IntesisBox®

PA-AC-KNX-1i v1.2

User's Manual

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Gateway for integration of Panasonic air conditioners into KNX TP-1 (EIB) control systems.

Compatible with Etherea line air conditioners commercialized by Panasonic.

Application's Program Version: 1.2

Order Code: **PA-AC-KNX-1i**

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INDEX

1. Presentation

PA-AC-KNX-1i allows a complete and natural integration of PANASONIC air conditioners with KNX control systems.

Compatible with all Etherea models commercialized by PANASONIC.

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 IR remote control of the AC unit and by KNX.
- 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

The interface comes with a cable (1,9 meters long) for direct connection to the internal control board of the AC indoor unit.

- Connection of the interface to the AC indoor unit:

Disconnect mains power from the AC unit. Open the front cover of the indoor unit in order to have access to the internal control board. In the control board locate the socket connector marked as:

CN-CNT in Etherea line units.

Using the cable that comes with the interface, insert one of its connectors, the one installed in the shortest uncovered part, into the socket of the PA-AC-KNX-1i marked as **AC Unit**, and the other connector, the one in the largest uncovered part, into the socket **CN-CNT** of the AC unit's control board. Fix the PA-AC-KNX-1i inside or outside the AC indoor unit depending on your needs, remember that PA-AC-KNX-1i must be also connected to the KNX bus. Close the AC indoor unit's front cover again.

⚠ ***Important***: Do not modify the length of the cable supplied with the interface, it may affect to the correct operation of the interface

- Connection of the interface to the KNX bus:

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

- Connections diagram:

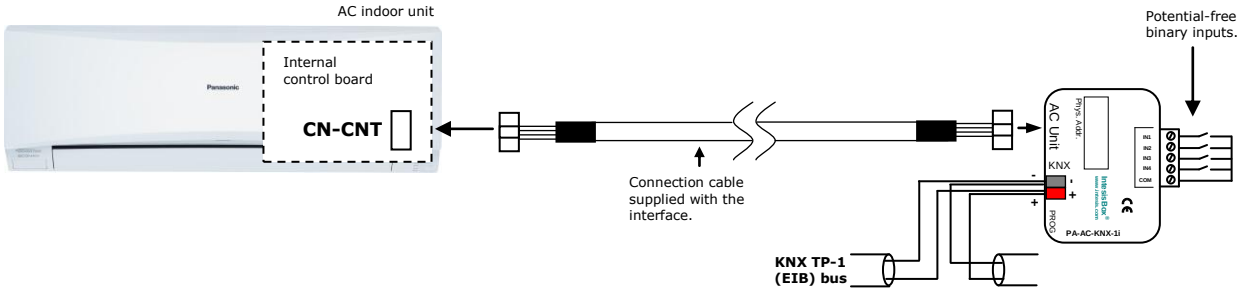


Figure 2.2 Connection diagram

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/PA-AC-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 PA-AC-KNX-1i (Fan speed and Vanes), 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:

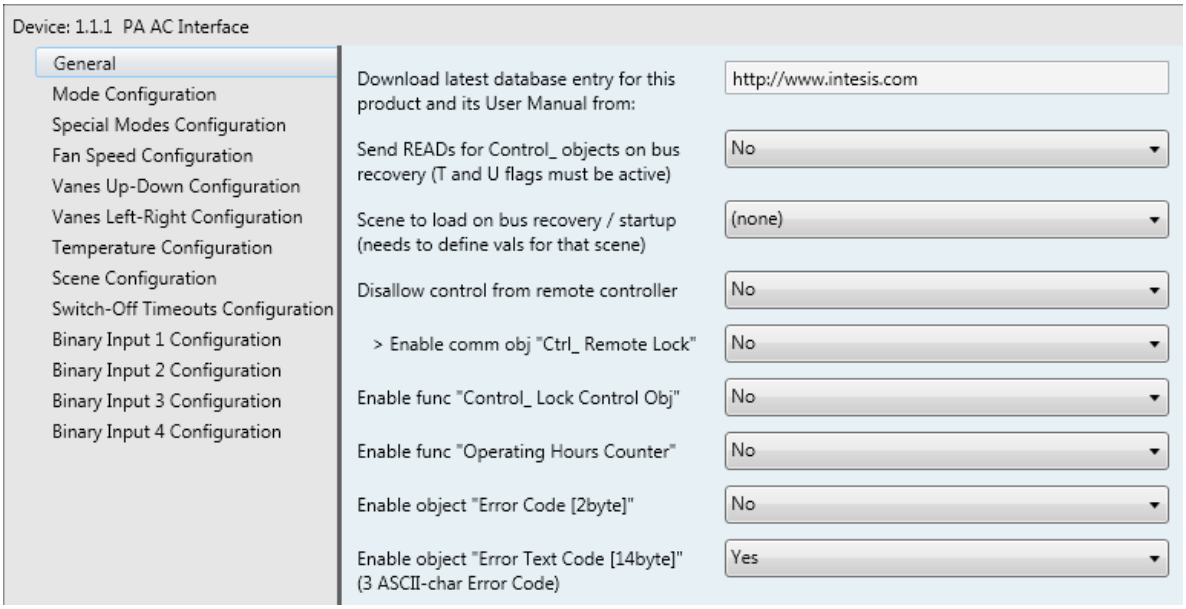


Figure 4.1 Default parameter configuration

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 Setpoint Temp* and *Status_ Error/Alarm* are shown.

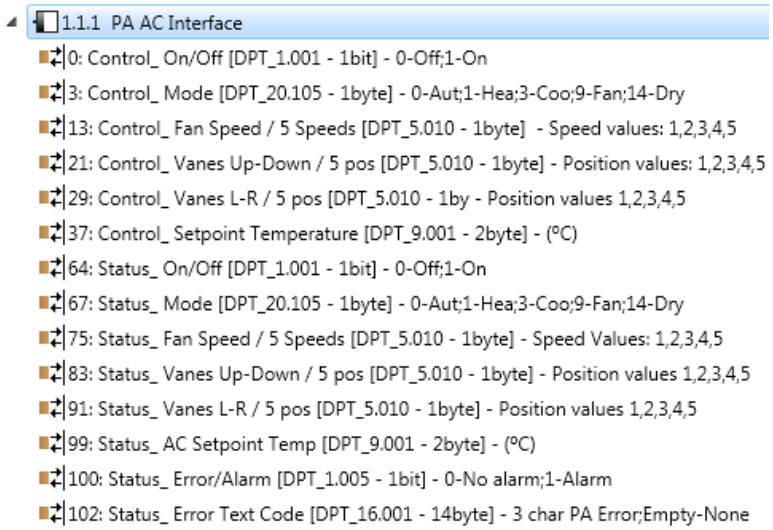


Figure 4.2 Default communication objects

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 Send READs for Control_ objects on bus recovery

When this parameter is enabled, PA-AC-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.

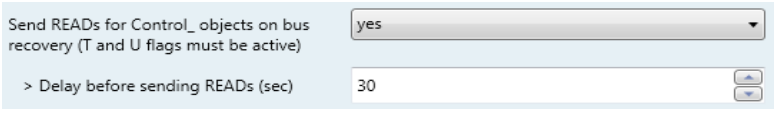


Figure 4.4 Parameter detail

- 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.

4.1.2 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.

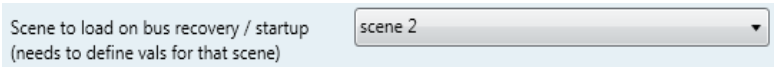


Figure 4.5 Parameter detail

4.1.3 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*.

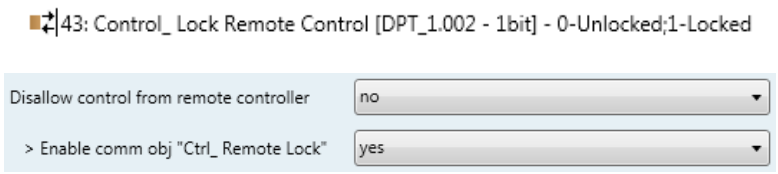


Figure 4.6 Communication object and parameter detail

➢ Enable comm obj "Ctrl_ Remote Lock":

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

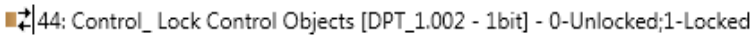
If set to **"yes"** the *Control_ Lock Remote Control* object will appear.

- 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.*

4.1.4 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.

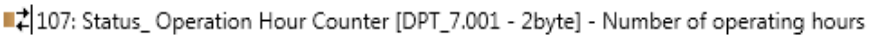


- If set to **"no"** the object will not be shown.
- If set to **"yes"** the *Control_ Lock Control Objects* object will appear.

  - 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.

4.1.5 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 PA-AC-KNX-1i.



- 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.

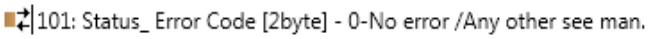
    ⚠ ***Important:*** *This object comes by default without the write* ***(W)*** *flag activated. If is necessary to write on it, this flag must be activated.*

    ⚠ ***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.*

4.1.6 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.

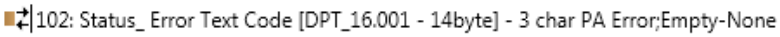


- If set to **"no"** the object will not be shown.
- If set to **"yes"** the *Status_ Error Code [2byte]* object will appear.

    - 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.

4.1.7 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.



- 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

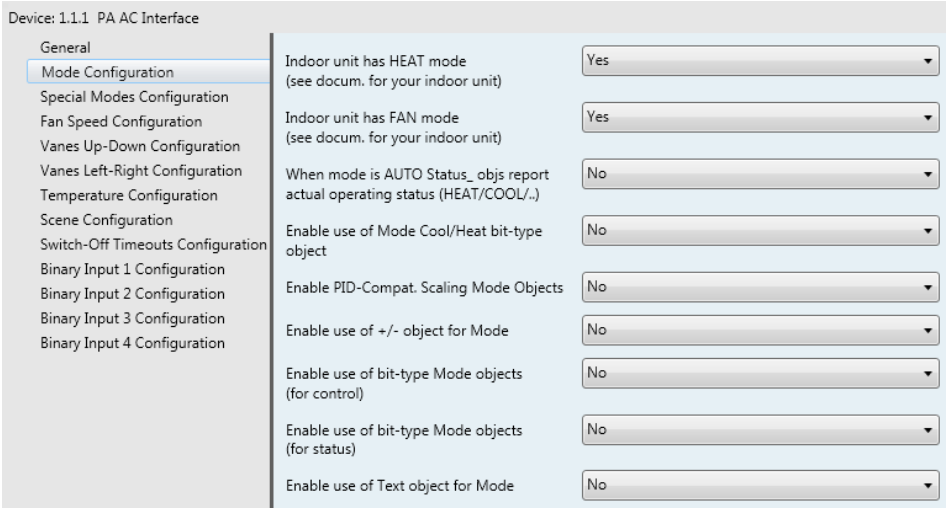
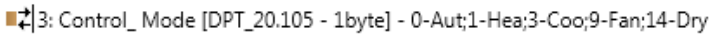


Figure 4.7 Default Mode Configuration dialog

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



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 HEAT mode

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

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

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

4.2.2 Indoor unit has FAN mode

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

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

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

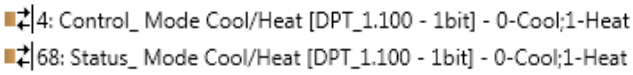
4.2.3 When mode is AUTO Status_ objs report actual operating status

This parameter shows the real status of the indoor unit when Auto mode is enabled.

- If set to **"no"**, when the indoor unit is set to Auto mode, all the *Status_* objects concerning mode will only show Auto enabled.
- If set to **"yes"**, when the indoor unit is set to Auto mode, all the *Status_* objects concerning mode will show the real mode which the machine is working (Cool, Heat, Dry, Fan). In case of the bitfield objects, also the *Status_ Mode Auto* will be shown enabled with a **"1"** value.

4.2.4 Enable use of Heat / Cool bit-type obj

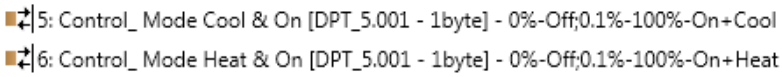
This parameter shows/hides the *Control_* and *Status_ Mode Cool/Heat* communication objects.



- 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.

4.2.5 Enable PID-Compat. Scaling Mode Objects

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



- 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.

- PA-AC-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.

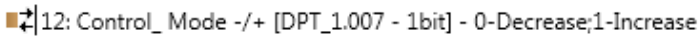
        - Lastest updated object will define the operating mode

    - 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.*

4.2.6 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.



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

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

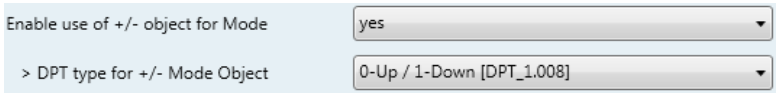


Figure 4.8 Parameter detail

➢ DPT type for +/- Mode Object

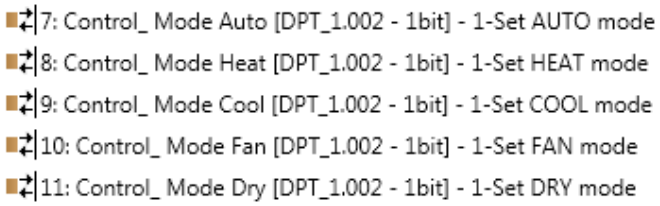
This parameter lets choose between the datapoints **0-Up / 1-Down [DPT_1.008]** and **0-Decrease / 1-Increase [DPT_1.007]** for the *Control_ Mode +/-* object.

The sequence followed when using this object is shown below:

- Up / Increase
- Down / Decrease

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

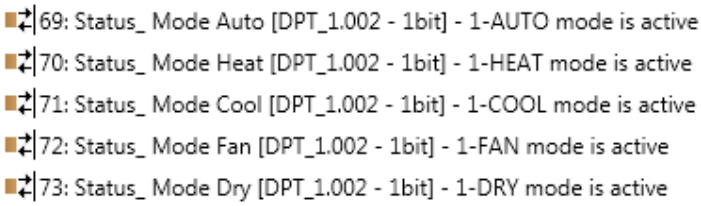
This parameter shows/hides the bit-type *Control_ Mode* objects.



- 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.

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

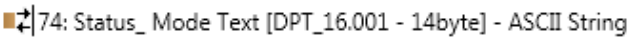
This parameter shows/hides the bit-type *Status_ Mode* objects.



- 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.

4.2.9 Enable use of Text object for Mode

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



- 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.

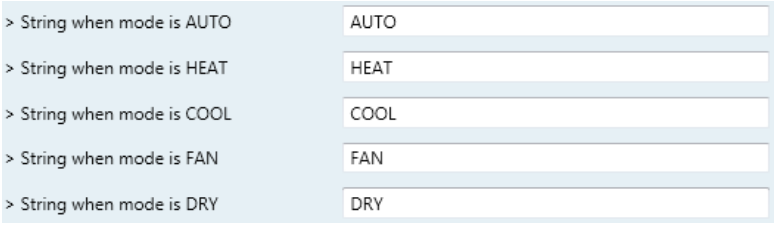


Figure 4.9 Parameter detail

4.3 Special Modes Configuration dialog

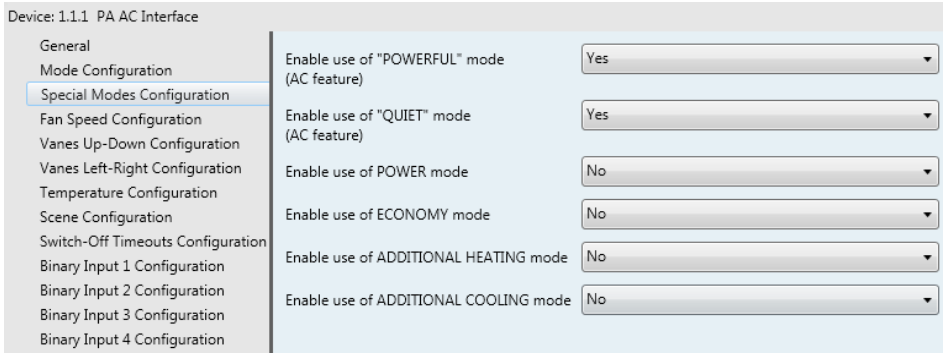


Figure 4.10 Default Special Modes Configuration dialog

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 (excluding POWERFUL and QUIET modes), the real state of the indoor unit will NOT be shown in KNX.*

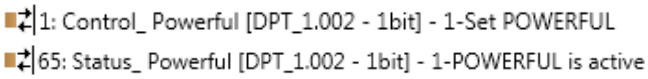
⚠ ***Important:*** *When the predefined time for the Special Mode is finished or a **"0"** value is sent to stop it, the previous state will be recovered (excluding in POWERFUL and QUIET modes).*

⚠ ***Important:*** *If a value concerning On/Off, Mode, Fan Speed or Setpoint Temperature is received from KNX while any Special Mode (excluding POWERFUL and QUIET modes) 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 (excluding POWERFUL and QUIET modes) 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 "POWERFUL" mode (AC feature)

This parameter shows/hides the *Control_ Powerful* and *Status_ Powerful* communication objects.

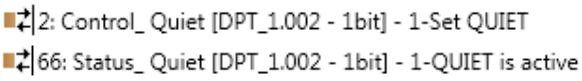


⚠ ***Important:*** *The Powerful Mode is an internal AC feature. Please check the indoor unit user's manual to have more information about it.*

- If set to **"no"** the object will not be shown.
- If set to **"yes"** the *Control_ Po1werful* and *Status_ Powerful* objects will appear.
    - When a **"1"** value is sent to the *Control_* communication object, Powerful Mode will be enabled, and the *Status_* object will return this value.
    - When a **"0"** value is sent to the *Control_* communication object, Powerful Mode will be disabled, and the *Status_* object will return this value.

4.3.2 Enable use of "QUIET" mode (AC feature)

This parameter shows/hides the *Control_ Quiet* and *Status_ Quiet* communication objects.

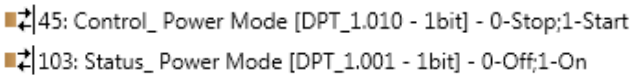


⚠ ***Important:*** *The Quiet Mode is an internal AC feature. Please check the indoor unit user's manual to have more information about it.*

- If set to **"no"** the object will not be shown.
- If set to **"yes"** the *Control_ Quiet* and *Status_ Quiet* objects will appear.
    - When a **"1"** value is sent to the *Control_* communication object, Quiet Mode will be enabled, and the *Status_* object will return this value.
    - When a **"0"** value is sent to the *Control_* communication object, Quiet Mode will be disabled, and the *Status_* object will return this value.

4.3.3 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.



- 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.

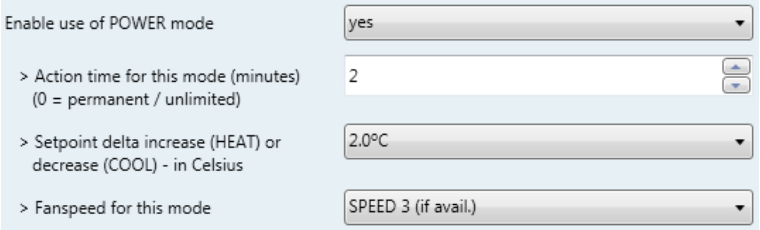


Figure 4.11 Parameter detail

- 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:

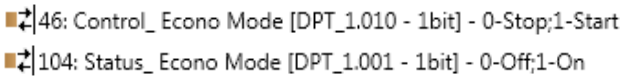
Number of degrees Celsius that will increase in Heat Mode, or decrease in Cool Mode, while in Power Mode.

➢ Fan Speed for this mode:

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

4.3.4 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.



- 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:

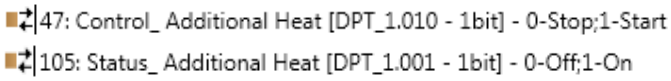
Number of degrees Celsius that will increase in Heat Mode, or decrease in Cool Mode, while in EconoMode.

➢ Fan Speed for this mode:

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

4.3.5 Enable use of ADDITIONAL HEATING mode

This parameter shows/hides the *Control_ Start 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.



- 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):

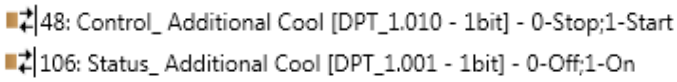
  Setpoint temperature that will be applied while in Additional Heating Mode.

- Fan Speed for this mode:

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

4.3.6 Enable use of ADDITIONAL COOLING mode

This parameter shows/hides the *Control_ Start 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.



- 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

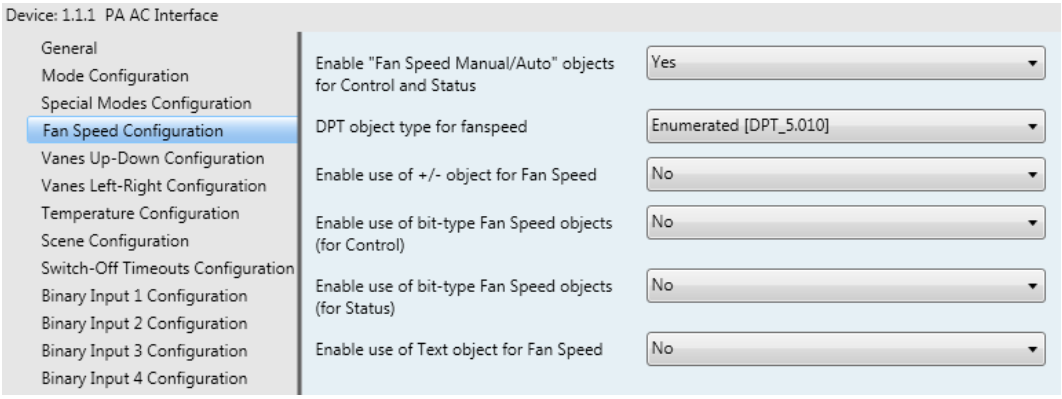
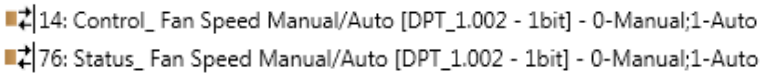


Figure 4.12 Default Fan Speed Configuration dialog

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

4.4.1 Enable “Fan Speed Manual/Auto” objects for Control and Status

This parameter shows/hides the *Control_ Fan Speed Manual/Auto* and *Status_ Fan Speed Manual/Auto* communication objects.



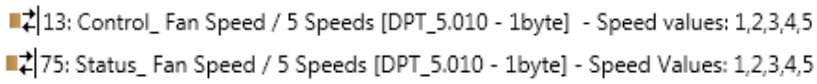
- If set to **“no”** the objects will not be shown.
- If set to **“yes”** the *Control_ Fan Speed Manual/Auto* and *Status_ Fan Speed Manual/Auto* objects will appear.
    - When a **“1”** value is sent to the *Control_* communication object, Fan Speed will be in Auto mode, and the *Status_* object will return this value.
    - When a **“0”** value is sent to the *Control_* communication object, Fan Speed will be in Manual mode and the first fan speed will be enabled. The *Status_* object will return this value.

    ⚠ ***Important:*** *When in Auto Mode the indoor unit will choose the most appropriate fan speed, but this will be shown neither in KNX nor in the remote controller.*

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.

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

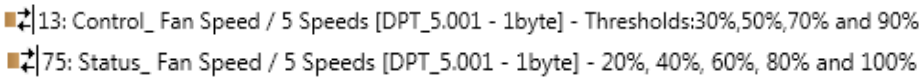


The first fan speed will be selected if a **"1"** is sent to the *Control_* object. The second one will be selected sending a **"2"**; the third one will be selected sending a **"3"**; the fourth one will be selected sending a **"4"**; and the last one will be selected sending a **"5"**.

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 **"5"** 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.



When a value between **0%** and **29%** is sent to the *Control_* object the first fan speed will be selected.

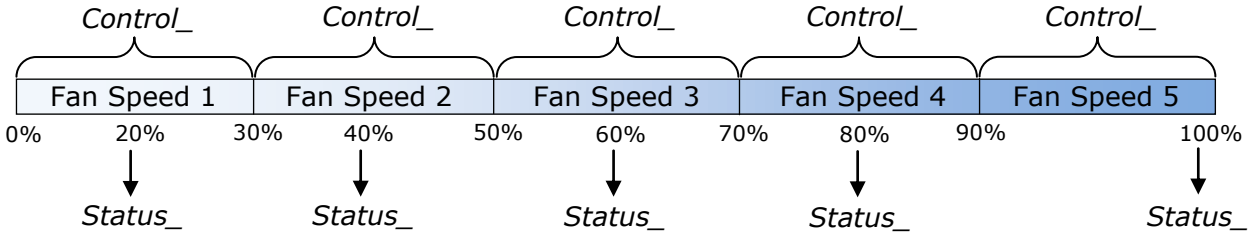
When a value between **30%** and **49%** is sent to the *Control_* object, the second speed will be selected.

When a value between **50%** and **69%** is sent to the *Control_* object, the third speed will be selected.

When a value between **70%** and **89%** is sent to the *Control_* object, the fourth speed will be selected.

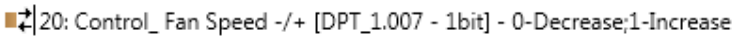
When a value between **90%** and **100%** is sent to the *Control_* object, the fifth speed will be selected.

The *Status_* object will return a **20%** when the first speed is selected, a **40%** for the second one, a **60%** for the third one, a **80%** for the fourth one, and a **100%** for the last one.



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.



- 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.

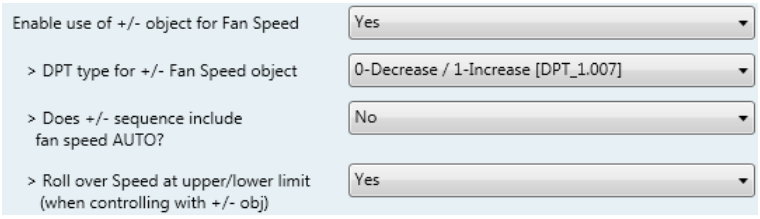


Figure 4.13 Parameter detail

➢ DPT type for +/- Fan Speed Object

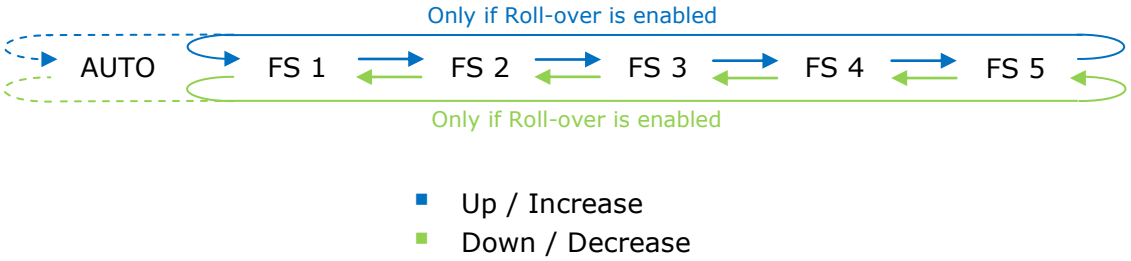
This parameter lets choose between the datapoints **0-Up / 1-Down [DPT_1.008]** and **0-Decrease / 1-Increase [DPT_1.007]** for the *Control_ Fan Speed +/-* object.

➢ Does +/- sequence include fan speed AUTO?

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

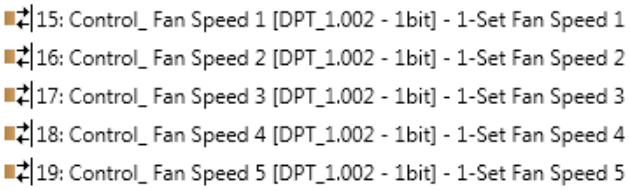
➢ Roll-over Speed at upper/lower limit

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



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

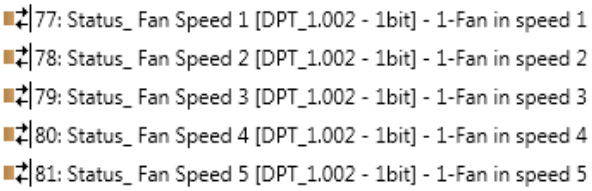
This parameter shows/hides the bit-type *Control_ Fan Speed* objects.



- If set to **"no"** the objects will not be shown.
- If set to **"yes"** the *Control_ Fan Speed* objects for Speed 1, Speed 2, Speed 3, Speed 4 and Speed 5 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)

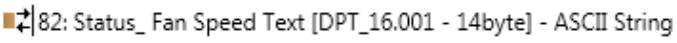
This parameter shows/hides the bit-type *Status_ Fan Speed* objects.



- If set to **"no"** the objects will not be shown.
- If set to **"yes"** the *Status_ Fan Speed* objects for Speed 1, Speed 2, Speed 3, Speed 4 and Speed 5 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.



- 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 five 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.

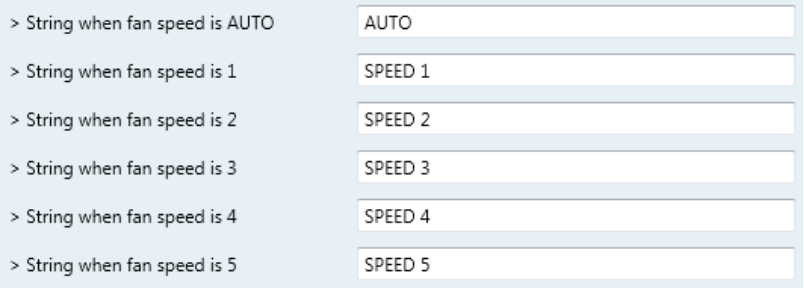


Figure 4.14 Parameter detail

4.5 Vane Up-Down Configuration dialog

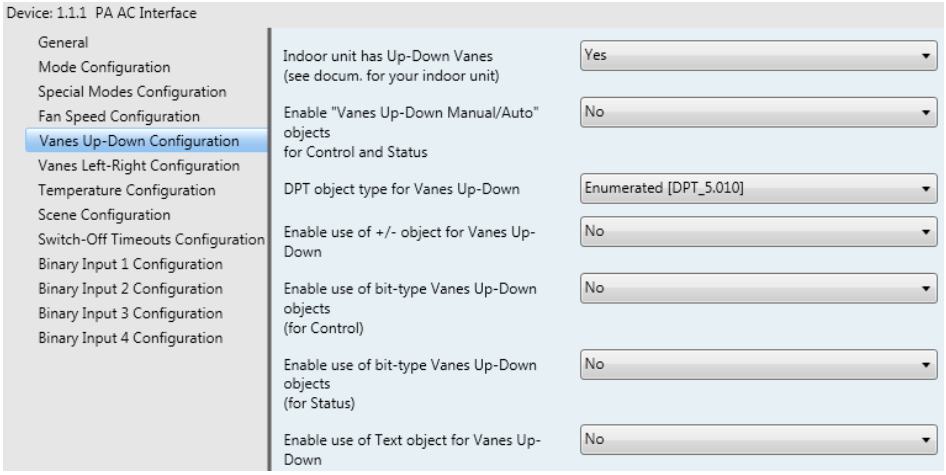


Figure 4.15 Vane Up-Down Configuration dialog

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

4.5.1 Indoor unit has Up-Down Vanes

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

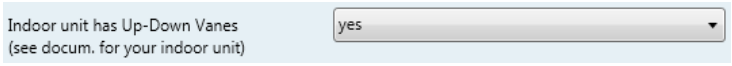


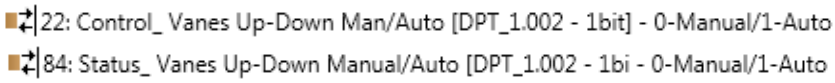
Figure 4.17 Parameter detail

- 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 Enable "Vanes Up-Down Manual/Auto" objects for Control and Status

This parameter shows/hides the *Control_ Vanes Up-Down Man/Auto* and *Status_ Vanes Up-Down Man/Auto* communication objects.



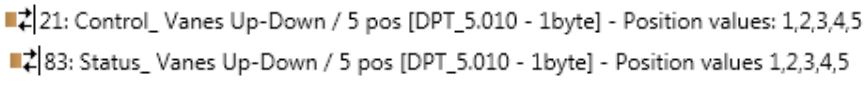
- If set to **"no"** the objects will not be shown.
- If set to **"yes"** the *Control_ Vanes Up-Down Man/Auto* and *Status_ Vanes Up-Down Man/Auto* objects will appear.
    - When a **"1"** value is sent to the *Control_* communication object, Vanes Up-Down will be in Auto mode, and the *Status_* object will return this value.
    - When a **"0"** value is sent to the *Control_* communication object, Vanes Up-Down will be in Manual mode and the first position will be enabled. The *Status_* object will return this value.

    ⚠ ***Important:*** *When in Auto Mode the indoor unit will choose the most appropriate vane up-down position, but this will be shown neither in KNX nor in the remote controller.*

4.5.3 DPT object type for Vane Up-Down

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

- When **"Enumerated [DPT 5.010]"** is selected, *Control_ Vane Up-Down* and *Status_ Vane Up-Down* communication objects for this DPT will appear.



  To choose a vane position, values from **"1"** to **"5"** 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 **"5"** is sent to the Control_ object, then the Position 5 will be selected.*

- When **"Scaling [DPT 5.001]"** is selected, *Control_ Vane Up-Down* and *Status_ Vane Up-Down* communication objects for this DPT will appear.

21: Control_ Vanes Up-Down / 5 pos [DPT_5.001 - 1byte] - Thresholds:30%,50%,70% and 90%
83: Status_ Vanes Up-Down / 5 pos [DPT_5.001 - 1byte] - 20%, 40%, 60%, 80% and 100%

When a value between **0%** and **29%** is sent to the *Control_* object the first vane position will be selected.

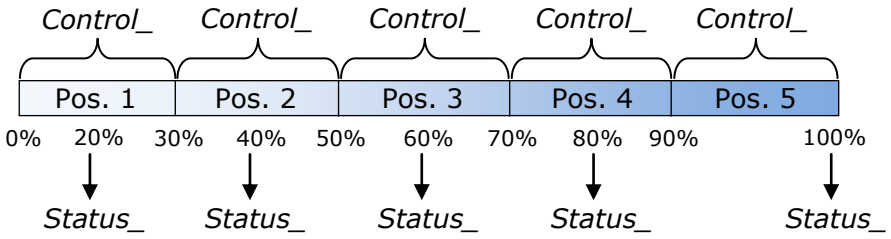
When a value between **30%** and **49%** is sent to the *Control_* object, the second vane position will be selected.

When a value between **50%** and **69%** is sent to the *Control_* object, the third vane position will be selected.

When a value between **70%** and **89%** is sent to the *Control_* object, the fourth vane position will be selected.

When a value between **90%** and **100%** is sent to the *Control_* object, the fifth vane position will be selected.

The *Status_* object will return a **20%** for the first vane position, a **40%** for the second one, a **60%** for the third one, an **80%** for the fourth one and a **100%** for the fifth and last one.



4.5.4 Enable use of +/- obj for Vane Up-Down

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

28: Control_ Vanes Up-Down -/+ [DPT_1.007 - 1bit] - 0-Decrease;1-Increase

- If set to **"no"** the object will not be shown.
- If set to **"yes"** the *Control_ Vane Up-Down +/-* object and a new parameter will appear.

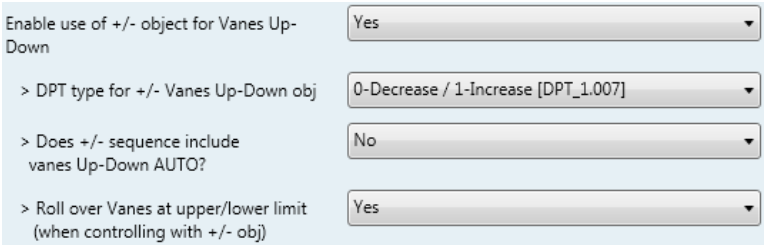


Figure 4.16 Parameter detail

- DPT type for +/- Vane Up-Down obj

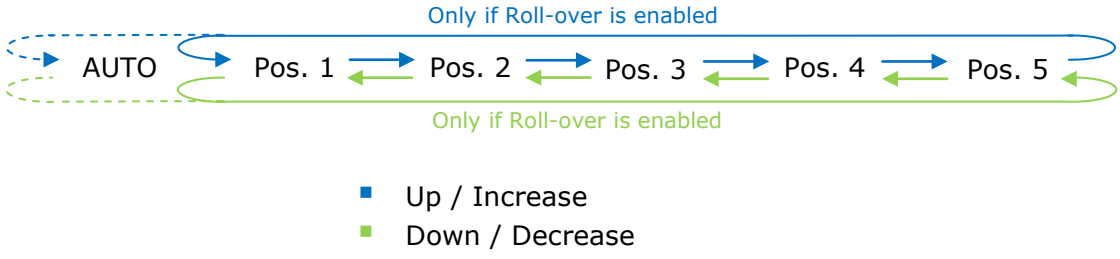
  This parameter lets choose between the datapoints **0-Up / 1-Down [DPT_1.008]** and **0-Decrease / 1-Increase [DPT_1.007]** for the *Control_ Vane Up-Down +/-* object.

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

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

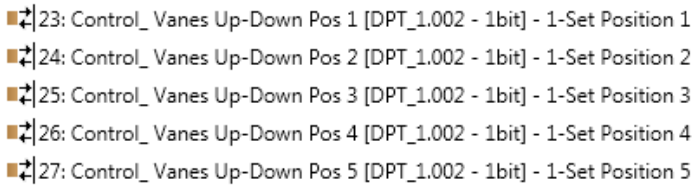
- Roll over Vanes at upper/lower limit

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



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

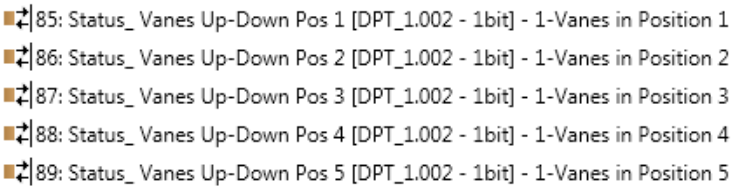
This parameter shows/hides the bit-type *Control_ Vane Up-Down* objects.



- If set to **"no"** the objects will not be shown.
- If set to **"yes"** the *Control_ Vane Up-Down* objects for each Position (1 to 5) will appear. To activate a Vane Position by using these objects, a **"1"** value has to be sent.

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

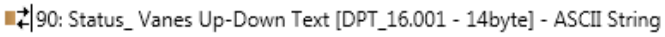
This parameter shows/hides the bit-type *Status_ Vane Up-Down* objects.



- If set to **"no"** the objects will not be shown.
- If set to **"yes"** the *Status_ Vane Up-Down* objects for each Position (1 to 5) will appear. When a Vane Position is enabled, a **"1"** value is returned through its bit-type object.

4.5.7 Enable use of Text object for Vane U-D

This parameter shows/hides the *Status_ Vane Up-Down Text* communication object.



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

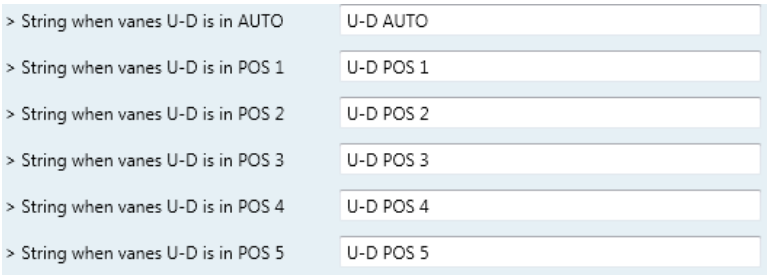


Figure 4.17 Parameter detail

4.6 Vane Left-Right Configuration dialog

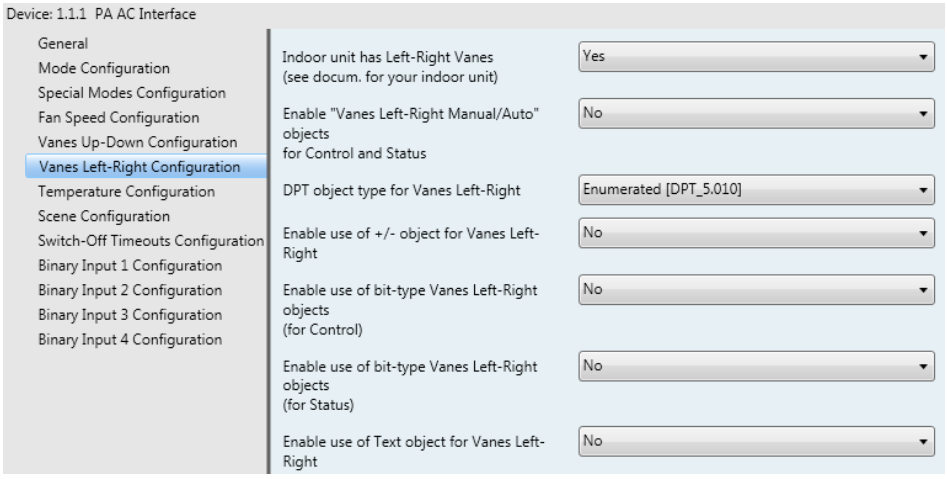


Figure 4.18 Vane Left-Right Configuration dialog

All the parameters in this section are related with the Vane Left-Right properties and communication objects.

4.6.1 Indoor unit has Left-Right Vanes

This parameter lets choose if the unit has Left-Right Vanes available or not.

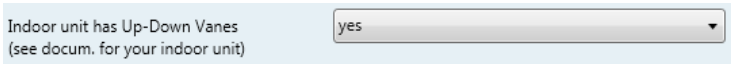


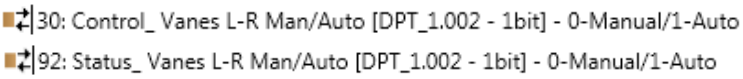
Figure 4.19 Parameter detail

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

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

4.6.2 Enable "Vanes Left-Right Manual/Auto" objects for Control and Status

This parameter shows/hides the *Control_ Vanes L-R Man/Auto* and *Status_ Vanes L-R Man/Auto* communication objects.



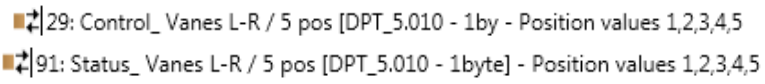
- If set to **"no"** the objects will not be shown.
- If set to **"yes"** the *Control_ Vanes L-R Man/Auto* and *Status_ Vanes L-R Man/Auto* objects will appear.
    - When a **"1"** value is sent to the *Control_* communication object, Vanes Left-Right will be in Auto mode, and the *Status_* object will return this value.
    - When a **"0"** value is sent to the *Control_* communication object, Vanes Left-Right will be in Manual mode and the first position will be enabled. The *Status_* object will return this value.

    ⚠ ***Important:*** *When in Auto Mode the indoor unit will choose the most appropriate vane* left-right *position, but this will be shown neither in KNX nor in the remote controller.*

4.6.3 DPT object type for Vane Left-Right

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

- When **"Enumerated [DPT 5.010]"** is selected, *Control_ Vane L-R* and *Status_ Vane L-R* communication objects for this DPT will appear.

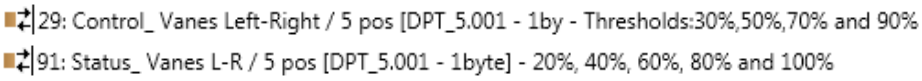


To choose a vane position, values from **"1"** to **"5"** can be sent to the *Control_* object. Each value will correspond to the position (i.e. Value **"3"** = Position 3).

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 **"5"** is sent to the Control_ object, then the Position 5 will be selected.*

- When **"Scaling [DPT 5.001]"** is selected, *Control_ Vane L-R* and *Status_ Vane L-R* communication objects for this DPT will appear.



When a value between **0%** and **29%** is sent to the *Control_* object the first vane position will be selected.

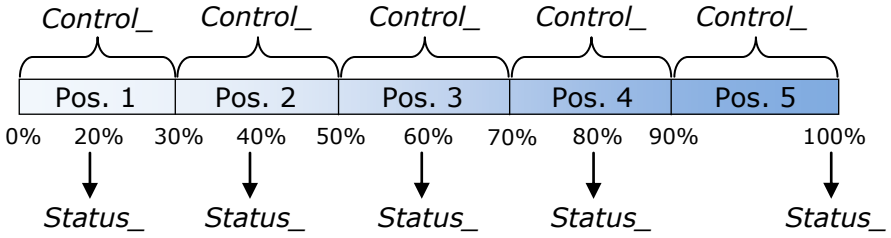
When a value between **30%** and **49%** is sent to the *Control_* object, the second vane position will be selected.

When a value between **50%** and **69%** is sent to the *Control_* object, the third vane position will be selected.

When a value between **70%** and **89%** is sent to the *Control_* object, the fourth vane position will be selected.

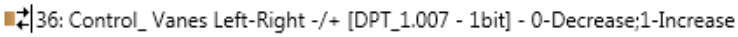
When a value between **90%** and **100%** is sent to the *Control_* object, the fifth vane position will be selected.

The *Status_* object will return a **20%** for the first vane position, a **40%** for the second one, a **60%** for the third one, an **80%** for the fourth one and a **100%** for the fifth and last one.



4.6.4 Enable use of +/- obj for Vane Left-Right

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



- If set to **"no"** the object will not be shown.
- If set to **"yes"** the *Control_ Vane Left-Right +/-* object and a new parameter will appear.

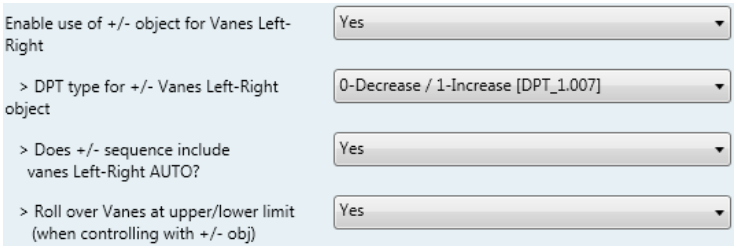


Figure 4.20 Parameter detail

➢ DPT type for +/- Vane Left-Right obj

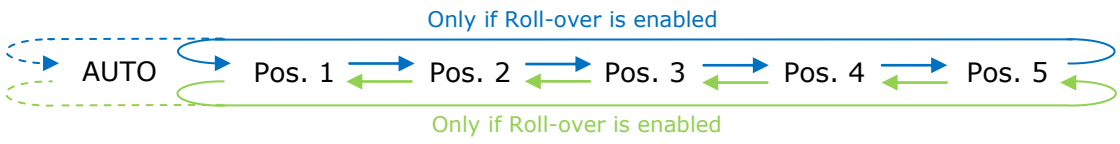
This parameter lets choose between the datapoints **0-Up / 1-Down [DPT_1.008]** and **0-Decrease / 1-Increase [DPT_1.007]** for the *Control_ Vane Left-Right +/-* object.

➢ Does +/- sequence include vanes Left-Right AUTO?

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

➢ Roll over Vanes at upper/lower limit

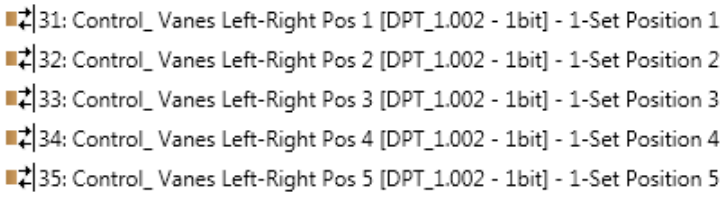
This parameter lets choose if roll-over will be enabled (**"yes"**) or disabled (**"no"**) for the *Vane Left-Right +/-* object.



- Up / Increase
- Down / Decrease

4.6.5 Enable use of bit-type Vane Left-Right objects (for Control)

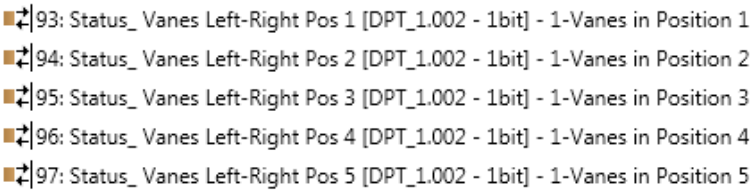
This parameter shows/hides the bit-type *Control_ Vane Left-Right* objects.



- If set to **"no"** the objects will not be shown.
- If set to **"yes"** the *Control_ Vane Left-Right* objects for each Position (1 to 5) will appear. To activate a Vane Position by using these objects, a **"1"** value has to be sent.

4.6.6 Enable use of bit-type Vane Left-Right objects (for Status)

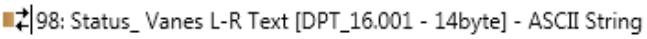
This parameter shows/hides the bit-type *Status_ Vane Left-Right* objects.



- If set to **"no"** the objects will not be shown.
- If set to **"yes"** the *Status_ Vane Left-Right* objects for each Position (1 to 5) will appear. When a Vane Position is enabled, a **"1"** value is returned through its bit-type object.

4.6.7 Enable use of Text object for Vane Left-Right

This parameter shows/hides the *Status_ Vane Left-Right Text* communication object.



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

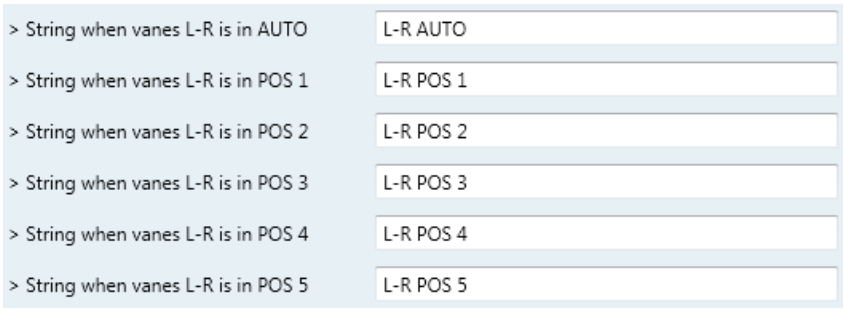


Figure 4.21 Parameter detail

4.7 Temperature Configuration dialog

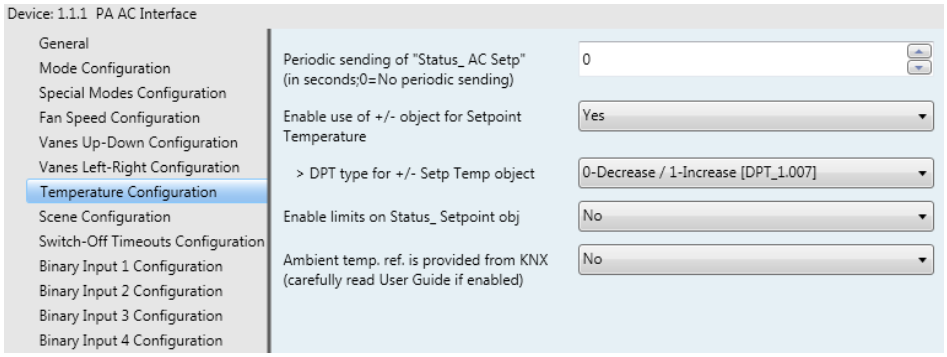


Figure 4.22 Default Temperature Configuration dialog

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

4.7.1 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.*

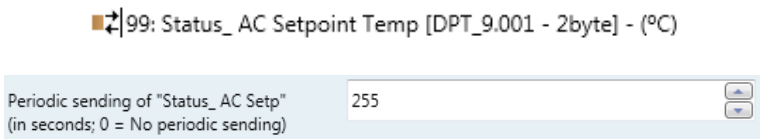
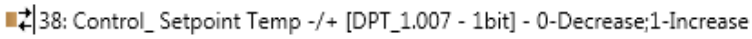


Figure 4.23 Parameter detail

⚠ ***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 “2.7.4 Ambient temp. ref. is provided from KNX”.*

4.7.2 Enable use of +/- object for Setpoint Temperature

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



- 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.

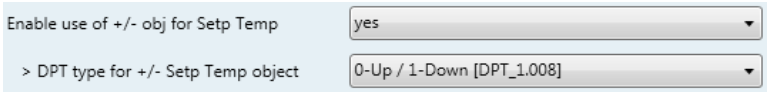


Figure 4.24 Parameter detail

➢ DPT type for +/- Setp Temp object

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

(Lower limit) **16ºC** ⇄ 17ºC ⇄ … ⇄ 31ºC ⇄ **32ºC** (Upper limit)

- Up / Increase
- Down / Decrease

4.7.3 Enable limits on Control_ Setpoint obj

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

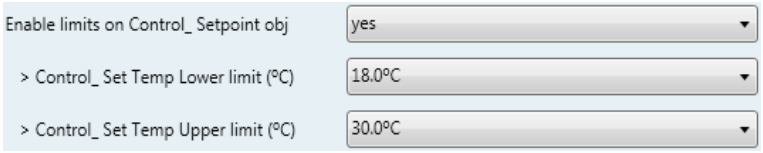


Figure 4.25 Parameter detail

- If set to **"no"** the setpoint temperature limits for the *Control_ Setpoint Temperature* object will be the default: 16ºC for the lower limit and 32ºC for the upper limit.
- If set to **"yes"** it is possible to define temperature limits for the *Control_ Setpoint Temperature* object.

➢ Control _ Set Temp Lower limit (ºC)

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

➢ Control_ Set Temp Upper limit (ºC)

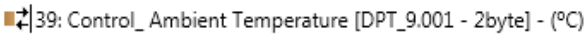
This parameter lets to define the upper limit for the setpoint temperature.

⚠ ***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.*

4.7.4 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.



- 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." = "KNX Setp. Temp." - ("KNX Amb. Temp." - "KNX Setp. Temp.")/2

  - AC Setp. Temp.: AC indoor unit setpoint 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.")

In this example, the final setpoint temperature that PA-AC-KNX-1i will send out to the indoor unit (shown in "AC Setp. Temp.") will become 19ºC – (21ºC - 19ºC)/2 = **18ºC**. This is the setpoint that will actually be requested to Panasonic 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).

4.8 Scene Configuration dialog

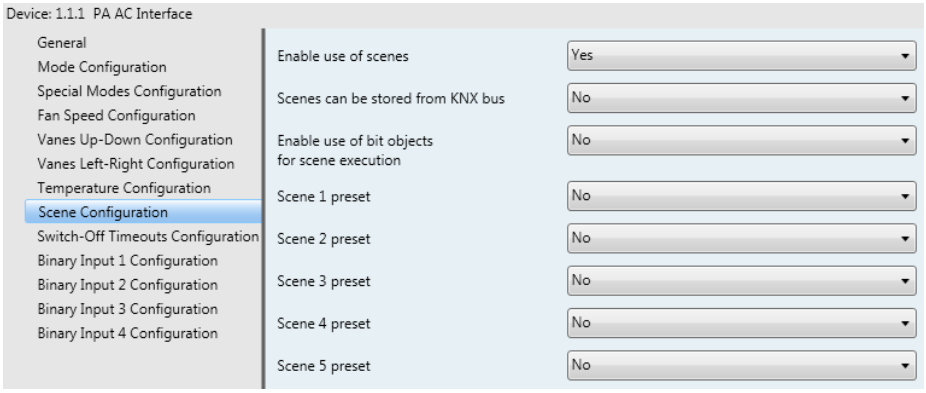


Figure 4.26 Parameter detail

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.

4.8.1 Enable use of scenes

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

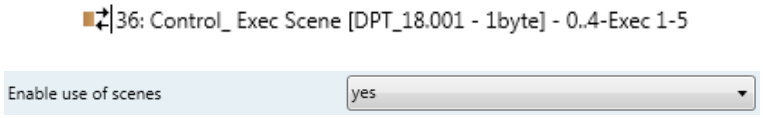


Figure 4.27 Parameter detail

- 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).

4.8.2 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.

- 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).

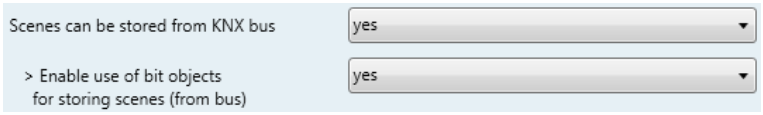


Figure 4.28 Parameter detail

➢ Enable use of bit objects for storing scenes (from bus)

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).

4.8.3 Enable use of bit objects for scene execution

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

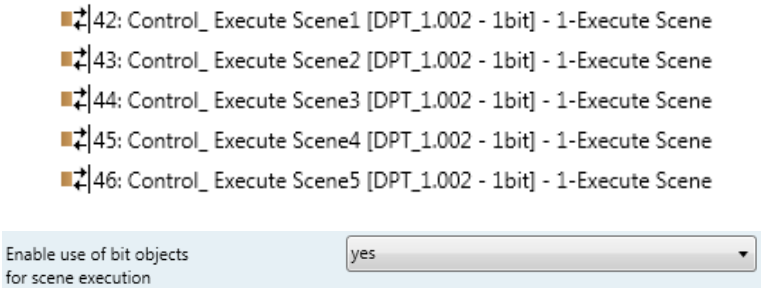


Figure 4.29 Parameter detail

- 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).

4.8.4 Scene "x" preset

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

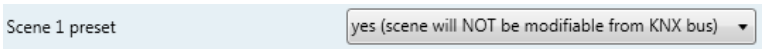


Figure 4.30 Parameter detail

- 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.*

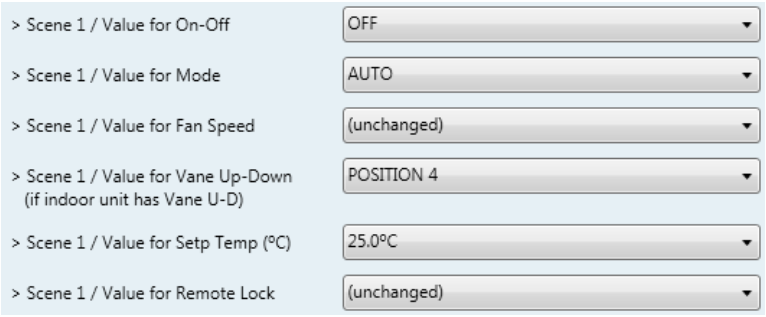


Figure 4.31 Parameter detail

➢ Scene "x" / Value for On-Off

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

➢ Scene "x" / Value for Mode

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

➢ Scene "x" / Value for Fan Speed

This parameter lets choose the fan speed of the indoor unit when the scene is executed. The following options are available: **"SPEED 1"**, **"SPEED 2"**, **"SPEED 3"**, **"SPEED 4"**, **"SPEED 5"**, or **"(unchanged)"**.

➢ Scene "x" / Value for Vane Up-Down (if available)

This parameter lets choose the vane position of the indoor unit when the scene is executed. The following options are available: **"POSITION 1"**, **"POSITION 2"**, **"POSITION 3"**, **"POSITION 4", "POSITION 5", "AUTO"** or **"(unchanged)"**.

➢ Scene "x" / Value for Vane Left-Right (if available)

This parameter lets choose the vane position of the indoor unit when the scene is executed. The following options are available: **"POSITION 1"**, **"POSITION 2"**, **"POSITION 3"**, **"POSITION 4", "POSITION 5", "AUTO"** 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 **"16ºC"** to **"32ºC"** (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.*

4.9 Switch-Off Timeouts Configuration dialog

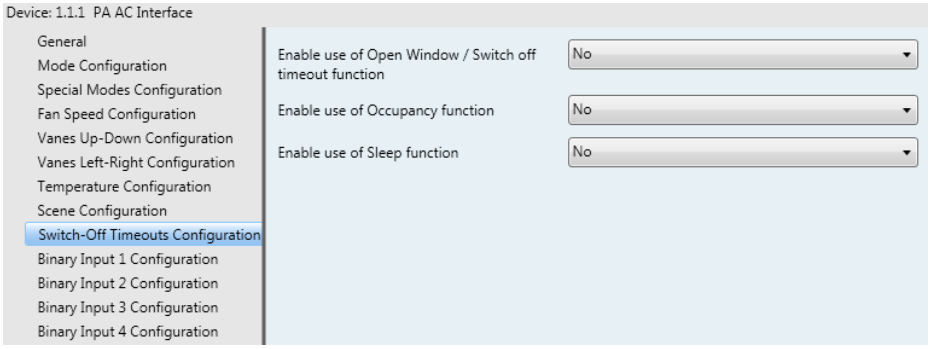
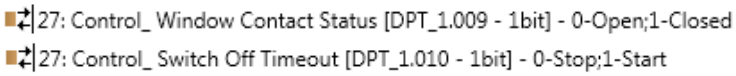


Figure 4.32 Default Switch-Off Timeouts Configuration dialog

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

4.9.1 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.



- 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.

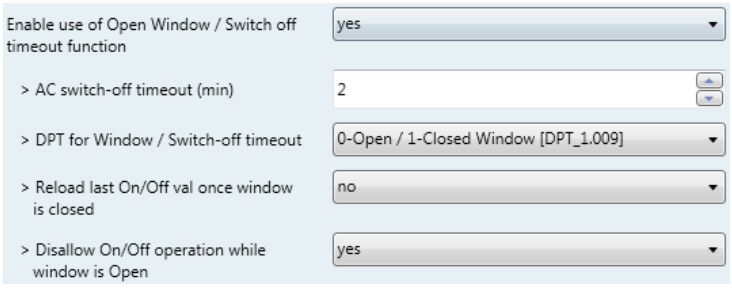


Figure 4.33 Parameter detail

- AC switch-off timeout (min)

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

- DPT for Window / Switch-off timeout

  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*.

- Disallow On/Off operation while window is Open

  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 val once window is closed?

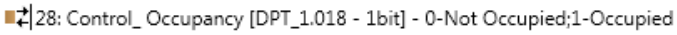
  If set to **"no"**, once the switch-off timeout is stopped, any value will be reloaded.

  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.

4.9.2 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.



- 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.

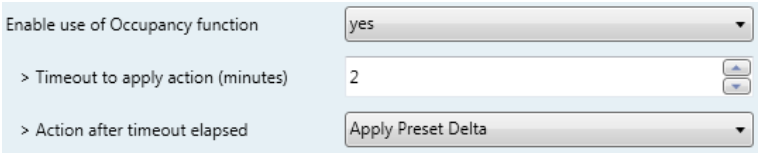


Figure 4.34 Parameter detail

➢ 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.

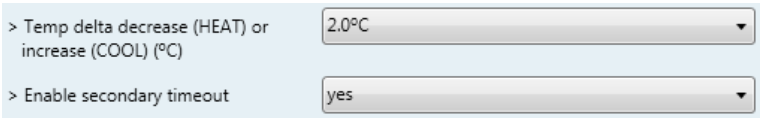


Figure 4.35 Parameter detail

➢ 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.

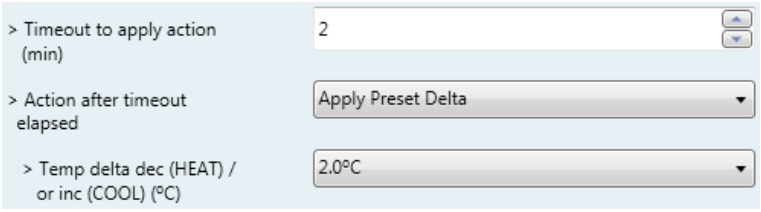


Figure 4.36 Parameter detail

  - 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"**.

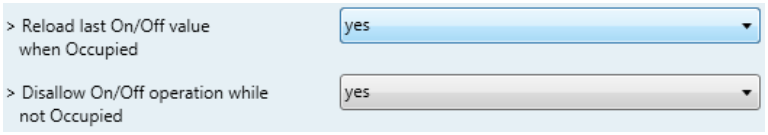


Figure 4.37 Parameter detail

➢ Reload last On/Off value when Occupied

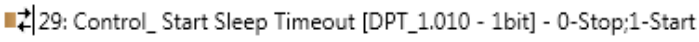
If set to **"no"**, once the switch-off timeout has elapsed, any value will be reloaded.

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.

4.9.3 Enable use of SLEEP timeout

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



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

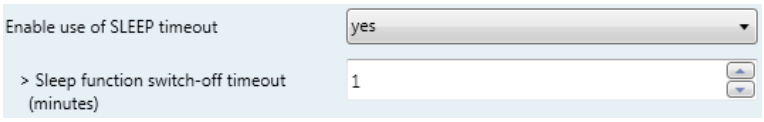


Figure 4.38 Parameter detail

➢ Timeout to apply action (minutes)

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

4.10 Binary Input "x" Configuration dialog

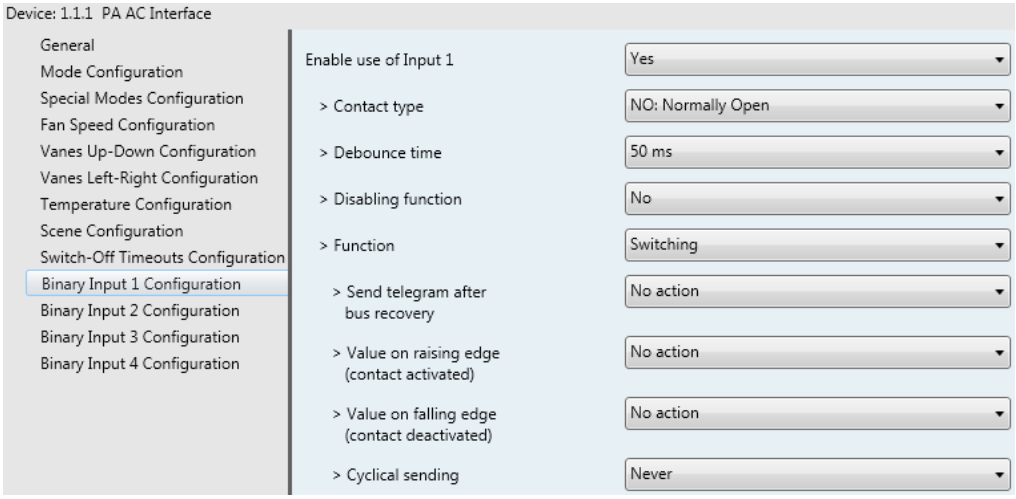
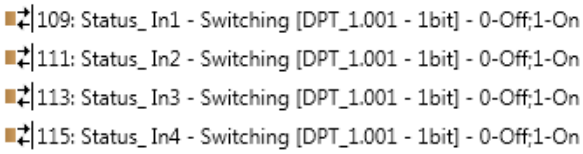


Figure 4.39 Binary Input Configuration dialog

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

4.10.1 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.



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

4.10.2 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.

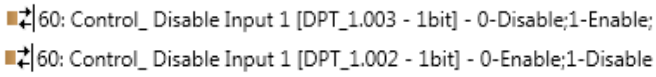
- There are two possible options to configure the contact type: **"NO: Normally Open"** and **"NC: Normally Closed"**.

4.10.3 Debounce time

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

4.10.4 Disabling function

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



- 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: 0-Enable; 1-Disable"** is selected, the input can be disabled using the value **"1"** and enabled using the value **"0"**.

4.10.5 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.

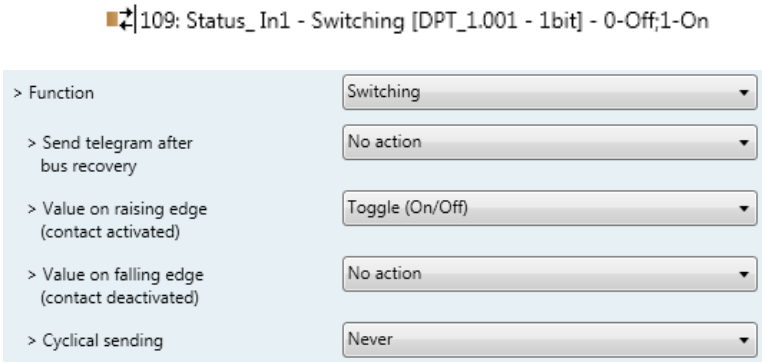


Figure 4.40 Parameter detail

➢ 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 **"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).

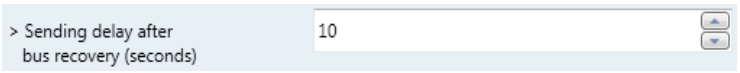


Figure 4.41 Parameter detail

➢ 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.

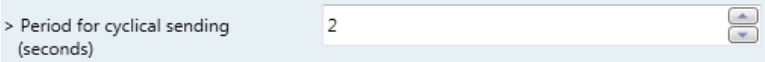


Figure 4.42 Parameter detail

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

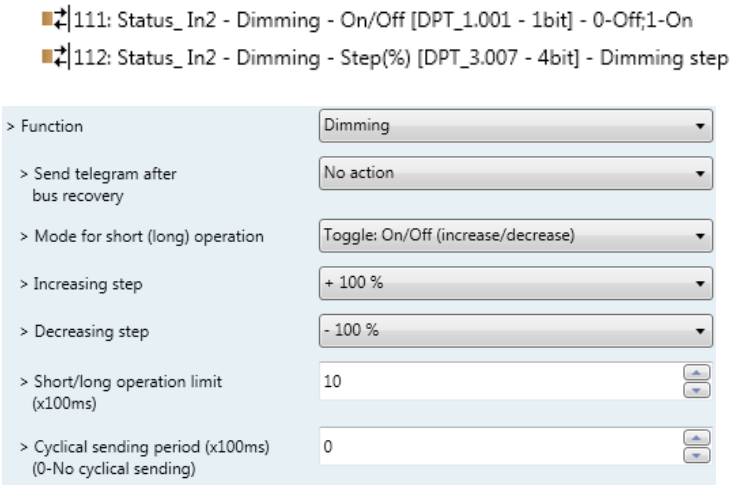


Figure 4.43 Parameter detail

➢ 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).

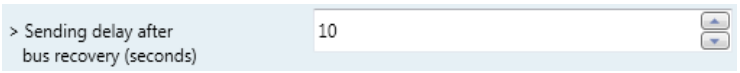


Figure 4.44 Parameter detail

➢ 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.

➢ Mode for short (long) operation

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.

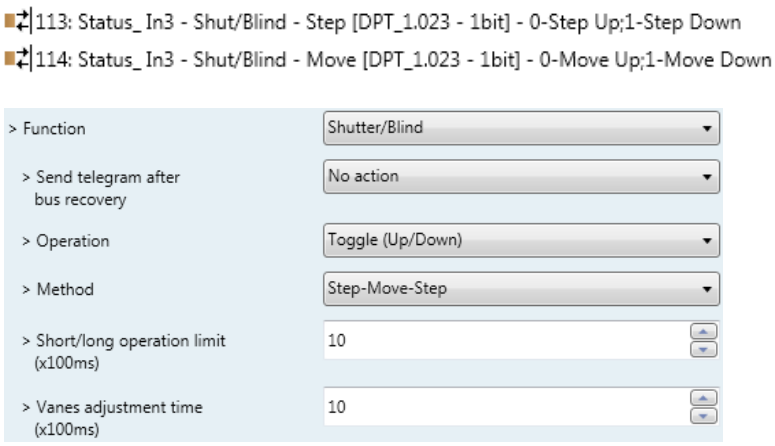


Figure 4.45 Parameter detail

➢ 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).

Figure 4.46 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.

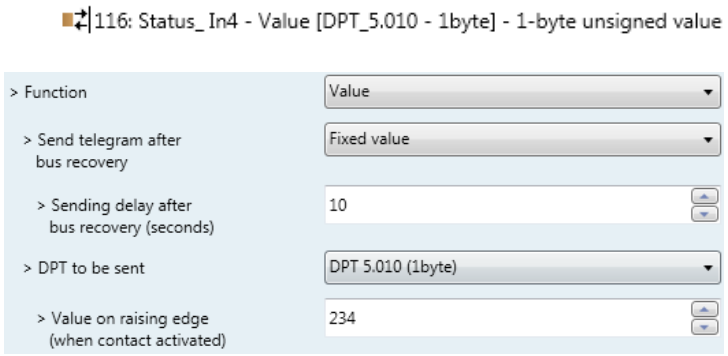


Figure 4.47 Parameter detail

➢ 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).

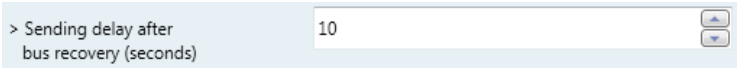


Figure 4.49 Parameter detail

➢ 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).

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).

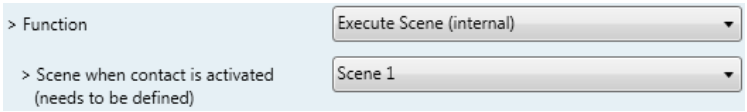


Figure 4.49 Parameter detail

➢ Scene when contact is activated

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.

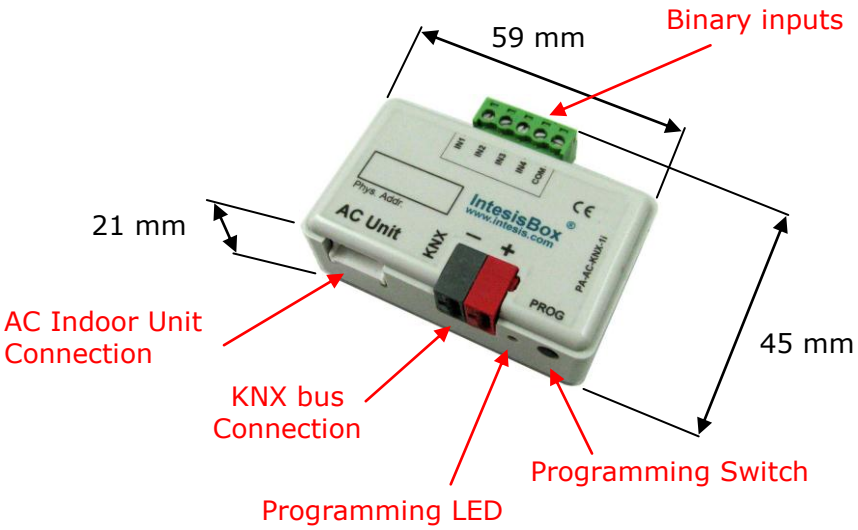
Figure 4.50 Parameter detail

- 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.

Figure 4.51 Parameter detail

5. Specifications

Envelope	ABS (UL 94 HB). 2,5 mm thickness
Dimensions	59 x 45 x 21 mm
Weight	35g
Colour	Light Grey
Power supply	29V DC, 7mA Supplied through KNX bus.
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	4000V
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 Panasonic indoor unit models compatible with PA-AC-KNX-1i and their available features can be found in:

http://www.intesis.com/pdf/IntesisBox_PA-AC-xxx-1_AC_Compatibility.pdf

7. Error Codes

Error Code KNX Object	Error in RC	Abnormality / Protection control	Abnormality Judgment	Problem	Check Location
0	H00	—	—	No error	—
65535 (-1 if signed)	—	—	—	Error in the communication of PA-AC-KNX-1i device with the AC unit	• Indoor/gateway connection wire
8209	H11	Indoor/outdoor abnormal communication	After operation for 1 minute	Indoor/outdoor communication not establish	• Indoor/outdoor wire terminal • Indoor/outdoor PCB • Indoor/outdoor connection wire
8210	H12	Indoor unit capacity unmatched	90s after power supply	Total indoor capability more than maximum limit or less than minimum limit, or number of indoor unit less than two.	• Indoor/outdoor connection wire • Indoor/outdoor PCB • Specification and combination table in catalogue
8212	H14	Indoor intake air temperature sensor abnormality	Continuous for 5s	Indoor intake air temperature sensor open or short circuit	• Indoor intake air temperature sensor lead wire and connector
8213	H15	Compressor temperature sensor abnormality	Continuous for 5s	Compressor temperature sensor open or short circuit	• Compressor temperature sensor lead wire and connector
8214	H16	Outdoor current transformer (CT) abnormality	—	Current transformer faulty or compressor faulty	• Outdoor PCB faulty or compressor faulty
8217	H19	Indoor fan motor merchanism lock	Continuous happen for 7 times	Indoor fan motor lock or feedback abnormal	• Fan motor lead wire and connector • Fan motor lock or block
8227	H23	Indoor heat exchanger temperature sensor abnormality	Continuous for 5s	Indoor heat exchanger temperature sensor open or short circuit	• Indoor heat exchanger temperature sensor lead wire and connector
8229	H25	Indoor E-Ion abnormality	Port is ON for 10s during E-Ion off	—	• E-Ion PCB
8231	H27	Outdoor air temperature sensor abnormality	Continuous for 5s	Outdoor air temperature sensor open or short circuit	• Outdoor air temperature sensor lead wire and connector
8232	H28	Outdoor heat exchanger temperature sensor 1 abnormality	Continuous for 5s	Outdoor heat exchanger temperature sensor 1 open or short circuit	• Outdoor heat exchanger temperature sensor 1 lead wire and connector
8240	H30	Outdoor discharge pipe temperature sensor abnormality	Continuous for 5s	Outdoor discharge pipe temperature sensor open or short circuit	• Outdoor discharge pipe temperature sensor lead wire and connector
8242	H32	Outdoor heat exchanger temperature sensor 2 abnormality	Continuous for 5s	Outdoor heat exchanger temperature sensor 2 open or short circuit	• Outdoor heat exchanger temperature sensor 2 lead wire and connector
8243	H33	Indoor / outdoor misconnection abnormality	—	Indoor and outdoor rated voltage different	• Indoor and outdoor units check
8244	H34	Outdoor heat sink temperature sensor abnormality	Continuous for 2s	Outdoor heat sink temperature sensor open or short circuit	• Outdoor heat sink sensor
8246	H36	Outdoor gas pipe temperature sensor abnormality	Continuous for 5s	Outdoor gas pipe temperature sensor open or short circuit	• Outdoor gas pipe temperature sensor lead wire and connector
8247	H37	Outdoor liquid pipe temperature sensor abnormality	Continuous for 5s	Outdoor liquid pipe temperature sensor open or short circuit	• Outdoor liquid pipe temperature sensor lead wire and connector

8248	H38	Indoor/Outdoor mismatch (brand code)	—	Brand code not match	• Check indoor unit and outdoor unit.
8249	H39	Abnormal indoor operating unit or standby units	3 times happen within 40 minutes	Wrong wiring and connecting pipe, expansion valve abnormality, indoor heat exchanger sensor open circuit	• Check indoor/outdoor connection wire and connection pipe • Indoor heat exchanger sensor lead wire and connector • Expansion valve and lead wire and connector
8257	H41	Abnormal wiring or piping connection	—	Wrong wiring and connecting pipe, expansion valve abnormality	• Check indoor/outdoor connection wire and connection pipe • Expansion valve and lead wire and connector.
8280	H58	Indoor gas sensor abnormality	Continuous for 6 hours	Indoor gas sensor open or short circuit	• Indoor gas sensor • Indoor PCB
8281	H59	ECO patrol sensor abnormality	Continuous for 70s	ECO patrol sensor open or short circuit	• ECO patrol sensor • ECO patrol and Indoor PCB
8292	H64	Outdoor high pressure sensor abnormality	Continuous for 1 minutes	High pressure sensor open circuit during compressor stop	• High pressure sensor • Lead wire and connector
8343	H97	Outdoor fan motor mechanism lock	2 times happen within 30 minutes	Outdoor fan motor lock or feedback abnormal	• Outdoor fan motor lead wire and connector • Fan motor lock or block
8344	H98	Indoor high pressure protection	—	Indoor high pressure protection (Heating)	• Check indoor heat exchanger • Air filter dirty • Air circulation short circuit
8345	H99	Indoor operating unit freeze protection	—	Indoor freeze protection (Cooling)	• Check indoor heat exchanger • Air filter dirty • Air circulation short circuit
12305	F11	4-way valve switching abnormality	4 times happen within 30 minutes	4-way valve switching abnormal	• 4-way valve • Lead wire and connector.
12311	F17	Indoor standby units freezing abnormality	3 times happen within 40 minutes	Wrong wiring and connecting pipe, expansion valve leakage, indoor heat exchanger sensor open circuit	• Check indoor/outdoor connection wire and pipe • Indoor heat exchanger sensor lead wire and connector • Expansion valve lead wire and connector.
12432	F90	Power factor correction (PFC) circuit protection	4 times happen within 10 minutes	Power factor correction circuit abnormal	• Outdoor PCB faulty
12433	F91	Refrigeration cycle abnormality	2 times happen within 20 minutes	Refrigeration cycle abnormal	• Insufficient refrigerant or valve close
12435	F93	Compressor abnormal revolution	4 times happen within 20 minutes	Compressor abnormal revolution	• Power transistor module faulty or compressor lock
12436	F94	Compressor discharge pressure overshoot protection	4 times happen within 30 minutes	Compressor discharge pressure overshoot	• Check refrigeration system
12437	F95	Outdoor cooling high pressure protection	4 times happen within 20 minutes	Cooling high pressure protection	• Check refrigeration system • Outdoor air circuit
12438	F96	Power transistor module overheating protection	4 times happen within 30 minutes	Power transistor module overheat	• PCB faulty • Outdoor air circuit (fan motor)
12439	F97	Compressor overheating protection	3 times happen within 30 minutes	Compressor overheat	• Insufficient refrigerant
12440	F98	Total running current protection	3 times happen within 20 minutes	Total current protection	• Check refrigeration system • Power source or compressor lock
12441	F99	Outdoor direct current (DC) peak detection	Continuous happen for 7 times	Power transistor module current protection	• Power transistor module faulty or compressor lock

In case you detect an error code not listed, contact your nearest Panasonic 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
AC Features	**1**	Control_ Powerful	1 bit	DPT_Bool	1.002		W	T		1 – Set Powerful
	2	Control_ Quiet	1 bit	DPT_Bool	1.002		W	T		1 – Set Quiet
Mode	**3**	Control_ Mode	1 byte	DPT_HVACContrMode	20.105		W	T		0 - Auto; 1 - Heat; 3 - Cool; 9 - Fan; 14 - Dry
	4	Control_ Mode Cool/Heat	1 bit	DPT_Heat/Cool	1.100		W	T		0 - Cool; 1 - Heat;
	5	Control_ Mode Cool & On	1 byte	DPT_Scaling	5.001		W	T		0% - Off; 0.1%-100% - On + Cool
	6	Control_ Mode Heat & On	1 byte	DPT_Scaling	5.001		W	T		0% - Off; 0.1%-100% - On + Heat
	7	Control_ Mode Auto	1 bit	DPT_Bool	1.002		W	T		1 - Auto
	8	Control_ Mode Heat	1 bit	DPT_Bool	1.002		W	T		1 - Heat
	9	Control_ Mode Cool	1 bit	DPT_Bool	1.002		W	T		1 - Cool
	10	Control_ Mode Fan	1 bit	DPT_Bool	1.002		W	T		1 - Fan
	11	Control_ Mode Dry	1 bit	DPT_Bool	1.002		W	T		1 - Dry
	12	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	**13**	Control_ Fan Speed / 5 Speeds	1 byte	DPT_Scaling	5.001		W	T		0%-29% - Speed 1; 30%-49% - Speed 2; 50%-69% - Speed 3; 70%-89% - Speed 4; 90%-100% - Speed 5.

		Control_ Fan Speed / 5 Speeds	1 byte	DPT_Enumerated	5.010		W	T		1 - Speed 1; 2 - Speed 2; 3 Speed 3; 4 - Speed 4; 5 Speed 5
	14	Control_ Fan Speed Manual/Auto	1 bit	DPT_Bool	1.002		W	T		0 - Manual; 1 - Auto
	15	Control_ Fan Speed 1	1 bit	DPT_Bool	1.002		W	T		1 - Fan Speed 1
	16	Control_ Fan Speed 2	1 bit	DPT_Bool	1.002		W	T		1 - Fan Speed 2
	17	Control_ Fan Speed 3	1 bit	DPT_Bool	1.002		W	T		1 - Fan Speed 3
	18	Control_ Fan Speed 4	1 bit	DPT_Bool	1.002		W	T		1 - Fan Speed 4
	19	Control_ Fan Speed 5	1 bit	DPT_Bool	1.002		W	T		1 - Fan Speed 5
	20	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	**21**	Control_ Vane Up-Down / 5 pos	1 byte	DPT_Scaling	5.001		W	T		0%-29% - Pos1; 30%-49% - Pos2; 50%-69% Pos3; 70%-89% - Pos4; 90%-100% - Pos5
		Control_ Vane Up-Down / 5 pos	1 byte	DPT_Enumerated	5.010		W	T		1 - Pos1; 2 - Pos2; 3 - Pos3; 4 - Pos4; 5 - Pos5
	22	Control_ Vane Up-Down Man/Auto	1 bit	DPT_Bool	1.002		W	T		0 – Manual; 1 - Auto
	23	Control_ Vane Up-Down Pos1	1 bit	DPT_Bool	1.002		W	T		1 - Position 1
	24	Control_ Vane Up-Down Pos2	1 bit	DPT_Bool	1.002		W	T		1 - Position 2
	25	Control_ Vane Up-Down Pos3	1 bit	DPT_Bool	1.002		W	T		1 - Position 3
	26	Control_ Vane Up-Down Pos4	1 bit	DPT_Bool	1.002		W	T		1 - Position 4
	27	Control_ Vane Up-Down Pos5	1 bit	DPT_Bool	1.002		W	T		1 - Position 5
	28	Control_ Vane Up-Down +/-	1 bit	DPT_Step	1.007		W			0 - Decrease; 1 - Increase

		Control_ Vane Up-Down +/-	1 bit	DPT_UpDown	1.008		W			0 - Up; 1 - Down
Vanes Left-Right	**29**	Control_ Vane Left-Right / 5 pos	1 byte	DPT_Scaling	5.001		W	T		0%-29% - Pos1; 30%-49% - Pos2; 50%-69% Pos3; 70%-89% - Pos4; 90%-100% - Pos5
		Control_ Vane Left-Right / 5 pos	1 byte	DPT_Enumerated	5.010		W	T		1 - Pos1; 2 - Pos2; 3 - Pos3; 4 - Pos4; 5 - Pos5
	30	Control_ Vane Left-Right Man/Auto	1 bit	DPT_Bool	1.002		W	T		0 – Manual; 1 - Auto
	31	Control_ Vane Left-Right Pos1	1 bit	DPT_Bool	1.002		W	T		1 - Position 1
	32	Control_ Vane Left-Right Pos2	1 bit	DPT_Bool	1.002		W	T		1 - Position 2
	33	Control_ Vane Left-Right Pos3	1 bit	DPT_Bool	1.002		W	T		1 - Position 3
	34	Control_ Vane Left-Right Pos4	1 bit	DPT_Bool	1.002		W	T		1 - Position 4
	35	Control_ Vane Left-Right Pos5	1 bit	DPT_Bool	1.002		W	T		1 - Position 5
	36	Control_ Vane Left-Right +/-	1 bit	DPT_Step	1.007		W			0 - Decrease; 1 - Increase
		Control_ Vane Left-Right +/-	1 bit	DPT_UpDown	1.008		W			0 - Up; 1 - Down
Temperature	**37**	Control_ Setpoint Temperature	2 byte	DPT_Value_Temp	9.001		W	T		16ºC to 32ºC
	38	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
	39	Control_ Ambient Temperature	2 byte	DPT_Value_Temp	9.001		W	T		ºC value in EIS5 format
Timeout	**40**	Control_ Switch Off Timeout	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
	41	Control_ Occupancy	1 bit	DPT_Occupancy	1.018		W	T		0 - Not Occupied; 1 - Occupied
	42	Control_ Sleep Timeout	1 bit	DPT_Start	1.010		W	T		0 - Stop; 1 - Start

Locking	**43**	Control_ Lock Remote Control	1 bit	DPT_Bool	1.002		W	T		0 - Unlocked; 1 - Locked
	44	Control_ Lock Control Objects	1 bit	DPT_Bool	1.002		W	T		0 - Unlocked; 1 - Locked
Special Modes	**45**	Control_ Power Mode	1 bit	DPT_Start	1.010		W	T		0 - Stop; 1 - Start
	46	Contorl_ Econo Mode	1 bit	DPT_Start	1.010		W	T		0 - Stop; 1 - Start
	47	Control_ Additional Heat	1 bit	DPT_Start	1.010		W	T		0 - Stop; 1 - Start
	48	Control_ Additional Cool	1 bit	DPT_Start	1.010		W	T		0 - Stop; 1 - Start
Scenes	**49**	Control_ Save/Exec Scene	1 byte	DPT_SceneControl	18.001		W	T		0 to 4 - Exec. Scene 1 to 5; 128 to 132 - Save Scene 1 to 5
	50	Control_ Store Scene1	1 bit	DPT_Bool	1.002		W			1 - Store Scene
	51	Control_ Store Scene2	1 bit	DPT_Bool	1.002		W			1 - Store Scene
	52	Control_ Store Scene3	1 bit	DPT_Bool	1.002		W			1 - Store Scene
	53	Control_ Store Scene4	1 bit	DPT_Bool	1.002		W			1 - Store Scene
	54	Control_ Store Scene5	1 bit	DPT_Bool	1.002		W			1 - Store Scene
	55	Control_ Execute Scene1	1 bit	DPT_Bool	1.002		W	T		1 - Execute Scene
	56	Control_ Execute Scene2	1 bit	DPT_Bool	1.002		W	T		1 - Execute Scene
	57	Control_ Execute Scene3	1 bit	DPT_Bool	1.002		W	T		1 - Execute Scene
	58	Control_ Execute Scene4	1 bit	DPT_Bool	1.002		W	T		1 - Execute Scene
	59	Control_ Execute Scene5	1 bit	DPT_Bool	1.002		W	T		1 - Execute Scene
Disabling	**60**	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

	61	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
	62	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
	63	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	**64**	Status_ On/Off	1 bit	DPT_Switch	1.001	R		T		0 - Off; 1-On
AC Features	**65**	Status_ Powerful	1 bit	DPT_Bool	1.002	R		T		1 – Powerful active
	66	Status_ Quiet	1 bit	DPT_Bool	1.002	R		T		1 – Quiet active
Mode	**67**	Status_ Mode	1 byte	DPT_HVACContrMode	20.105	R		T		0 - Auto; 1 - Heat; 3 - Cool; 9 - Fan; 14 - Dry
	68	Status_ Mode Cool/Heat	1 bit	DPT_Heat/Cool	1.100	R		T		0 - Cool; 1 - Heat
	69	Status_ Mode Auto	1 bit	DPT_Bool	1.002	R		T		1 - Auto
	70	Status_ Mode Heat	1 bit	DPT_Bool	1.002	R		T		1 - Heat
	71	Status_ Mode Cool	1 bit	DPT_Bool	1.002	R		T		1 - Cool
	72	Status_ Mode Fan	1 bit	DPT_Bool	1.002	R		T		1 - Fan
	73	Status_ Mode Dry	1 bit	DPT_Bool	1.002	R		T		1 - Dry
	74	Status_ Mode Text	14 byte	DPT_String_8859_1	16.001	R		T		ASCII String
Fan Speed	**75**	Status_ Fan Speed / 5 Speeds	1 byte	DPT_Scaling	5.001	R		T		20% - Speed 1; 40% - Speed 2; 60% - Speed 3; 80% - Speed 4; 100% - Speed 5
		Status_ Fan Speed / 5 Speeds	1 byte	DPT_Enumerated	5.010	R		T		1 - Speed 1; 2 - Speed 2; 3 Speed 3; 4 - Speed 4; 5 Speed 5

	76	Status_ Fan Speed Manual/Auto	1 bit	DPT_Bool	1.002	R		T		0 – Manual; 1 - Auto
	77	Status_ Fan Speed 1	1 bit	DPT_Bool	1.002	R		T		1 - Speed 1
	78	Status_ Fan Speed 2	1 bit	DPT_Bool	1.002	R		T		1 - Speed 2
	79	Status_ Fan Speed 3	1 bit	DPT_Bool	1.002	R		T		1 - Speed 3
	80	Status_ Fan Speed 4	1 bit	DPT_Bool	1.002	R		T		1 - Speed 4
	81	Status_ Fan Speed 5	1 bit	DPT_Bool	1.002	R		T		1 - Speed 5
	82	Status_ Fan Speed Text	14 byte	DPT_String_8859_1	16.001	R		T		ASCII String
Vanes Up-Down	**83**	Status_ Vane Up-Down / 5 pos	1 byte	DPT_Scaling	5.001	R		T		20% - Pos1; 40% - Pos2; 60% - Pos3; 80% - Pos4; 100% - Pos5
		Status_ Vane Up-Down / 5 pos	1 byte	DPT_Enumerated	5.010	R		T		1 - Pos1; 2 - Pos2; 3 - Pos3; 4 - Pos4; 5 - Pos5
	84	Status_ Vane Up-Down Man/Auto	1 bit	DPT_Bool	1.002	R		T		0 – Manual; 1 - Auto
	85	Status_ Vane Up-Down Pos1	1 bit	DPT_Bool	1.002	R		T		1 - Position 1
	86	Status_ Vane Up-Down Pos2	1 bit	DPT_Bool	1.002	R		T		1 - Position 2
	87	Status_ Vane Up-Down Pos3	1 bit	DPT_Bool	1.002	R		T		1 - Position 3
	88	Status_ Vane Up-Down Pos4	1 bit	DPT_Bool	1.002	R		T		1 - Position 4
	89	Status_ Vane Up-Down Pos5	1 bit	DPT_Bool	1.002	R		T		1 - Position 5
	90	Status_ Vane Up-Down Text	14 byte	DPT_String_8859_1	16.001	R		T		ASCII String
Vanes Left-Right	**91**	Status_ Vane Left-Right / 5 pos	1 byte	DPT_Scaling	5.001	R		T		20% - Pos1; 40% - Pos2; 60% - Pos3; 80% - Pos4; 100% - Pos5

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		Status_ Vane Left-Right / 5 pos	1 byte	DPT_Enumerated	5.010	R		T		1 - Pos1; 2 - Pos2; 3 - Pos3; 4 - Pos4; 5 - Pos5
	92	Status_ Vane Left-Right Man/Auto	1 bit	DPT_Bool	1.002	R		T		0 – Manual; 1 - Auto
	93	Status_ Vane Left-Right Pos1	1 bit	DPT_Bool	1.002	R		T		1 - Position 1
	94	Status_ Vane Left-Right Pos2	1 bit	DPT_Bool	1.002	R		T		1 - Position 2
	95	Status_ Vane Left-Right Pos3	1 bit	DPT_Bool	1.002	R		T		1 - Position 3
	96	Status_ Vane Left-Right Pos4	1 bit	DPT_Bool	1.002	R		T		1 - Position 4
	97	Status_ Vane Left-Right Pos5	1 bit	DPT_Bool	1.002	R		T		1 - Position 5
	98	Status_ Vane Left-Right Text	14 byte	DPT_String_8859_1	16.001	R		T		ASCII String
Temperature	**99**	Status_ AC Setpoint Temp	2 byte	DPT_Value_Temp	9.001	R		T		16ºC to 32ºC
Error	**100**	Status_ Error/Alarm	1 bit	DTP_Alarm	1.005	R		T		0 - No Alarm; 1 - Alarm
	101	Status_ Error Code	2 byte	Enumerated		R		T		0 - No Error; Any other see user's manual
	102	Status_ Error Text code	14 byte	DPT_String_8859_1	16.001	R		T		3 char Panasonic Error; Empty - none
Special Modes	**103**	Status_ Power Mode	1 bit	DPT_Switch	1.001	R		T		0 - Off; 1-On
	104	Status_ Econo Mode	1 bit	DPT_Switch	1.001	R		T		0 - Off; 1-On
	105	Status_ Additional Heat	1 bit	DPT_Switch	1.001	R		T		0 - Off; 1-On
	106	Status_ Additional Cool	1 bit	DPT_Switch	1.001	R		T		0 - Off; 1-On
Counter	**107**	Status_ Operation Hour Counter	2 byte	DPT_Value_2_Ucount	7.001	R		T		Number of operating hours
Scene	**108**	Status_ Current Scene	1 byte	DPT_SceneNumber	17.001	R		T		0 to 4 - Scene 1 to 5; 63 - No Scene

Binary Inputs	**109** **111** **113** **115**	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
		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
	110 **112**	Status_ Inx – Dimming – Step(%)	1 bit	DPT_Control_Dimm.	3.007	R		T		Dimming step
	114 **116**	Status_ Inx - Shut/Blind -Move	1 bit	DPT_ShutterBlinds	1.023	R		T		0 – Move Up; 1 – Move Down

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