

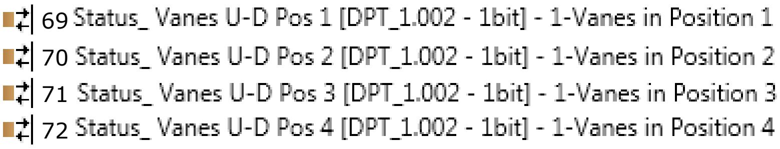


18 Control_ Vanes U-D Pos 1 [DPT_1.002 - 1bit] - 1-Set Position 1
19 Control_ Vanes U-D Pos 2 [DPT_1.002 - 1bit] - 1-Set Position 2
20 Control_ Vanes U-D Pos 3 [DPT_1.002 - 1bit] - 1-Set Position 3
21 Control_ Vanes U-D Pos 4 [DPT_1.002 - 1bit] - 1-Set Position 4

- If set to **"no"** the objects will not be shown.
- If set to **"yes"** the *Control_ Vanes U-D* objects for each Position will appear. To activate a Vanes Position by using these objects, a **"1"** value has to be sent.

4.5.5 Enable use of bit-type Vane U-D objects (for Status)

This parameter shows/hides the bit-type *Status_ Vanes U-D* objects.

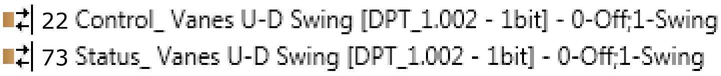


69 Status_ Vanes U-D Pos 1 [DPT_1.002 - 1bit] - 1-Vanes in Position 1
70 Status_ Vanes U-D Pos 2 [DPT_1.002 - 1bit] - 1-Vanes in Position 2
71 Status_ Vanes U-D Pos 3 [DPT_1.002 - 1bit] - 1-Vanes in Position 3
72 Status_ Vanes U-D Pos 4 [DPT_1.002 - 1bit] - 1-Vanes in Position 4

- If set to **"no"** the objects will not be shown.
- If set to **"yes"** the *Status_ Vanes U-D* objects for each Position will appear. When a Vanes Position is enabled, a **"1"** value is returned through its bit-type object.

4.5.6 Enable "Vanes U-D Swing" objects (for Control and Status)

This parameter shows/hides the *Control_ Vanes U-D Swing* and *Status_ Vanes U-D Swing* communication objects.

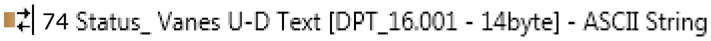


22 Control_ Vanes U-D Swing [DPT_1.002 - 1bit] - 0-Off;1-Swing
73 Status_ Vanes U-D Swing [DPT_1.002 - 1bit] - 0-Off;1-Swing

- If set to **"no"** the objects will not be shown.
- If set to **"yes"** the *Control_ Vanes U-D Swing* and *Status_ Vanes U-D Swing* objects will appear.
  - When a **"1"** value is sent to the *Control_* communication object, Vanes Up-Down will be in Swing mode, and the *Status_* object will return this value.
  - When a **"0"** value is sent to the *Control_* communication object, Vanes Up-Down will stop Swing mode. The *Status_* object will return this value.

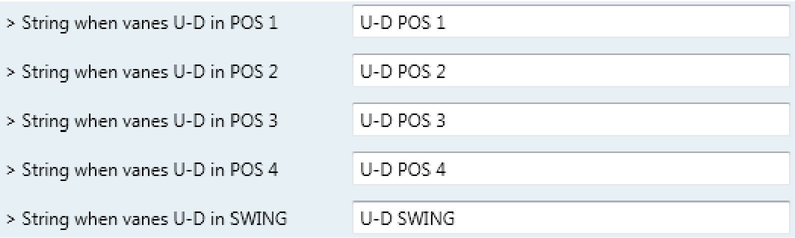
4.5.7 Enable use of Text object for Vane U-D

This parameter shows/hides the *Status_ Vanes U-D Text* communication object.



74 Status_ Vanes U-D Text [DPT_16.001 - 14byte] - ASCII String

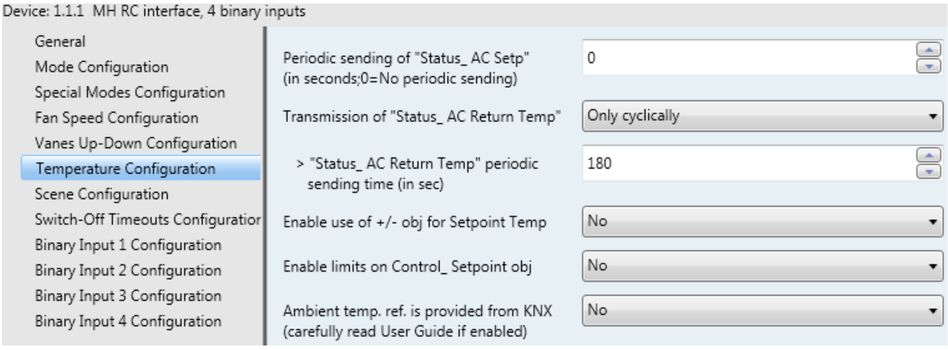
- If set to **"no"** the object will not be shown.
- If set to **"yes"** the *Status_ Vanes U-D Text* object will appear. Also, in the parameters will be shown five text fields, four for the Vane Position and one for the Swing function that will let modify the text string displayed by the *Status_ Vanes U-D Text* when changing a vane position.



> String when vanes U-D in POS 1	U-D POS 1
> String when vanes U-D in POS 2	U-D POS 2
> String when vanes U-D in POS 3	U-D POS 3
> String when vanes U-D in POS 4	U-D POS 4
> String when vanes U-D in SWING	U-D SWING

Figure 4.19 Parameter detail

4.6 Temperature Configuration dialog



Device: 1.1.1 MH RC interface, 4 binary inputs

General
Mode Configuration
Special Modes Configuration
Fan Speed Configuration
Vanes Up-Down Configuration
Temperature Configuration
Scene Configuration
Switch-Off Timeouts Configuratior
Binary Input 1 Configuration
Binary Input 2 Configuration
Binary Input 3 Configuration
Binary Input 4 Configuration

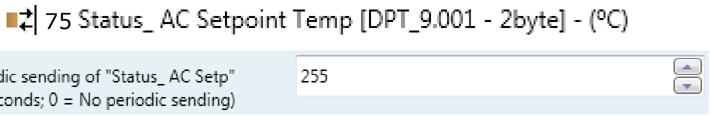
Periodic sending of "Status_ AC Setp" (in seconds;0=No periodic sending)	0
Transmission of "Status_ AC Return Temp"	Only cyclically
> "Status_ AC Return Temp" periodic sending time (in sec)	180
Enable use of +/- obj for Setpoint Temp	No
Enable limits on Control_ Setpoint obj	No
Ambient temp. ref. is provided from KNX (carefully read User Guide if enabled)	No

Figure 4.20 Default Temperature Configuration dialog

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

4.6.1 Periodic sending of “Status_ AC Setp”

This parameter lets change the interval of time (in seconds, from 0 to 255) at the end of which the AC setpoint temperature is sent to the KNX bus. For a **“0”** value, the AC setpoint temperature will ONLY be sent on change. The AC setpoint temperature is sent through the communication object *Status_ AC Setpoint Temp.*



75 Status_ AC Setpoint Temp [DPT_9.001 - 2byte] - (ºC)

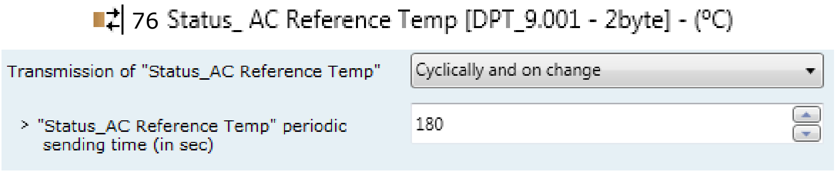
Periodic sending of "Status_ AC Setp" (in seconds; 0 = No periodic sending)	255

Figure 4.21 Parameter detail

⚠ ***Important:** In case the ambient temperature is provided from KNX, the setpoint temperature returned from this object, will be the one resulting from the formula shown in the section “4.6.5 Ambient temp. ref. is provided from KNX”.*

4.6.2 Transmission of “Status_ AC Reference Temp”

This parameter lets to you choose if the AC return temperature will be sent **“only cyclically”**, **“only on change”** or **“cyclically and on change”**. The AC reference temperature is sent through the communication object *Status_ AC Reference Temp.*



76 Status_ AC Reference Temp [DPT_9.001 - 2byte] - (ºC)

Transmission of "Status_AC Reference Temp"	Cyclically and on change
> "Status_AC Reference Temp" periodic sending time (in sec)	180

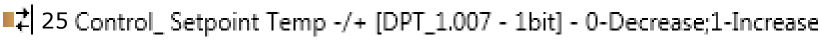
Figure 4.22 Parameter detail

- <u>"Status_ AC Reference Temp" periodic sending time (in sec)</u>

  This parameter will only be available for the **"only cyclically"** and **"cyclically and on change"** options, and let's you change the interval of time (in seconds, from 1 to 255) at the end of which the AC return temperature is sent to the KNX bus.

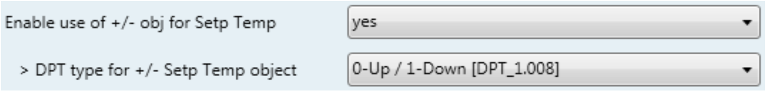
4.6.3 Enable use of +/- object for Setpoint Temp

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



25 Control_ Setpoint Temp -/+ [DPT_1.007 - 1bit] - 0-Decrease;1-Increase

- 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 +/- obj for Setp Temp	yes
> DPT type for +/- Setp Temp object	0-Up / 1-Down [DPT_1.008]

Figure 4.23 Parameter detail

- <u>DPT type for +/- Setp Temp object</u>

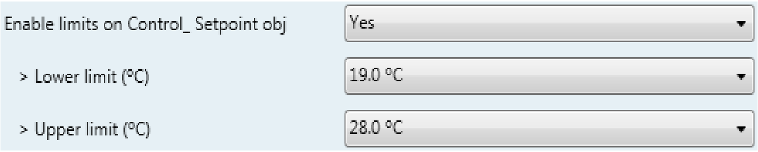
  This parameter lets choose between the datapoints **0-Up / 1-Down [DPT_1.008]** and **0-Decrease / 1-Increase [DPT_1.007]** for the *Control_ Setpoint Temp -/+* object.

(Lower limit) **20ºC** ⇄ 21ºC ⇄ ... ⇄ 29ºC ⇄ **30ºC** (Upper limit)

🟦 Up / Increase
🟩 Down / Decrease

4.6.4 Enable limits on Control_ Setpoint obj

This parameter enables to define temperature limits for the *Control_ Setpoint Temperature* object.



Enable limits on Control_ Setpoint obj	Yes
> Lower limit (ºC)	19.0 ºC
> Upper limit (ºC)	28.0 ºC

Figure 4.24 Parameter detail

- If set to **"no"** the setpoint temperature limits for the *Control_ Setpoint Temperature* object will be the default: 18ºC for the lower limit and 30ºC for the upper limit.

- If set to **"yes"** it is possible to define temperature limits for the *Control_ Setpoint Temperature* object.

  - Lower limit (ºC)

    This parameter lets to define the lower limit for the setpoint temperature.

  - Upper limit (ºC)

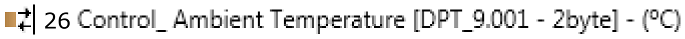
    This parameter lets to define the upper limit for the setpoint temperature.

⚠ ***Important:*** *If a setpoint temperature above the upper defined limit (or below the lower defined limit) is sent through the Control_ Setpoint Temperature object, it will be ALWAYS applied the limit defined.*

⚠ ***Important:*** *When limits are enabled, any setpoint temperature sent to the AC (even through scenes, special modes, etc.) will be limited.*

4.6.5 Ambient temp. ref. is provided from KNX

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



26 Control_ Ambient Temperature [DPT_9.001 - 2byte] - (ºC)

- 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 calculation of real *Control_ Setpoint Temperature* sent to the AC unit:

"AC Setp. Temp" = "AC Ret. Temp" - ("KNX Amb. Temp." - "KNX Setp. Temp")

- AC Setp. Temp: AC indoor unit setpoint temperature
- AC Ret. 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:

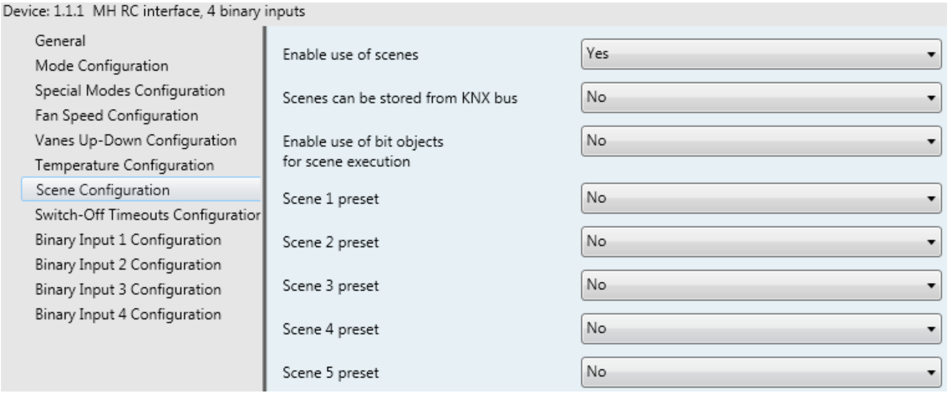
User wants: **19ºC** ("KNX Setp. Temp.")
User sensor (a KNX sensor) reads: **21ºC** ("KNX Amb Temp.")
Ambient temp. read by MHI system is: **24ºC** ("AC Ret. Temp")

In this example, the final setpoint temperature that MH-RC-KNX-1i will send out to the indoor unit (shown in "Setp. Temp.") will become 24ºC – (21ºC - 19ºC) = **22ºC**. This is the setpoint that will actually be requested to MHI 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).

4.7 Scene Configuration dialog


Device: 1.1.1 MH RC interface, 4 binary inputs

General
Mode Configuration
Special Modes Configuration
Fan Speed Configuration
Vanes Up-Down Configuration
Temperature Configuration
Scene Configuration
Switch-Off Timeouts Configuratior
Binary Input 1 Configuration
Binary Input 2 Configuration
Binary Input 3 Configuration
Binary Input 4 Configuration

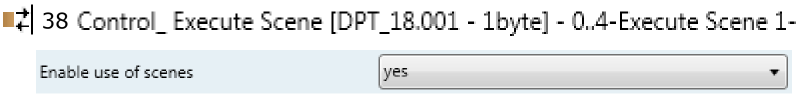
Enable use of scenes: Yes
Scenes can be stored from KNX bus: No
Enable use of bit objects for scene execution: No
Scene 1 preset: No
Scene 2 preset: No
Scene 3 preset: No
Scene 4 preset: No
Scene 5 preset: No

Figure 4.25 Parameter detail

All the parameters in this section are related with the Scene properties and communication objects. A scene contains values of: On/Off, Mode, Fan speed, Vane position, Setpoint Temperature and Remote Controller Disablement.

4.7.1 Enable use of scenes

This parameter shows/hides the scene configuration parameters and communication objects.


38 Control_ Execute Scene [DPT_18.001 - 1byte] - 0..4-Execute Scene 1-5

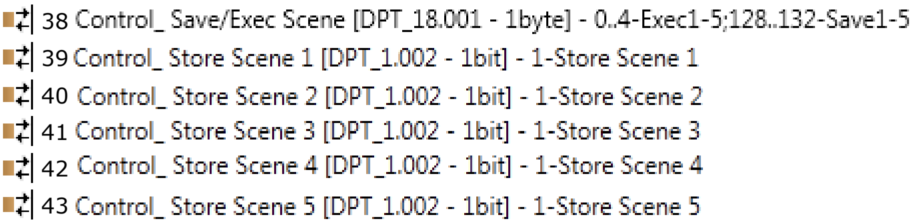
Enable use of scenes: yes

Figure 4.26 Parameter detail

- If set to **"no"** the scene parameters and communication objects will not be shown.
- If set to **"yes"** the scene parameters and communication objects will be shown. To execute a scene through the byte-type object, a value from **"0"** to **"4"** has to be sent, correponding each one to a different scene (i.e. "0" = Scene 1;… "4" = Scene 5).

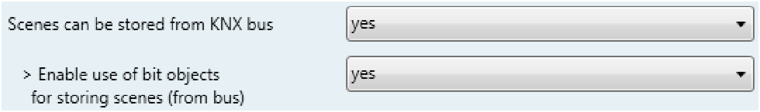
4.7.2 Scenes can be stored from KNX bus

This parameter shows/hides the *Control_ Save/Exec Scene* and all the *Control_ Store Scene* (if enabled) communication objects.



38 Control_ Save/Exec Scene [DPT_18.001 - 1byte] - 0..4-Exec1-5;128..132-Save1-5
39 Control_ Store Scene 1 [DPT_1.002 - 1bit] - 1-Store Scene 1
40 Control_ Store Scene 2 [DPT_1.002 - 1bit] - 1-Store Scene 2
41 Control_ Store Scene 3 [DPT_1.002 - 1bit] - 1-Store Scene 3
42 Control_ Store Scene 4 [DPT_1.002 - 1bit] - 1-Store Scene 4
43 Control_ Store Scene 5 [DPT_1.002 - 1bit] - 1-Store Scene 5

- ○ If set to **"no"** the communication objects will not be shown.
- ○ If set to **"yes"** the communication objects and a new parameter will appear. To store a scene through the byte-type object, a value from **"128"** to **"132"** has to be sent to the object, correponding each one to a different scene (i.e. "128" = Scene 1;… "132" = Scene 5).



Scenes can be stored from KNX bus: yes
> Enable use of bit objects for storing scenes (from bus): yes

Figure 4.27 Parameter detail

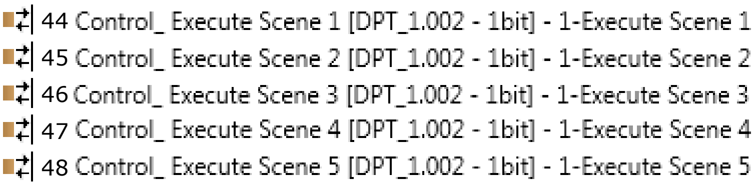
➢ <u>Enable use of bit objects for storing scenes (from bus)</u>

If set to **"no"** the objects will not be shown.

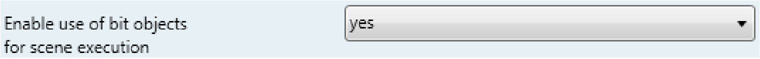
If set to **"yes"** the *Control_ Store Scene* objects for storing scenes will appear. To store a scene by using these objects, a **"1"** value has to be sent to the scene's object we want to store (i.e. to store scene 4, a "1" has to be sent to the *Control_ Store Scene 4* object).

4.7.3 Enable use of bit objects for scene execution

This parameter shows/hides the *Control_ Execute Scene* bit-type communication objects.



44 Control_ Execute Scene 1 [DPT_1.002 - 1bit] - 1-Execute Scene 1
45 Control_ Execute Scene 2 [DPT_1.002 - 1bit] - 1-Execute Scene 2
46 Control_ Execute Scene 3 [DPT_1.002 - 1bit] - 1-Execute Scene 3
47 Control_ Execute Scene 4 [DPT_1.002 - 1bit] - 1-Execute Scene 4
48 Control_ Execute Scene 5 [DPT_1.002 - 1bit] - 1-Execute Scene 5



Enable use of bit objects for scene execution: yes

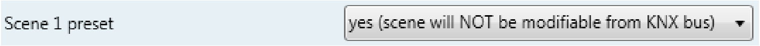
Figure 4.28 Parameter detail

- ○ If set to **"no"** the communication objects will not be shown.

- ○ If set to **"yes"** the communication objects will appear. To execute a scene by using these objects, a **"1"** value has to be sent to the scene's object we want to execute (i.e. to execute scene 4, a "1" has to be sent to the *Control_ Execute Scene 4* object).

4.7.4 Scene "x" preset

This parameter lets define a preset for a scene (the following description is valid for all the scenes).



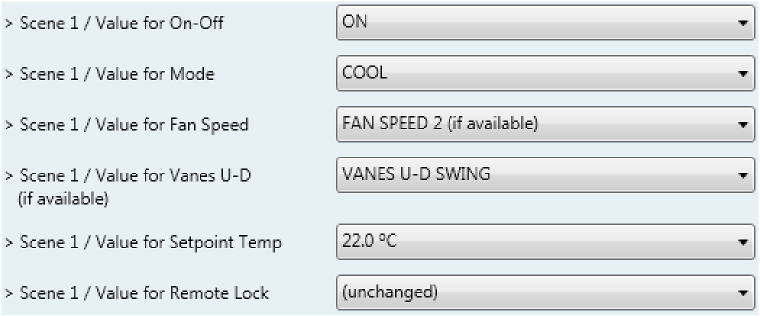
Scene 1 preset: yes (scene will NOT be modifiable from KNX bus)

Figure 4.29 Parameter detail

- ○ If set to **"no"** the preset for the scene "x" will be disabled.

- ○ If set to **"yes"** the preset will be enabled. When a scene is executed the values configured in the preset will be aplied.

⚠ ***Important:*** *If a scene's preset is enabled, will not be possible to modify (store) the scene from the KNX bus.*



> Scene 1 / Value for On-Off: ON
> Scene 1 / Value for Mode: COOL
> Scene 1 / Value for Fan Speed: FAN SPEED 2 (if available)
> Scene 1 / Value for Vanes U-D (if available): VANES U-D SWING
> Scene 1 / Value for Setpoint Temp: 22.0 ºC
> Scene 1 / Value for Remote Lock: (unchanged)

Figure 4.30 Parameter detail

- ➢ <u>Scene "x" / Value for On-Off</u>

  This parameter lets choose the power of the indoor unit when the scene is executed. The following options are available: **"ON", "OFF"** or **"(unchanged)"**.

- ➢ <u>Scene "x" / Value for Mode</u>

  This parameter lets choose the mode of the indoor unit when the scene is executed. The following options are available: **"AUTO (if available)"**, **"HEAT", "COOL"**, **"FAN", "DRY"**, or **"(unchanged)"**.

- ➢ <u>Scene "x" / Value for Fan Speed (if available)</u>

  This parameter lets choose the fan speed of the indoor unit when the scene is executed. The following options are available: **"FAN SPEED 1"**, **"FAN SPEED 2 (if available)", "FAN SPEED 3 (if available)"**, **"FAN SPEED 4 (if available)"**, or **"(unchanged)"**.

- ➢ <u>Scene "x" / Value for Vanes U-D (if available)</u>

This parameter lets choose the vane position of the indoor unit when the scene is executed. The following options are available: **"VANES U-D POS 1"**, **"VANES U-D POS 2"**, **"VANES U-D POS 3"**, **"VANES U-D POS 4"**, **"VANES U-D SWING"** or **"(unchanged)"**.

- Scene "x" / Value for Setp Temp (ºC)

This parameter lets choose the setpoint temperature of the indoor unit when the scene is executed. The following options are available: from **"18ºC"** to **"30ºC"** (both included), or **"(unchanged)"**.

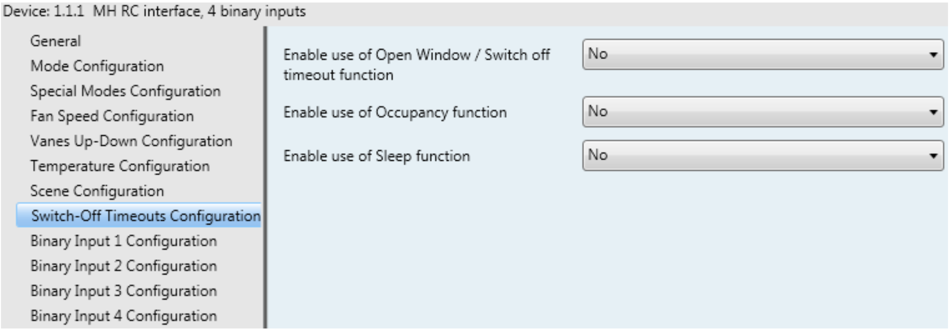
- Scene "x" / Value for Remote Lock

This parameter lets choose the remote controller status of the indoor unit when the scene is executed. The following options are available: **"locked"**, **"unlocked"**, or **"(unchanged)"**.

⚠ ***Important:*** *If any preset value is configured as* ***"(unchanged)"****, the execution of this scene will not change current status of this feature in the AC unit.*

⚠ ***Important:*** *When a scene is executed, Status_ Current Scene object shows the number of this scene. Any change in previous items does Status_ Current Scene show* ***"No Scene"****. Only changes on items marked as* ***"(unchanged)"*** *will not disable current scene.*

4.8 Switch-Off Timeouts Configuration dialog



Device: 1.1.1 MH RC interface, 4 binary inputs

General
Mode Configuration
Special Modes Configuration
Fan Speed Configuration
Vanes Up-Down Configuration
Temperature Configuration
Scene Configuration
Switch-Off Timeouts Configuration
Binary Input 1 Configuration
Binary Input 2 Configuration
Binary Input 3 Configuration
Binary Input 4 Configuration

Enable use of Open Window / Switch off timeout function: No

Enable use of Occupancy function: No

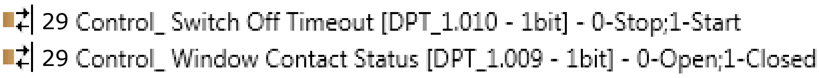
Enable use of Sleep function: No

Figure 4.31 Default Switch-Off Timeouts Configuration dialog

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

4.8.1 Enable use of Open Window / Switch off timeout function

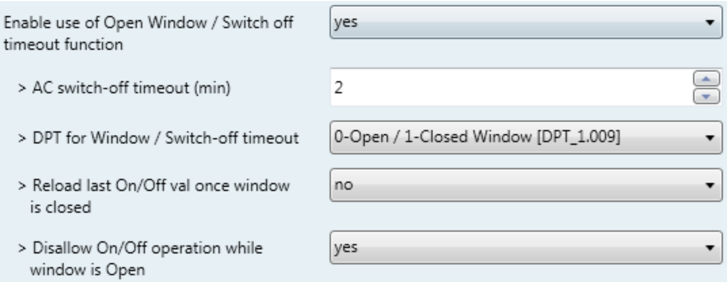
This parameter shows/hides the *Control_ Switch Off Timeout* communication object which lets Start/Stop a timeout to switch off the indoor unit.



29 Control_ Switch Off Timeout [DPT_1.010 - 1bit] - 0-Stop;1-Start

29 Control_ Window Contact Status [DPT_1.009 - 1bit] - 0-Open;1-Closed

- If set to **"no"** the object will not be shown.
- If set to **"yes"** the *Control_ Switch Off Timeout* object and new parameters will appear. If a **"1"** value is sent to this object, and the indoor unit is already turned on, the switch-off timeout will begin. If a **"0"** value is sent to this object, the switch-off timeout will stop.



Enable use of Open Window / Switch off timeout function	yes
> AC switch-off timeout (min)	2
> DPT for Window / Switch-off timeout	0-Open / 1-Closed Window [DPT_1.009]
> Reload last On/Off val once window is closed	no
> Disallow On/Off operation while window is Open	yes

Figure 4.32 Parameter detail

- <u>AC switch-off timeout (min)</u>

  This parameter lets select how much time (in minutes) to wait before switching off the indoor unit.

- <u>DPT for Window / Switch-off timeout</u>

  This parameter lets choose between the datapoints **0-Open / 1-Closed Window [DPT_1.009]** and **0-Stop / 1-Start Timeout [DPT_1.010]** for the *Control_ Switch Off Timeout*.

- <u>Disallow On/Off operation while window is Open</u>

  If set to **"no"**, On/Off commands while the window is open will be accepted.

  - If a **"1"** value is sent to the *Control_ Switch Off Timeout* object the switch-off timeout period will begin again.
  - If a **"0"** value is sent to the *Control_ Switch Off Timeout* object, no action will be performed.

  If set to **"yes"**, On/Off commands, while the window is open, will be saved (but not applied). These commands will be used in the next parameter if set to **"yes"**.

- Reload last On/Off value once window is closed?

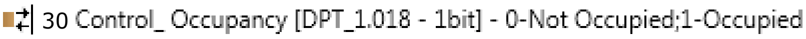
  If set to **"no"**, once the switch-off timeout is stopped, any value will be reloaded.

  If set to **"yes"**, once the switch-off timeout is stopped, the last On/Off value sent will be reloaded.

  - If a **"1"** value is sent to the *Control_ Switch Off Timeout* object after the timeout period, the indoor unit will **turn on**.
  - If a **"0"** value is sent to the *Control_ Switch Off Timeout* after the timeout period, no action will be performed.

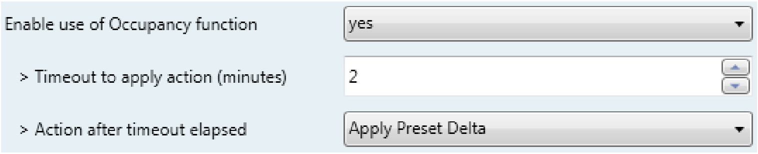
4.8.2 Enable use of Occupancy function

This parameter shows/hides the *Control_ Occupancy* communication object which lets apply different parameters to the indoor unit depending on the presence/no presence in the room.



30 Control_ Occupancy [DPT_1.018 - 1bit] - 0-Not Occupied;1-Occupied

- If set to **"no"** the object will not be shown.
- If set to **"yes"** the *Control_ Occupancy* object and new parameters will appear. If a **"1"** value is sent to this object (no room occupancy), the timeout will begin. If a **"0"** value is sent to this object, the timeout will stop.



Enable use of Occupancy function	yes
> Timeout to apply action (minutes)	2
> Action after timeout elapsed	Apply Preset Delta

Figure 4.33 Parameter detail

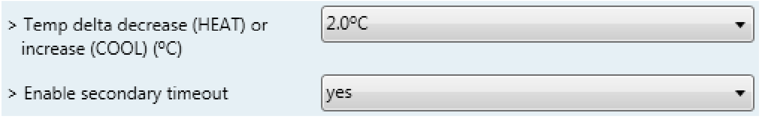
- Timeout to apply action (minutes)

  This parameter lets choose how much time to wait (in minutes) before executing the action specified in the next parameter ("Action after timeout elapsed").

- Action after timeout elapsed

  When **Switch-Off** is selected, once the timeout has elapsed, the indoor unit will be turned off.

  When **Apply Preset Delta** is selected, once the timeout has elapsed, a delta temperature will be applied in order to save energy (decreasing the setpoint when in Heat mode, or increasing the setpoint when in Cool mode). Also new parameters will appear.



> Temp delta decrease (HEAT) or increase (COOL) (ºC)	2.0ºC
> Enable secondary timeout	yes

Figure 4.34 Parameter detail

- Temp delta decrease (HEAT) or increase (COOL) (ºC)

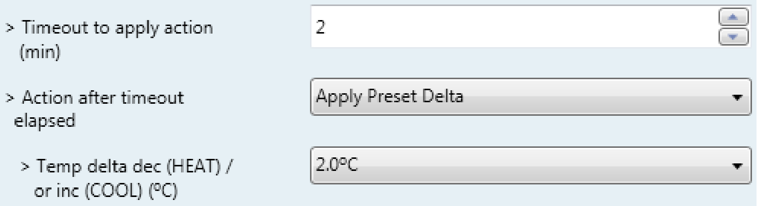
  This parameter lets configure the delta temperature (increase or decrease) that will be applied when the timeout has elapsed.

⚠ ***Important:*** *When there is occupancy again after the application of a delta, the same delta will be applied inversely. (i.e. In a room with AC in cool mode and 25ºC setpoint temperature, a* ***+2ºC*** *delta is applied after the occupancy timeout, setting the setpoint at 27ºC because there is no occupancy in the room. If the setpoint is raised to 29ºC during that period, when the room is occupied again, a* ***-2ºC*** *delta will be applied and the final setpoint temperature will then be 27ºC).*

- Enable secondary timeout

  If set to **"no"** nothing will be applied.

  If set to **"yes"**, a new timeout will be enabled and two new parameters will appear.



> Timeout to apply action (min): 2

> Action after timeout elapsed: Apply Preset Delta

> Temp delta dec (HEAT) / or inc (COOL) (ºC): 2.0ºC

Figure 4.35 Parameter detail

  - Timeout to apply action (minutes)

    This parameter lets choose how much time to wait (in minutes) before executing the action specified in the next parameter ("Action after timeout elapsed").

  - Action after timeout elapsed

    When **Switch-Off** is selected, once the timeouthas elapsed, the indoor unit will turn off.

    When **Apply Preset Delta** is selected, once the timeout configured is extinguished, a delta temperature will be applied (decreasing the setpoint when in Heat mode, or increasing the setpoint when in Cool mode). Also new parameters will appear.

    - Temp delta decrease (HEAT) or increase (COOL) (ºC)

      This parameter lets configure the delta temperature that will be applied when the timeout is extinguished.

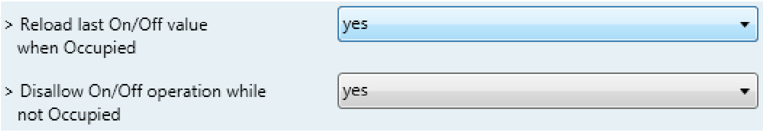
> ⚠ ***Important:** When there is occupancy again after the application of a delta, the same delta will be applied inversely as explained above.*

- Disallow On/Off operation while not Occupied

If set to **"no"**, On/Off commands while the window is open will be accepted.

- If a **"1"** value is sent to the *Control_ Occupancy* object the switch-off timeout period will begin again.
- If a **"0"** value is sent to the *Control_ Occupancy* object, no action will be performed.

If set to **"yes"**, On/Off commands while not occupied will be saved (but not applied). These commands will be used in the next parameter if set to **"Yes"**.



> Reload last On/Off value when Occupied: yes
> Disallow On/Off operation while not Occupied: yes

Figure 4.36 Parameter detail

- Reload last On/Off value when Occupied

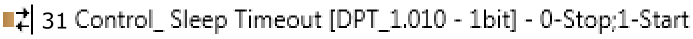
If set to **"no"**, once the switch-off timeout has elapsed, any value will be reloaded.

If set to **"yes"**, once the switch-off timeout has elapsed, the last On/Off value will be reloaded.

- If a **"1"** value is sent to the *Control_ Occupancy* object after the timeout period, the indoor unit will **turn on**.
- If a **"0"** value is sent to the *Control_ Occupancy* after the timeout period no action will be performed.

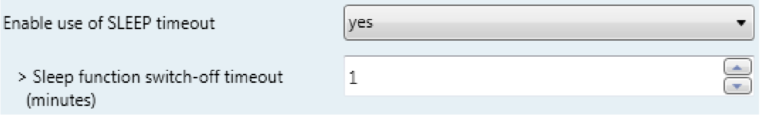
4.8.3 Enable use of SLEEP timeout

This parameter shows/hides the *Control_ Sleep Timeout* communication object which lets start a timeout to automatically turn off the indoor unit.



31 Control_ Sleep Timeout [DPT_1.010 - 1bit] - 0-Stop;1-Start

- If set to **"no"** the object will not be shown.
- If set to **"yes"** the *Control_ Sleep Timeout* object and a new parameter will appear. If a **"1"** value is sent to this object the switch-off timeout will begin. If a **"0"** value is sent to this object, the switch-off timeout will stop.



Enable use of SLEEP timeout: yes

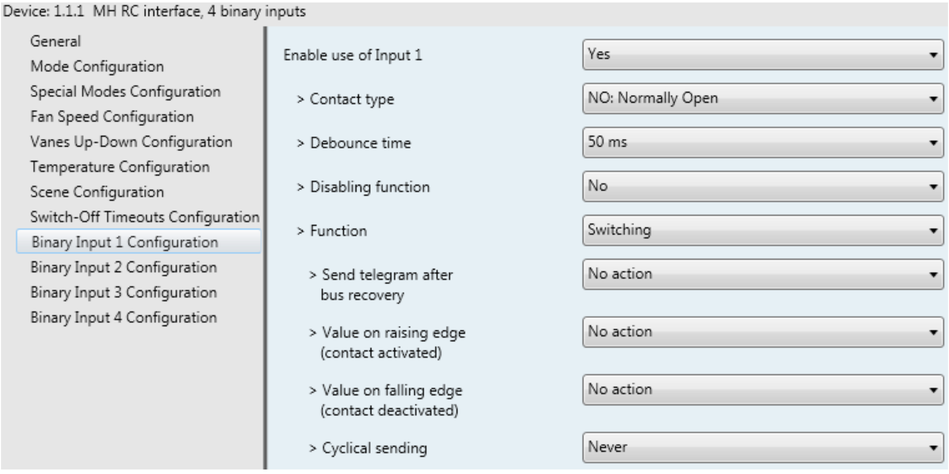
> Sleep function switch-off timeout (minutes): 1

Figure 4.37 Parameter detail

- ➤ <u>Sleep function switch-off timeout (minutes)</u>

  This parameter lets select how much time (in minutes) to wait before switching off the AC unit.

4.9 Binary Input "x" Configuration dialog



Device: 1.1.1 MH RC interface, 4 binary inputs

General
Mode Configuration
Special Modes Configuration
Fan Speed Configuration
Vanes Up-Down Configuration
Temperature Configuration
Scene Configuration
Switch-Off Timeouts Configuration
Binary Input 1 Configuration
Binary Input 2 Configuration
Binary Input 3 Configuration
Binary Input 4 Configuration

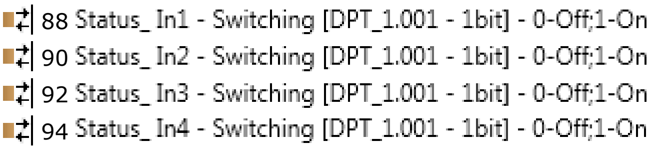
Enable use of Input 1	Yes
> Contact type	NO: Normally Open
> Debounce time	50 ms
> Disabling function	No
> Function	Switching
> Send telegram after bus recovery	No action
> Value on raising edge (contact activated)	No action
> Value on falling edge (contact deactivated)	No action
> Cyclical sending	Never

Figure 4.38 Binary Input Configuration dialog

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

4.9.1 Enable use of Input "x"

This parameter enables the use of the Input "x" and shows/hides the *Status_ Inx* communication object(s) which will act as configured in the "Function" parameter.



88 Status_ In1 - Switching [DPT_1.001 - 1bit] - 0-Off;1-On
90 Status_ In2 - Switching [DPT_1.001 - 1bit] - 0-Off;1-On
92 Status_ In3 - Switching [DPT_1.001 - 1bit] - 0-Off;1-On
94 Status_ In4 - Switching [DPT_1.001 - 1bit] - 0-Off;1-On

- ○ If set to **"no"** the objects will not be shown.
- ○ If set to **"yes"** the *Status_ Inx* object(s) and new parameters will appear.

4.9.2 Contact type

This parameter lets choose the behavior that will have the binary input depending on if the contact is normally open or normally closed.

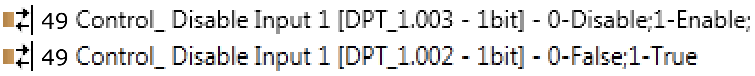
- There are two possible options to configure the contact type: **"NO: Normally Open"** and **"NC: Normally Closed"**.

4.9.3 Debounce time

This parameter lets choose a debounce time (in milliseconds) that will be applied to the contact.

4.9.4 Disabling function

This parameter shows/hides the *Control_ Disable Input x* communication object which will let disable/enable the input x.



49 Control_ Disable Input 1 [DPT_1.003 - 1bit] - 0-Disable;1-Enable;

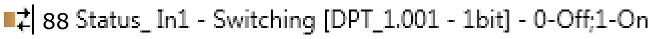
49 Control_ Disable Input 1 [DPT_1.002 - 1bit] - 0-False;1-True

- If set to **"no"** any object will be shown.
- When **"DPT 1.003: 0-Disable; 1-Enable"** is selected, the input can be disabled using the value **"0"** and enabled using the value **"1"**.
- When **"DPT 1.002: 1-True (Disable); 0-False (Enable)"** is selected, the input can be disabled using the value **"1"** and enabled using the value **"0"**.

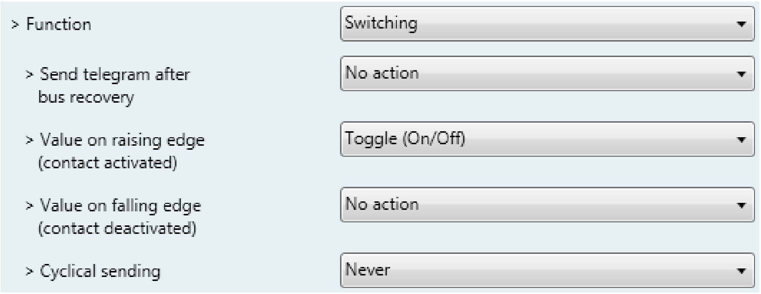
4.9.5 Function

This parameter lets choose the function that will have the binary input. There are 7 different functions available: Switching, Dimming, Shutter/Blind, Value, Execute Scene (internal), Occupancy (internal) and Window Contact (internal).

- When **"Switching"** is selected the communication object and new parameters for the Input "x" will appear as shown below.



88 Status_ In1 - Switching [DPT_1.001 - 1bit] - 0-Off;1-On



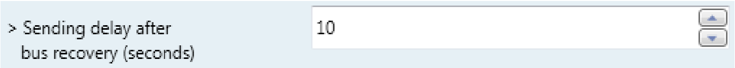
> Function	Switching
> Send telegram after bus recovery	No action
> Value on raising edge (contact activated)	Toggle (On/Off)
> Value on falling edge (contact deactivated)	No action
> Cyclical sending	Never

Figure 4.39 Parameter detail

- ➢ <u>Send telegram after bus recovery</u>

This parameter lets select if the Binary Input "x" will send a telegram, or not, after a bus recovery, and the type of telegram sent (if enabled).

- When **"No action"** is selected, no telegram will be sent after a bus recovery.
- When **"Current status"** is selected, the binary input will send a telegram with its current status after a bus recovery. Also a new parameter will appear (see below).
- When **"On"** is selected, the binary input will send a telegram with a **"1"** value after a bus recovery. Also a new parameter will appear (see below).
- When **"Off"** is selected, the binary input will send a telegram with a **"0"** value after a bus recovery. Also a new parameter will appear (see below).



> Sending delay after bus recovery (seconds): 10

Figure 4.40 Parameter detail

➢ Sending delay after a bus recovery (seconds)

This parameter lets configure a delay (in seconds) that will be applied after a bus recovery and, after which, a telegram will be sent.

➢ Value on rising edge

This parameter lets select the value that the Binary Input "x" will send on a rising edge (contact activated).

- When **"On"** is selected, the binary input will always send telegrams with a **"1"** value.
- When **"Off"** is selected, the binary input will always send telegrams with a **"0"** value.
- When **"Toggle (On/Off)"** is selected, the binary input will send a **"1"** value after a **"0"** value and viceversa.
- When **"No action"** is selected, the binary input will not perform any action.

➢ Value on falling edge

This parameter lets select the value that the Binary Input "x" will send on a falling edge (contact deactivated).

- When **"On"** is selected, the binary input will always send telegrams with a **"1"** value.
- When **"Off"** is selected, the binary input will always send telegrams with a **"0"** value.

- When **"Toggle (On/Off)"** is selected, the binary input will send a **"1"** value after a **"0"** value and viceversa.
- When **"No action"** is selected, the binary input will not perform any action.

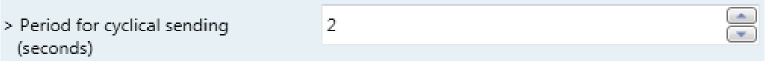
➢ Cyclical sending

This parameter lets enable/disable cyclical sending when a determined condition is met.

- When **"When output value is On"** is selected, everytime a **"1"** value is sent, it will be sent cyclically. Also a new parameter will appear (see below).
- When **"When output value is Off"** is selected, everytime a **"0"** value is sent, it will be sent cyclically. Also a new parameter will appear (see below).
- When **"Always"** is selected, the binary input will send any value cyclically. Also a new parameter will appear (see below).
- When **"Never"** is selected, cyclical sending will be disabled.

➢ Period for cyclical sending (seconds)

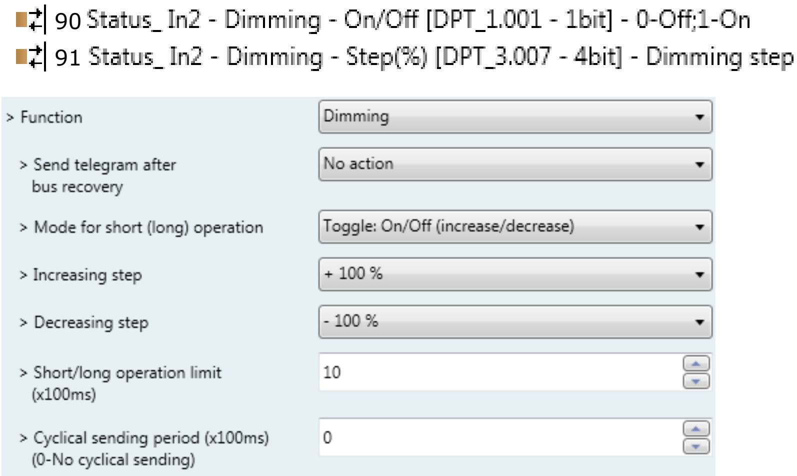
This parameter lets configure a time (in seconds) for the cyclical sending.



> Period for cyclical sending (seconds)	2

Figure 4.41 Parameter detail

○ When **"Dimming"** is selected the communication objects and new parameters for the Input "x" will appear as shown below.



90 Status_ In2 - Dimming - On/Off [DPT_1.001 - 1bit] - 0-Off;1-On
91 Status_ In2 - Dimming - Step(%) [DPT_3.007 - 4bit] - Dimming step

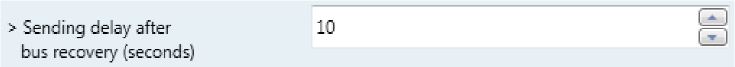
> Function	Dimming
> Send telegram after bus recovery	No action
> Mode for short (long) operation	Toggle: On/Off (increase/decrease)
> Increasing step	+ 100 %
> Decreasing step	- 100 %
> Short/long operation limit (x100ms)	10
> Cyclical sending period (x100ms) (0-No cyclical sending)	0

Figure 4.42 Parameter detail

➢ Send telegram after bus recovery

This parameter lets select if the Binary Input "x" will send a telegram, or not, after a bus recovery, and the type of telegram sent (if enabled).

- When **"No action"** is selected, no telegram will be sent after a bus recovery.
- When **"On"** is selected, the binary input will send a telegram with a **"1"** value after a bus recovery. Also a new parameter will appear (see below).
- When **"Off"** is selected, the binary input will send a telegram with a **"0"** value after a bus recovery. Also a new parameter will appear (see below).



> Sending delay after bus recovery (seconds) 10

Figure 4.43 Parameter detail

➢ <u>Sending delay after a bus recovery (seconds)</u>

This parameter lets configure a delay (in seconds) that will be applied after a bus recovery and, after which, a telegram will be sent.

➢ <u>Mode for short (long) operation</u>

This parameter lets select the value that the Binary Input "x" will send on a rising edge (contact activated), for a short and a long operation.

- When **"On (increase)"** is selected, the binary input will always send telegrams with a **"1"** value for a short operation, and an **"increase step"** for a long operation.
- When **"Off (decrease)"** is selected, the binary input will always send telegrams with a **"0"** value for a short operation, and an **"decrease step"** for a long operation.
- When **"Toggle: On/Off (increase/decrease)"** is selected:
  - For the short operation the binary input will send a **"1"** value after a **"0"** value and viceversa.
  - For the long operation the binary input will send an **"increase step"** after a **"decrease step"** and viceversa.

⚠ ***Important:*** *Note that the first long operation in toggle depends on the last short operation, meaning that after a **"1"** value will be sent a **"decrease step"** and after a **"0"** value will be sent an **"increase step"**.*

⚠ ***Important:*** *The time period between a short and a long operation is defined in the parameter "Short/long operation limit (x100ms)".*

- Increasing step

  This parameter lets select the increasing step value (in %) that will be sent for a long operation.

- Decreasing step

  This parameter lets select the decreasing step value (in %) that will be sent for a long operation.

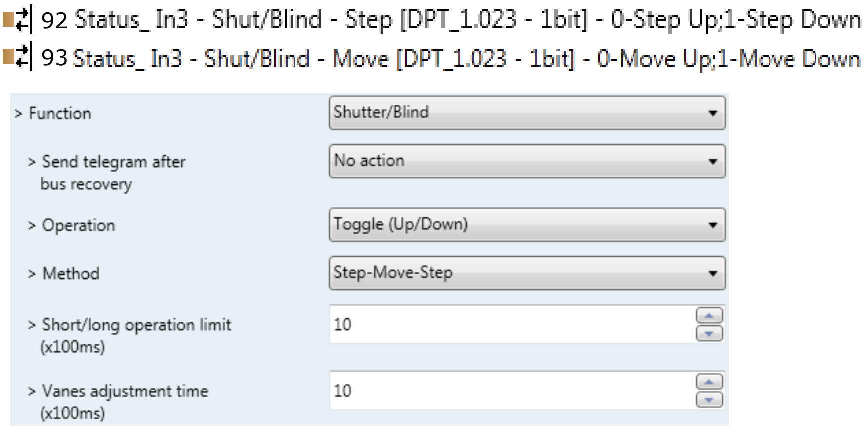
- Short/long operation limit (x100ms)

  This parameter lets introduce the time period difference for the short and the long operation.

- Cycl. send. period in long oper. (x100ms)

  This parameter lets configure a time (in seconds) for the cyclical sending of a long operation.

○ When **"Shutter/Blind"** is selected the communication objects and new parameters for the Input "x" will appear as shown below.



92 Status_ In3 - Shut/Blind - Step [DPT_1.023 - 1bit] - 0-Step Up;1-Step Down
93 Status_ In3 - Shut/Blind - Move [DPT_1.023 - 1bit] - 0-Move Up;1-Move Down

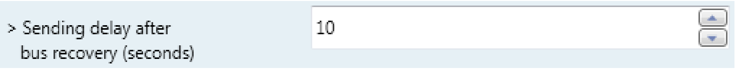
> Function: Shutter/Blind
> Send telegram after bus recovery: No action
> Operation: Toggle (Up/Down)
> Method: Step-Move-Step
> Short/long operation limit (x100ms): 10
> Vanes adjustment time (x100ms): 10

Figure 4.44 Parameter detail

- Send telegram after bus recovery

  This parameter lets select if the Binary Input "x" will send a telegram, or not, after a bus recovery and the type of telegram sent (if enabled).

  - When **"No action"** is selected, no telegram will be sent after a bus recovery.
  - When **"Move Up"** is selected, the binary input will send a telegram with a **"0"** value after a bus recovery. Also a new parameter will appear (see below).
  - When **"Move Down"** is selected, the binary input will send a telegram with a **"1"** value after a bus recovery. Also a new parameter will appear (see below).



> Sending delay after bus recovery (seconds): 10

Figure 4.45 Parameter detail

- Sending delay after a bus recovery (seconds)

  This parameter lets configure a delay (in seconds) that will be applied after a bus recovery and, after which, a telegram will be sent.

- Operation

  This parameter lets select the value that the Binary Input "x" will send on a rising edge (contact activated).

  - When **"Up"** is selected, the binary input will always send telegrams with a **"0"**.
  - When **"Down"** is selected, the binary input will always send telegrams with a **"1"** value.
  - When **"Toggle (Up/Down)"** is selected the binary input will send a **"0"** value after a **"1"** value and viceversa.

- Method

  This parameter lets select the working method for the shutter/blind.

  - When **"Step-Move-Step"** is selected: On a rising edge (contact activated) a step/stop telegram will be sent and will begin a time called **T1**. If a falling edge occurs (contact deactivated) during the **T1**, no action will be performed.

    If the rising edge is maintained longer than **T1**, a move telegram will be sent and will start a time called **T2**. If a falling edge occurs during the **T2**, a step/stop telegram will be sent. If a falling edge occurs after **T2** no action will be performed.

  - When **"Move-Step"** is selected: On a rising edge a move telegram will be sent and will begin the **T2** time. If a falling edge occurs during the **T2**, a step/stop telegram will be sent. If a falling edge occurs after **T2** no action will be performed.

⚠ ***Important:*** *The **T1** time have to be defined in the "Short/long operation limit (x100ms)" parameter. Also the **T2** time have to be defined in the "Vanes adjustment time (x100ms)" parameter.*

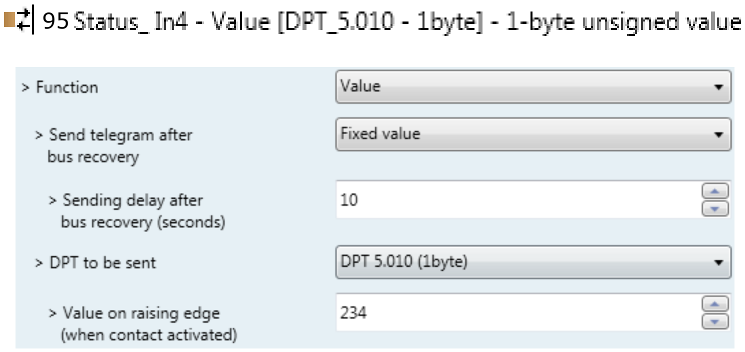
- Short/long operation limit (x100ms)

  This parameter lets introduce the time period difference for the short and the long operation (T1 time).

- Vanes adjustment time (x100ms)

This parameter lets introduce the time period for the vanes adjustment/blind movement (T2 time).

○ When **"Value"** is selected the communication objects and new parameters for the Input "x" will appear as shown below.



95 Status_ In4 - Value [DPT_5.010 - 1byte] - 1-byte unsigned value

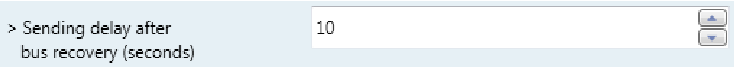
> Function: Value
> Send telegram after bus recovery: Fixed value
> Sending delay after bus recovery (seconds): 10
> DPT to be sent: DPT 5.010 (1byte)
> Value on raising edge (when contact activated): 234

Figure 4.46 Parameter detail

- Send telegram after bus recovery

This parameter lets select if the Binary Input "x" will send a telegram, or not, after a bus recovery and the type of telegram sent (if enabled).

- When **"No action"** is selected, no telegram will be sent after a bus recovery.
- When **"Fixed value"** is selected, the binary input will send a telegram with the same value configured in the "Value on rising edge" parameter. Also a new parameter will appear (see below).



> Sending delay after bus recovery (seconds): 10

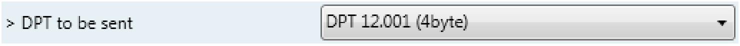
Figure 4.47 Parameter detail

- Sending delay after a bus recovery (seconds)

This parameter lets configure a delay (in seconds) that will be applied after a bus recovery and, after which, a telegram will be sent.

- DPT to be sent

This parameter lets select the DPT type for the value that will be defined in the next parameter. This value will be sent on a rising edge (contact activated).



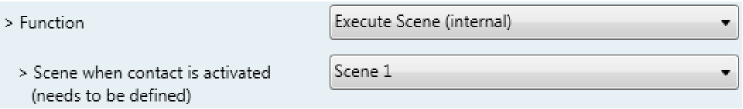
> DPT to be sent: DPT 12.001 (4byte)

Figure 4.48 Parameter detail

- Value on rising edge (when contact activated)

This parameter lets define a value for the DTP type configured in the "DPT to be sent" parameter. This value will be sent on a rising edge (contact activated).

- When **"Execute Scene (internal)"** is selected, the binary input "x" will activate the scene defined in the next parameter, on a rising edge (contact activated).



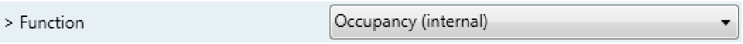
> Function: Execute Scene (internal)
> Scene when contact is activated (needs to be defined): Scene 1

Figure 4.49 Parameter detail

➢ <u>Scene when contact is activated</u>

This parameter lets choose the scene that will be activated on a rising edge. This scene MUST be defined in the "Scene Configuration" dialog as a preset.

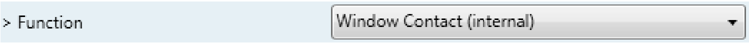
- When **"Occupancy (internal)"** is selected, the binary input "x" will have the same behavior as configured in the parameter "Enable use of Occupancy function" inside the "Switch-Off Timeouts Configuration" dialog.



> Function: Occupancy (internal)

Figure 4.50 Parameter detail

- When **"Window Contact (internal)"** is selected, the binary input "x" will have the same behavior as configured in the parameter "Enable use of Open Window / Switch off timeout function" inside the "Switch-Off Timeouts Configuration" dialog.

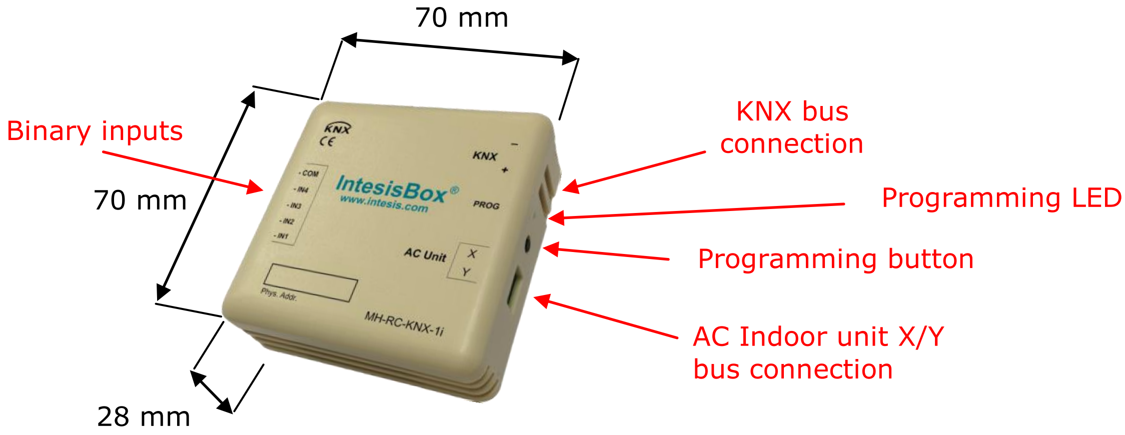


> Function: Window Contact (internal)

Figure 4.51 Parameter detail

5. Specifications

Envelope	ABS (UL 94 HB). 2,5 mm thickness
Dimensions	70 X 70 X 28 mm
Weight	70g
Colour	Ivory white
Power supply	29V DC, 7mA Supplied through KNX bus.
MHI X/Y Bus	Voltage: 13-18V Current: 80mA
LED indicators	1 x KNX programming.
Push buttons	1 x KNX programming.
Binary inputs	4 x Potential-free binary inputs. Signal cable length: 5m uschielded, may be extended up to 20m with twisted. Compliant with the following standards: IEC61000-4-2 : level 4 - 15kV (air discharge) - 8kV (contact discharge) MIL STD 883E-Method 3015-7 : class3B
Configuration	Configuration with ETS.
Operating Temperature	From -25ºC to 85ºC
Storage Temperature	From -40ºC to 85ºC
Isolation Voltage	2500V
RoHS conformity	Compliant with RoHS directive (2002/95/CE).
Certifications	CE conformity to EMC directive (2004/108/EC) and Low-voltage directive (2006/95/EC) EN 61000-6-2; EN 61000-6-3; EN 60950-1; EN 50491-3; EN 50090-2-2; EN 50428; EN 60669-1; EN 60669-2-1



6. AC Unit Types compatibility.

A list of Mitsubishi Heavy Industries indoor unit models compatible with MH-RC-KNX-1i and their available features can be found in:

http://www.intesis.com/pdf/IntesisBox_MH-RC-xxx-1_AC_Compatibility.pdf

7. Error Codes

Error Code KNX	Error in Remote Controller	Error Description
0	N/A	No active error
1	E1	Remote controller communication error
2	E2	Duplicated indoor unit address
3	E3	Outdoor unit signal line error
5	E5	Communication error during operation
6	E6	Indoor heat exchanger temperature thermistor anomaly
7	E7	Indoor return air temperature thermistor anomaly
8	E8	Heating overload operation
9	E9	Drain trouble
10	E10	Excessive number of indoor units (more than 17) by controlling one remote controller
12	E12	Address setting error by mixed setting method
14	E14	Communication error between master and slave indoor units
16	E16	Indoor fan motor anomaly
19	E19	Indoor unit operation check, drain motor check setting error
28	E28	Remote controller temperature thermistor anomaly
30	E30	Unmatched connection of indoor and outdoor unit
31	E31	Duplicated outdoor unit address No.
32	E32	Open L3 Phase on power supply at primary side
33	E33	Inverter primary current error
35	E35	Cooling overload operation
36	E36	Discharge pipe temperature error
37	E37	Outdoor heat exchanger temperature thermistor anomaly
38	E38	Outdoor/Ambient air temperature thermistor anomaly
39	E39	Discharge pipe temperature thermistor anomaly
40	E40	High pressure error
41	E41	Power transistor overheat
42	E42	Current cut
43	E43	Excessive number of indoor units connected, excessive total capacity of connection
45	E45	Communication error between inverter PCB and outdoor control PCB
46	E46	Mixed address setting methods coexistent in same network
47	E47	Inverter over-current error
48	E48	Outdoor DC fan motor anomaly
49	E49	Low pressure anomaly
51	E51	Inverter anomaly
53	E53	Suction pipe temperature thermistor anomaly
54	E54	High/Low pressure sensor anomaly
55	E55	Underneath temperature thermistor anomaly
56	E56	Power transistor temperature thermistor anomaly
57	E57	Insufficient in refrigerant amount or detection of service valve closure
58	E58	Anomalous compressor by loss of synchronism
59	E59	Compressor startup failure
60	E60	Rotor position detection failure / Anomalous compressor rotor lock
61	E61	Communication error between the master unit and slave units
63	E63	Emergency stop
65532	N/A	Initialization process.
65535	N/A	Communication error between MH-RC-KNX-1i and AC unit / Remote controller

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

Appendix A – Communication Objects Table

TOPIC	OBJECT NUMBER	NAME	LENGTH	DATAPOINT TYPE		FLAGS				FUNCTION
				DPT_NAME	DPT_ID	R	W	T	U	
On/Off	**0**	Control_ On/Off	1 bit	DPT_Switch	1.001		W	T		0 - Off; 1-On
Mode	**1**	Control_ Mode	1 byte	DPT_HVACContrMode	20.105		W	T		0 - Auto; 1 - Heat; 3 - Cool; 9 - Fan; 14 - Dry
	2	Control_ Mode Cool/Heat	1 bit	DPT_Heat/Cool	1.100		W	T		0 - Cool; 1 - Heat
	3	Control_ Mode Cool & On	1 byte	DPT_Scaling	5.001		W	T		0% - Off; 0.1%-100% - On + Cool
	4	Control_ Mode Heat & On	1 byte	DPT_Scaling	5.001		W	T		0% - Off; 0.1%-100% - On + Heat
	5	Control_ Mode Auto	1 bit	DPT_Bool	1.002		W	T		1 – Auto mode
	6	Control_ Mode Heat	1 bit	DPT_Bool	1.002		W	T		1 – Heat mode
	7	Control_ Mode Cool	1 bit	DPT_Bool	1.002		W	T		1 – Cool mode
	8	Control_ Mode Fan	1 bit	DPT_Bool	1.002		W	T		1 – Fan mode
	9	Control_ Mode Dry	1 bit	DPT_Bool	1.002		W	T		1 – Dry mode
	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	**11**	Control_ Fan Speed / 2 Speeds	1 byte	DPT_Scaling	5.001		W	T		0%-74% - Speed 1; 75%-100% - Speed 2
		Control_ Fan Speed / 2 Speeds	1 byte	DPT_Enumerated	5.010		W	T		1 - Speed 1; 2 - Speed 2

Fan Speed	**11**	Control_ Fan Speed / 3 Speeds	1 byte	DPT_Scaling	5.001		W	T		0%-49% - Speed 1; 50%-82% - Speed 2; 83%-100% - Speed 3
		Control_ Fan Speed / 3 Speeds	1 byte	DPT_Enumerated	5.010		W	T		1 - Speed 1; 2 - Speed 2; 3 Speed 3
		Control_ Fan Speed / 4 Speeds	1 byte	DPT_Scaling	5.001		W	T		0%-37% - Speed 1; 38%-62% - Speed 2; 63%-87% - Speed 3; 88%-100% - Speed 4
		Control_ Fan Speed / 4 Speeds	1 byte	DPT_Enumerated	5.010		W	T		1 - Speed 1; 2 - Speed 2; 3 Speed 3; 4 - Speed 4
	12	Control_ Fan Speed 1	1 bit	DPT_Bool	1.002		W	T		1 – Set Fan Speed 1
	13	Control_ Fan Speed 2	1 bit	DPT_Bool	1.002		W	T		1 – Set Fan Speed 2
	14	Control_ Fan Speed 3	1 bit	DPT_Bool	1.002		W	T		1 – Set Fan Speed 3
	15	Control_ Fan Speed 4	1 bit	DPT_Bool	1.002		W	T		1 – Set Fan Speed 4
	16	Control_ Fan Speed -/+	1 bit	DPT_Step	1.007		W			0 - Decrease; 1 - Increase
		Control_ Fan Speed -/+	1 bit	DPT_UpDown	1.008		W			0 - Up; 1 - Down
Vanes Up-Down	**17**	Control_ Vanes U-D / 4 pos	1 byte	DPT_Scaling	5.001		W	T		0%-37% - Pos1; 38%-62% - Pos2; 63%-87% Pos3; 88%-100% - Pos4
		Control_ Vanes U-D / 4 pos	1 byte	DPT_Enumerated	5.010		W	T		1 - Pos1; 2 - Pos2; 3 - Pos3; 4 - Pos4
	18	Control_ Vanes U-D Pos1	1 bit	DPT_Bool	1.002		W	T		1 – Set Position 1
	19	Control_ Vanes U-D Pos2	1 bit	DPT_Bool	1.002		W	T		1 – Set Position 2
	20	Control_ Vanes U-D Pos3	1 bit	DPT_Bool	1.002		W	T		1 – Set Position 3

	21	Control_ Vanes U-D Pos4	1 bit	DPT_Bool	1.002		W	T		1 – Set Position 4
	22	Control_ Vanes U-D Swing	1 bit	DPT_Bool	1.002		W	T		0 – Off; 1 – Swing
	23	Control_ Vanes U-D -/+	1 bit	DPT_Step	1.007		W			0 - Decrease; 1 - Increase
		Control_ Vanes U-D -/+	1 bit	DPT_UpDown	1.008		W			0 - Up; 1 - Down
Temperature	**24**	Control_ Setpoint Temperature	2 byte	DPT_Value_Temp	9.001		W	T		(ºC)
	25	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
	26	Control_ Ambient Temperature	2 byte	DPT_Value_Temp	9.001		W	T		(ºC)
Reset	**27**	Control_ Reset Filter	1 bit	DPT_Reset	1.015		W	T		1 – Reset filter
	28	Control_ Reset Error	1 bit	DPT_Reset	1.015		W	T		1 – Reset error
Timeout	**29**	Control_ Window Contact Status	1 bit	DPT_OpenClose	1.009		W	T		0 - Open; 1 - Closed
		Control_ Switch Off Timeout	1 bit	DPT_Start	1.010		W	T		0 - Stop; 1 - Start
	30	Control_ Occupancy	1 bit	DPT_Occupancy	1.018		W	T		0 - Not Occupied; 1 - Occupied
	31	Control_ Sleep Timeout	1 bit	DPT_Start	1.010		W	T		0 - Stop; 1 - Start
Locking	**32**	Control_ Lock Remote Control	1 bit	DPT_Bool	1.002		W	T		0 - Unlocked; 1 - Locked
	33	Control_ Lock Control Objects	1 bit	DPT_Bool	1.002		W	T		0 - Unlocked; 1 - Locked
Special Modes	**34**	Control_ Power Mode	1 bit	DPT_Start	1.010		W	T		0 - Stop; 1 - Start
	35	Control_ Econo Mode	1 bit	DPT_Start	1.010		W	T		0 - Stop; 1 - Start
	36	Control_ Additional Heat	1 bit	DPT_Start	1.010		W	T		0 - Stop; 1 - Start
	37	Control_ Additional Cool	1 bit	DPT_Start	1.010		W	T		0 - Stop; 1 - Start

Scenes	**38**	Control_ Save/Exec Scene	1 byte	DPT_SceneControl	18.001		W	T		0 to 4 – Control_Exec Scene 1 to 5; 128 to 132 – Control_Save Scene 1 to 5
	39	Control_ Store Scene1	1 bit	DPT_Bool	1.002		W			1 - Store Scene 1
	40	Control_ Store Scene2	1 bit	DPT_Bool	1.002		W			1 - Store Scene 2
	41	Control_ Store Scene3	1 bit	DPT_Bool	1.002		W			1 - Store Scene 3
	42	Control_ Store Scene4	1 bit	DPT_Bool	1.002		W			1 - Store Scene 4
	43	Control_ Store Scene5	1 bit	DPT_Bool	1.002		W			1 - Store Scene 5
	44	Control_ Execute Scene1	1 bit	DPT_Bool	1.002		W	T		1 - Execute Scene 1
	45	Control_ Execute Scene2	1 bit	DPT_Bool	1.002		W	T		1 - Execute Scene 2
	46	Control_ Execute Scene3	1 bit	DPT_Bool	1.002		W	T		1 - Execute Scene 3
	47	Control_ Execute Scene4	1 bit	DPT_Bool	1.002		W	T		1 - Execute Scene 4
	48	Control_ Execute Scene5	1 bit	DPT_Bool	1.002		W	T		1 - Execute Scene 5
Disabling	**49**	Control_ Disable Input 1	1 bit	DPT_Bool	1.002		W	T		0 - Enable; 1 - Disable
		Control_ Disable Input 1	1 bit	DPT_Enable	1.003		W	T		0 - Disable; 1 - Enable
	50	Control_ Disable Input 2	1 bit	DPT_Bool	1.002		W	T		0 - Enable; 1 - Disable
		Control_ Disable Input 2	1 bit	DPT_Enable	1.003		W	T		0 - Disable; 1 - Enable
	51	Control_ Disable Input 3	1 bit	DPT_Bool	1.002		W	T		0 - Enable; 1 - Disable
		Control_ Disable Input 3	1 bit	DPT_Enable	1.003		W	T		0 - Disable; 1 - Enable
	52	Control_ Disable Input 4	1 bit	DPT_Bool	1.002		W	T		0 - Enable; 1 - Disable
		Control_ Disable Input 4	1 bit	DPT_Enable	1.003		W	T		0 - Disable; 1 - Enable

On/Off	**53**	Status_ On/Off	1 bit	DPT_Switch	1.001	R		T		0 - Off; 1-On
Mode	**54**	Status_ Mode	1 byte	DPT_HVACContrMode	20.105	R		T		0 - Auto; 1 - Heat; 3 - Cool; 9 - Fan; 14 - Dry
	55	Status_ Mode Cool/Heat	1 bit	DPT_Heat/Cool	1.100	R		T		0 - Cool; 1 - Heat
	56	Status_ Mode Auto	1 bit	DPT_Bool	1.002	R		T		1 – Auto mode is active
	57	Status_ Mode Heat	1 bit	DPT_Bool	1.002	R		T		1 – Heat mode is active
	58	Status_ Mode Cool	1 bit	DPT_Bool	1.002	R		T		1 – Cool mode is active
	59	Status_ Mode Fan	1 bit	DPT_Bool	1.002	R		T		1 – Fan mode is active
	60	Status_ Mode Dry	1 bit	DPT_Bool	1.002	R		T		1 – Dry mode is active
	61	Status_ Mode Text	14 byte	DPT_String_8859_1	16.001	R		T		ASCII String
Fan Speed	**62**	Status_ Fan Speed / 2 Speeds	1 byte	DPT_Scaling	5.001	R		T		50%- Speed 1; 100% - Speed 2
		Status_ Fan Speed / 2 Speeds	1 byte	DPT_Enumerated	5.010	R		T		1 - Speed 1; 2 - Speed 2
		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
		Status_ Fan Speed / 4 Speeds	1 byte	DPT_Scaling	5.001	R		T		25% - Speed 1; 50% - Speed 2; 75% - Speed 3; 100% - Speed 4
		Status_ Fan Speed / 4 Speeds	1 byte	DPT_Enumerated	5.010	R		T		1 - Speed 1; 2 - Speed 2; 3 Speed 3; 4 - Speed 4
	63	Status_ Fan Speed 1	1 bit	DPT_Bool	1.002	R		T		1 – Fan is in speed 1
	64	Status_ Fan Speed 2	1 bit	DPT_Bool	1.002	R		T		1 – Fan is in speed 2
	65	Status_ Fan Speed 3	1 bit	DPT_Bool	1.002	R		T		1 - Fan is in Speed 3
	66	Status_ Fan Speed 4	1 bit	DPT_Bool	1.002	R		T		1 - Fan is in Speed 4
	67	Status_ Fan Speed Text	14 byte	DPT_String_8859_1	16.001	R		T		ASCII String

Vanes Up-Down	**68**	Status_ Vanes U-D / 4 pos	1 byte	DPT_Scaling	5.001	R		T		25% - Pos1; 50% - Pos2; 75% - Pos3; 100% - Pos4
		Status_ Vanes U-D / 4 pos	1 byte	DPT_Enumerated	5.010	R		T		1 - Pos1; 2 - Pos2; 3 - Pos3; 4 - Pos4
	69	Status_ Vanes U-D Pos1	1 bit	DPT_Bool	1.002	R		T		1 - Position 1
	70	Status_ Vanes U-D Pos2	1 bit	DPT_Bool	1.002	R		T		1 - Position 2
	71	Status_ Vanes U-D Pos3	1 bit	DPT_Bool	1.002	R		T		1 - Position 3
	72	Status_ Vanes U-D Pos4	1 bit	DPT_Bool	1.002	R		T		1 - Position 4
	73	Status_ Vanes U-D Swing	1 bit	DPT_Bool	1.002	R		T		0 – Off; 1 – Swing
	74	Status_ Vanes U-D Text	14 byte	DPT_String_8859_1	16.001	R		T		ASCII String
Temperature	**75**	Status_ AC Setpoint Temp	2 byte	DPT_Value_Temp	9.001	R		T		(ºC)
	76	Status_ AC Referene Temp	2 byte	DPT_Value_Temp	9.001	R		T		(ºC)
Central Cont.	**77**	Status_ Only Centrally Ctrl	1 bit	DPT_Bool	1.002	R		T		1 – Only centrally controlled
Filter	**78**	Status_ Filter Status	1 bit	DPT_Bool	1.005	R		T		0 - No Alarm; 1 - Alarm
Error	**79**	Status_ Error/Alarm	1 bit	DTP_Alarm	1.005	R		T		0 - No Alarm; 1 - Alarm
	80	Status_ Error Code	2 byte	Enumerated		R		T		0 - No Error; Any other see user's manual
	81	Status_ Error Text Code	14 byte	DPT_String_8859_1	16.001	R		T		3 char MH Error; Empty - none

Special Modes	**82**	Status_ Power Mode	1 bit	DPT_Switch	1.001	R		T		0 - Off; 1-On
	83	Status_ Econo Mode	1 bit	DPT_Switch	1.001	R		T		0 - Off; 1-On
	84	Status_ Additional Heat	1 bit	DPT_Switch	1.001	R		T		0 - Off; 1-On
	85	Status_ Additional Cool	1 bit	DPT_Switch	1.001	R		T		0 - Off; 1-On
Counter	**86**	Status_ Operation Hour Counter	2 byte	DPT_Value_2_Ucount	7.001	R		T		Number of operating hours
Scene	**87**	Status_ Current Scene	1 byte	DPT_SceneNumber	17.001	R		T		0 to 4 - Scene 1 to 5; 63 - No Scene
Binary Inputs	**88** **90** **92** **94**	Status_ Inx - Switching	1 bit	DPT_Switch	1.001	R		T		0 - Off; 1-On
		Status_ Inx – Dimming - On/Off	1 bit	DPT_Switch	1.001	R		T		0 - Off; 1 - On
		Status_ Inx – Shut/Blind - Step	1 bit	DPT_ShutterBlinds	1.023	R		T		0 – Step Up; 1 – Step Down
	89 **91** **93** **95**	Status_ Inx – Value	1 byte	DPT_Value_1_Ucount	5.010	R		T		1 byte unsigned value
		Status_ Inx – Value	2 byte	DPT_Value_2_Ucount	7.001	R		T		2 byte unsigned value
		Status_ Inx – Value	2 byte	DPT_Value_2_Count	8.001	R		T		2 byte signed value
		Status_ Inx – Value	2 byte	DPT_Value_Temp	9.001	R		T		Temperature (ºC)
		Status_ Inx – Value	4 byte	DPT_Value_4_Ucount	12.001	R		T		4 byte unsigned value
		Status_ Inx – Dimming – Step(%)	4 bit	DPT_Control_Dimm.	3.007	R		T		Dimming step
		Status_ Inx - Shut/Blind -Move	1 bit	DPT_ShutterBlinds	1.023	R		T		0 – Move Up; 1 – Move Down